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## WATER BALANCE IN SURGERY

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The importance of water to the human organism is greater than that of any other substance. It normally comprises 65 per cent of the total body weight and is fundamentally concerned with every physiologic process. For centuries the intake and output of fluids have been investigated by man, the observations of Sanctorius,<sup>1</sup> published in 1614, on the perspiratio insensibilis of water from the skin and lungs being classics of early scientific endeavor.

Rowntree<sup>2</sup> and, more recently, Underhill<sup>3</sup> have presented reviews of the literature on water metabolism. Basic studies on an accurate measurement of the water balance of human beings have been carried out by Newburgh and his associates<sup>4</sup> and we acknowledge the inspiration and counsel given by this investigator.

From the surgical aspect, water balance becomes most important in dealing with the patient who, because of his disease or treatment, cannot take in sufficient fluids by mouth to care for his needs. Water must then be supplied by the physician, and, while experience has been a fairly reliable teacher as to the amount of fluid to give, it was apparent to us that the handling of the water requirements of the sick patient by figures based on facts would be of merit.

Accordingly, during the past four years a series of investigations on the water exchange of surgical patients under the various conditions of disease and treatment has been carried out. Before presenting the significant results of these studies, a brief review of normal water exchange is in order.

### NORMAL WATER EXCHANGE

Under conditions of health a nice adjustment between available and excreted water results in the maintenance of the water content of the body at a fairly constant level. The components of this water exchange can be listed in table 1.

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1. Sanctorius, S.: *De statica medicina aphorismorum sectionibus septem comprehensa*, Leipzig, Shürer, 1614, 200 1.

2. Rowntree, L. G.: *The Water Balance of the Body*, *Physiol. Rev.* 2: 116 (Jan.) 1922.

3. Underhill, F. P.: *Certain Aspects of Water Metabolism*, *Yale J. Biol. & Med.* 4: 579 (March) 1932.

4. (a) Wiley, F. H., and Newburgh, L. H.: *An Improved Method for the Determination of Water Balance*, *J. Clin. Investigation* 10: 723 (Oct.) 1931. (b) Newburgh, L. H., Wiley, F. H., and Lashmet, F. H.: *A Method for the Determination of Heat Production Over Long Periods of Time*, *ibid.* 10: 703 (Oct.) 1931.

Fluids drunk vary from about 800 to 2,000 cc. daily, the higher intakes usually occurring in hot weather when the vaporization loss is great. Water becomes available from food whether it is that of the diet or body material burned for energy. Food eaten generally furnishes more water than is commonly thought. In the first place, its water content will average close to 70 per cent of its total weight and, in addition to this, water is formed when the constituent proteins, fats and carbohydrates are oxidized for energy. From the two sources, each gram of solid food eaten furnishes approximately 0.9 Gm. of water, the total thus available from a routine maintenance diet amounting to from 1,000 to 1,500 Gm. daily. Even in starvation up to 500 Gm. of water daily becomes available from body materials used for energy.

On the excretory side, water lost in feces is generally insignificant compared to the loss through other channels. Body economy is shown here by the fact that although from 7 to 10 liters of fluid is poured into the upper half of the gastro-intestinal tract daily by various glandular mechanisms,<sup>5</sup> most of the water is absorbed in the lower part of the bowel and less than 150 cc. is lost with the stool.

Important water excretions are concerned with two physiologic processes; namely, the output of waste materials in solution through the kidneys, and the dissipation of body heat by the vaporization of water from the lungs and skin. The vaporizing process plays an important part in the control of body temperature and is a continuous process in that there is always some moisture in the breath and also on the surface of the body, even without activity by the sweat glands. Ordinarily a person likes to keep himself comfortably cool and avoid sweating. Under such circumstances Newburgh and his associates have established the constancy of approximately 25 per cent of body heat being dissipated by water vaporized, and from a determination of the exact amount of water so used have been able to calculate the daily caloric expenditure of individuals under routine activities.<sup>4b</sup> At the 25 per cent rate a group of their subjects was found to disperse from 1,000 to 1,500 Gm. of water daily. The remaining 75 per cent of body heat is dissipated by radiation, conduction and convection from the body surface. These later processes become much less effective as the environmental temperature increases and greater percentages of heat are then dispersed by vaporization, the sweat glands pouring water on the surface of the body for this purpose. Vaporization can well be regarded as the safety factor in heat dissipation, since without its action many of the higher environmental temperatures would be intolerable.

It is important to point out that the vaporizing process, in contrast to water for kidney function, is



little affected by the amount of water available. There is no mechanism whereby, when the water supply is low, temperature can be kept within normal limits with the use of less water than usual. The vaporizing process may be regarded as having "preferential rights" on available water over that of the kidneys. In deprivation of water for long periods of time the urine output may drop to almost nothing, the skin becomes hot and dry, and insufficient water may be used to keep internal body temperature within normal limits; but water still continues to be vaporized from the skin and lungs, with dehydration increasing until death occurs.

On the other hand, the kidneys are markedly affected by the amount of water available and excrete the waste materials presented to them with the water left after the other processes have been cared for. Thus one finds large daily urine volumes of low specific gravity and small daily volumes of high specific gravity. With a good supply of available water from fluids drunk and food eaten the balance between the intake and the output of fluids is largely maintained by the kidneys using the surplus water. On this basis a good fluid intake is shown by a good urine output and a small urine volume of high specific gravity practically always means insufficient water.

With regard to the surgical patients, the data and conclusions from the study of this group can be presented from the fairly definite points of view of dehydration attendant on surgical operations, the daily water losses of surgical patients, the water balance of the dehydrated patient, and parenteral fluids.

#### DEHYDRATION ATTENDANT ON SURGICAL OPERATIONS

It is common knowledge that on the day of a major operation a low intake of fluids and food by most surgical patients decreases their supply of available water. The exchange for that day is further interfered with by the frequent occurrence of abnormal fluid losses. The purpose of our first investigation<sup>5</sup> was to determine these losses quantitatively when they seemed to be greatest; that is, in the warm operating room and the

TABLE 1.—Components of Water Exchange

Available Water	Excreted Water
1. Fluids drunk	1. Water of urine
2. Food: diet or body material	2. Water of stool
A. Water content	3. Water vaporized
B. Water of oxidation	

immediate postoperative recovery period of four hours, when the patient is bundled up in extra blankets and frequently perspires profusely.

A group of eighteen patients undergoing a variety of general surgical operations was studied. The loss of fluid in the operating room by vomiting was insignificant. The blood loss was usually much greater than the amount estimated by the operating surgeon, a few of the volumes obtained being given in table 2. In general, the blood losses were greater when large areas were exposed and there was more or less continuous oozing of blood than with hemorrhage from spurting vessels.

The greatest fluid output during the operative and four hour postoperative period was generally the vapor-

ization loss. This made up 700 cc. of the average of 1,000 cc. lost by blood, vomitus, urine and vaporization during this time. It was learned that this sweat loss could be appreciably reduced if the extra blankets of the old fashioned postoperative "ether bed" were done away with and the patient was simply transferred from the operating table to a bed with only the usual amount of covers but warmed with hot water bottles. Water needlessly excreted was thus saved and the urine output showed a corresponding increase in amount. The reduced covers have been adopted as a routine in our postoperative surgical care. Patients are no longer

TABLE 2.—Volumes of Blood Loss

Partial gastric resection.....	274 cc.
Excision of thyroglossal cyst.....	174
Repair of inguinal hernia.....	147
Repair of inguinal hernia.....	54
Hemorrhoidectomy.....	8
Appendectomy.....	14
Excision of retroperitoneal teratoma.....	546
Right radical mastectomy.....	1,272
Subtotal thyroidectomy.....	142
Subtotal thyroidectomy.....	301
Repair of ventral hernia.....	206

found weighed down with a mass of covers and sweating as if in a Turkish bath. There has been no increase in postoperative pulmonary complications with the new arrangement, and the patients are infinitely more comfortable.

As a result of the restriction in fluid and food intake and the increased fluid losses, most patients dehydrate to some extent on the day of their operation. The plan of many surgeons of giving some fluids parenterally on this day, particularly to patients undergoing long, serious operations, is well founded. For the general run of cases, however, the dehydration is not severe and with the improvement of the first and second postoperative days a greater ingestion of fluid returns the water exchange to normal. Occasionally nausea and vomiting interfere with the ingestion of water from the gastro-intestinal tract, or throughout the period of the disease or treatment rest of the gastro-intestinal tract is desired. Fluids must be given parenterally to these patients and the physician can provide the proper amount only if he knows what daily fluid losses must be cared for. Our second study of water exchange<sup>6</sup> was to furnish data in this regard.

#### THE DAILY WATER LOSSES OF SURGICAL PATIENTS

As in the healthy adult, the excretion of water by the surgical patient is mainly for two normal functions: the carrying away of waste materials through the kidneys, and the dissipation of body heat. The loss of water in the stools is generally insignificant in surgical conditions and can be disregarded. Since the vaporizing process seems to have first claim on the available water and the kidneys function largely with what is left, our first problem was to learn what the vaporizing loss amounted to in a group of representative patients. Briefly, the method for this determination was as follows: The patient, transferred from his bed to a Bradford frame, was picked up and weighed at 8 a. m. The weight of all ingesta and excreta up to 8 a. m. the following morning was obtained, at which time the

5. Coller, F. A., and Maddock, W. G.: Dehydration Attendant on Surgery. *J. A. M. A.* 99:923 (Sept. 19) 1932.

6. Coller, F. A., and Maddock, W. G.: The Water Requirements of Surgical Patients. *Ann. Surg.* 94:922 (Nov.) 1931.

patient was again weighed. The total insensible loss of weight for the twenty-four hour period was calculated by the following equation: Beginning weight — (end weight — ingesta + excreta).<sup>4b</sup> This total insensible loss is the result of the continuous vaporization of water from the skin and lungs and the respiratory exchange of carbon dioxide for oxygen. Water usually comprises more than 90 per cent of the insensible loss, so that for our purposes the consideration of the latter as entirely water loss occasioned little error.

Adult surgical patients convalescing smoothly from major operations were found to vaporize from 1,000 to 1,500 cc. of water daily. Two children weighing about 60 pounds (27 Kg.) each vaporized 850 cc. daily under similar conditions. This is the same amount that these individuals would vaporize when up and about at normal routine activities without sweating.

Several conditions encountered in surgery increase the insensible loss of water. A warm, moist skin is a common clinical observation in patients with hyperthyroidism. Several individuals with this disease were found to vaporize from 1,500 to 2,000 cc. daily.<sup>5</sup> This increase over the normal of from 1,000 to 1,500 cc. was not found to result from any abnormal process of heat dissipation associated with hyperthyroidism but was simply due to the fact that, with more heat to dissipate, more water was used for this purpose.

Fever is a common complication among sick surgical patients and is one in which, because of the increased heat production and active sweating, the vaporization loss would be expected to be increased. Such was found to be the case in the study of several patients with infections. Water vaporized varied from 1,500 to 2,500 cc. daily. In general, for the sick surgical patient water for vaporization can be safely estimated at 2 liters a day.

With this figure for vaporization at hand, water for urine is the next problem. The amount available should be sufficient to permit the kidneys to excrete the waste materials presented to them without having to work at

urine a day for normal function. With a twenty-four hour urine output appreciably less than this, retention of waste materials can be looked for, and the blood nonprotein nitrogen will generally be found elevated. With diseased kidneys, more than 500 cc. of urine daily is needed, the required volume increasing as the concentrating ability decreases. In instances of the most severe renal damage, in which the kidneys can concentrate urine to a specific gravity of only 1.014 to 1.010, the figures show that close to 1,500 cc. of water is required. A minimum output, then, of 1,500 cc. of urine daily will take care of the excretion of waste materials by kidneys of all ranges of function, and this is the amount allowed for urine in our estimations of

TABLE 4.—Water Needed for Excretions

1. Water for vaporization.....	2,000 cc.
2. Water for urine.....	1,500 cc.
3. Abnormal losses of water—vomitus, and so on.....	.....
Total.....	3,500 cc.

water requirements. Larger urine volumes, particularly in instances of infections of the urinary tract, are often desirable.

Frequently abnormal losses of fluid have to be considered in the water exchange of the sick surgical patient. Blood, vomitus, drainage from intestinal and biliary fistulas, diarrhea, massive exudation from inflamed surfaces, and sometimes sputum may remove important amounts of water and materials from the body. Such losses are "absolute losses" in that they carry out no physiologic function and take water that is needed for normal processes. The amount of these abnormal losses, by actual measurement or estimation, should be recorded on the patient's record by the nursing staff, so that they can be included in the calculations of water requirements.

When a patient is taking nothing by mouth, the only water available daily to care for the excretions, without producing dehydration, is that coming from body glycogen, fat and protein burned for energy. This source seldom furnishes more than 500 cc. daily, and the amount can well be forgotten in the calculations of water to be given to the sick patient, thus having a little *extra supply*. The excretions are the factors to care for in maintaining body fluids, and these can be summarized as in table 4.

If the patient is taking some fluid by mouth, that amount can be deducted from the 3,500 cc. total. If abnormal losses are occurring, they should be added, since with a failure to do so the seemingly sufficient 3,500 cc. total may be entirely inadequate. The surgeon who is quick to recognize the signs of dehydration in a patient seen for the first time may overlook the same signs when they occur in a patient he is seeing every day and who is receiving apparently a good supply of water but is actually dehydrating because of abnormal fluid losses. The resulting poor output of urine is often erroneously attributed to a reflex or toxic suppression of kidney function, whereas the real fact is that the patient has not been given sufficient water. This point cannot be too strongly emphasized.<sup>9</sup> There are many causes of anuria, but no others should be considered until the water exchange of the few previous days has been checked over and dehydration as the etiologic factor has been eliminated.

TABLE 3.—Minimum Amount of Water Needed to Excrete 35 Grams of Waste Material

Kidneys	Maximum Concentrating Ability, Specific Gravity	Minimum Amount of Water Required to Excrete 35 Gm. of Waste Materials, Cc.
Normal.....	1.022-1.029	473
Diseased.....	1.022-1.025	505
	1.024-1.029	605
	1.019-1.015	850
	1.014-1.010	1,129

their maximum capacity. For the sick surgical patient we believe this to mean an output of at least 1,500 cc. of urine daily.

This volume was selected purely on a consideration of kidney function. Lashmet and Newburgh<sup>6</sup> determined the excretory capacity of normal and abnormal kidneys under conditions forcing them to work at their maximum concentrating ability. Figures on the minimum amount of water needed to excrete 35 Gm. of waste materials, a fair daily amount, were calculated from their data and are given in table 3.

From these figures it is evident that an individual with normal kidneys needs to excrete about 500 cc. of

7. Coller, F. A., and Maddock, W. G.: Water Balance in Patients with Hyperthyroidism, *West. J. Surg.* 41: 438 (Aug.) 1933.

8. Lashmet, F. H., and Newburgh, L. H.: A Comparative Study of the Excretion of Water and Solids by Normal and Abnormal Kidneys, *J. Clin. Investigation* 11: 1003 (Sept.) 1932.

9. Cahol, Hugh, and Iber, F. C.: Anuria, *Proc. Staff Meet., Mayo Clin.* 8: 354 (June 7) 1933.

## WATER BALANCE OF THE DEHYDRATED PATIENT

Patients who enter the hospital in a dehydrated condition present an additional problem in water balance.<sup>10</sup> An amount of water sufficient to maintain body fluids is not enough for them, but an additional amount is necessary to restore the body water previously lost. If one knew how much fluid had been previously lost, water for its restoration could be given in a quantitative fashion similar to water for the maintenance of body fluids. There are no quantitative tests to show the degree of dehydration, so the only answer to the problem seemed to be a determination of the amount of

TABLE 5.—Amounts Equaling 6 per Cent of Various Body Weights

Body Weight	6 per Cent
10 Kg., or 22 lbs. ....	600 cc.
20 Kg., or 44 lbs. ....	1,200 cc.
60 Kg., or 132 lbs. ....	3,600 cc.
80 Kg., or 176 lbs. ....	4,800 cc.

water individuals need to lose in order to show the common clinical signs of dehydration, and then to provide that amount of additional water when patients are seen with those signs.

To furnish data in this regard, two normal subjects were fed a dry maintenance diet for a number of days, during which time they were dehydrated by the withholding of water until the beginning signs of serious dehydration appeared; that is, a dry hot skin, a dry tongue, sunken eyes, a little fever, and a urine output insufficient to excrete the normal waste materials. The last mentioned was the only readily measurable sign and was used in such a way that the dehydration of both subjects was continued until their blood non-protein nitrogen had increased to a little above 40 mg. per hundred cubic centimeters. When this occurred, all the common clinical signs of dehydration mentioned were well established. As evidence of the adverse conditions under which the kidneys were working the urine of the 26 year old subject finally reached a specific gravity of 1.041 and contained a trace of protein and more than the usual number of casts and erythrocytes.

The water balance data of both subjects showed that the signs of serious dehydration produced were the result of being depleted of an amount of water equal to approximately 6 per cent of their body weight. Observations by several members of the investigating staff during the past four years support the opinion that, when the signs of serious dehydration are present in a patient, body fluids of an amount equal to at least 6 per cent of the patient's body weight have been lost. The figures in table 5 show what this amounts to for individuals of various weights.

While we know that these volumes of fluid are called on in emergencies, it is not practical to regard them as a true reserve of fluid, since beyond the first few hundred cubic centimeters they are given up with increasing reluctance and to the detriment of the whole organism. For children the relatively small amount of fluid that represents 6 per cent of the body weight probably accounts for the rapidity with which, under adverse conditions, they become sick and dehydrated.

When water was again given to our experimental subjects the urine volume did not immediately increase

but nearly all the first day's water intake was retained to replace the body fluid previously lost. It was perfectly apparent that the major need for water was to restore to normal some of the internal chemistry that had been upset during the dehydration period. Water to relieve dehydration and water for vaporization was decidedly more important than water for kidney function, and it was only when the former had been cared for that sufficient water became available for urine.

In considering the water requirements of a 60 Kg. patient who enters the hospital with the beginning signs of serious dehydration well established, a calculation of the amount of fluid to give during the first twenty-four hours should include the factors given in table 6. This is a lot of fluid, but studies by us on several dehydrated patients have shown that such quantities are necessary to provide for the dehydration, for vaporization and abnormal loss, and then to have enough water left for kidney function. Of course, once the depleted fluids have been taken care of, much less water is needed to maintain normal fluid exchange. Besides seeing to it that sufficient fluids are provided, a quantitative consideration of the water requirements of the sick surgical patient will also avoid the administration of too much fluid.

## PARENTERAL FLUIDS

So far, the quantity of fluid to be given parenterally in order to maintain body fluids or treat dehydration has been considered. The kind of fluid to give also merits some thought.

The fundamental proposition back of the choice of fluid is that of supplying as nearly as possible what the patient needs. There is no question that some dextrose should be given to all patients requiring water parenterally. It is an ideal fuel for energy, it prevents or relieves ketosis, and it protects the liver. In contrast to dextrose, the indications for the administration of sodium chloride are not quite so simple.

TABLE 6.—Water Requirements in Dehydration in a Dehydrated Patient Weighing 60 Kg.

1. Water for vaporization.....	2,000 cc.
2. Water for urine.....	1,500 cc.
3. Abnormal loss, if any, during the 24 hours.....	.....
4. Water to restore depleted fluids, 6 per cent of 60 Kg. ....	3,600 cc.
Total.....	7,100 cc.

The excellent observations of Hartwell and Hoguet,<sup>11</sup> Orr and Haden,<sup>12</sup> Melver and Gamble<sup>13</sup> and Hartman and Elman<sup>14</sup> have firmly established the value of saline solutions in replacing the sodium chloride depletion associated with the loss of secretions from the gastrointestinal tract. A distinct tendency exists, however, for the routine use of saline solutions for all parenteral administrations of fluid, without regard to whether sodium chloride is needed or not. Matas<sup>15</sup> in 1924 pointed out the serious drawbacks of such a plan, emphasizing in particular the occurrence of degenera-

11. Hartwell, J. A., and Hoguet, J. P.: Experimental Intestinal Obstruction in Dogs, with Special Reference to Cause of Death and Treatment by Large Amounts of Normal Saline Solution, J. A. M. A. 59: 82 (July 13) 1912.

12. Orr, T. G., and Haden, R. L.: Chemical Factors in Toxemia of Intestinal Obstruction, J. A. M. A. 91: 1529 (Nov. 17) 1928.

13. Melver, M. A., and Gamble, J. L.: Body Fluid Changes Due to Upper Intestinal Obstruction, J. A. M. A. 91: 1589 (Nov. 24) 1928.

14. Hartman, A. F., and Elman, R.: The Effects of Loss of Gastric and Pancreatic Secretions and the Methods for Restoration of Normal Conditions in the Body, J. Exper. Med. 50: 387 (Sept.) 1927.

15. Matas, Rudolph: The Continued Intravenous Drip, Ann. Surg. 79: 643 (May) 1924.

10. Coller, F. A., and Maddock, W. G.: A Study of Dehydration in Humans, Ann. Surg. 102: 947 (Nov.) 1935.

tive changes in heart muscle and kidneys, and edema of the lungs. Edema is not uncommonly seen among surgical patients receiving fluids parenterally. Jones and Eaton<sup>16</sup> presented a review of thirty-four such cases and emphasized the predisposing factor of under-nutrition as shown by low total serum proteins and serum albumin. Other factors, such as the excessive administration of water and salt, profuse surgical drainage and the general effects of sepsis, were also pointed out. These factors are commonly present in seriously ill patients, and it is often to just these individuals that the parenteral administration of fluids is so necessary and valuable.

From clinical observations it had been our impression that, while many conditions predisposed to the retention of water in sick surgical patients, the precipitating factor was frequently the indiscriminate use of saline solutions. Largely to corroborate this opinion, a study was made of the water exchange of three groups of such patients,<sup>17</sup> each receiving approximately 3,500 cc. of one of the commonly used intravenous fluids daily for several days as a part of their necessary postoperative care.

The first group was given 5 per cent dextrose in physiologic solution of sodium chloride. All of them retained water and gained weight, one developing edema of the lower part of the back and of the ankles. When the intravenous solution was changed to 5 per cent dextrose in distilled water the retained water was promptly given up. This finding is worthy of special emphasis. It was not necessary to limit the administration of water to these patients or to use diuretics to get rid of the edema fluid; the stopping of the sodium chloride was all that was necessary.

The importance of poor general condition to water retention was brought out by the fact that five patients convalescing nicely from the treatment of surgical lesions and whose general condition was excellent did not retain water when given 5 per cent dextrose in physiologic solution of sodium chloride for several days. One of them had previously retained water when given this solution at the time of having a moderately severe systemic reaction from an acute pyogenic infection about the elbow.

The second group of seven sick patients was given 5 per cent dextrose in Ringer's solution. Six of the seven retained water, but it was our impression that the amount retained was a little less than that of the group receiving 5 per cent dextrose in physiologic solution of sodium chloride. This apparent advantage of Ringer's solution over physiologic solution of sodium chloride may be due to the small amount of potassium chloride and calcium chloride present in the former. Ringer's solution is now our fluid of choice for patients needing sodium chloride.

The third group of sick patients received 5 per cent dextrose in distilled water. None of them retained water, their exchange being approximately the same as if the solution had been given by mouth. As was expected from clinical observations, with no abnormal loss of sodium chloride the plasma carbon dioxide combining power and chlorides of these patients did not change materially when given the dextrose in water for

six days. One has no need to worry about washing salt out of the body with such treatment.

Considering that twelve out of the thirteen sick patients receiving 5 per cent dextrose in saline solutions retained water, it is apparent that warnings concerning the development of edema with the indiscriminate use of sodium chloride solutions are well founded. We believe that the only reason why edema is not more frequently seen with such treatment is that the solutions are generally given for only a day or two. While edema developed in only one of the patients studied, in several of them it was well on the way to do so and would have if the solutions had been given for a few days longer. Waterlogged tissues are often seen in surgical patients coming to autopsy. Undoubtedly an excess of salt solution is a contributing factor in some instances. The first question in the mind of the surgeon on finding edema in a patient who has been receiving fluids parenterally should be "How much salt solution has been given?"

It is difficult to lay down hard and fast rules to cover the proper administration of saline solutions to all patients. Recently the reasons for the giving of parenteral fluids to 100 general surgical patients at the University Hospital were analyzed.

Twenty per cent of them had been vomiting and needed some sodium chloride besides water and dextrose. Ringer's solution was given here, but not too much of it. To avoid the administration of excessive amounts of salt, two procedures can be followed: Patients with a considerable loss of gastro-intestinal secretion, particularly those in whom the loss has occurred before admission to the hospital, so that consequently little is known about it, should have a blood chloride and a carbon dioxide combining power study done to show the depletion of chloride and basic ions respectively. If these are found to be low, from 1,500 to 2,000 cc. of Ringer's solution can be given daily. The blood chemistry studies should be repeated every two days while the salt solution is being given, so that it can be stopped when these electrolytes are up to normal. Since the loss of one of these electrolytes is usually greater than the other and the replacement of one is therefore needed more than the other, chlorides in alkalosis and sodium in inorganic acidosis, it is desirable to alternate the saline solution liter for liter with 5 per cent dextrose in water during the correction period. This provides an immediate excess of water, and with this the kidneys can generally be relied on to excrete the less needed electrolyte. Alkalosis and acidosis can thus be taken care of with the same solutions.

The second plan is applicable when the patient is in the hospital and the loss of gastro-intestinal secretion, as by vomiting, has been measured. It is satisfactory then to give parenterally an amount of Ringer's solution equal to the amount of vomitus. The concentration of sodium chloride in this solution (or in physiologic solution of sodium chloride) is always greater than that in vomitus or other secretions of the gastro-intestinal tract.<sup>18</sup> With such a procedure the electrolyte loss is well taken care of, and the mistake of giving close to 30 Gm. of sodium chloride, the amount present in 3,500 cc. of physiologic solution of sodium chloride or Ringer's solution, to cover the 5 Gm. loss of sodium chloride in a liter of vomitus, is avoided.

That sodium chloride is not needed as a routine was shown by the fact that 80 per cent of the patients

16. Jones, C. M., and Eaton, F. B.: Postoperative Nutritional Edema, *Arch. Surg.* 27: 159 (July) 1933.

17. Coller, F. A.; Dick, V. S., and Maddock, W. G.: The Maintenance of Normal Water Exchange with Intravenous Fluids, *J. A. M. A.* 107: 1522 (Nov. 7) 1936.

18. Dick, U. S.; Coller, F. A., and Maddock, W. G.: Data to be published.

analyzed were given fluids parenterally simply because through their disease or treatment they were unable to take sufficient fluids by mouth to maintain a normal balance. These patients had not been vomiting and were not dehydrated. What they needed was sufficient water daily to provide for their normal excretions, and enough dextrose to prevent ketosis. Throughout the study of the sick patients receiving fluids intravenously the suitability of 5 per cent dextrose in distilled water for furnishing enough dextrose and maintaining a normal water exchange was apparent.

Concerning the mechanics of giving fluids parenterally, the intravenous route has been preferable in our hands to subcutaneous infusions. The main apparatus consists of a 700 cc. containing bottle, a drip tube, and pure gum rubber tubing throughout. Intravenous canulas have seldom been employed, it being our experience that phlebitis was more common with them than with ordinary intravenous needles, the site of which is changed daily. The rate of flow is never faster than 500 cc. an hour. This permits the administration of a good volume of fluid in a few hours during the daytime, if possible, so that the night is left undisturbed for rest and sleep. At the same time, with this rate there is no possibility of overloading the heart. No particular effort is made to keep the intravenous fluid at a constant temperature during its administration, since this factor is apparently unimportant when the fluid is given slowly.

#### COMMENT

There are many questions on water balance and parenteral fluids in relation to surgical patients that have not been answered in this paper. The problems studied have been interesting and the data obtained have had gratifying clinical applications. The whole subject forms an important chapter in preoperative and postoperative care, and its skilful handling often saves the life of the seriously ill patient.

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#### ABSTRACT OF DISCUSSION

DR. LEONARD G. ROWNTREE, Philadelphia: Everything that the authors have said constitutes sane and safe advice in relation to the handling of the surgical patient from the standpoint of water. Two thirds of the human body is composed of water, and consequently the water balance is of tremendous significance to the proper functioning of the organism under all conditions. During and after surgical intervention there is often a tremendous strain on the organism, and the importance of water is greatly enhanced. Urologists work mostly with the kidney and the urinary system, which is concerned with the excretion of water and water soluble substances that are carried off as waste material. I have always been interested in the urologic point of view in relation to excretion by the body. I have often wished that I could go back twenty years, or preferably thirty, and grasp at an earlier date the possibilities that urology has to offer relative to failure of excretion and the development of disease. The kidney is responsible to a large extent for what Cannon has termed homeostasis; that is, keeping the blood constant in volume and composition, a condition essential to optimum efficiency. In this connection one has to consider not only the side of homeostasis in keeping the blood pure but that which has been emphasized this afternoon and was formerly emphasized by Claude Bernard, "the volume obligatoire"; that is, a sufficient quantity of urine for the complete solution of the waste products of metabolism. What happens at the time of operation? Water is withheld before and after operation. This is necessary from the standpoint of the intestinal tract, but water should not be withheld from the body as a whole. The night before an operation,

the patient is usually given a dose of some purgative, frequently castor oil. The figures that the authors have given appear rational: 3.5 liters a day for a patient who is not dehydrated and 7 liters a day for the patient who is dehydrated and in whom the depots of water in the body have been exhausted. These figures can serve only as guides and not as fixed rules. I believe it would be a mistake to restrict fluids to 5 per cent dextrose. There are many instances in which other substances, particularly electrolytes, are essential. These should be supplied to meet the individual needs. One can overdo this water business and produce water intoxication. Attempts have been made to devise a test whereby one can tell whether or not the water need is great in an individual. The disappearance of McClure's saline "bleb" has been suggested.

DR. A. J. SCHOLL, Los Angeles: Maddock and Coller's paper and Dr. Rowntree's discussion, with their previous papers, have covered almost all there is to say about water balance. For years physiologic solution of sodium chloride has been used almost universally following operations, 3,000 and 4,000 and sometimes 5,000 cc. a day. The authors stated that in twelve out of thirteen of their cases a retention developed when saline solution was given daily for more than three or four days. Keith has recently shown that it is not the chloride but the sodium radical that causes the retention. If the sodium is changed to potassium, retention does not occur; there may be a diuresis. Keith states that as yet he is not ready to recommend the use of the potassium salt, but patients such as the authors discussed do not need the potassium any more than they need the sodium or chloride; what they need is simply more fluids. Of course, in an occasional case, after vomiting or after excessive sweating, there is a loss of body chlorides and it must be replaced. Thirty years ago the farmers in California found that if they drank salted oatmeal water they were less liable to have heat exhaustion and that they were better able to go through the heat of the day. They did not know what the oatmeal water did, but it kept them from becoming exhausted in the heat. During the building of Boulder Dam the heat at the base of the canyon was terrific. There were days when the thermometer registered from 110 to 115 F. in the base of the river bed. The men drank prodigious amounts of water; 10, 15 or 18 liters a day was common. They came out of the canyon cooled off, and the salt from their sweat crystallized on their faces and on their arms like frost on a window. Heat exhaustion was common until it was suggested that salt be added to the drinking water; after that the men could get only salt water to drink. This addition of salt to their water practically stopped the occurrence of heat exhaustion.

DR. WALTER G. MADDOCK, Ann Arbor, Mich.: I thank Dr. Rowntree and Dr. Scholl for emphasizing the important points in their discussion. The administration of too much water occasionally occurs. While a thoughtful consideration of water exchange is largely important in seeing to it that the patient receives sufficient water, it also serves to prevent the giving of too much fluid. My plea is for not too much fluid or too little fluid, but the correct amount, and it can be calculated. As has been stated, the question of whether to furnish sodium chloride along with water and dextrose to patients requiring parenteral fluids must be decided on a consideration of the needs of each individual patient. A routine procedure will fail to take care of the important exceptional case. In my hands the administration of parenteral fluids with due regard to both the amount and the kind of fluid to give has yielded gratifying results.

**Croup in Childhood.**—Croup, however, is not a disease but a symptom, and the practitioner must determine the underlying pathology. The conditions which give rise to croups are congenital laryngeal stridor; laryngismus stridulus; laryngitis stridulosa; acute laryngitis, diphtheritic laryngitis; retropharyngeal abscess; papilloma of the larynx, or upper trachea. Not all of these conditions have a surgical bearing so far as treatment is concerned, but each of them must be considered in making a diagnosis.—Crooks, James: *Surgical Aspects of Croup in Childhood*, *Practitioner* 137:769 (Nov.) 1936.



## THE PATHOLOGIC CHANGES RESULTING FROM VITAMIN DEFICIENCY

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Descriptive accounts of the pathologic changes resulting from each vitamin deficiency would make a voluminous report, dry and nonstimulative. The subject will be presented with the attitude that each deficiency causes distinctive functional disturbances and is accompanied by distinctive morphologic changes which together may reasonably be regarded as primary effects. In consequence, it is assumed that some of the general disturbances in nutrition, blood formation and growth, common to several of the vitamin deficiencies, are in all probability secondary nonspecific effects. The primary morphologic effects, as far as known, when analyzed all prove to be manifestations of retardation or suppression of normal processes. In recovery from a vitamin deficiency following restoration of the vitamin to the diet, normal morphologic sequences are resumed and proceed for a brief period at a rate exceeding the normal, until repair is completed. Possibly physiologic activities of certain types may be suppressed without demonstrable tissue or cytologic effects occurring. In the search for initial specific morphologic changes the pathologist has opportunity to make his humble contributions to the goal common to all biologic sciences—the understanding of the chemistry of living cells.

The pathologic or morphologic characterization of a vitamin deficiency involves a dual basis: (a) the changes in consequence of the deficiency, and (b) the changes accompanying recovery from the deficiency ending in restoration to normal structure.

## VITAMIN A DEFICIENCY

*Specific Pathology.*—The primary effect of vitamin A deficiency is on epithelial structures. The sequences are atrophy of the epithelium concerned and the substitution for it of a stratified keratinizing epithelium, identical in appearance in all locations, and arising from focal proliferation of basal cells. These sequences have been carefully worked out in rats<sup>1</sup> and guinea-pigs.<sup>2</sup> Since replacement by keratinizing epithelium in many organs has also been found in human infants,<sup>3</sup> in the monkey (*Macacus rhesus*)<sup>4</sup> and in the albino mouse,<sup>5</sup> and since gross changes indicate the same histologic changes in swine,<sup>6</sup> in dogs,<sup>7</sup> in rabbits,<sup>8</sup> in cattle,<sup>9</sup> and in the

domestic fowl,<sup>10</sup> the conclusion seems unavoidable that vitamin A is essential in most vertebrate species and that its withdrawal is followed by a common effect on epithelial structures. For convenience this change will be called keratinizing metaplasia, regardless of exact connotations of the term. The detailed studies by Howe and myself<sup>11</sup> have led us to the conclusion that the absence of vitamin A creates a starvation specific for many epitheliums. The consequence is atrophy, which progresses to a state wherein the cells, although having the appearances of viability, become inert in physiologic activities and in their rôle of covering membranes. An invariable sequence in pathology is that a break in the continuity of a tissue is followed by reparative proliferation. In vitamin A deficiency the basal cells normally concerned in maintaining the integrity of epithelium respond by active mitotic division. As the basal cells have a focal distribution in all nonstratified epitheliums, the next effect of the deficiency after atrophy is the appearance of scattered areas of proliferative activity beneath the original epithelium. The new (reparative) cells by their continued growth undermine and replace the original epithelium and, regardless of previous function and morphology of the region, develop into a stratified keratinizing epithelium. An important feature in explanation of much of the gross pathologic change is the fact that this replacement epithelium is identical in all locations and comparable in all its layers with epidermis. It has a continuous layer of basal cells—a stratum germinativum—in continuous proliferative activity while superficially it is continuously casting off keratinized cells. The striking gross pathologic condition of vitamin A deficiency in animals and in human infants is the outcome of the accumulation of keratinized epithelial cells in many glands and their ducts and in other organs. In glandular organs, cysts of considerable size are formed, filled with yellowish cheesy masses of keratinized cells. In the lungs of human beings as well as of experimental animals this process leads to cyst formation, bronchial occlusion, and consequences such as bronchiectasis and atelectasis. Early students of vitamin A deficiency, chemists and physiologists, neglected to study these cysts and believed them to be abscesses. Hence, for many years vitamin A was believed to protect against infection. As a matter of fact, the plugs of desquamated epithelial cells in ducts, bronchi and trachea, opening as they do on regions normally infected with bacteria, provide a culture medium for their growth. In spite of the fact that in both human beings and laboratory animals such bacterial growths were frequently found by us, very rarely was there invasion of the tissues, presumably because of the protection afforded by the stratified epithelium.

*Distribution of the Keratinizing Metaplasia.*—In the rat, the order of response to vitamin A deficiency by metaplasia is:

1. Salivary glands, including submaxillary, parotid and all accessory glands of the tongue, buccal cavity and pharynx.

9. Jones, I. R.; Eckles, C. H., and Palmer, L. S.: The Rôle of Vitamin A in the Nutrition of Calves, *J. Dairy Sci.* **9**: 119, 1926. Guilbert, H. R., and Hart, G. H.: Storage of Vitamin A in Cattle, *J. Nutrition* **8**: 25 (July) 1934.

10. Beach, J. R.: Vitamin A Deficiency in Poultry, *Science* **58**: 542, 1923. Guerrero, L. E., and Concepcion, I.: Xerophthalmia in Fowls Fed on Polished Rice and Its Clinical Importance, *Philippine J. Sc.* **17**: 99 (July) 1920. Emmett, A. D., and Peacock, G. J.: Does the Chick Require the Fat-Soluble Vitamins? *J. Biol. Chem.* **56**: 679 (June) 1923.

11. Wolbach, S. B., and Howe, P. R.: Epithelial Repair in Recovery from Vitamin A Deficiency: An Experimental Study, *J. Exper. Med.* **57**: 511 (March) 1933; footnotes 1 and 2.

Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the author's reprints.

Read before the Section on Pathology and Physiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

1. Wolbach, S. B., and Howe, P. R.: Tissue Changes Following Deprivation of Fat-Soluble A Vitamin, *J. Exper. Med.* **42**: 753 (Dec.) 1925.

2. Wolbach, S. B., and Howe, P. R.: Vitamin A Deficiency in the Guinea-Pig, *Arch. Path. & Lab. Med.* **5**: 239 (Feb.) 1928.

3. Wilson, J. R., and Dubois, R. O.: Keratomalacia in Infant with Postmortem Examination, *Am. J. Dis. Child.* **26**: 431 (Nov.) 1923. Blackfan, K. D., and Wolbach, S. B.: Vitamin A Deficiency in Infants, *J. Pediat.* **3**: 679 (Nov.) 1933.

4. Tilden, E. B., and Miller, E. G.: The Response of the Monkey (*Macacus Rhesus*) to Withdrawal of Vitamin A from the Diet, *J. Nutrition* **3**: 121 (Sept.) 1930.

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6. Hughes, J. S.; Aubel, C. F., and Lienhardt, H. E.: The Importance of Vitamin A and Vitamin C in the Ration of Swine, etc., *Kansas State Agric. Coll. Techn. Bull.* **23**, 1928.

7. Steenbock, Harry; Nelson, E. M., and Hart, E. B.: Fat-Soluble Vitamins: The Incidence of an Ophthalmic Reaction in Dogs Fed on a Fat-Soluble Deficient Diet, *Am. J. Physiol.* **58**: 14 (Nov.) 1921. Stimson, A. M., and Hedley, O. F.: Observations on Vitamin A Deficiency in Dogs, *Pub. Health Rep.* **48**: 445 (April 28) 1933.

8. Nelson, V. E., and Lamb, A. R.: The Effect of Vitamin Deficiency on Various Species of Animals, *Am. J. Physiol.* **51**: 530 (April) 1920. Nelson, V. E.; Lamb, A. R., and Heller, V. G.: The Effect of Vitamin Deficiency on Various Species of Animals, *Am. J. Physiol.* **59**: 335 (Feb.) 1922.

2. Respiratory tract, including nares, maxillary sinuses, Jacobson's organ, trachea and bronchi.

3. Genito-urinary tract, including the renal pelvis, ureters, bladder, epididymis, prostate, seminal vesicles, coagulating glands, uterus, oviducts and accessory sex glands of the vulva.

4. Eye and parocular glands, including the corneal and palpebral conjunctiva and the harderian, intra-orbital and extra-orbital lacrimal glands and the meibomian glands.

In the guinea-pig, lesions of the conjunctiva and parocular glands did not develop in our experiments even though advanced lesions (keratinizing metaplasia and its consequences) were found in all other locations as recorded for the rat. A marked difference in behavior as compared with the rat was early and extraordinary degrees of metaplasia in the uterus and bladder.

In human infants, keratinizing metaplasia has been found in the conjunctiva, mucosa of the nares, accessory sinuses, trachea, bronchi, pancreas, renal pelvis, ureters, salivary glands, uterus, and periurethral glands. The commonest and earliest appearance of the metaplasia is in the trachea and bronchi. Next in frequency and sequence is the pelvis of the kidney. The early effect of the deficiency on the respiratory mucosa is a satisfactory explanation of the frequency, severity and persistence of the pneumonias that have been in most instances responsible for death in vitamin A deficient infants.

In the human being, as in the rat, involvement of the eye occurs late. The first change is metaplasia of the epithelium of the cornea and of the conjunctival sac. Atrophy and metaplasia of ducts of the parocular glands contribute to the consequences of the accumulation of keratinizing cells in the conjunctival sac. The cornea becomes vascularized, edematous and infiltrated with leukocytes. Infection of the cornea, favored by excessive accumulation of keratinized cells, may lead to ulceration of the cornea and hypopyon.

*The Teeth in Vitamin A Deficiency.*—The continuously growing incisor teeth of rodents—rats and guinea-pigs—are profoundly affected owing first to atrophy and metaplasia of the enamel forming organ and subsequently to atrophy and cessation of or irregular functioning of odontoblasts. Enamel formation is suppressed, and striking deformities of the dentin result.<sup>12</sup> May Mellanby<sup>13</sup> has summarized her work on teeth in an excellent review and presents convincing proof that absent or defective enamel and dentin formation are consequences of vitamin A deficiency.

Boyle<sup>14</sup> has described in the tooth germ of a human infant with vitamin A deficiency enamel organ changes comparable to those we have studied in rodent incisor teeth. In all probability, vitamin A deficiency, during the formative period of teeth, outranks all other vitamin deficiencies in importance.

*Secondary Effects of Vitamin A Deficiency.*—While the keratinizing metaplasia produces impressive gross lesions which are often the immediate cause of death, as in the lungs of infants and in experimental animals leading to complete suppression of urine by occlusion of ureters and renal pelvis, it must be remembered that it is a late effect of the deficiency; in fact, the

consequences of attempted repair following atrophy of essential epitheliums. The effects on the organisms as a whole which follow reduced activities of many epitheliums in earlier periods of atrophy preceding metaplasia replacement must be considered.

The secondary effects, common both to infants and to laboratory animals, are (1) loss of weight due largely to loss of fat in all storage depots, but also to atrophy of musculature and many organs which do not undergo keratinizing metaplasia, (2) anemia, (3) cessation of growth of bones, (4) degenerative lesions of skeletal muscle, and (5) lymphoid hypoplasia of the spleen.

The loss of fat in experimental animals in the absence of vitamin A takes place in spite of abundant fat in the diet, but this is also the case with other vitamin deficiencies accompanied by emaciation, notably the B<sub>2</sub> complex. The anemia in infants and experimental animals is accompanied by hemosiderosis in the spleen and liver and, finally, by atrophy of the spleen and bone marrow.

In animals, restoration of vitamin A to this diet is followed by regeneration of the bone marrow, disappearance of hemosiderin from the spleen and liver, and in the rat also in the spleen by an active hyperplasia of lymphoid tissue and an outburst of erythroblastic activity. Again, the anemia and hemosiderosis are not peculiar to vitamin A deficiency. Both occur in striking degree in animals in vitamin B<sub>2</sub> complex deficiency and in long continued partial vitamin C deficiency.

The cessation of growth of bone is due to cessation of proliferative activity of the epiphyseal cartilages. A narrow band of atrophic cartilage results, which becomes bounded by a thin plate of bone on the diaphyseal side. In recovery from vitamin A deficiency the cartilage regenerates, and blood vessels from the diaphyseal marrow penetrate the limiting bony plate, and normal endochondral bone formation is resumed. The effect on bone is that common to any atrepsia, of vitamin deficiency origin or otherwise.

The degeneration of skeletal muscle in vitamin A deficiency, while often very striking and even terminating in calcification, is also common to deficiencies of diverse causation.

Lesions of the nervous system, evidenced by degeneration of the myelin sheath, have been described by several workers, notably in swine, fowls and cows by Hughes and his associates,<sup>15</sup> in rats by Zimmerman<sup>16</sup> and Aberle.<sup>17</sup>

Recently, Edward Mellanby,<sup>18</sup> on the basis of studies of the trigeminal and a few other nerves by the capricious Marchi technic, suggests that the epithelial responses to vitamin A deficiency are secondary to lesions of afferent nerves.

Degeneration of the myelin sheath is common to so many disorders of man and animals as the result of several vitamin deficiencies and divers causes that very careful work will be required to establish a specific relationship of its presence to vitamin A deficiency.

12. Wolbach, S. B., and Howe, P. R.: The Incisor Teeth of Albino Rats and Guinea-Pigs in Vitamin A Deficiency and Repair, *Am. J. Path.* 9: 275 (May) 1933.

13. Mellanby, May: The Influence of Diet on the Structure of the Teeth, *Physiol. Rev.* 8: 545 (Oct.) 1928.

14. Boyle, P. E.: Manifestations of Vitamin A Deficiency in a Human Tooth Germ, *J. Dental Research* 13: 39 (Feb.) 1933.

15. Hughes, Aubel and Lienhardt.<sup>6</sup> Hughes, J. S.; Lienhardt, H. F., and Aubel, C. E.: Nerve Degeneration Resulting from Avitaminosis A, *J. Nutrition* 2: 183 (Nov.) 1929.

16. Zimmerman, H. M.: Lesions of the Nervous System in Vitamin Deficiency: I. Rats on a Diet Low in Vitamin A, *J. Exper. Med.* 57: 215 (Feb.) 1933.

17. Aberle, S. B. D.: Neurological Disturbances in Rats Reared on Diets Deficient in Vitamin A, *J. Nutrition* 7: 445 (April) 1934.

18. Mellanby, Edward: Xerophthalmia, Trigeminal Degeneration and Vitamin A Deficiency, *J. Path. & Bact.* 38: 391 (May) 1934; *Nutrition and Disease: The Interaction of Clinical and Experimental Work*, Edinburgh and London, Oliver and Boyd, 1934.

For the present it seems logical to regard the lesions of the nervous system as among the late secondary consequences of vitamin A deficiency.

*Repair in Recovery from Vitamin A Deficiency.*—The lesions of vitamin A deficiency, uncomplicated by destruction of tissue by infectious process, disappear rapidly after restoration of the diet. In rats, gain in weight, resumption of growth in bones and teeth, and regeneration of the bone marrow and spleen become apparent in from six to eight days. Reparative changes in the metaplastic epithelium begin as early as the fifth day. The initial changes are separation of superficial keratinized cells and vacuolization of cells of intermediate layers. The epithelium becomes divided into two zones by further vacuolar degeneration and leukocytic infiltrations. The superficial zone of cells degenerate, the deep zone, consisting of the lowermost layers of cells corresponding to the stratum germinativum of the epidermis, survives and the cells proceed to differentiate into the type of epithelium originally present. On the whole, the change back to the normal epithelium is an abrupt one and affords further evidence that the primary consequence of vitamin A deficiency is epithelial and not of nervous origin. This reparative sequence of the epithelium has its normal counterpart in changes in the vagina of rodents during that part of the estrous cycle in which the cornified vaginal mucosa returns to the mucous type.<sup>19</sup>

#### VITAMIN C DEFICIENCY

Of vitamin C deficiency, only the specific pathologic lesions will be considered. The pathology of scurvy is well known and covered in the books by Aschoff and Koch,<sup>20</sup> Hess<sup>21</sup> and others.

The requirements of all animals for vitamin C are not known. Scurvy, duplicating that in man, can regularly be produced in guinea-pigs and monkeys. The cow, rat, mouse, prairie dog, pigeon and domestic fowl do not require vitamin C in the diet; nevertheless it is found in their livers—evidence that these creatures can synthesize this vitamin.

The gross and microscopic pathologic changes of human scurvy, as seen in the infant and experimental scurvy in the guinea-pig, are so nearly identical that no reasonable doubt can be entertained with regard to applying to the human being the facts ascertained from the experimental studies.

In 1926 Wolbach and Howe<sup>22</sup> characterized the condition of scorbutus as the inability of the supporting tissues to produce and maintain intercellular substances. The effect is therefore on cells of mesenchymal origin in contrast to the ectodermal and endodermal effects of vitamin A deficiency. These conclusions were reached through histologic studies of human infantile scurvy and through studies of the histologic sequences, in growing guinea-pigs, of progressive scurvy and of the repair following administration of vitamin C in natural forms. Subsequently<sup>23</sup> further verification that vitamin C was the only missing factor in scorbutus

concerned in the inability of tissues to produce intercellular material was obtained through the study of reparative processes following administration of crystalline cevitamic acid, orally and parenterally.

Further experimental proof of the correctness of this pathologic characterization was obtained<sup>24</sup> by a comparison of isolated fibroblasts during the organization of blood clots in the complete deficiency with those during the progress of recovery induced by the administration of vitamin C.

The intercellular substances concerned in vitamin C deficiency are the collagen of all fibrous tissue structures, the matrices of bone, dentin and cartilage, and all nonepithelial cement substance, including that of the vascular endothelium. The reparative proliferative powers of epithelial cells, endothelium, fibroblasts and osteoblasts are not impaired, while there is evidence of increased proliferation of osteoblasts, which in the periosteum and at the sites of endochondral bone formation undergo a striking change in morphology, taking on the appearance of young fibroblasts.

Aschoff and Koch<sup>20</sup> anticipated in part these conclusions from their studies of human material. They explained some features of the pathology of bone as due to failure of osteoblasts to form osteoid tissue and, by inference, the hemorrhage of scurvy as due to a failure of cement substance in blood vessels. Mechanical factors were emphasized as determining the sites of hemorrhages in bone, muscle, skin and alveolar processes of the jaws.

Soft tissue changes in vitamin C deficiency, human, and experimental in guinea-pigs, are hemorrhages in regions determined by mechanical stresses and trauma; also anasarca (human) and degenerations of skeletal and cardiac muscle. Hypertrophy of the heart occurs particularly in infants and children, attributed by Erdheim<sup>25</sup> to difficulties in respiration in consequence of the lesions of the ribs at the costochondral junctions. No such explanation can be applied to the cardiac hypertrophy of beriberi or B<sub>1</sub> deficiency. In long continued partial vitamin C deficiency in guinea-pigs, degeneration of skeletal muscle fibers becomes widespread. Affected fibers become completely necrotic. We have found this lesion common also in vitamin A and vitamin G (B<sub>6</sub> + lactoflavin) deficiency.

Goettsch and Pappenheimer<sup>26</sup> describe a diet with adequate vitamin content which leads to a progressive fatal degeneration of the voluntary muscles. The lesion of the individual fibers is identical with that of vitamin deficiencies A, G and C. Furthermore, it was shown by Pappenheimer and his associates<sup>27</sup> that the muscle degeneration was not associated with demonstrable changes in peripheral nerves or their motor terminals. Accordingly, the striking degeneration of muscles in long continued partial experimental scurvy<sup>28</sup> as in acute scurvy must be regarded as secondary effects of vitamin C deficiency. Anemia is another secondary effect of importance. In long continued partial vitamin C deficiency in guinea-pigs, large regions of bone marrow

19. Long, J. A., and Evans, H. McL.: The Oestrus Cycle in the Rat and Its Associated Phenomena, *Memoirs of the University of California*, vol. 6, 1922.

20. Aschoff, L., and Koch, W.: *Scorbut, Eine Pathologisch-Anatomische Studie*, Jena, Gustav Fischer, 1919.

21. Hess, A. F.: *Scurvy, Past and Present*, Philadelphia, J. B. Lippincott Company, 1920.

22. Wolbach, S. B., and Howe, P. R.: Intercellular Substances in Experimental Scorbutus, *Arch. Path. & Lab. Med.* 1:1 (Jan.) 1926.

23. Menkin, V.; Wolbach, S. B., and Menkin, Miriam F.: Formation of Intercellular Substance by the Administration of Ascorbic Acid (Vitamin C) in Experimental Scorbutus, *Am. J. Path.* 10:569 (Sept.) 1934.

24. Wolbach, S. B.: Controlled Formation of Collagen and Reticulum: A Study of the Source of Intercellular Substance in Recovery from Experimental Scorbutus, *Am. J. Path. (suppl.)* 9:689, 1933.

25. Erdheim, J.: Ueber das Barlow Herz, *Wien. klin. Wchnschr.* 31:1293, 1918.

26. Goettsch, M., and Pappenheimer, A. M.: Nutritional Muscular Dystrophy in the Guinea-Pig and Rabbit, *J. Exper. Med.* 54:145 (Aug.) 1931.

27. Rogers, W. M.; Pappenheimer, A. M., and Goettsch, M.: Nerve Endings in Nutritional Muscular Dystrophy in Guinea-Pigs, *J. Exper. Med.* 54:167 (Aug.) 1931.

28. Bessey, O.; Boyle, P., and Wolbach, S. B.: Unpublished research.



become devoid of blood forming cells and the seat of a deposit of homogeneous amyloid-like material.<sup>28</sup>

The important gross features of scurvy at all ages are hemorrhages and changes in the bones. The most striking lesions are the subperiosteal hemorrhages and those in the epidiaphyseal junctions of growing bones. All the pathologic features of scurvy are understandable only on the basis of the characterization as a condition of cessation of formation and maintenance of intercellular substances. Calcium metabolism is not primarily affected. In the first period of scurvy, existing cartilage trabeculae at epidiaphyseal junctions become more densely calcified than normally.<sup>29</sup>

In advanced scurvy, calcium salts are liberated through the resorption of bone matrix, which is the process of the osteoporosis of scurvy.

In general, the pathologic picture of scurvy is produced by the resorption of intercellular materials and by the absence of formation of intercellular materials in growth and reparative reactions. Hemorrhages are due to mechanical weakness, occasioned by the lack of collagenous material in fibrous tissue structures and in bone. Diminished cohesion of endothelial cells contributes to the ease with which moderate stresses occasion bleeding in skin and muscles. In the hemorrhages from the gums, the resorption of alveolar processes and the loosening of teeth, the two factors of stresses and loss of intercellular materials are apparent, the first affecting the second.

At the epidiaphyseal junctions in growing bones, the first demonstrable change in experimental scurvy is an increase in the number of osteoblasts applied to the cartilage columns. Formation of cartilage and bone matrices ceases, and the osteoblasts become elongated, assume the shapes of fibroblasts and migrate toward the diaphysis. Here these cells become surrounded by liquid, presumably a deficient product of continued activity toward matrix formation, and give rise to an apparent region of edematous connective tissue at the ends of the diaphysis, the gerüst mark (framework marrow) of German authors.

Marked changes in the epiphyseal cartilage occur because of resorption of matrix. Union between epiphysis and diaphysis becomes severed because the trabeculae of the spongy bone no longer communicate with epiphyseal cartilage, owing to the cessation of formation of periosteal bone. This disunion permits movement of the epiphysis in relation to the diaphysis, and traumatic fragmentation occurs, producing the trümmerfeld zone or zone of disorganization between gerüst mark and epidiaphyseal line. Hemorrhage complicates the picture. This accounts for the complete separation and dislocation of epiphyses so often seen in scorbutic infants and rarely at costochondral junctions in adults. Proliferation of cells, osteoblasts, of the periosteum in contact with the cortical bone is continued in growing bone and is a conspicuous histologic feature of scurvy in infants. A layer of cells without intercellular material thus results and separates periosteum from bone; hence the massive subperiosteal hemorrhages so characteristic of scurvy in infants. These sequences have been worked out in guinea-pigs, yet each stage has been seen in human material.

In growing teeth (incisors) of guinea-pigs, formation of dentin ceases and the pulp becomes separated

from the dentin by liquid, which may be interpreted as due to the continued production by the odontoblasts of a liquid product. Presumably, teeth in process of formation in infants may be similarly affected in scurvy, but direct demonstration is lacking.

*Repair of Scurvy.*—Histologic repair following administration of vitamin C in natural foods or as ascorbic acid is dramatic in character and promptness, and in the small amounts of the remedy required. Newly formed dentin, collagen and bone matrix can be seen after twenty-four hours. Osteoblasts, disguised in morphology as fibroblasts, resume their rôle in formation of bone matrix. New capillary formation becomes possible, so that repair by granulation tissue formation proceeds in organization of blood clots and subsequent callous formation where the hemorrhages were in contact with bone. All normal processes of repair are resumed, infarctions and fractures heal and subperiosteal hemorrhages become in part organized and ossified. In guinea-pigs, dentin formation is resumed in volume and rapidity suggestive of the jelling of a liquid material between pulp and old dentin.

#### VITAMIN D DEFICIENCY OR RICKETS

The physiologic rôle of vitamin D, whether or not identical with the pure substance calciferol or viosterol, in the metabolic processes concerned in the deposition of calcium phosphate in bone is not clear, particularly in relation to the experimental production and cure of rickets in white rats. In the absence of vitamin D, proper amounts and ratios of calcium and phosphate in the diet prevents rickets, yet vitamin D cures rickets produced in the rat by dietary methods. Likewise, restoration of a proper calcium and phosphate intake is curative.

Experimental rickets can be produced also in swine,<sup>30</sup> rabbits,<sup>31</sup> the monkey<sup>32</sup> and the domestic fowl.<sup>33</sup>

Important landmarks in the progress of knowledge of the pathology of rickets are the publications of Pommer,<sup>34</sup> Schmorl,<sup>35</sup> Erdheim<sup>36</sup> and Pappenheimer.<sup>37</sup> An adequate bibliography is contained in Hess's<sup>38</sup> book.

In white rats, experimental rickets, in all phenomena amenable to study, duplicates human rickets. This applies with particular force to the histologic sequences in the development of the lesions and in the repair.

The pathologic conditions of rickets arise from retardation and suppression of sequences primarily concerning cartilage in the endochondral formation of bone and from failure of bone matrix or osteoid to calcify in all locations.

Briefly stated, the sequences disturbed in endochondral bone formation in rickets are as follows:<sup>39</sup> The epiphyseal cartilage during normal growth exists as a narrow plate, supported by bone on the epiphyseal side

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and uniformly penetrated by blood vessels of capillary dimensions on the diaphyseal side. Very little evidence of growth is present on the epiphyseal side, where bone is closely applied in the form of transverse trabeculae or a thin fenestrated plate. Growth is accomplished by continuous proliferation of cartilage cells, arranged in columns, on the epiphyseal side, and simultaneous degeneration of the matured cells on the diaphyseal side. The cavities occasioned by the degeneration and disappearance of the cartilage cells at the diaphyseal end of the columns are entered by capillaries accompanied by cells (osteoblasts) which deposit osteoid on the exposed cartilage matrix; hence the first formation of bone is within spaces previously occupied by cartilage cells.

This behavior of the epiphyseal cartilage may be regarded as an ingenious device of nature in order to maintain a continuously retreating gap in the continuity of tissues, which is responded to by vascular outgrowth from the diaphyseal side, comparable to repair of any defect of tissues by the process of organization or granulation tissue formation. In normal growth there is, on the diaphyseal side of the narrow epiphyseal cartilage, a continuous layer of clear or empty cartilage cells, one or two cells deep. In normal growth, calcification of the cartilage matrix lateral to the columns of cells (so-called zone of provisional calcification) extends toward the epiphyseal extremity of the bone only as far as the cartilage cells are markedly degenerated. The first histologic evidence of rickets is the absence in whole or in part of the layer of clear (degenerated) cells and the consequent absence of ingrowth of capillaries. The matrix between the non-degenerated cartilage cells does not calcify. Slight degrees of rickets are manifested by a moderate increase in width of the epiphyseal cartilage presenting an irregular border on the diaphyseal side. This irregularity is due to the fact that the cessation of degenerative sequences in the cartilage cells does not take place simultaneously over the diaphyseal border. The width of the epiphyseal cartilage continues to increase because of the continued activity of the proliferative zone and the survival of the cells on the diaphyseal side. After cessation of the degenerative sequences of the cartilage cells and failure of cartilage matrix to calcify, osteoblasts in relation to the blood vessels in the diaphysis adjacent to the cartilage continue to deposit bone matrix or osteoid that does not calcify.

The degree or measure of severity of rickets may be gaged by the volume of the epiphyseal cartilage and amount of osteoid accumulated in the adjacent diaphysis, both expressions of degree and duration of retardation of two normal processes, one the cartilage sequence and the other, calcification of matrices.

In advanced rickets the noncalcified cartilage at the diaphyseal border becomes transversely stratified in places, evidently a mechanical effect of weight bearing. Osteoid material increases in amount with the duration of the deficiency and, being noncalcified, is molded by the stresses of weight and muscular efforts. Finally, there is disappearance of the cancellous bone of the diaphysis, marked resorption of cortical bone and deposition of subperiosteal osteoid. These are the factors that account for the deformities and fractures of bones in rickets.

*Repair of Rickets.*—The first histologic evidence of repair following corrections of the diet, either by amount of calcium and phosphorus or by administration

of vitamin D, is the presence of cleared or degenerated cells on the diaphyseal border of the cartilage. Simultaneously, calcium is deposited in the cartilage matrix lateral to these cells. These effects are demonstrable at the end of twenty-four hours and are accompanied by extensive vascular responses, as shown by ingrowth of capillaries into empty cell spaces within forty-eight hours.

The first osteoid to be calcified in repair is that laid down in the resumption of normal sequences. The osteoid in the diaphysis that has accumulated during the deficiency subsequently becomes calcified and then is largely removed by osteoclasia. Repair proceeds rapidly in rats, even after severe rickets. From five to seven days suffices to restore the appearances of normal growth almost completely, though there is not complete removal of excess bone.

The osteomalacia of adults, when advanced, presents striking deformities of the skeleton and complicated microscopic pictures, all to be explained by loss of calcium salts in bone, secondary resorption of the matrix and new formation by way of reparative response of cells producing osteoid that does not calcify.

#### VITAMIN B COMPLEX

Present knowledge does not permit a rational account of the pathologic consequences of the deficiencies of what in the past has been called vitamin B or B complex. Vitamin B complex consists of a heat labile fraction, designated as B<sub>1</sub> and recently isolated in pure form, and a heat stable group. Claims by various authors have been made for as many as six different vitamins in the heat stable group, which is called vitamin B<sub>2</sub> or G. It is fairly certain now that this heat stable group contains probably no more than three vitamins: (1) lactoflavin, already isolated in pure form; (2) vitamin B<sub>6</sub>, the absence of which in the diet of rats is responsible for a characteristic dermatitis affecting the extremities, nose, eyes and ears (this dermatitis has also been referred to as rat pellagra and B<sub>6</sub> as the antirrat pellagra vitamin); (3) the pellagra preventing factor, which also prevents and cures black tongue in dogs.

It is not known whether pellagra and black tongue are due to the same deficiency, although the evidence is very strong that this is the case.

In the human being beriberi is a disease resulting from lack of vitamin B<sub>1</sub>, but in all probability some of the features of this disease as commonly seen are due to other deficiencies. Those pathologic features which may be reproduced in pigeons by means of a diet adequate in all respects except in vitamin B<sub>1</sub> which are common also to human beriberi are some degree of enlargement of the heart, edema, atrophy of muscles, and degenerations of the nervous system. Manifestations of disorder of the nervous system are so striking that the condition in experimental animals is usually called polyneuritis. The conspicuous lesion is degeneration (Marchi degeneration) of the myelin sheaths of peripheral nerves; less certain are degenerative changes in ganglion cells of the brain, cerebellum, spinal cord and dorsal root ganglions. It must be remembered, however, that nervous symptoms appear late in the deficiency, and rats kept on vitamin B<sub>1</sub> deficiency may die without developing nervous lesions, so that a number of workers have questioned the specificity of degenerations of the myelin sheaths and have claimed to have produced the same degree of degeneration in

animals on a starvation diet in the presence of abundant vitamin B<sub>1</sub>.<sup>40</sup> The consequences of starvation on the maintenance of myelin must be determined before the myelin sheath degenerations of this deficiency and other vitamin deficiencies (vitamin A and the heat stable fractions of B) can be attributed to a primary effect on the nervous system. Also of great importance in this connection is the fact that recovery from the nervous manifestations of experimental beriberi takes place in a very short time, and physiologic recovery results in a period of five or six hours following the administration of vitamin B<sub>1</sub>.

I<sup>41</sup> could find no differences in the nerve lesions present in pigeons allowed to succumb with polyneuritis and those in which functional recovery had been induced by treatment. On the whole, it seems best to regard the primary pathologic effects of vitamin B<sub>1</sub> deficiency as not demonstrable at present and to regard all the pathologic changes thus far recorded, including the myelin sheath lesions, as secondary effects. The profound functional disturbances of the nervous system and speedy recovery, with treatment, do indicate that vitamin B<sub>1</sub> is directly concerned in the physiology of neurons. Also among the secondary consequences presumably due to disturbance in carbohydrate metabolism is enlargement of the islands of Langerhans in the pancreas, which I saw in experiments in 1925 and which have been reported by Ogata<sup>42</sup> and by Bierry and Kollmann.<sup>43</sup>

Similar difficulties are encountered in the consideration of the pathology of those conditions and diseases presumably resulting solely from deprivation of heat stable components of vitamin B. There is, for consideration, pellagra in the human being, black tongue in dogs, and rat pellagra or rat dermatitis or, as it is probably now preferably called, as suggested by Birch, György and Harris,<sup>44</sup> "rat acrodynia."

In pellagra, lesions of the nervous system are found but they are not pathognomonic in character. They are degenerative in type, in nerve cells and in myelin sheaths. In pellagra of long standing, lateral and posterior column degenerations in the spinal cord occur. Whether or not such extensive cord lesions have a pathogenesis (atrophy of the gastric mucosa) in common with those occurring in pernicious anemia remains to be solved. In dogs maintained on a diet deficient in the heat stable vitamin B complex (vitamin B<sub>2</sub> or G) extensive degeneration of the myelin sheaths also develop in peripheral nerves and tracts of the spinal cord.<sup>45</sup> Howe, Bessey and I<sup>28</sup> have been unable to obtain degeneration of the myelin sheaths in spinal cord or peripheral nerves in white rats maintained on a similarly deficient diet, even though they were carried to the point of death in the complete deficiency and for very long periods in partial deficiency. It must be concluded that the rat responds differently. The rats in our experiments did develop, as was to be expected,

the skin lesions, or "rat acrodynia." That the factor preventing dermatitis in rats is different from that preventing the lesions of pellagra and black tongue has been proved.<sup>44</sup> It has been shown that diets producing pellagra in man and black tongue in dogs will cure the vitamin B<sub>2</sub> complex deficiency dermatitis of rats. Also, the dermatitis of rats is not influenced by light. We have found it to progress just as rapidly in rats kept in absolute darkness as in those kept in strong light. The distribution is also different and yet we are confronted with the paradox that histologically the lesions of the skin are very similar to those of pellagra and to the lesions of mucous membranes in black tongue of dogs. It is not advisable to describe in detail the histology of the skin lesions of rat dermatitis and of human pellagra. Careful study of rats made during the progress of the deficiency and in repair has failed to throw light on the initial effect in the skin, whether in the epidermis or in the underlying supporting tissues.

Until experiments on animals can be conducted with diets deficient only in single B factors, it would seem not worth while to attempt to characterize, pathologically, these deficiencies.

Until it is proved that the myelin sheath degenerations of the deficiencies are not simply starvation effects, the conclusion is warranted that the demonstrable nervous lesions of all the deficiency diseases are secondary effects and that no one vitamin is concerned in the maintenance of myelin. Lesions of skin and mucous membrane, such as have been described for pellagra, black tongue and rat dermatitis, are not common to deficiencies other than those found in the heat stable fraction of vitamin B or the vitamin B<sub>2</sub> complex, but it does not seem probable that the chemical mechanisms disturbed by the absence of the respective vitamins concerned will be found to occur primarily in the skin and mucous membranes. It may be said that the pathologic histology of pellagra, black tongue and vitamin B<sub>2</sub> or G deficiency in the rat, although presenting many interesting and suggestive features, is at present not more illuminating in regard to the mechanisms involved than are the sequences observed with the naked eye.

#### COMMENT

Our knowledge of the morphologic consequences of vitamin deficiencies is limited and has not extended beyond obvious tissue and cytologic changes.

The pathology of vitamin A deficiency indicates that the seat of the physiologic disturbances is in the epithelial cells. Chemical rôles are suppressed but proliferative powers are not inhibited; neither are the potentialities of cells lost, as is shown by the return to normal physiologic function when vitamin A is restored to the animal.

Vitamin C deficiency affects mesenchymal tissues, the most obvious morphologic consequence being the effect on the formation and maintenance of intercellular materials.

Vitamin D deficiency, besides the well known effect on calcium and phosphorus metabolism, suspends the cartilage cell cycle essential to endochondral growth of bone, though not impairing multiplication of the cartilage cells.

Vitamin B<sub>1</sub>, as is indicated by recovery phenomena from the deficiency, must be more directly concerned in the physiology of the nervous system than is any

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other vitamin. The sudden return to normal function after administration of vitamin B<sub>1</sub>, before morphologic repair has been initiated, warrants this conclusion.

A reasonable working hypothesis is that each vitamin is necessary in certain cells for one type of chemical mechanism the suppression of which is compatible.

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## NEW FORMS AND SOURCES OF VITAMIN D

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Certain facts about vitamin D are widely known. It occurs only rarely in foodstuffs. It is formed in the skin by exposure to ultraviolet rays from the sun or from artificial sources. It is developed in some foodstuffs by their being briefly irradiated. It is produced by irradiating ergosterol, the sterol of fungi. From irradiated ergosterol it can be isolated and crystallized.

The fact that vitamin D is not a single chemical substance has only recently been recognized. The erroneous view still commonly held is that ergosterol is the parent substance, or provitamin, from which all vitamin D arises. Ergosterol exhibits four spectral absorption bands in the ultraviolet region. These bands were observed in the unsaponifiable fraction of the various materials that become antiricketic on irradiation. Since it is rare that even one band, not to mention such a series of bands, is exactly duplicated by different chemical substances, the evidence was misleadingly good that ergosterol was the one and only provitamin D.

I have reviewed elsewhere<sup>1</sup> in considerable detail the history of our knowledge of vitamin D, giving special attention to the experimental work on which its multiple nature is established. In a brief space, this can be recapitulated only in outline and brought up to date. So rapidly has investigation progressed that several new forms of vitamin D have been discovered within the past few months. One of these I shall describe for the first time.

The most thoroughly investigated form of vitamin D is that which results from the irradiation of ergosterol. This is known to physicians under trade names such as viosterol. The chemical name of the pure substance is calciferol. This particular form of vitamin D is also the form that is produced by irradiating yeast, the provitamin of which is ergosterol. It is thus the form that is present in the milk of cows to which irradiated yeast has been administered—the so-called yeast milk of commerce.

In our laboratory, in 1930, Massengale and Nussmeier<sup>2</sup> made the important discovery that the vitamin D of irradiated ergosterol and the vitamin D of cod liver oil act differently on rats and chickens. They found that, rat unit for rat unit, irradiated ergosterol is far less effective than cod liver oil for preventing rickets in chickens. Or, in other words, irradiated ergosterol is far more effective than cod liver oil, chick unit for chick unit, in preventing or curing rickets in rats.

From the Research Laboratory, Mead Johnson & Co.

Read before the Section on Pathology and Physiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

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2. Massengale, O. N., and Nussmeier, Mildred: The Action of Activated Ergosterol in the Chicken: II. The Prevention of Leg Weakness, *J. Biol. Chem.* 87: 423-426 (June) 1930.

This discovery, like several others in the field of vitamin D, was made simultaneously in more than one laboratory. Mussehl and Ackerson<sup>3</sup> and Hess and Supplee<sup>4</sup> came to the same conclusions from slightly different avenues of approach. It is recalled that Hess<sup>5</sup> and Steenbock<sup>6</sup> announced the discovery of activation within a few weeks of each other, that the provitamin concept was promulgated by three groups of investigators<sup>7</sup> Dec. 10, 1926, and that the high relative efficacy of irradiated 7-dehydro-cholesterol for chickens was reported by two independent groups<sup>8</sup> on the same day a few weeks ago.

The device of employing two species of test animals for assay purposes has come to be an extraordinarily useful tool in studies on the multiple nature of vitamin D. The knowledge that one species responds better to one form of this vitamin while another species responds better to another form has prompted investigators to compare the effectiveness of cod liver oil and irradiated ergosterol, rat unit for rat unit, on human beings. Differences have been claimed and denied. There is agreement to the extent that the difference, if any, is not large. Most of this work has been of poor quality, with groups of children so few in number and so diverse in age and background that the recorded observations are unimpressive to one who is familiar with the proper use and grouping of animals for the conduct of a biologic assay. Birds other than the common fowl, for example turkeys, respond like the common fowl, and mammals other than the rat, e. g., man, respond at least somewhat like the rat to these two kinds of vitamin D. It is therefore reasonable to expect that, if the number of species put to the test is extended, mammals in general will be found to respond well (per rat unit) to either irradiated ergosterol or cod liver oil, and birds in general will do poorly with irradiated ergosterol but will do well with cod liver oil.

The chemical constitution of the sterols is fairly well understood. The conventional numbering of the sterol ring, and the probable formulas of cholesterol, ergosterol and calciferol are shown in the accompanying structural formulas. From these concepts, the organic chemist has built several new vitamins D.

Windaus and Langer<sup>9</sup> added two atoms of hydrogen to the side chain of ergosterol at position 22. The new compound, 22-dihydro-ergosterol, gave by irradiation a new vitamin D, presumably 22-dihydro-calciferol. McDonald<sup>10</sup> has recently found that this slight molecular alteration increases by several times the effectiveness of the vitamin, per rat unit, for chickens.

3. Mussehl, F. E., and Ackerson, C. W.: Irradiated Ergosterol as an Antirachitic for Chicks, *Poultry Sc.* 9: 334-338 (June) 1930.

4. Hess, A. F., and Supplee, G. C.: The Action of Irradiated Ergosterol on Rats and Chickens, *Proc. Soc. Exper. Biol. & Med.* 27: 609-610 (March) 1930.

5. Hess, A. F.: Experiments on the Action of Light in Relation to Rickets, *Tr. Am. Pediat. Soc.* 36: 57-60, 1924 (meeting of June 5-7).

6. Steenbock, Harry: The Induction of Growth Promoting and Calcifying Properties in a Ration by Exposure to Light, *Science* 60: 224-225 (Sept.) 1924.

7. Rosenheim, O., and Webster, T. A.: Further Observations on the Photochemical Formation of Vitamin D, *J. Soc. Chem. Ind.* 45: 932 (Dec.) 1926. Heilbron, I. M.; Kamm, E. D., and Morton, R. A.: The Absorption Spectra of Cholesterol and Its Possible Biological Significance with Reference to Vitamin D: I. Preliminary Observations, *ibid.* 45: 932 (Dec.) 1926. Pohl, R.: Ueber das Absorptionsspektrum des antirachitisch wirksamen Cholesterins, *Nachr. Ges. Wissensch. Göttingen, Math.-physik. Klasse*, 1926, pp. 142-145.

8. (a) Bills, C. E.; Massengale, O. N.; Imboden, Miriam, and Hall, H.: The Multiple Nature of Vitamin D: II. The Vitamins D of Fish Oils, read before the American Institute of Nutrition, Washington, D. C., March 25, 1936. (b) Koch, Elizabeth M., and Koch, F. C.: The Antirachitic Actions of Irradiated Sterols and Derivatives Thereof, read before the American Institute of Nutrition, Washington, D. C., March 25, 1936.

9. Windaus, Adolf, and Langer, R.: Ueber das 22-Dihydroergosterin, *Ann.* 508: 105-114 (Dec.) 1933.

10. McDonald, F. G.: The Multiple Nature of Vitamin D: III. Irradiated 22-Dihydroergosterol, read before the American Society of Biological Chemists, Washington, D. C., March 28, 1936.

Two years ago Waddell<sup>11</sup> made the surprising discovery that, in chicken-and-rat comparisons, irradiated cholesterol resembles cod liver oil and differs greatly from irradiated ergosterol, unit for unit. It occurred to Callow<sup>12</sup> and to me<sup>13</sup> that by removing the methyl group at position 24 in the ergosterol side chain, in addition to introducing the hydrogen at position 22, a new provitamin D might be obtained which, on theoretical grounds, should give rise to a vitamin D simulating that of cod liver oil or, more particularly, of irradiated cholesterol. Such a provitamin would be a demethyldihydro-ergosterol, or, in terms of cholesterol, 7-dehydro-cholesterol. Windaus, Lettré and

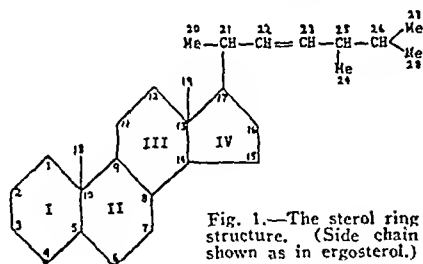


Fig. 1.—The sterol ring structure. (Side chain shown as in ergosterol.)

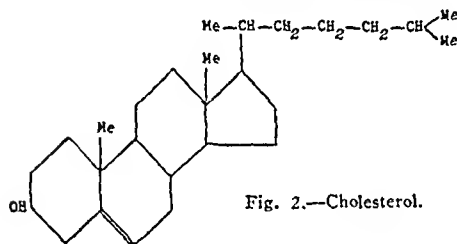


Fig. 2.—Cholesterol.

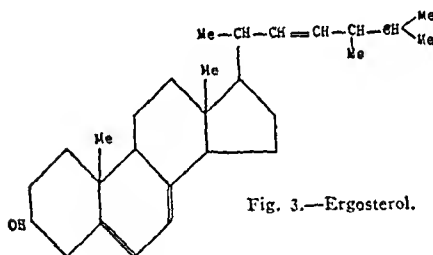


Fig. 3.—Ergosterol.

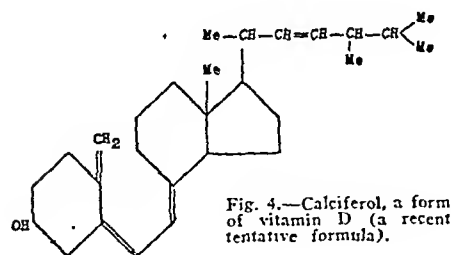


Fig. 4.—Calciferol, a form of vitamin D (a recent tentative formula).

Schenck<sup>13</sup> have synthesized this compound and found that, when irradiated, it gives a product effective in rat rickets. Repeating the synthesis, McDonald and I have confirmed the observations of the German workers and have substantiated the predictions by the discovery that, rat unit for rat unit, irradiated 7-dehydro-cholesterol is more effective than irradiated 22-dihydro-ergosterol and much more effective than irradiated ergosterol for chickens.<sup>14</sup> The Kochs<sup>15</sup> report similar results.

It was known that the activatability of cholesterol depended for the most part on its minute content of a provitamin, which had the same spectral absorption bands as ergosterol and which every one presumed to be ergosterol. These bands are also exhibited by 7-dehydro-cholesterol, and this fact, together with the behavior of the corresponding vitamin with chickens, suggests that 7-dehydro-cholesterol is the provitamin D in ordinary cholesterol. Many assays must still be carried out to establish whether 7-dehydro-cholesterol and the natural cholesterol provitamin, which are certainly similar, are actually identical. If they are identical, it probably follows that irradiated milk, which is activated by virtue of its cholesterol provitamin content, contains irradiated 7-dehydro-cholesterol and that this form of vitamin D, far from being a laboratory curiosity, is already an important practical source.

Another form of vitamin D was announced by McDonald<sup>16</sup> in March. This is irradiated 7-hydroxy-cholesterol or an impurity associated therewith. The absorption spectrum of 7-hydroxy-cholesterol is entirely different from that of the other provitamins D that I have mentioned. It consists of one rather wide band in place of the usual four, and general absorption in the far ultraviolet. In this connection, one recalls that cholesterol, specially treated to remove its ordinary provitamin, develops a new provitamin when heated.<sup>14</sup> The spectral absorption is general, no "ergosterol" bands being evident. It is thus possible that the provitamin developed by heating (with incidental oxidation) is 7-hydroxy-cholesterol or some similar substance.

It has been shown that the usual procedure (bromination, debromination) by which the ordinary provitamin is removed from crude cholesterol never completely destroys the activatability of the cholesterol.<sup>16</sup> Little is known of the residual provitamin, but Hathaway and Lobb<sup>14</sup> have recently reported that the vitamin D which results from irradiating it is much less effective, rat unit for rat unit on chickens, than the vitamin D produced by irradiating cholesterol which had first been purified and then heated to develop the new provitamin. In other words, this obscure form of vitamin D acts like calciferol, but since it is chemically impossible for it to be calciferol it must be recognized as still another kind of vitamin D.

The new vitamin D that McDonald and I announce at this time is prepared by irradiating a provitamin derived from sitosterol, the sterol of the higher plants which corresponds to cholesterol of animals. The provitamin is prepared by oxidizing sitosterol, reducing the oxidation product, treating the reduced material with benzoyl chloride in pyridine, and heating and saponifying the resulting ester. The procedure is similar to that used in preparing 7-dehydro-cholesterol. The provitamin exhibits a series of absorption bands and becomes antiricketic on exposure to ultraviolet rays.

Finally, I come to two forms of vitamin D that are produced by means other than irradiation. They have been known for some years, but only as curiosities. One of them supplied the first evidence of the multiple

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12. Callow, R. K.: Vitamin D, *Scient. J. Roy. Coll. Science* **4**: 41-53, 1934.

13. Windaus, Ad-N.; Lettré, H.; and Schenck, F.: Ueber das 7-Dehydro-cholesterin, *Ann.* **520**: 95-109 (Sept.) 1935.

14. Koch, F. C.; Koch, Elizabeth M., and Ragins, Ida K.: Fractionation Studies on Provitamin D, *J. Biol. Chem.* **85**: 141-158 (Dec.) 1929. Koch, Elizabeth M.; Koch, F. C., and Lemon, H. B.: Absorption Spectra Studies on Cholesterol and Ergosterol, *J. Biol. Chem.* **85**: 159-167 (Dec.) 1929. Hathaway, M. L., and Koch, F. C.: Provitamin D Potencies, Absorption Spectra, and Chemical Properties of Heat-Treated Cholesterol, *J. Biol. Chem.* **106**: 773-782 (March) 1935. Waddell, James: Process for Producing Antiricketic Substances, U. S. Patent 2,028,364, Jan. 21, 1936. Hathaway, Millicent L., and Lobb, Dorothy E.: The Provitamin D of Heat-Treated Cholesterol, *J. Biol. Chem.* **112**: 105-110 (Feb.) 1936.

15. Bills, C. E.; Koch, F. C.; and Ragins, Ida K.: Biochemical and Spectroscopic Studies on Purified Cholesterol, *J. Biol. Chem.* **76**: 251-261 (Jan.) 1928.



nature of this vitamin. In 1926 McDonald and I<sup>16</sup> obtained a crude antiricketic product by treating cholesterol with a clay catalyst. We observed that this vitamin D, unlike the vitamin D of cod liver oil or irradiated cholesterol, was resistant to destruction by butyl nitrite. Yoder,<sup>17</sup> in reconsidering our reaction, suspected that the active principle involved was a derivative of the hydrocarbon cholesterolene. He found that cholesterolene sulfonic acid is a vitamin D, not very active to be sure, but extremely interesting to the chemist.

The other curiosity was described by us<sup>18</sup> in 1931. We found that ergosterol, when treated with nitrites, yielded an antiricketic derivative. Little is known of its chemistry, except that it differs from Yoder's product and also from any form of the vitamin that is not resistant to nitrites. Neither of these two forms of vitamin D has come into practical use, and we are reasonably certain that neither occurs in fish oils.

Thus we distinguish eight forms of vitamin D, and it seems probable that others can be produced. In fact, the number of possible forms may well be as many as the number of sex hormones which, as sterol derivatives, are chemically related to the vitamins D. The study of the effect of slight differences in molecular configuration on vitamin action has only just begun.

During the past ten years we have assayed the liver oils of about 130 species of fish, including nearly all which are of major importance commercially. A number of these were less potent than cod liver oil, but the majority were more potent. The oils of certain species, particularly the big percomorphs, exhibited from 100 to 1,000 times as much vitamin D per gram as cod liver oil, when assayed with rats. It occurred to us, in view of the numerous vitamins D prepared in vitro, that the vitamin D of these vastly different fish oils might vary in kind as well as in concentration.

We assayed the liver oils of twenty-five species of fish with both rats and chicks, finding, indeed, that the different oils varied greatly, rat unit for rat unit, in their effectiveness on chicks.<sup>8a</sup> The largest difference was observed between the oil of white sea-bass, *Cynoscion nobilis*, and certain species of tuna. The former was about twenty times as effective for chicks, per rat unit, as the latter.

Since it is inconceivable that each species of fish has its own private form of vitamin D, it must be concluded that any given fish oil probably contains at least two vitamins D, the proportions of which vary with the species. In other words, the vitamin D of fish oils can no longer be regarded as a single substance. It remains to be demonstrated which, if any, of the known forms of vitamin D occur in fish oils and whether any particular form is therapeutically more desirable than any other.

#### SUMMARY

Eight forms of vitamin D have been artificially prepared. At least two forms occur in fish oils, which may or may not be identical with certain of those made in vitro.

16. Bills, C. E.: Antiricketic Substances: III. The Catalytic Formation of an Antiricketic Cholesterol Derivative, *J. Biol. Chem.* **67**: 753-758 (March) 1926. Bills, C. E., and McDonald, F. G.: Antiricketic Substances: IV. The Polymerization of Cholesterol, *J. Biol. Chem.* **68**: 821-831 (June) 1926.

17. Yoder, Lester: An Antiricketic Derivative of Cholesterol, *Science* **80**: 385-386 (Oct. 26) 1934. Yoder, Lester; Thomas, B. H., and Lyons, Malcolm: Experiments with a New Type of Antiricketic Substance, *J. Nutrition* **9**: (suppl.) 6 (June 10) 1935 (abstract of meeting of April 10).

18. Bills, C. E., and McDonald, F. G.: Experiments on the Synthesis and Isolation of Vitamin D, read before the American Association for the Advancement of Science, New Orleans, Dec. 30, 1931.

## THE PRESENT STATUS OF VITAMIN DEFICIENCIES IN PRACTICE

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It is becoming better and better recognized that the mild or latent forms of the vitamin deficiencies are more important in practice at present than the fully developed cases. The latter are uncommon, are easily recognized and are usually promptly and adequately treated. On the other hand there is reason to believe that minimal or mild forms of these diseases are much more frequent, often escape recognition and, because of their insidious effect on large numbers of people, constitute a more serious problem than the occasional advanced cases. It is true that the diagnosis of these mild forms is often difficult and uncertain. Nevertheless, there is available today much new knowledge of the vitamins which is applicable to the diagnosis and study of the milder forms of their deficiencies in patients. It is my purpose in this paper to describe the present means of diagnosis of the mild or early forms of each of the avitaminoses and to discuss briefly their incidence and certain aspects of treatment. No attempt will be made to present all the signs, symptoms or diagnostic procedures, even though they are present in the early and mild forms, my purpose being to select those which are most suitable, reliable and specific. Neither will it be possible to give a complete description of methods and technic in all cases. Because of the limitations of my experience, my remarks will deal principally with these disorders as they occur in adults.

A general statement regarding the incidence of these diseases should be made. In any given practice it will vary with the geographic location and with the economic status, age, sex and occupation of the patients. These, however, are factors that are of greatest importance in the primary or idiopathic forms of these diseases. Because of the probably high incidence of mild avitaminoses as complications of other disease, they must be of vital interest to all physicians irrespective of the nature of their practices.

#### VITAMIN A

Avitaminosis A is generally considered to be rare in this country, particularly among adults. For example, only four or five cases of xerophthalmia in adults have been reported in this country,<sup>1</sup> and in a recent questionnaire the number of cases of outspoken night blindness reported by a group of ophthalmologists was very small.<sup>2</sup> However, these are manifestations of severe A deficiency and do not measure at all adequately the incidence of the milder forms of this disease. Using newer methods of diagnosis, Jeans and Zentmire<sup>3</sup> recently reported forty-five cases of probable mild deficiency among a group of 213 children. In a more recent paper<sup>4</sup> the same authors found from 26 to 75

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1. Thorson, J. A.: Nutritional Xerophthalmia, *J. A. M. A.* **103**: 1438 (Nov. 10) 1934.

2. Hess, A. F., and Kirby, D. B.: Incidence of Xerophthalmia and Night Blindness in the United States: Gage of Vitamin A Deficiency, *Am. J. Pub. Health* **23**: 935 (Sept.) 1933.

3. Jeans, P. C., and Zentmire, Zelma: Clinical Methods for Determining Moderate Degrees of Vitamin A Deficiency, *J. A. M. A.* **102**: 892 (March 24) 1934.

4. Jeans, P. C., and Zentmire, Zelma: The Prevalence of Vitamin A Deficiency Among Some School Children, *J. A. M. A.* **106**: 996 (March 21) 1936.

per cent of children of different social groups with evidence of A insufficiency. Park<sup>5</sup> examined a large number of subjects, both adults and children, some supposedly normal and others suffering from different diseases, and found evidence of a mild deficiency in a considerable number. The work of Frandsen,<sup>6</sup> although

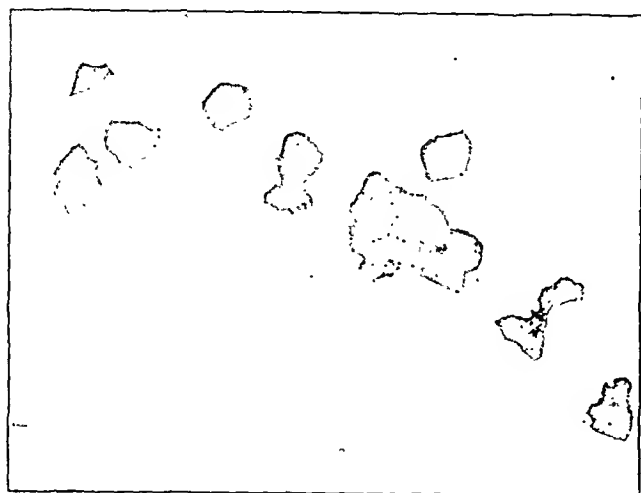


Fig. 1.—Smear from the bulbar conjunctiva of a white housewife, aged 52, who complained of vague pains in the arms, poor vision, pain and burning in the eyes and slight photophobia. There is marked cornification of all the cells.

done in Denmark, suggests that even in this country many more cases of mild vitamin A deficiency exist, both in children and in adults, than are recognized at present.

The earliest and the most reliable evidence of slight vitamin A deficiency is mild hemeralopia or a slightly lowered dark adaptation. The recent work of Jeans and Zentmire<sup>7</sup> and of Frandsen<sup>6</sup> seems to have demonstrated conclusively that clinically this symptom is most often a result of vitamin A deficiency and that it is often present long before other manifestations of the disease present themselves. In its earliest stages it may exist without the patient's knowledge or the patient may recall or recognize the symptom only after questioning. The abnormality may be detected by the use of the Birch-Hirschfeld photometer<sup>8</sup> or by the more simple apparatus described by Edmund and Ulrich Möller<sup>9</sup> and used by Helga Frandsen<sup>6</sup> in her study.

A second test consists of making a smear from light scrapings of the bulbar conjunctiva.<sup>10</sup> When properly stained, the presence of cornified epithelium indicates a deficiency of vitamin A (figs. 1 and 2). Sweet and K'ang<sup>11</sup> believe that this offers one of the most reliable methods of early diagnosis, though it is probable that in many cases hemeralopia precedes the changes in the conjunctiva. Nasal scrapings also may show a cornification of the epithelium. Asthenopia, poor vision, photophobia, Bitot's spots, conjunctival complaints and

a dryness and granular appearance of the bulbar conjunctivae when the lids are held open for a few minutes occur as early manifestations of A deficiency and, while not specific, should arouse suspicion and lead to further tests.

The specific lesions in the skin have been only recently described<sup>12</sup> and are not widely known. They consist of keratotic papules of varying size, distributed especially over the thighs, arms and shoulders, surrounding and arising from the pilosebaceous follicles. Microscopically the ducts are distended and the openings are plugged with masses of cornified epithelium. There is atrophy of the glands and hyperplasia of the epidermis. The eruption is more common in adults and is said to be rare in children, which is of some diagnostic importance. In a fully developed form the eruption probably represents a late or severe deficiency. However, less extensive eruptions may occur in the milder forms, and I have observed two patients with papular lesions of this nature which disappeared after treatment with cod liver oil (figs. 3, 4, 5 and 6). Recently Scheer and Keil<sup>13</sup> have reported that the papules of vitamin C deficiency in the earlier or milder cases may resemble very closely those of vitamin A lack and have suggested the combined use of the capillary resistance test and biopsy in diagnosis. In all cases of vitamin A deficiency, confirmation of the diagnosis may be obtained by the result of adequate treatment with vitamin A, the changes in the eye particularly responding promptly to this measure.

#### VITAMIN B<sub>1</sub>

The frequency of mild vitamin B<sub>1</sub> deficiency in this country is hard to estimate, though an endemic form

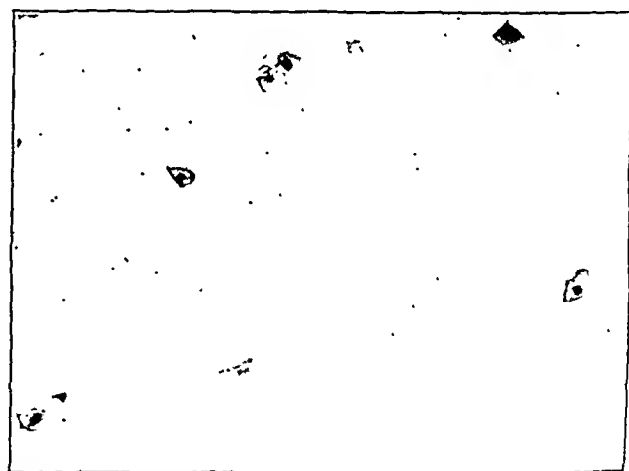


Fig. 2.—Smear from the same patient as in figure 1 after two weeks' treatment with cod liver oil. Many of the cells now are nucleated and show a return toward normal.

exists in Louisiana<sup>14</sup> and sporadic cases of beriberi or beriberi-like diseases are occasionally reported. Recent studies indicating that so-called alcoholic neuritis,<sup>15</sup> the

5. Park, I. O.: Preliminary Observations on Vitamin A Deficiency as Shown by Studies with Visual Photometer, *J. Oklahoma M. A.* 28: 357 (Oct.) 1935.

6. Frandsen, Helga: Hemeralopia as Early Criterion of A-Avitaminosis and Clinical Symptoms and Treatment of This Disease, *Acta. ophth. (suppl. IV)* 1, 1935.

7. Jeans and Zentmire (footnotes 3 and 4).

8. Birch-Hirschfeld, A.: On Night Blindness in War, *Arch. f. Ophth.* 92: 273, 1917.

9. Edmund, C., and Möller, H. U.: Vision in Light of Reduced Intensity, *Arch. Ophth.* 54: 531 (Nov.) 1925.

10. Blackfan, K. D., and Wollach, S. B.: Vitamin A Deficiency in Infants, *J. Pediat.* 3: 679 (Nov.) 1933.

11. Sweet, L. K., and K'ang, H. J.: Clinical and Anatomic Study of Avitaminosis A Among the Chinese, *Am. J. Dis. Child.* 50: 699 (Sept.) 1935.

12. Frazier, C. N., and Hu, C. K.: Cutaneous Lesions Associated with Deficiency in Vitamin A in Man, *Arch. Int. Med.* 48: 507 (Sept.) 1931. Loewenthal, L. J. A.: A New Cutaneous Manifestation in the Syndrome of Vitamin A Deficiency, *Arch. Dermat. & Syph.* 28: 700 (Nov.) 1933. Goodwin, G. P.: A Cutaneous Manifestation of Vitamin A Deficiency, *Brit. M. J.* 2: 113 (July 21) 1934.

13. Scheer, Max, and Keil, Harry: Follicular Lesions in Vitamin A and C Deficiencies, *Arch. Dermat. & Syph.* 30: 177 (Aug.) 1934.

14. Scott, L. C., and Herrmann, G. R.: Beriberi in Louisiana, *J. A. M. A.* 90: 2083 (June 30) 1928.

15. Strauss, M. B.: The Etiology of "Alcoholic" Polyneuritis, *Am. J. M. Sc.* 189: 378 (March) 1935. Jolliffe, N. H.; Cobert, C. N., and Joffe, P. M.: Observations on the Etiologic Relationship of Vitamin B (B<sub>1</sub>) to Polyneuritis in the Alcoholic Addict, *Am. J. M. Sc.* 191: 515 (April) 1936.

polyneuritis of pregnancy,<sup>16</sup> and other forms of peripheral neuritis<sup>17</sup> are in fact B<sub>1</sub> deficiency neuritis add additional groups of disorders to those caused by lack of this vitamin. Vorhaus, Williams and Waterman<sup>17</sup> have recently offered a clinical classification of B<sub>1</sub> deficiencies which includes a group with less specific



Fig. 3.—Papular lesions on the thigh of a Negress, aged 46, who complained of bronchitis, "pains all over," swelling of the feet, nervousness, weakness and anorexia.

symptoms such as anorexia, vague pains, weakness, indigestion and hypotonicity of the bowel (x-ray). If, as seems probable, such conditions are to be included, mild cases of the disease are common.

No conclusive symptom, sign or diagnostic test of minimal vitamin B<sub>1</sub> deficiency exists so far as I am aware. However, two procedures have recently become available which, together with symptoms suggestive of the disease, are helpful in diagnosis. The first is a calculation of the adequacy of the vitamin B<sub>1</sub> intake according to Cowgill's formula.<sup>18</sup> Jolliffe, Colbert and Joffe<sup>19</sup> have recently applied Cowgill's formula with great success in cases of so-called alcoholic neuritis. The second is the therapeutic test of giving the purified vitamin. The latter is, or will shortly be, available in a form suitable for parenteral administration. Unfortunately the signs and symptoms that would be expected to respond to this treatment are not specific and many of them are said to be caused by other vitamin deficiencies. Therefore, the absence of complete relief by adequate treatment does not preclude the presence of some avitaminosis B<sub>1</sub>.

#### VITAMIN B<sub>2</sub> (G)

The evidence with respect to the frequency of mild B<sub>2</sub> deficiency is much more convincing than in the case of B<sub>1</sub>. Assuming that pellagra is due to a deficiency of this factor, the condition is endemic in many parts of the South, and mild or early cases are common. More and more sporadic cases of pellagra are reported from other regions<sup>19</sup> and the existence of many mild or incomplete forms of the disease seems very probable.

Except for the dermatitis, the available means for the diagnosis of mild vitamin B<sub>2</sub> deficiency (pellagra) are

16. Plass, E. D., and Mengert, W. F.: Gestational Polyneuritis, *J. A. M. A.* **101**: 2020 (Dec. 23) 1933. Strauss, M. B., and McDonald, W. J.: Polyneuritis of Pregnancy, *ibid.* **100**: 1320 (April 29) 1933. Greenhill, J. P.: Trends in Gynecology and Obstetrics During 1933, *Am. J. Obst. & Gynec.* **28**: 461 (Sept.) 1934. Fouts, P. J.; Gustafson, G. W., and Zerfas, L. G.: Successful Treatment of a Case of Polyneuritis of Pregnancy, *ibid.* **28**: 902 (Dec.) 1934.

17. Vorhaus, M. G.; Williams, R. R., and Waterman, R. E.: Studies on Crystalline Vitamin B<sub>1</sub>: Experimental and Clinical Observations, *J. A. M. A.* **105**: 1580 (Nov. 16) 1935.

18. Cowgill, G. R.: The Vitamin B Requirement of Man, New Haven, Conn., Yale University Press, 1934.

19. Spies, T. D.: Treatment of Pellagra, *J. A. M. A.* **104**: 1377 (April 20) 1935.

no more satisfactory than in the case of B<sub>1</sub> deficiency. To the pellagra-conscious physician the presence of even slight changes in the skin consistent with the early dermal lesions of pellagra are sufficient to arouse a suspicion of the disease, as are the less specific symptoms of glossitis, diarrhea, digestive disturbances, and nervous and mental disorders. In addition to these symptoms there remains only a study of the diet and the therapeutic test, which in mild cases may be done by giving autoclaved yeast or, better still, the more potent liver extract, which may be given parenterally to avoid difficulties in absorption. Knowledge of the possible effects of deficiency of the other components of the B complex is still too incomplete to warrant a discussion of their clinical aspects.

#### VITAMIN C

Frank scurvy in adults is undoubtedly not common in most countries, though sporadic cases are occasionally reported, and it is found somewhat more frequently in children. In contrast, mild or latent scurvy or, better, a slight deficiency of vitamin C is probably very common. Harris and Ray,<sup>20</sup> using the newer clinical tests, found a number of children and adults who gave evidence of this condition, and many individual cases have been reported by others. My associates and I<sup>21</sup> found evidence of a mild insufficiency of vitamin C in twelve of fifteen adults whose diets were suspected of being inadequate in this factor. More significantly, of



Fig. 4.—Section of skin from the same patient as in figure 3, showing the hair follicle filled with a mass of keratinized debris.

a group of sixteen presumably normal subjects selected for controls eight were found to have evidence of this deficiency.

The recent isolation, identification and synthesis of vitamin C<sup>22</sup> (cevitamic acid) have made it possible to

20. Harris, L. J., and Ray, S. N.: Diagnosis of Vitamin C Subnutrition by Urine Analysis, *Lancet* **1**: 71 (Jan. 12) 1935.

21. Youmans, J. B.; Corlette, M. B.; Akeroyd, J. H., and Frank, Helen: Studies of Vitamin C. Excretion and Saturation, *Am. J. M. Sc.* **191**: 319 (March) 1936.

22. Zilva, S. S.: The Isolation and Identification of Vitamin C, *Arch. Dis. Child.* **10**: 253 (Aug.) 1935.



study the excretion of this vitamin and its content in the tissues and body fluids. Although a final decision regarding normal values must wait until optimum requirements under various conditions have been determined, three possible methods for determining an adequate intake, or store of vitamin C in the body, are available. These are (1) determinations of the daily excretion (urine), (2) a test of the body store ("saturation" or "retention" test) and (3) a determination of the amount of vitamin present in the blood plasma or serum.



Fig. 5.—Papular lesions in a diabetic girl, aged 20.

ration" or "retention" test) and (3) a determination of the amount of vitamin present in the blood plasma or serum.

The amount of vitamin C in the urine is determined by a simple titration method using various indicators, the most useful clinically being dichlorophenolindophenol.<sup>20</sup> Because single specimens vary greatly in their content, the twenty-four hour excretion must be measured. Specimens may be examined singly during the twenty-four hours or the twenty-four hour specimen, suitably preserved, may be used. The method is sufficiently simple for office use and is, in fact, less trouble than the quantitative estimation of dextrose in the urine. As a result of our studies we<sup>21</sup> have tentatively adopted an excretion of 20 mg. a day as the lower limit of normal excretion under usual circumstances. It should be emphasized that this does not necessarily represent an optimum state under any or all conditions.

The "saturation" or "retention" test<sup>20</sup> is performed by giving a large amount of vitamin C (600 mg. in adult) either as pure cevitamic acid or as orange juice, and determining the excretion in the urine in the twenty-four hour period during which the test dose is administered. In patients with a poor store of vitamin C the greater part of the test dose is retained (little is excreted), while in those with a good store a large part is eliminated. While final standards have

not been set, my associates and I have taken the excretion of at least 30 per cent of such a test dose as the lower limit of normal under ordinary conditions in an adult<sup>21</sup> (fig. 7).

Finally, the amount of vitamin C in the blood plasma or serum may be determined. Normal values have not been finally established and will vary, depending on whether total or reduced cevitamic acid is determined according to the method used.<sup>23</sup> Farmer and Abt<sup>23</sup> found from 1.030 to 2.29 mg. per hundred cubic centimeters of reduced cevitamic acid in adults, and from 0.819 to 1.374 mg. in children whose diets were believed to be satisfactory. The same authors found 0.687 and 0.917 mg. in two adults and 0.458 and 0.617 mg. in two children whose diets may have been deficient. In normal subjects on a usual or forced intake of vitamin C my associates and I, using a similar method, have found values of from 1.66 to 4.31 mg. per hundred cubic centimeters. In twelve patients whose diets were suspected of being low in vitamin C, some of whom showed signs and symptoms compatible with mild vitamin C deficiency, the values ranged from 0.254 mg. to 1.09 mg., with an average of 0.539 mg. However, the intake of even moderate amounts of vitamin C causes a quick, though temporary, rise in the blood. Furthermore, with a low vitamin C intake, for even a short period, the concentration in the blood falls to a relatively low level, though there is a good store



Fig. 6.—Same area as shown in figure 5 after six weeks' treatment with cod liver oil.

in the body and no evidence of a deficiency.<sup>24</sup> Obviously, both these factors must be taken into consideration in interpreting values found on examination of the blood.

23. Mirsky, I. A.; Swadesh, S., and Soskin, Samuel: Total Ascorbic Acid Content of Human Blood, *Proc. Soc. Exper. Biol. & Med.* 32:1130 (April) 1935. Farmer, C. J., and Abt, A. F.: Ascorbic Acid Content of Blood, *ibid.* 32:1625 (June) 1935.

24. Youmans, J. B., and associates: Unpublished data, 1936.

Besides these tests there is the test of capillary resistance. This procedure, as modified by Göthlin,<sup>25</sup> consists of counting the number of petechial hemorrhages that appear in an area of skin of 60 mm. diameter in the antecubital fossa, after fifteen minutes of venous stasis with a blood pressure cuff at a pressure of 50 mm. of mercury. The appearance of more than eight is considered positive, of less than five negative. Although not specific, the results of such a test have been found to correspond well to the probable state of vitamin C intake and store and the therapeutic administration of the vitamin.<sup>25</sup> In the absence of other causes for such hemorrhages, a positive test is strong evidence of a vitamin C deficiency.

#### VITAMIN D

Vitamin D deficiency appears to be uncommon in adults and occurs sporadically mainly as a complication in diseases that interfere with the absorption of food.

In children the presence of a deficiency in vitamin D may be readily shown by the presence of characteristic lesions in the long bones, as seen in roentgenograms. In the adult no satisfactory clinical test exists and in any question of vitamin D deficiency there is involved the problem of calcium, phosphorus and parathyroid hormone metabolism as well. Deficiency of vitamin D is to be suspected when the diet appears to be lacking in the vitamin, or in the presence of such conditions as osteoporosis, osteomalacia, tetany and insufficiently explained fractures. It is particularly to be looked for in the presence of conditions that lead to a greater demand for this vitamin, such as pregnancy or lactation, or in diseases that interfere with its absorption and utilization, such as celiac disease, chronic jaundice and external biliary fistula. In suspected cases the effect of adequate treatment with the vitamin may be helpful diagnostically.

#### VITAMIN E

Too little is known of the clinical effects of vitamin E deficiency to warrant an extended discussion of its frequency or diagnosis. The vitamin is held so tenaciously by the tissues, the source is so varied and the supply so abundant that deficiencies are probably rare. There is evidence,<sup>26</sup> however, that some cases of functional sterility and habitual abortion are caused by a lack of this vitamin and in such cases this deficiency is to be suspected.

From this review of the incidence and diagnosis of the avitaminoses it may be concluded that all who are engaged in practice must be conscious of the existence of these disorders and alert to detect them. Because these deficiencies occur not only as independent diseases but perhaps even more often as complications of other diseases, this applies not only to the physician in general practice and the internist but to every specialist as well. Any patient whose intake of food is restricted

from any cause, or in whom there is any interference with its absorption or utilization, or whose need for the vitamins is increased should be examined critically for the possible presence of a vitamin deficiency.

One's suspicions having been aroused, the further steps in study, diagnosis and treatment may be outlined briefly as follows: First, a careful scrutiny of the diet. I would emphasize the necessity for careful and detailed, often minute, inquiry. The importance of the quantitative factor in diets alone makes this necessary. Much too often in the past, physicians have been satisfied with a few cursory questions. I have found it helpful to have the patient record the kind and amount of food eaten over a period of a week or more. While errors are possible with this method, it has proved a valuable aid in diagnosis, and I have frequently been astonished at the dietary deficiencies it has disclosed. It is also useful as a basis for further questioning at a subsequent visit.

The second step is to test by such methods as those just described for the presence of the various vitamin deficiencies. Because of the frequency of multiple deficiencies and the similarity of the symptoms produced by them, particularly in mild deficiency states, it will often be necessary to test for the presence of several deficiencies, though symptoms and a consideration of the diet may indicate that which is probably preponderant.

The third step is treatment with the specific substances. This may also be of considerable diagnostic importance.

In treatment a number of factors may influence the response and hence are important diagnostically and therapeutically.

When the therapeutic test is used, the preparations should be as pure as possible. Because of multiple deficiencies, treatment with several of the vitamins may be necessary and it may be helpful to administer them successively. The factor of dosage is of great importance, particularly in treatment or cure as contrasted with prevention. This is especially true when the avitaminoses complicate other diseases, when there is interference with absorption and utilization, or an increased demand. When absorption by the usual routes is hindered, administration should be by routes that insure absorption. In prophylaxis, in very mild deficiencies or to maintain a cure, considerations of economy and palatability, as well as common sense, indicate the use of natural foodstuffs. In these circumstances, however, it will be necessary to insure availability, proper preparation of food, and the continuance of an adequate intake.

At the present time no pure or injectable preparations of vitamin A are available and for administration the richest preparations are certain fish oils. Carotene, the precursor of vitamin A, may be given, even parenterally, but the evidence of Drummond, Bell and Palmer<sup>27</sup> would suggest that under many conditions

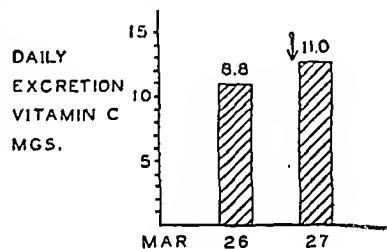


Fig 7.—Daily excretion of vitamin C and result of saturation test in a woman, aged 61, with edema, hypoproteinemia, gingivitis and dermatitis; 600 mg. of vitamin C was given at the point marked by the arrow without any significant increase in the daily excretion.

25. Göthlin, G. F.: Outline of a Method for the Determination of the Strength of the Skin Capillaries and the Indirect Estimation of the Individual Vitamin C Standard, *J. Lab. & Clin. Med.* 18: 484 (Feb.) 1933.

Other modifications are described by:

Falk, G.; Gedda, K. O., and Göthlin, G. F.: An Investigation into the Strength of the Skin Capillaries and Indirectly into the Vitamin C Standard of School Children in the District of Norrbotten, North of the Arctic Circle, *Skandinav. Arch. f. Physiol.* 65: 24, 1932.

Dalldorf, Gilbert: A Sensitive Test for Subclinical Scurvy in Man, *Am. J. Dis. Child.* 46: 794 (Oct.) 1933.

Greene, David: Evaluation of the Capillary Resistance Test in the Diagnosis of Subclinical Scurvy, *J. A. M. A.* 103: 4 (July 7) 1934.

Molish, Mathew, and Cousins, R. F.: Subclinical Scurvy in Children, *J. Lab. & Clin. Med.* 21: 43 (Oct.) 1935.

Wright, I. S., and Lilienfeld, Alfred: Pharmacologic and Therapeutic Properties of Crystalline Vitamin C (Cevitamic Acid), *Arch. Int. Med.* 57: 241 (Feb.) 1936.

26. Watson, E. M.: Clinical Experiences with Wheat Germ Oil (Vitamin E), *Canad. M. A. J.* 34: 134 (Feb.) 1936.

27. Drummond, J. C.; Bell, M. E., and Palmer, E. T.: Observations on Absorption of Carotene and Vitamin A, *Brit. M. J.* 1: 1208 (June 15) 1935.

vitamin A is to be preferred to carotene because the former is better absorbed by mouth.

Vitamin D is available in concentrated form, and large doses may easily be given by mouth or through the skin. Only in the case of this vitamin does there appear to be any danger of inducing a hypervitaminosis. The toxic dose is so large, however, that this danger is encountered only rarely. The symptoms of early hypervitaminosis D have been summarized by Bills.<sup>28</sup>

The need for vitamin B<sub>1</sub> is affected by so many factors that it seems unwise to set any single amount as the minimum requirement, and little is known about the optimal supply. Vorhaus, Williams and Waterman<sup>27</sup> believe that the minimum daily therapeutic dose that can be relied on to abolish any accumulated deficit and supply current needs is 10 mg. of the pure material. Vitamin B<sub>1</sub> will soon be available commercially in pure crystalline form, injectable and hence of value in ensuring adequate intake and certain absorption. However, because other fractions of the vitamin B complex may be concerned in the production of symptoms, it may often be advisable in treatment to employ more complex products, such as the concentrated yeast and wheat germ preparations.

In pella<sub>ra</sub>, Spies<sup>19</sup> has shown that energetic treatment by diet, symptomatic measures and the administration of large doses of vitamin preparations, including liver extract or ventriculin, orally or parenterally, will greatly reduce the mortality in even desperate cases. The need for intensive treatment varies with the severity of the illness, and mild cases will permit the use of specific substances alone when a therapeutic test is desired. Subsequent control of the diet is important to prevent relapses, especially in cases in which there are difficulties in absorption.

Pure vitamin C (cevitamic acid) is now available at prices that compare favorably with orange juice. Minimum protective doses are usually considered to be in the neighborhood of from 25 to 40 mg. daily, but knowledge of the occurrence of mild deficiencies suggests that this amount should be larger and optimal amounts considerably greater. When necessary, pure vitamin C may be given intravenously if precautions are taken to neutralize it when large doses are given. When vitamin C is administered in the form of fruit juice the vitamin content should be determined, especially in the case of canned juice, some brands of which contain practically no vitamin C.<sup>29</sup> Natural juice also varies in its potency, and caution should be taken to avoid loss by standing.

It is to be feared that the frequency of these disorders, the presence of multiple deficiencies in many cases and the absence of clear cut signs or symptoms in the milder forms will foster careless and incomplete diagnosis and the complacent acceptance of such general terms as "deficiency disease," "multiple avitaminosis" and the like. This attitude will in turn lead to the uncritical use of complex mixtures in treatment.<sup>30</sup> Such a practice is no more justified than failure to diagnose other diseases accurately. One might as consistently make a diagnosis of heart disease and give digitalis, glyceryl trinitrate, diuretics and thyroid extract, without attempting to determine the etiology, pathologic

changes and functional disorders. The only proper procedure in every case of suspected vitamin deficiency is to determine the nature of the deficiency and the pathologic and functional changes resulting from it, as completely as possible. In this way the clinician not only insures accurate, complete diagnosis and proper treatment but is able to contribute to our knowledge of the vitamins as they relate to human health.

#### SUMMARY

Briefly, the minimal forms of vitamin deficiencies are important problems in all forms of practice. Although diagnosis is more difficult in these cases, there are available methods which may be employed successfully in many cases, and every effort should be made to secure an early and accurate diagnosis. For the early diagnosis of vitamin A deficiency there is available a test of slight hemeralopia and the examination of smears from the bulbar conjunctivae. In vitamin B<sub>1</sub> deficiency states the adequacy of the vitamin intake may be calculated as a presumptive test, to be substantiated by the results of treatment with the pure vitamin. In mild vitamin B<sub>2</sub> deficiency, diagnosis depends on suggestive clinical symptoms, a study of the diet and the therapeutic results of relatively pure products such as autoclaved yeast and liver extracts. Slight degrees of vitamin C deficiency may be detected by urinalysis and the response to large test doses of the vitamin. The diagnosis of vitamin D deficiency in adults is difficult because of the complicating factors of calcium, phosphorus and parathyroid metabolism. At the present time vitamin E deficiency may be suspected only by the presence of clinical symptoms and a consideration of the diet. In most cases potent and concentrated preparations of the vitamins are available for critical and scientific treatment of these deficiency states.

#### ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WOLBACH, BILLS AND YOUNG

DR. ARTHUR F. ABT, Chicago: Dr. Chester J. Farmer and I have recently completed an investigation on the concentration of cevitamic acid (reduced) in the blood plasma in normal and abnormal states. By the use of a microchemical method devised by us, we have determined the reduced cevitamic acid content of the blood plasma in a group of infants and children on adequate vitamin C containing diets. No correlation between the age of the individual and the cevitamic acid content of the blood plasma could be demonstrated. Our results fail to substantiate the synthesis of cevitamic acid in infants. A definite correlation between blood plasma values and capillary skin resistance tests could not be demonstrated. Single determinations of cevitamic acid in the blood plasma are an accurate index for the detection of clinical scurvy. From our experience to date, we feel that the level (in milligrams per hundred cubic centimeters) of reduced cevitamic acid in a single blood sample taken on a fasting stomach is indicative of the tissue saturation. Blood tolerance curves and twenty-four hour urine excretion values bear out this opinion. In other words, if one wishes to investigate tissue saturation to determine whether there is a prevalence of subclinical scurvy or whether a number of children in any region are lacking in dietary vitamin C, single blood determinations will give the desired information. We now have a technic whereby, instead of puncturing a vein, we may take a few drops of blood from the finger or heel, which will yield an accurate value and which we feel is a much simpler method than taking twenty-four hour urine specimens. With the aid of the microchemical method, hourly blood determinations can be plotted. Our results indicate that the occurrence of congenital scurvy is possible. We feel that cevitamic acid blood plasma values are a better index in healing scurvy than tests for capillary skin resistance or serial

28. Bills, C. E.: Physiology of Sterols, Including Vitamin D, *Physiol. Rev.* 15:1 (Jan.) 1935.

29. Youngman, J. B.; Corlette, M. B.; Akeroyd, J. H., and Frank, Helen: A Clinical Study of Vitamin C Excretion, *South. M. J.* 29:37 (Jan.) 1936.

30. Shotton Vitamin Therapy, Report of the Council on Pharmacy and Chemistry, *J. A. M. A.* 105:1037 (Sept. 28) 1935.

x-ray films of the long bones. Blood plasma values show a rapid rise in a healing scurvy, and a single blood determination is more informative than a single or twenty-four hour urinary determination. We conclude that the cevitamic acid (reduced) content of the blood plasma varies directly with the vitamin C content of the diet. If complete metabolism studies on vitamin C are to be made, absorption by the gastro-intestinal tract must be considered and it must also be recognized that there are other channels of excretion than the urine. It is already known that cevitamic acid is present in significant quantities in the saliva and the milk. Elimination through the gastro-intestinal tract must also be considered in diarrheal states, so common in infancy and childhood.

DR. S. B. WOLHACH, Boston: I should have explained what I meant by specific starvation. In vitamin A deficiency, for example, the cell in one sense is not starved; in fact, I think that the proliferative power of the epithelial cell as shown by its regeneration is increased, yet that cell is not able to do something it formerly did, and that is the connotation I wish to give to specific starvation, not cell hunger in the broad sense.

## THE OLFACTORY BULBS IN EXPERIMENTAL POLIOMYELITIS

THEIR PATHOLOGIC CONDITION AS AN INDICATOR  
OF THE PORTAL OF ENTRY OF  
THE VIRUS

ALBERT B. SABIN, M.D.

AND

PETER K. OLITSKY, M.D.

NEW YORK

It has been repeatedly shown by many investigators<sup>1</sup> that when the virus of poliomyelitis is instilled intranasally in rhesus monkeys it enters the central nervous system by way of the olfactory nerves and bulbs. Our purpose in the present communication is to describe the pathologic changes produced by the virus in its passage through the olfactory bulbs and to present evidence that these changes occur only when the virus has reached the bulbs from the periphery by way of the olfactory nerves and not when the invasion of the central nervous system is by other pathways.

Experimental poliomyelitis in rhesus monkeys was produced almost constantly by instilling 1 cc. of a 10 per cent virus suspension (M. V. strain) into each nostril on one day and repeating the process forty-eight hours later. With this procedure the first rise of temperature occurs between the fourth and sixth days and paralysis first appears on the seventh to ninth days after the first instillation of virus. The olfactory bulbs were fixed in Zenker's fluid containing 5 per cent glacial acetic acid, embedded in paraffin, and sections cut at 5 microns were stained with phloxine and methylene blue. As a rule the entire bulb was embedded with the anterior pole downward, and transverse sections were obtained from at least four to six different levels.

The earliest examination was made on the fourth day after the first dose of virus. At this time the lesions were already present and involved several layers of the olfactory bulbs from without inward. The outer layer of olfactory nerve fibers and the adjacent layer of

glomeruli were diffusely infiltrated with inflammatory cells, consisting of polymorphonuclear leukocytes, mononuclear cells and lymphocytes. Polymorphonuclear cells were also scattered through the lamina granulosa externa and the lamina gelatinosa, the layers between the glomeruli and the mitral cells. The large mitral cells, which at the glomeruli are in synaptic relation with the primary olfactory neurons situated in the nasal mucosa, showed advanced necrotic changes, while the smaller cells in the internal granular layer among which they lie appeared to be generally well preserved. Many of the mitral cells were reduced to structureless, acido-

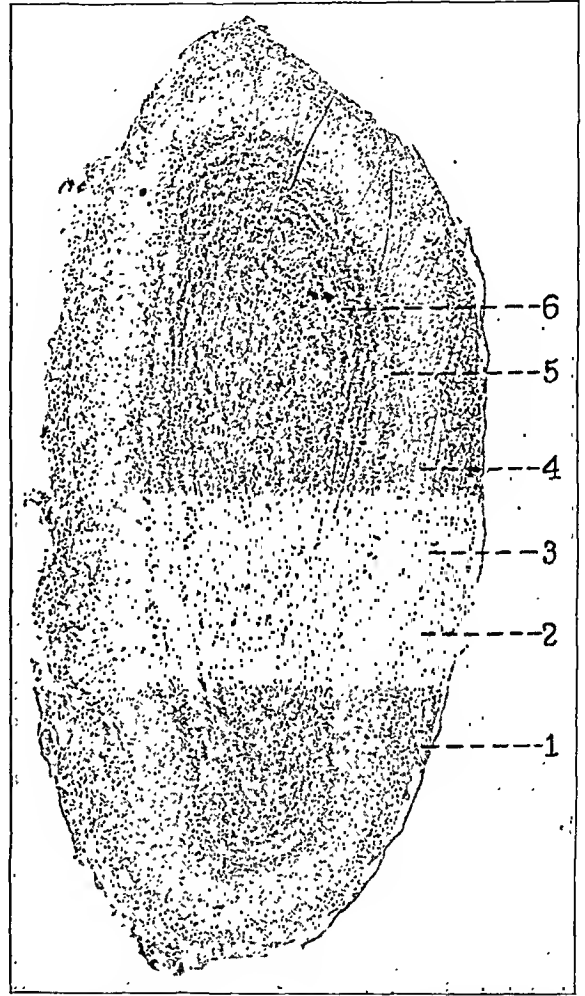


Fig. 1.—Transverse section of olfactory bulb of normal *Macacus rhesus* monkey: 1, lamina fibrorum nervi olfactorii; 2, lamina glomerulosa; 3, lamina granulosa externa; 4, lamina gelatinosa; 5, lamina cellularum mitralium; 6, lamina granulosa interna.  $\times 40$ .

philic masses with pyknotic, shrunken nuclei, and some were undergoing neuronophagia. With these changes in the olfactory bulbs on the fourth day after instillation and approximately four days before the onset of paralysis the spinal cord still appeared normal, while lesions were already present in the diencephalon, mesencephalon and pons. In monkeys examined after the onset of paralysis or post mortem, further changes in the olfactory bulbs consisted of neuronophagia of the involved mitral cells and an increased inflammatory process in the peripheral layers where the blood vessels showed characteristic perivascular cuffing. With the exception of an occasional polymorphonuclear leukocyte, no lesions were seen in the center of the bulb.

From the Laboratories of the Rockefeller Institute for Medical Research.

1. Flexner, Simon, and Clark, P. F.: A Note on the Mode of Infection in Epidemic Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* **10**:1, 1912. Faber, H. K., and Gebhardt, L. P.: Localizations of the Virus of Poliomyelitis in the Central Nervous System During the Preparalytic Period, After Intranasal Instillation, *J. Exper. Med.* **57**:933 (June) 1933. Brodie, Maurice, and Elvidge, A. R.: The Portal of Entry and Transmission of the Virus of Poliomyelitis, *Science* **79**:235 (March 9) 1934. Schultz, E. W., and Gebhardt, L. P.: Olfactory Tract and Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* **31**:728 (March) 1934.

beyond the layer of mitral cells. Intranuclear inclusions of the type described in experimental poliomyelitis<sup>2</sup> were not found in the bulbs even when examined on the fourth day, probably because necrosis had already advanced to too late a stage. That the method was suitable for demonstrating them is evident from the fact that they were observed elsewhere in the central nervous system.

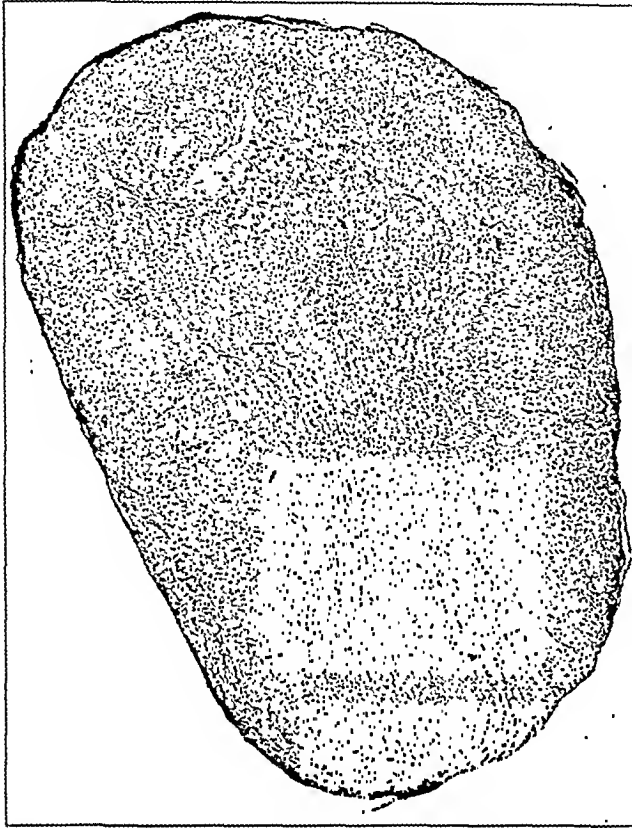


Fig. 2.—Transverse section of olfactory bulb four days after nasal instillation of poliomyelitis virus. At this magnification only the diffuse inflammatory reaction in the outer layers is perceptible.  $\times 40$ .

The pathologic changes just described were found in the olfactory bulbs of each of the eighteen monkeys that had been infected by the intranasal route and examined for the most part at the termination of the disease. The type and extent of the lesions varied in individual animals. In some many mitral cells were destroyed, while in others only a few. The intensity of the peripheral inflammatory reaction did not appear to depend on the number of necrotic nerve cells, for it was marked in some bulbs with only a few damaged cells; in others the outstanding lesion was neuronophagia of many mitral cells, with little or no meningeal or perivascular reaction. Although the virus was instilled in both nostrils, one of the olfactory bulbs frequently showed more extensive lesions than the other, and in five of sixteen monkeys in which both bulbs were in suitable condition for adequate examination, only one of the two appeared to be involved. The unilateral involvement of the olfactory bulbs in almost a third of the number of animals under the present experimental conditions clearly points to the necessity of studying both bulbs in each instance.

2. Covell, W. P.: Nuclear Changes of Nerve Cells in Acute Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* 27:927 (June) 1930. Hurst, E. W.: The Occurrence of Intranuclear Inclusions in the Nerve Cells in Poliomyelitis, *J. Path. & Bact.* 34:331 (May) 1931.

In order to throw more light on the nature and specificity of the described pathologic changes, it appeared desirable to study the olfactory bulbs of immune, convalescent monkeys resistant to nasal instillation of the virus suspensions. Four convalescent monkeys with residual paralysis that had previously been shown to be resistant to reinoculation were tested. Two of them had their primary infection by the nasal route three and one-half months, one by the intracerebral three and one-half months and another by the same route two and one-half months previously. After receiving virus intranasally, as a result of which control monkeys instilled simultaneously succumbed with poliomyelitis, they were killed two, four, five and seven days after instillation and their olfactory bulbs examined. None of the lesions just described were detected in any of them, thus yielding additional evidence that

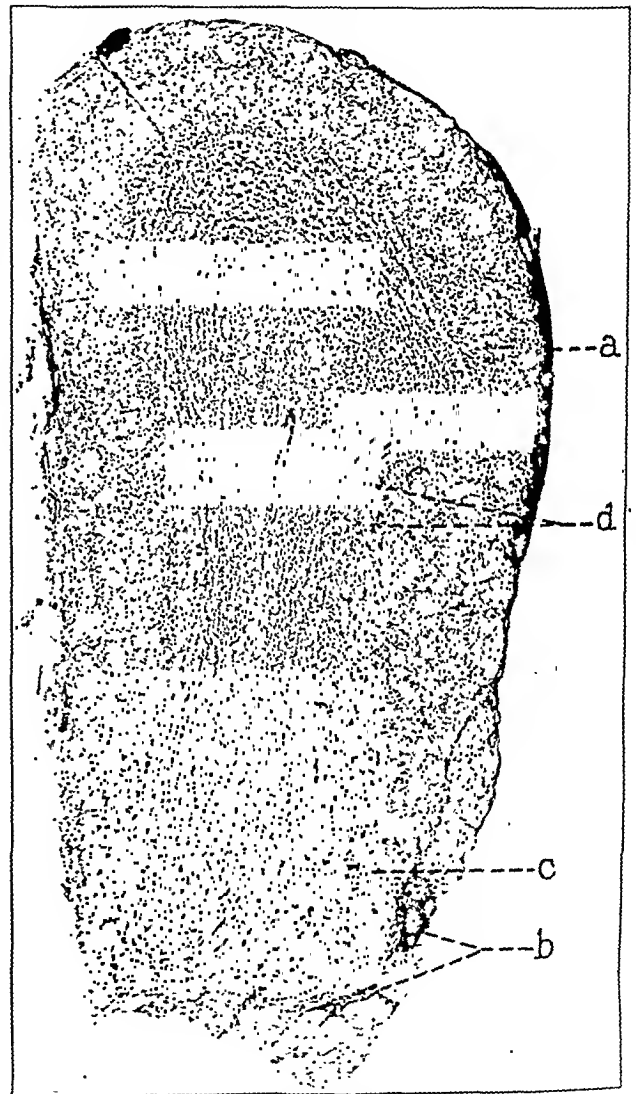


Fig. 3.—Transverse section of olfactory bulb of monkey succumbing to experimental poliomyelitis eight days after nasal instillation of virus. Note dense cellular infiltration at *a*, perivascular cuffing at *b*, aggregate of inflammatory cells in glomerular region at *c* and neuronophagia of mitral cells at *d*.  $\times 40$ .

these pathologic changes are the result of active infection of the olfactory bulbs with the virus of poliomyelitis. It also became apparent that three and one-half months after infection by way of the nose the lesions observed during the acute stage may have disappeared, leaving evidence only of reparative changes.



That these pathologic changes may serve to indicate the portal of entry of poliomyelitis virus became evident from an examination of the olfactory bulbs of thirteen monkeys succumbing to the experimental disease induced by intracerebral, subcutaneous, intra-ocular and intrasciatic inoculation. Although the disease had been purposely allowed to run its full course in these monkeys, the olfactory bulbs appeared entirely normal. It is

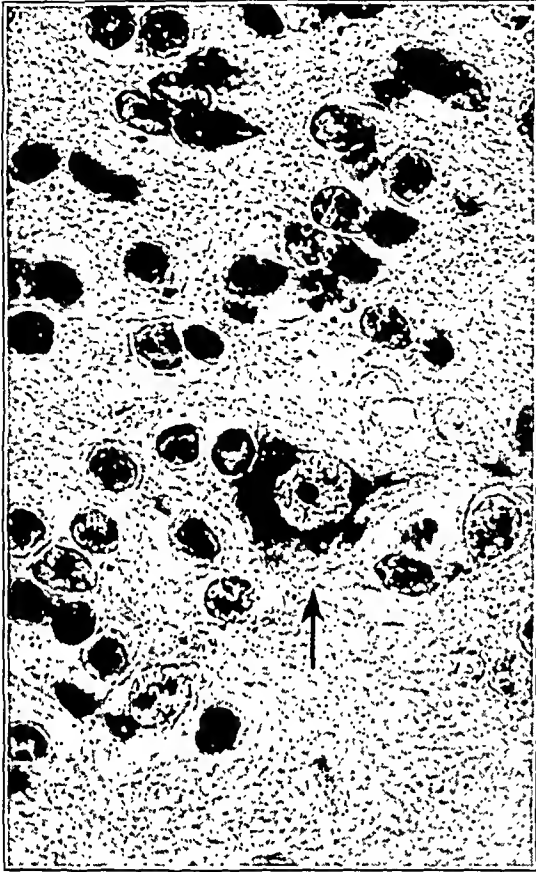


Fig. 4.—Mitral cell amid smaller cells of internal granular layer in normal olfactory bulb.  $\times 1,000$ .

clear, therefore, that virus introduced directly into the brain or reaching the central nervous system by nerves other than the olfactory fails to induce the characteristic lesions in the bulbs. Recently it has been suggested by several investigators<sup>3</sup> that when large amounts of poliomyelitis virus are injected intravenously it may, after being eliminated on the nasal mucosa, invade the central nervous system by way of the olfactory nerves. The olfactory bulbs of three monkeys succumbing to poliomyelitis after intravenous injection of the virus were examined, and while typical lesions were found in one case there was none in the other two. These results indicate that virus from the blood stream can reach the central nervous system not only by way of the olfactory nerves but also by other pathways.

Although most investigators, and notably Flexner, believe that the nose is the natural portal of entry of the virus in man, others maintain that under certain conditions the gastro-intestinal route may supply the pathway for invasion of the virus. That postmortem

examination of the olfactory bulbs can supply valuable data regarding this question is evident from the results presented in this communication. Yet, as stated by Faber<sup>4</sup> in his review of work done on poliomyelitis up to 1933, "Little or no attention appears to have been devoted to the pathology of the olfactory bulb in poliomyelitis. It is a familiar fact that, unless special care is observed, the olfactory bulb, firmly attached as it is by the numerous olfactory nerves, is likely to be torn off when the brain is removed at necropsy, and so fail to be examined. This is the only explanation that occurs to me for the uniform failure to note either the macroscopic or microscopic appearance of the structure in the protocols available in the literature. Harbitz and Scheel briefly note in one case that the olfactory bulb was normal—the only instance in which I have found it mentioned."

Since then only the work of L. W. Smith,<sup>5</sup> reported in 1934, has come to our attention. This investigator studied microscopically fifty-six olfactory bulbs from about forty cases<sup>6</sup> of human poliomyelitis and stated that this examination "has shown a surprisingly small

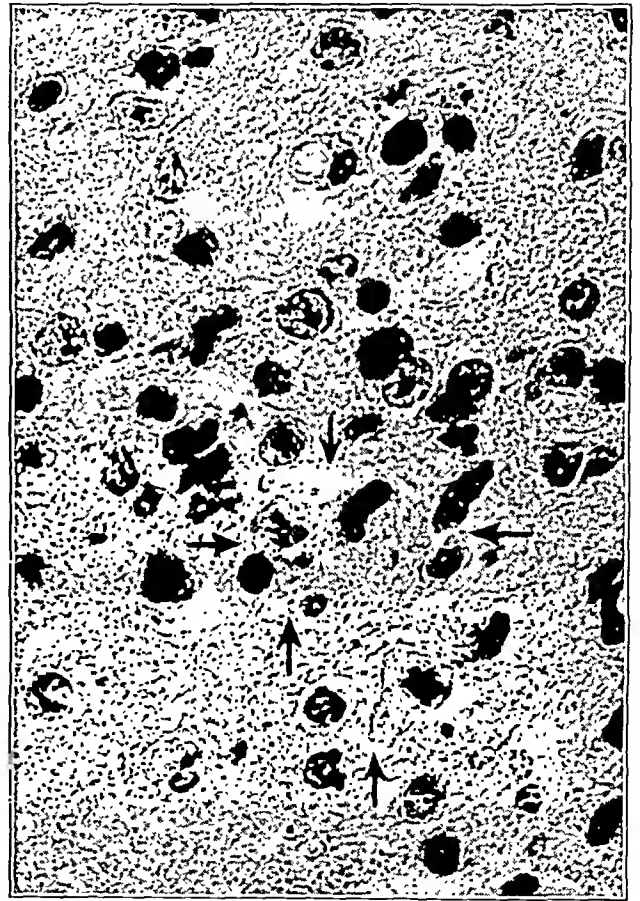


Fig. 5.—Mitral cell layer in olfactory bulb four days after nasal instillation of poliomyelitis virus. Note one necrotic mitral cell and another in an early stage of neuronophagia.  $\times 1,000$ .

amount of pathological change. There has frequently been edema and congestion, harbingers of more extensive damage, but in less than a fourth of them do the

3. Lennette, E. H., and Hudson, N. P.: Relation of Olfactory Tracts to Intravenous Route of Infection in Experimental Poliomyelitis. *Proc. Soc. Exper. Biol. & Med.* 32:1444 (June) 1935. Armstrong, Charles: Prevention of Intravenously Inoculated Poliomyelitis of Monkeys by Intranasal Instillation of Picric Acid, *Pub. Health Rep.* 51:241 (March 6) 1936.

4. Faber, H. K.: Acute Poliomyelitis as a Primary Disease of the Central Nervous System, *Medicine* 12:83 (May) 1933.

5. Smith, L. W., in Landon, J. F., and Smith, L. W.: Poliomyelitis: A Handbook for Physicians and Medical Students, Based on a Study of the 1931 Epidemic in New York City, New York, Macmillan Company, 1934, p. 50.

6. Smith, L. W.: Personal communication to the authors.

characteristic cellular infiltrative changes, as seen in the ganglia and nerve roots, appear. Either any inflammatory reaction in these organs is extremely short lived, unlike the lesions of poliomyelitis elsewhere in the central nervous system, or the virus passes along these structures without leaving its identifying signature. A third possibility, which strikes us as more logical, in view of the essential difference in the nature of the pathological lesions, is that the olfactory bulb in human beings is not necessarily as frequent a pathway for the

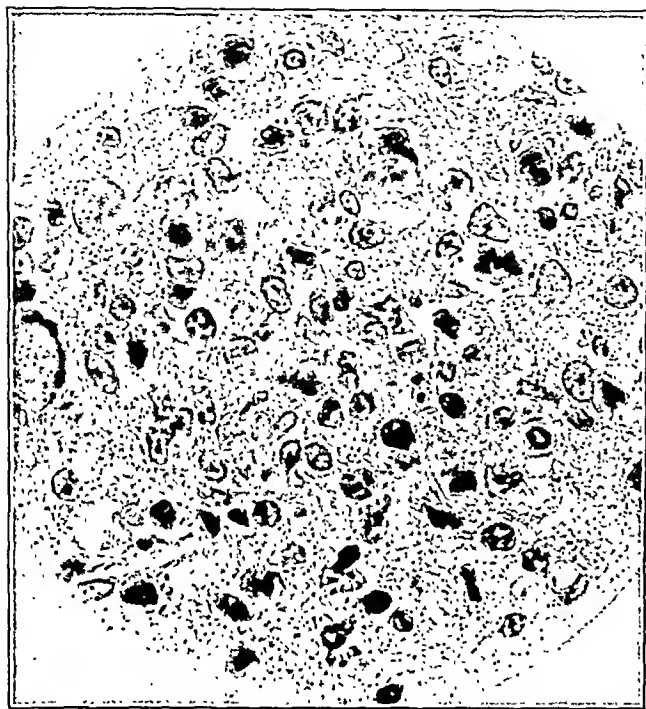


Fig. 6.—Advanced neuronophagia in mitral cell layer of olfactory bulb eight days after inoculation.  $\times 684$ .

virus as is commonly held, and that nerve roots elsewhere are equally important portals of entry, possibly indirectly by way of the blood stream to their ganglia.”<sup>6</sup> Our own investigation shows that in experimental poliomyelitis the inflammatory reaction is not short lived and that the virus does not pass through the olfactory bulbs without producing characteristic changes. The third possibility just quoted should therefore receive careful consideration; and further studies on human material, particularly in the light of the nature of the bulb lesions in experimental poliomyelitis and the frequency of apparently unilateral involvement, should be of distinct aid in establishing the portal of entry of poliomyelitis virus in man.<sup>7</sup>

#### SUMMARY

1. The virus of poliomyelitis produces characteristic lesions in the olfactory bulbs of rhesus monkeys when it invades the central nervous system by way of the olfactory nerves.

2. These lesions are absent when the invasion of the central nervous system is by other pathways.

3. Postmortem examination of the olfactory bulbs may therefore serve to indicate the portal of entry of the virus under natural conditions.

Sixty-Sixth Street and York Avenue.

7. The authors are at present collecting a series of olfactory bulbs from cases of human poliomyelitis and would greatly appreciate the cooperation of pathologists who would send such material for study.

## PLANTAR WARTS, FLAPS AND GRAFTS

VILRAY P. BLAIR, M.D.  
JAMES BARRETT BROWN, M.D.  
AND  
L. T. BYARS, M.D.  
ST. LOUIS

Foot discomfort may vary from an intermittent annoyance to a real calamity, depending on its intensity and also on the occupational and social status of the individual. A nail or a pebble inside the shoe can make normal walking next to impossible; likewise can a plantar wart or a residual hard scar if located at a bearing point. Further, prolonged use of an unnatural stance can apparently lead to secondary changes, which may be persistently annoying long after the primary cause has been removed. After successful treatment of the wart or its local sequelae, the patient may still remain crippled. An antecedent static fault has been suggested as one, or a contributing, cause, but in our limited experience the static changes appeared to be secondary rather than primary.

Plantar warts are not of rare occurrence, and their clinical behavior and therapeutic response might suggest that they are not all of similar origin. A rather common tendency to recurrence or multiplication after a surgical excision also suggests the possibility that at least some are infectious in origin. Some prove very sensitive to radium or roentgen therapy, while others of exactly similar appearance are resistant. Some disappear spontaneously, as may happen in other parts of the body or after the prolonged use of salicylic acid held in contact with adhesive plaster.

Radium or x-rays in doses well within the limits of safety is probably the best tentative plan of treat-

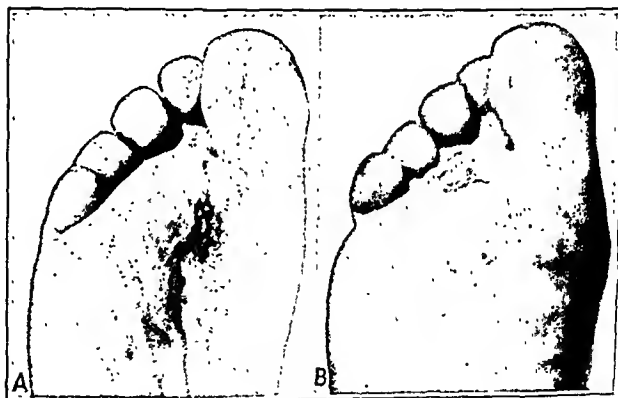


Fig. 1.—A young woman in the better station of life had a plantar wart appearing seven years ago, which had been treated repeatedly with radium and x-rays. In November 1931 she presented herself for treatment for the wart from which she supposed she was still suffering. *A*, a mass of scar at the site of the original wart. For fear that some of the wart elements might still exist, this scar was removed with the cutting cauterizer and at a later period (April 1932) a pedicle flap with its base behind the small toe was raised from the loose sole tissue between the bearing surface of the ball and the toes. This flap was swung backward into the defect, which had been refreshed. Note in *A* the persistence of the normal skin under the ball of the great toe, while in *B* is shown a large callus, recently pared, which appeared sometime after the transfer of the flap. Since the patient lived in a distant city, it was difficult to get a satisfactory orthopedic follow up. Somewhat recently she came under the care of Dr. Ellis Jones, who, from her reports, seems to have been able to give her perfect relief by proper foot padding.

ment, but excessive irradiation can be quite disastrous. Too often a patient seeking relief has for years been

Read before the Section on Surgery, General and Abdominal, at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

under treatment for a wart that had long since disappeared, the aggravated symptoms being due to pressure of a weight bearing bony point on a deeply penetrating radiation scar or a callus due to secondary static changes. If the wart has not entirely disappeared a month or six weeks after a moderate dosage of radiation, one of two plans should be followed: One plan is knife excision and immediate suture; the other

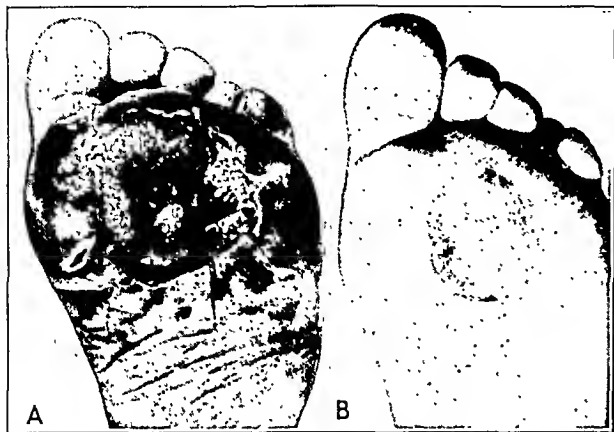


Fig. 2.—The foot of a very heavy professional man, who had been almost totally incapacitated because of a plantar wart on the middle of the ball of the foot. It was treated with x-rays. *A*, an acute dermatitis which appeared some weeks after the patient had gone to a seashore resort. For some rather inexplicable reason, a wide surgical removal of the damaged area was made in the acute stage of the inflammation. The destruction of the fat pad down to the bone left the man almost unable to walk. *B*, correction by the transplantation of a pedicle flap of skin and fat from the calf of the right leg. This has given a comfortable bearing pad, but the skin has been slow to respond to environmental change and for a long time he wore adhesive plaster for its protection.

is accurately limited actual cautery destruction. The latter is simple and effective and, if the wart is not large, is ordinarily neither long confining nor followed by a painful scar, provided the surrounding skin and underlying fat have been spared. This has been our procedure of choice.

A reaction from excessive irradiation may result from oversensitivity of the individual, overdosage, or both, but ordinarily it will not have been pushed beyond production of a dermatitis. This, although painful, will usually, if not further irritated, subside spontaneously, possibly leaving a small area that will require but relatively simple surgical repair. The most crippling results have come from ill advised treatment of a postirradiation disturbance. Here, as elsewhere, acute radium or x-ray burns are decidedly intolerant of a wide range of chemical applications. Among these is bromine, which is an ingredient of certain analgesic applications that have proved to be quite soothing in various other conditions, but here its use has been followed by great aggravation, even causing massive slough of the inflamed area. Another unfortunate procedure is the early removal of the skin and fat pad from the inflamed irradiated area. Under these circumstances patients have suffered for years before the necessity for an extensive repair has been recognized.

A distressing "cornlike" scar that may follow the primary wart destruction should be completely excised, and if the defect is small it can be closed by skin suture, perhaps with some drawing together or switching of the fat pad. For larger defects that cannot be corrected by these simpler plans, a pedicle flap which includes skin and part thickness of the pad can be switched from a non-weight bearing surface of the sole, either

of the front of the ball just behind the toes or of the inner half of the central part, and the resulting defect is immediately covered by a skin graft. If the skin alone is missing but with sufficient fat pad persisting, this can be covered with a thick split graft. Even when there has been a very large loss of both skin and pad, as occurs from fire burns, or accidents caused by the automobile or machinery, a split skin graft placed directly on the muscles or granulations will effect immediate coverage, and the subsequent use of a fine meshed sponge rubber insole will serve as a partial, but more or less practical, substitute for the lost fat pad. In the few instances in which I have transferred a fat-skin flap from the calf of the other leg to the bearing surface of the sole, the result has proved somewhat disappointing. The leg fat lacks the tough resilience of the normal sole pad, and the epithelium of the transplanted skin itself fails to harden to its new task. In one case I achieved my end by constantly protecting the transplanted skin with adhesive plaster. In another, a quite satisfactory final result was obtained by excising two persistent "trophic" ulcers, and immediate split skin grafting to the underlying scarred fat of the transplanted leg flap. Because of the resistant "bearing" surface that develops on the outer dorsal surface of an uncorrected "clubfoot," I have sought to transfer large pedicle flaps from this area but have encountered real difficulty in preserving the circulation even after delaying the transfer of the flaps.

The crippling or painful calluses that are apt to develop and stubbornly persist in some other area of plantar skin after a localized wart has been controlled may prove most embarrassing. I am beginning to be a little uncertain as to two points in their regard: the first is whether the persistence of the callus is entirely due to an acquired faulty position of the foot; the

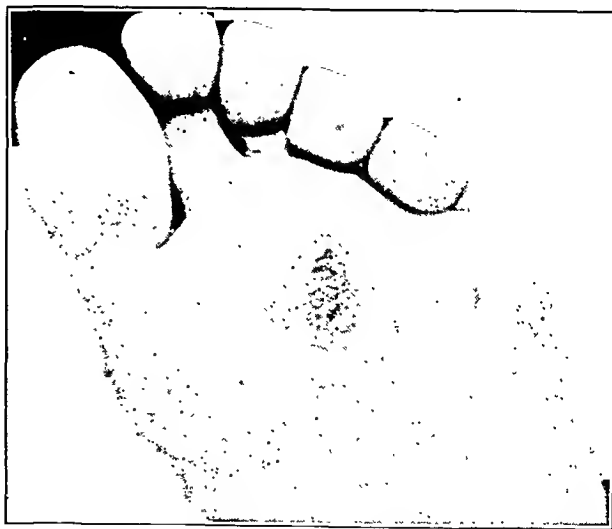


Fig. 3.—The foot of a man who for some years had suffered from the painful scar of a cured wart. The small actual destruction of the foot pad was compensated for by undermining and shifting neighboring tissue, and the coverage was made with a split skin graft. This gave a very satisfactory result.

second, whether the conservatism that I have habitually exercised in the past has all been to the patient's best interest, the possibly fantastic doubt having arisen as to whether the tendency to callus growth can always be eliminated by partly relieving the pressure on that spot. My belief is that in every case of crippling callus the



patient should be given the benefit of the most skilful orthopedic treatment available; but if these hangover cases do not get relief by corrective shoeing within a reasonable time, I can at present see no reason for not eliminating the callous spot by excision and immediate switching of a fat-bearing planar flap, a plan that has proved most successful in the treatment of certain painful plantar scars.

Grand Avenue and Olive Street.

#### ABSTRACT OF DISCUSSION

DR. ELLIS FISCHER, St. Louis: Irradiation is the accepted method of treatment. As the authors have emphasized, the first consideration in using radiation is not to do damage. My experience has been limited to the use of radium in the following manner: 50 mg. of radium element contained in 12.5 mg. steel alloy needles, placed within a 1 mm. brass or silver capsule, and around that approximately a millimeter of rubber. Then a fenestra is made through a millimeter of lead and the bottom of that fenestra covered with a millimeter of rubber. The fenestra is just large enough to contain the wart. One treatment of two hours' duration with this applicator has usually been sufficient, and in even those cases previously treated by x-rays a dangerous reaction has never been observed. Of twenty-eight private cases treated in this manner, twenty-one responded favorably to one treatment. But one must not be in too much of a hurry. The average patient

Fig. 4.—The transplantation of a leg flap under the ball of the foot and the heel to replace scars from a deep burn. Note three trophic ulcers, which subsequently developed with use and which were extremely persistent. The foot was finally made well and useful by removing these ulcers, including border and base down to the soft scar in the underlying fat pad and applying split skin grafts.

may be expected to have relief from pain in approximately three or four days, but the wart does not disappear until sometime later, usually in about two weeks. However, occasionally a



Fig. 5.—A deep loss on the outer and under surface of the heel. To remedy this an attempt was made to prepare a delayed flap from a non-bearing part of the foot. This was not used because of impaired circulation. The scar covering the original defect was replaced by a split skin graft, and a sponge rubber pad has made a very satisfactory substitute for this partially lost fat pad.

patient will go four weeks before stating that he no longer notices the wart. I wait four weeks. If the wart is still present after four weeks' time the dose is repeated. Of the twenty-eight cases it is known that fifteen had satisfactory results. There were satisfactory immediate results in ten

additional cases but there has been no long follow up. Plantar warts may occur in a callous area. I do not know whether it is the callus or the wart that is causing the pain. By taking a stiff blunt probe and pressing on the black wart and then around the wart on the callus, one can easily obtain differentiation. If pressure outside the wart causes pain, one must realize that the callus may have a good deal to do with it; then one must differentiate between the pain from the callus and the pain from a possible underlying periostitis. The latter is the bugbear of all this treatment, because patients who have a periostitis from long pressure over the head of the metatarsal bone are not going to be cured by any method of local treatment of the skin condition. The molehill has now become the mountain, the proper handling of which has been so ably presented by Dr. Blair and his co-workers.

DR. JOSEPH J. ELLER, New York: I agree with the authors that only safe doses of radiation should be used on account of the sequelae which may occur from more destructive measures. With the dosage of from 80 to 100 milligram hours of gamma radiation to the square centimeter of tissue, plantar warts should undergo involution. Plantar warts are not true new



Fig. 6.—The foot of a working man with an alcoholic neuritis and anesthesia which accounted for his standing on the floor of a partially cooled furnace long enough to burn his feet. This caused wide destruction of the skin and pad in the balls of both feet. On the foot shown, repair was made by shifting a fairly large flap from behind the toes to beneath the heads of the metatarsal bones. The resulting defect from the switching of the flap was covered with a split skin graft. On the left foot the destruction was much more extensive. The bare area was covered with a split skin graft placed on the plantar fascia, and a sponge rubber pad was used.

growths. They are due to an infectious virus. From 60 to 70 per cent of these lesions will disappear on irradiation with radium or roentgen rays. Many dermatologists in this country now treat plantar warts by means of 2,500 and 2,800 roentgens unfiltered. In other words, they use the warty excrescence as a filter, and with that dosage used in one treatment, a good many of the lesions will disappear. If they do not disappear, there is a problem. I have found that whenever surgical measures are used following irradiation of skin tissue a keloidal scar results, and while the wart may be removed either by excision or by electrocoagulation, a keloidal scar formed as a secondary growth is just as painful as the original wart. The patient and the physician frequently think erroneously that there has been a recurrence. One has to resort to small safe filtered doses of radiation to dissolve that keloid. Excising a keloid does not make it disappear. It only results in a larger one. I agree with the authors that the only treatment for post-irradiation injury is excision, care being taken to preserve the fat pad; later, to counteract any hypertrophic scar, small doses of radiation should be given. Another thing which dermatolo-

gists have observed is that plantar warts, when destroyed by electrocoagulation, frequently result in very small slow-healing ulcers. With this therapy one must not promise that the patients can get back on their feet in less than three weeks. There is very little that one can do to hurry the healing. Perhaps in these cases after destruction the best treatment would be an immediate plastic repair, without waiting for slow granulation and healing, which sometimes takes even as long as six weeks.

DR. VILRAY PAPIN BLAIR, St. Louis: Dr. Eller brought out the necessity of giving orthopedic care of the foot after the wart has been cured. There is little I know less about than scars, but I do think I know this much, that anything that will put lateral tension on the wound will tend to make a bad scar. If the loss is limited to the skin, a skin graft will suffice. If the defect is too large to permit the sliding in of a bordering fat pad, the switching of a pedicle flap of skin and fat pad will probably be the safest plan. When heat destruction is indicated, I use a fine platinum, electrically heated, cautery point. In a much treated case, knife removal will probably be the better, as it is likely that the wart is already cured and the flap can be switched in place at the same sitting.

## ULCERATIVE LESIONS OF THE SKIN IN LYMPHOGRANULOMA INGUINALE

MAX S. WIEN, M.D.  
AND  
MINNIE OBOLER PERLSTEIN, M.D.  
CHICAGO

Ulceration of the skin as a part of the syndrome of lymphogranuloma inguinale has not received much notice in the discussion of the clinical manifestations of this disease.

Huguier<sup>1</sup> in 1848 described esthiomene as a chronic hypertrophy and ulceration of the vulva which may be associated with similar involvement of the vulvo-anal area, rectal ulceration or stricture. In the majority of his cases there was also infiltration of the inguinal lymph glands. He subdivided his entity into four main clinical groups: a hypertrophic vegetative type, an elephantiasic type, a type characterized by the formation of fistulas, and an ulcerative type.

Fournier<sup>2</sup> in 1873 described the occurrence of a syndrome of indolent edema of the vulva which was frequently associated with inguinal lymphopathy. He believed that it was syphilitic in origin but distinct from his "syphilome anorectale." Ulceration of the vulva is not mentioned in his description.

In 1896 Koch<sup>3</sup> reported twenty cases, all of which presented a syndrome which he designated as "ulcus vulvae chronicum elephantiasicum." All these patients had associated pathologic conditions of the inguinal lymph glands. He summarized the symptomatology as follows:<sup>4</sup>

The labia majora were the seat of more or less marked thickening, with ulceration, . . . rather less commonly the labia minora and clitoris were affected, . . . the skin had a bluish red color and was ulcerated; sometimes . . . the

mons, the commissure and perianal region were involved in the infiltrative process. . . . Ulceration might occur in any part of these infiltrated tissues but was most common at the commissure, the opening of the urethra, on the inner surface of labia minora and clitoris. The ulcers in shape were often irregular or dentated; with a yellowish shiny base, callous thickened steep sides, with sometimes undermined edges, and showed as a rule no tendency to epitheliation, though sometimes healing on one side and extension on another was noted. Perforation of the nymphae, fourchette, or urethrovaginal and rectovaginal walls might occur, with the formation of fistulae; or there might be greater destruction of tissues, with the production of a cloaca, limited by portions of infiltrated skin and mucous membrane; rectovesical fistula might also be produced. The rectum might be severely involved, the mucous membrane of the anal canal altered to form a rigid ulcerated tube, with an ulcerated anal opening, sometimes also the seat of papillomata and extroversion. In some cases a rectal stricture was also present.

Koch believed that this condition was not due to syphilis, tuberculosis or ulcus molle and had no suggestions to offer concerning its etiology.

Taussig<sup>5</sup> in 1922 named the condition hypertrophic ulcerative chronic vulvitis of undetermined etiology.

Jersild<sup>6</sup> in 1920 was impressed by the frequency of the coexistence of elephantiasis vulvae and rectal stricture and named this clinical association the genito-anorectal syndrome.

Following the advent of the Frei test,<sup>7</sup> Frei and Koppel<sup>8</sup> in 1928 established their cases of genito-anorectal syndrome as lymphogranuloma inguinale (Durand, Nicolas and Favre<sup>9</sup>).

In a series of 500 patients with lymphogranuloma inguinale, we have observed twelve cases of ulceration. We present the detailed clinical reports of three of these patients together with bacteriologic and histologic studies. These three cases illustrate the types of clinical ulceration that may occur in lymphogranuloma inguinale:

1. Ulceration of the skin only—lymphitis (case 1).
2. Ulceration of the skin secondary to a previous lymph gland involvement (case 2).
3. Ulceration developing on an existing esthiomene (case 3).

### REPORT OF CASES

CASE 1.—*History*.—A Negress, aged 40, gave a history of rectal pain and itching associated with constipation of twenty-three years' duration. Eight years before her admission to the hospital a rectal operation was performed, since which time she has had pencil-sized stools and a purulent rectal discharge. During the preceding five months she had pruritus vulvae associated with pain and burning on urination. Her general health had been good. Her husband was well and had no similar complaint. Physical examination was essentially negative except for the genital pathologic condition (fig. 1). The perineal tissues were of firm cartilaginous consistency with induration of the perianal and adjacent crural areas. There was a fissure extending from the vagina to within 1 cm. of the anus, almost forming a cloaca. On the inner surface of both labia minora was a superficial ulceration which extended on to the vaginal mucosa and adjacent perineum. The margins of the ulceration were serrated and soft. The base of the ulcer

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From the Department of Dermatology, University of Illinois College of Medicine, service of Dr. F. E. Seneair, and the Dermatological Service of the Cook County Hospital.

1. Huguier, P. C.: *Mémoire sur l'esthiomène ou dartre rongeanse de la région vulvo-anale*, *Mém. de l'acad. de méd.* 1848, reprint Paris, 1849.

2. Fournier, A.: *Leçons sur la syphilis*, 1873.

3. Koch, F.: *Ulcus Vulvae chronicum elephantiasicum*, *Arch. f. Dermat. u. Syph.* 24:205, 1896.

4. Stannus, H. S.: *A Sixth Venereal Disease*, Baltimore, William Wood & Co., 1933, p. 126.

5. Taussig, F. J.: *Hypertrophic Ulcerative Form of Chronic Vulvitis*, *Am. J. Obst. & Gynec.* 3:281 (March) 1922.

6. Jersild, O.: *Pathogeny of So-Called Syphilome Anorectal*, *Ann. dermat. et syph.* 1:62, 1920.

7. Frei, Wilhelm: *Eine neue Hautreaktion bei Lymphogranuloma inguinale*, *Klin. Wchnschr.* 45:2148 (Nov. 5) 1925.

8. Frei, Wilhelm, and Koppel, Alice: *Ulcus Vulvae chronicum elephantiasicum (Esthiomene) und sogenanntes Syphilome anorectale als Folgeerscheinungen der Lymphogranulomatosis inguinales*, *Klin. Wchnschr.* 7:2331 (Dec. 2) 1928.

9. Durand, M.; Nicolas, Joseph, and Favre, M.: *Lymphogranulomatose inguinale: Subaigue d'origine génital probable, peut-être vénérienne*, *Bull. et mém. Soc. méd. d. hôp. de Paris* 35:274, 1913.

was bright red, smooth and painful. There were no nodules on the base and there was little bleeding on trauma. The rectal mucosa was nodular and there was a rectal stricture about 3 cm. from the anal orifice.

The Frei test was positive; the dmecol, blood Wassermann and Kahn tests were negative. Darkfield examination was negative.

Bacteriologic examinations revealed many bacilli and cocci but no Donovan bodies or Ducrey bacilli.

**Histologic Examination.**<sup>10</sup>—The specimen consisted of a small piece of skin with an irregular ulcer. The floor of the ulcer was formed by a very cellular granulation tissue, which was composed of round cells and polymorphonuclear leukocytes and of capillaries with prominent endothelial cells. Plasma cells were numerous, and dense infiltrations extended beyond the ulcer into the papillary and subpapillary layer, which was covered by an intact epithelium. The rete pegs were elongated and in the basal portions became widened and enclosed hyalinized epithelial cells. In many places polymorphonuclear leukocytes invaded the rete pegs.

**CASE 2.—History.**—A Negress, aged 20, was seen in June 1935 with the following history: One year previously she had a painful "blister" on the vulva, which slowly enlarged. Four weeks after the appearance of the vulvar lesion the

Fig. 1.—Ulceration of the inner surface of the labia minora.

right inguinal area became swollen and painful; later the left inguinal area became involved. The lymphatic glands drained spontaneously and large ulcers developed in the right inguinal area. Her general health had been good. The essential pathologic changes on examination were limited to the genital area (fig. 2). The right inguinal area was the site of two quarter-sized (24 mm.) superficial necrotic painful ulcers with a similar, larger lesion in the left inguinal region. The labia were markedly endematous. These ulcers were clinically identical, having sharp margins, rolled edges and a clean hemorrhagic base. Adjacent to the ulcer on the right inguinal area were two puckered, scarred bands.

The Frei test was positive, the Ito-Reinstierna reaction was negative, smears from the vulvar ulcer were negative for gonococci, and the blood Wassermann reaction was positive. Bacteriologic examinations were negative for Donovan bodies, Ducrey bacilli and tubercle bacilli.

**Histologic Examination.**—The specimen taken from the ulcer in the inguinal region showed a small piece of skin with a moderate acanthosis of the epidermis. The papillary layer of the cutis was infiltrated by lymphocytes and plasma cells and the infiltrations followed the capillary blood vessels into the subpapillary layer. In this region the infiltrations became more extensive and had the tendency to fuse together. Between the lymphocytes there were swollen histiocytes and plasma cells, and the adventitial cells of adjacent capillaries often joined with one another to form a loose cellular reticulum. In the reticular zone of the cutis the infiltrations again broke up into perivascular round cell accumulations similar to the picture seen in the papillary layer.

10. The histologic examinations mentioned throughout this article were done by Dr. R. H. Jaffe of the Cook County Hospital.

Treatment consisted in the intradermal injections of Frei antigen<sup>11</sup> every three days for a period of three weeks. The ulcers in the inguinal areas involuted completely, and the vulvar ulcer was almost healed at the end of this time. Anti-syphilitic treatment was then instituted. There was complete healing of all ulcers by September 1935.

**CASE 3.—History.**—A Negress, aged 32, was first seen in March 1935. In 1932 a painful nodule appeared on the right vulva three weeks after intercourse. The nodule ulcerated and was associated with a swelling of the labia. The right inguinal region subsequently became swollen and tender and the gland ruptured spontaneously and drained slightly for about one year.

There was bilateral shotty inguinal adenopathy. The vulva was hypertrophic. Between the labium majus and minus was a crater-like ulcer 2 cm. wide and 1 cm. deep with red and granular walls. The base was yellowish gray with a moderate yellowish exudate (fig. 3).

The Frei test was positive; the dmecol, blood Wassermann and Kahn tests were negative. Darkfield examination was negative.

Bacteriologic examinations revealed many bacilli and cocci but no Donovan bodies or Ducrey bacilli.

**Histologic Examination.**—The specimen consisted of a small piece of skin with an ulcerated area, in the region of which the epidermis was missing. The floor of this ulcer consisted of a granulation tissue which originated from the subpapillary layer of the cutis and was very cellular. It contained thick-walled capillary blood vessels at regular intervals and between and about these blood vessels were dense accumulations of small and medium sized round cells with scanty cytoplasm. Between the lymphatic cells were found a few plasma cells and polymorphonuclear leukocytes, and near the free surface of the ulcer the leukocytes became more abundant. The capillaries had swollen endothelial cells, and attached to the outer aspect were adventitial cells which were prominent and extended between the adjacent round cells. The infiltration was sharply circumscribed and in the surrounding cutis loose accumulations



Fig. 2.—Ulceration of the skin on a preexisting suppurating inguinal lymphadenopathy.

of lymphocytes and histiocytes were seen which were scattered between the connective tissue bundles or centered about small blood vessels.

#### BACTERIOLOGY<sup>12</sup>

The bacteriologic flora from nine cases of lymphogranuloma inguinale and one of granuloma inguinale was examined. The surface of the lesions was well washed with sterile saline solution, sterile gauze sponges

11. Wien, M. S., and Perlstein, Minnie O.: The Intradermal Treatment of Lymphogranuloma Inguinale, Arch. Dermat. & Syph. 28:42 (July) 1933; Brit. J. Dermat. & Syph., to be published.

12. The bacteriologic examinations were made by Dr. Virginia Fisher of the Department of Bacteriology, University of Illinois College of Medicine, Dr. L. L. Arnold, director.

being used. Direct smears were studied by means of the Gram stain, and darkfield examinations were made. A small piece of tissue was curetted from the lesions and emulsified in a small amount of sterile saline solution. This material was then used for the inoculation of the following mediums: plain agar, blood agar, honey agar, Endo agar, semisolid dextrose agar and

cutaneous surface. Chief among these are chronic chancroidal infection, granuloma inguinale, ulcerative tertiary syphilis, tuberculosis cutis, gonorrhea, ulcus vulvae acutum (Lipschütz), ulcus vulvae simplex chronicum, traumatic ulcer and epithelioma.

Chronic chancroidal infection is a contagious and auto-inoculable ulceration caused by the streptobacillus of Ducrey. The lesions are usually multiple, painful, dime-sized (18 mm.) ulcerations that have perpendicular undermined edges, a dirty yellow base and a foul smelling discharge. The associated inguinal adenitis or bubo is a unilobular lesion which drains a thin foul smelling pus containing the Ducrey bacillus. The dnelcos and Ito-Reinstierna reactions are positive.

Granuloma inguinale is a superficial ulceration of the skin produced by Donovan bodies.<sup>13</sup> The ulcers are contagious and auto-inoculable and present numerous shiny verrucous vegetating nodules of granulation tissue at the margins and dispersed throughout the base of the ulcer. This ulceration after healing produces a dense white contracting scar tissue. The process is painless and, as a rule, unaccompanied by adenopathy.

Ulcerative tertiary syphilis results from the coalescence of groups of discrete "punched out" ulcers that tend to assume an arciform or annular configuration and heal spontaneously, producing a thin white atrophic scar with hyperpigmentad borders. The serologic reaction of the blood is positive and the condition involutes with antisyphilitic treatment.

Tuberculosis cutis of the ulcerative or gummatous variety presents irregular painful ulcers and fistulas, the base of which is uneven and covered with yellowish

Organisms Found on Bacteriologic Examinations*										
Case Number	Spirochetes	B. Ducrey	B. Coll	Staphylococci	Hemolytic Strep-tococci	Yeasts	Streptothrix	Sarcinae	Diphtheroids	Bacilli of Fusiform Type
1	0	—	+	—	+	—	+	—	+	—
2	0	—	—	++	++	—	—	—	++	—
3	0	—	—	—	—	—	—	—	—	—
4	0	—	—	—	—	—	—	—	—	—
5	0	—	—	—	—	—	—	—	—	—
6	0	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—
8	T. refringens (dead)	—	—	—	—	—	—	—	—	—
9	T. refringens	—	—	—	—	—	—	—	—	—

\* 0 Indicates no examination made; — not found; + organisms found.

brain broth. These were incubated at 37.5 C. for from twenty-four to forty-eight hours and the organisms studied by smears and additional cultural methods.

The most regularly occurring organisms are shown in the accompanying table. It should be observed that no Spirochaeta pallida and no Ducrey bacilli were found in any of the lesions; also that in spite of the location of the lesions in the inguinal, vaginal and anal regions, B. coli appeared very rarely. Both Staphylococcus albus and aureus were found; the streptococci were usually of the hemolytic variety.

Organisms other than those shown in the table were found in some specimens but with no regularity.

It seems reasonable to conclude that the organisms found are most probably secondary invaders which may usually be found in necrotic lesions.

DIFFERENTIAL DIAGNOSIS

The ulcerative lesions occurring in lymphogranuloma inguinale are superficial in character, irregular in outline and variable in size and contour. The normal skin may merge abruptly with the ulcer or form a thin overlapping cordlike band with a tendency to serration. The walls of the ulcer are usually of a shallow, shelving type. The base of the ulcer is vivid red, shining, and of a smooth velvety texture. There is an absence of verrucous nodules or granulations in the base or margins of the ulcer. A thin, clear mucoid secretion may cover the lesion. In neglected cases this may assume a purulent character. The ulcer spreads by peripheral extension, is not auto-inoculable and shows no tendency to spontaneous healing. The lesions are painful on palpation. The Frei test is positive. Histologic examination reveals a nonspecific microscopic picture of tissue suppuration with ulceration of the skin and a predominance of plasma cells in the infiltrate. No organisms are seen in the stained sections.

This condition must be differentiated from those entities associated with superficial ulceration of the

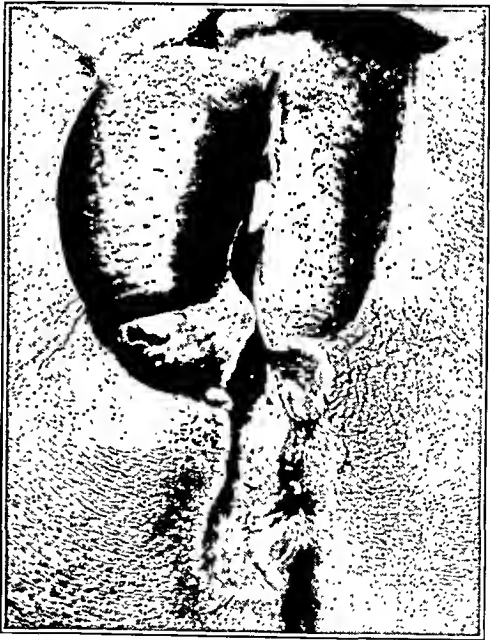


Fig. 3.—Ulceration developing on existing esthiomene.

granulation tissue. Smears of the discharge or stained histologic sections reveal the tubercle bacilli. The histologic picture reveals a tuberculous architecture.

Ulcus vulvae acutum (Lipschütz<sup>14</sup>) is a painful recurrent ulceration of the external genitalia. The

13. Donovan, C.: Indian M. Gaz. 40: 414, 1905.  
14. Lipschütz, Benjamin: Ueber eine eigenartige Geschwursform (Ulcus vulvae acutum), Arch. f. Dermat. u. Syph. 114: 363, 1913.  
Wien, M. S., and Perlstein, Minnie O.: Ulcus Vulvae Acutum Associated with Lesions of the Mouth, J. A. M. A. 98: 461 (Feb. 6) 1932.

ulcers are superficial, painful and not auto-inoculable and they heal spontaneously. *B. crassus* is usually present in the ulcers.

*Ulcus vulvae simplex chronicum*<sup>15</sup> occurs in old prostitutes and affects the fourchette. It has no tendency to spread and is not associated with inguinal adenopathy, hypertrophy of the vulva or stricture of the rectum. The Frei and danielcos tests are negative.

Gonorrheal infection may produce a vulvitis associated with erosive lesions, the margins of which may be variable and the base a dusky red and with a granular surface. Smears are positive for gonococci.

Traumatic ulcers have a characteristic, irregular or fissured form with a preceding history of injury. The lesions heal with marked rapidity.

Epithelioma in the genitocrural region is characterized by the occurrence of a granulomatous new growth in which the ulceration occurs as a secondary phenomenon. The lesion is slow in growing, often with rolled pearly margins, and the nodules are friable and bleed freely. Histologic examination reveals the characteristic changes of a malignant condition.

#### COMMENT

Chevallier and Bernard<sup>16</sup> studied the histologic aspects of lymphogranuloma inguinale and concluded that the classic poradenitis is due to the association of two processes, an adenopathic and a cutaneous. The adenopathic phase consists of a number of gummas separated from the upper hypoderm by a band of healthy tissue. The progression of these gummas toward the surface of the skin can be seen in some sections. The cutaneous phase involves the upper part of the hypoderm and is accompanied by lymphangitis. At times the cutaneous ulceration develops before the deep gummas have reached the skin. These writers believe that there may logically exist either a pure cutaneous or a pure lymph gland form in addition to the classic forms of combined lymph gland and skin involvement. The reports in the literature make little mention of the ulcerative phase (cutaneous form) of this complex syndrome.

The cases reported demonstrate the three types of clinical ulceration that may occur in lymphogranuloma inguinale and illustrate the histologic aspects mentioned by Chevallier and Bernard.

The cutaneous phase (lymphitis) is clinically and histologically demonstrated by case 1. This type of involvement is analogous to that previously reported, among others, by Wien, Perlstein and Neiman,<sup>17</sup> and by Pinard and Fiehrer<sup>18</sup> as occurring in nodular form with the formation of secondary ulcerative plaques in the skin. In this instance the epidermal lymphatics and those of the upper part of the hypoderm are affected with the virus of lymphogranuloma inguinale, and an inflammation results that manifests itself as a superficial ulceration of the skin.

The occurrence of ulceration of the skin secondary to involvement of the underlying lymph glands—the adenopathic phase—is demonstrated by case 2. Similar

lesions may occur in males, as reported by Midana.<sup>19</sup> We have seen two men who presented inguinal adenopathy associated with superficial ulceration of the abdomen and inguinal regions.

The occurrence of chronic hypertrophy and ulceration of the vulva (esthiomene-Huguier<sup>1</sup>) is demonstrated by case 3. This case is a classic example of the entity first described by Huguier and may be associated with rectal stricture giving rise to the genito-anorectal syndrome of Jersild.

#### SUMMARY

1. Twelve cases of ulceration of the skin occurring in our series of 500 cases of lymphogranuloma inguinale were observed and are reported with clinical, bacteriologic and histologic records of three cases. Two men presented ulceration of the skin in association with inguinal adenitis.

2. Three types of ulceration of the skin are demonstrated by the cases described:

(a) Ulceration of the skin only.

(b) Ulceration of the skin secondary to an existing lymph gland involvement.

(c) Ulceration developing on an esthiomene.

3. The bacteriologic flora of the ulcerations was thoroughly investigated. The organisms found were probably secondary invaders.

4. Histologic examinations of the ulcerations were nonspecific. There was a uniform picture of ulceration, fibrosis and plasma cellular infiltration.

5. We feel that cases of superficial ulceration in the skin, resistant to the ordinary or specific methods of therapy, especially when occurring in the genitocrural area, should be tested with Frei antigen, diagnostically and therapeutically, in order to rule out the possible relation of the ulceration to lymphogranuloma inguinale.

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#### ABSTRACT OF DISCUSSION

DR. C. C. TOMLINSON, Omaha: I find it difficult to accept the fact that the cutaneous ulcerative phase may exist independent of underlying suppurative lymphadenitis. Is it not possible that a few small nodes in the rectovaginal septum, the anorectal nodes of Gerota, or other lower pelvic nodes may be draining through small fistulas which cannot be detected on examination and which are responsible for the persistent cutaneous destruction, such as is exemplified in their case 1, and which they describe as lymphitis? Case 2 is portrayed by the authors as cutaneous ulceration secondary to underlying inguinal lymphadenitis. With reference to case 3 I would like to ask if it would not be possible, or even probable, that there existed an underlying suppurative process in the lymph nodes of the rectovaginal septum which was responsible for the granulomatous vulvitis referred to as esthiomene with ulceration. Although I do see the genito-anorectal syndrome occasionally in Omaha, I have not encountered persistent cutaneous ulceration as described by the authors. The chronic cases for the most part have presented as rectal stricture, perineal sinuses or esthiomene. We have difficulty in following individual cases for long. We do not have facilities for prolonged hospital observation, and the majority of our colored patients leave us when we exhibit what to them may seem undue interest in their condition. We have instituted intradermal Frei antigen treatment in several women with rectal stricture as a pre-operative measure (previous operations having failed to cure their stricture) but have not been able to hold these patients long enough to evaluate the therapy. I believe that in our early cases filtered x-ray therapy over the involved lymph nodes

15. Jacobsen, R., and Pardo Castelló, V.: *Ulcus Vulvae simplex chronicum*, *Acta dermat.-venereol.* **16**: 133 (July) 1935.

16. Chevallier, Paul, and Bernard, J.: *Forme cutanée pure de la maladie de Nicolas-Favre*, *Bull. Soc. franç. de dermat. et syph.* **39**: 1351 (Nov.) 1932.

17. Wien, M. S.; Perlstein, Minnie O., and Neiman, B. H.: *Inguinal lymphogranuloma in its relation to Stricture of the Rectum*, *Arch. Path.* **19**: 331 (March) 1935.

18. Pinard, Marcel, and Fiehrer, Albert: *Forme cutanée de la maladie de Nicolas-Favre. Reactivation d'une intradermo-reaction de Frei ou reaction retardée*, *Bull. Soc. franç. de dermat. et syph.* **39**: 1630 (Dec.) 1932.

19. Midana, A.: *Cutaneous Lesions in Acute Inguinal Lymphogranulomatosis of Nicolas and Favre*, *Gior. ital. di dermat. e sif.* **75**: 1743 (Oct.) 1934.



has been of value and that intradermal Frei antigen treatment is also decidedly advantageous. At times it is difficult to find satisfactory early cases from which to make sufficient antigen to treat other patients. It is our intention to make virus culture antigen (J. T. Tammra, *THE JOURNAL*, Aug. 11, 1934, p. 408) in larger quantities than one can hope to obtain with pus-derived antigen, and to treat a series of cases with it.

DR. HARRY M. ROBINSON, Baltimore: May I sound a warning about the positive Frei test. It means past or present lymphogranuloma inguinale, but not every lesion that gives a positive Frei test is lymphopathia venerea. Even though a patient has a positive Frei test and a fluctuant bubo, the resultant pus is not accepted as a good antigen until it has been tested with known cases. In our groups of cases, my associates and I differ from the authors in that with a large Negro clinic we have found 1 per cent positive Frei tests in white persons and 60 per cent in Negroes (all of whom had syphilis).

DR. SAMUEL GOLDBLATT, Cincinnati: When multiple Frei antigens are used, one is likely to receive varying results on the same individual. We in Cincinnati have a habit of testing at the time for diagnosis with about fifteen different antigens. These are controlled by old tuberculin and bovine tuberculin. The antigens, most of which are made in the clinic from known cases, are also controlled by monkey brain antigen, which I obtained from Dr. Hellerström of Stockholm. It is not unusual to see varying degrees of positiveness with the first four or five antigens, one being four plus, two three plus, three one plus, four negative. In case 2, with clinically the same type of results, antigen 1 may be negative and antigen 5 positive and the others varying. In case 4 the antigens that previously varied may give the same result. I am at a loss to understand this phenomenon; I am simply reporting it as an observation. I can also confirm the fact that in colored patients 60 per cent positive Frei reactions are obtained as a routine. In a mixed group, almost equally white and colored in the Cincinnati workshop, about 50 per cent of Frei tested groups report positive. It is not always possible in positive Frei reported cases to find evidence or history of the infection. Dr. Wien will probably remember a case which I presented at the last Cincinnati session of the Mississippi Valley and Central States Dermatological Society, a woman of about 50 who had a tremendous elephantiasis with sinuses involving the entire vulva and the right buttock. In this case all the Frei antigens had been repeatedly negative, although six years previously the woman had had clinically a definite papular syphilid; her Wassermann reaction at that time and on all repeated occasions had also remained negative. Tested with material taken from her own glands, the patient was negative. We have surgically excised with the electrocautery this entire area in two stages; the last stage, that of the buttock, is at present healing. We were never able to find a definite rectal stricture, although she has had very long attacks of serious diarrhea which may be a precursor of the stricture.

DR. PAUL A. O'LEARY, Rochester, Minn.: My experience has been quite the opposite of Dr. Robinson's in that all my cases of lymphogranuloma inguinale have been in white persons. Drs. Wien and Perlstein have furnished me with the diagnostic antigen, which has also been highly efficient therapeutically in our patients when the treatment was started early in the bubo stage. I wish to stress the point that we now have evidence that lymphogranuloma inguinale is a systemic disease and not solely a genital infection. In support of this contention the following complications may be cited: Cutaneous ulcerations of lymphogranuloma inguinale have been reported occurring elsewhere than about the genitalia; likewise I have seen on two occasions a follicular reaction on the skin, of the nature of an "id," in patients with acute signs of the disease. In addition to rectal stricture, the retroperitoneal lymph glands may become involved in the early cases and produce difficult differential diagnostic problems. Perhaps the authors could give some figures on the relative incidence of chancre, chancreoid and the early lesions of lymphogranuloma inguinale. I ask this question because patients with a chancreoid are now seldom seen in our clinic.

DR. ANDREW L. GLAZE, Birmingham, Ala.: A case of lymphopathia venerea in a petty officer of the navy, retired,

was observed this spring. Chronic superficial ulcerated lesions of the skin of four years' duration were present. The scrotum was involved. Much of the skin of the glans penis was destroyed. Frei tests were done with different antigens, mouse brain and antigens from human sources; all were strongly positive. The histologic picture was consistent with the disease in question. Bacteriologic and serologic studies as well as therapeutic tests aided in ruling out other possible disorders.

DR. MARION B. SULZBERGER, New York: Because the old name of lymphogranuloma inguinale had led to confusion with lymphogranuloma on the one hand and with granuloma inguinale on the other, Dr. Wolf and I thought it would be better to call this disease by some other name. And so in 1932 we suggested the name of lymphopathia venerea (*Lymphopathia Venerea*, *Brit. J. Dermat. & Syph.* 44:192 [April] 1932). I was fortunate enough to be able to perform the first Frei tests in the United States, using Frei "antigen" which I had brought with me from Europe. After performing this test, which I had learned from Prof. Walter Frei in Breslau, Dr. Wolf and I in 1931 reported the first positive tests on patients in New York and submitted this report to *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. *THE JOURNAL* sent back this brief report with the statement that the disease and test discussed in our communication were not of sufficient interest to the general medical profession to warrant its publication in its pages. I recount this fact merely to show how rapidly the American medical public has learned about this disease; for my story shows that both the disease and the test were unrecognized here only a few years ago (1931) and I think that we need not emphasize how much real interest has since been aroused in this country by the Frei test and by the possible unification of all these different manifestations, by means of its employment. The interesting point is that daily new manifestations are being found which can be regarded as probably due to this infection. I should like to mention here two possible further additions: One is colitis, as probably simply due to this virus, occurring without rectal strictures, and therefore not of secondary nature. Dr. Joseph Goodman is reporting a short series of such cases from Johns Hopkins. Second, I believe that there is some evidence that there is a sarcoid form of this disease. I have seen two cases which were clinically and histologically characteristic of lymphopathia which had what appeared to be concomitant sarcoid lesions of the bones (i. e., cystic changes in the bones). In these cases there was no evidence of any other type of infection that could account for the sarcoid bone lesions.

DR. MAX S. WIEN, Chicago: To answer Dr. Tomlinson's question: The cutaneous phase may exist with gland involvement elsewhere in the body, but it is not essential that there be gland involvement contiguous to the areas of cutaneous ulceration. According to the concept of Chevalier and Bernard, histologically, in the pure cutaneous phase, one sees no evidence of involvement of the lymphatic network of the deep cutis; there is involvement high up in the cutis and involvement of the lymph spaces of the epidermis, whereas in the so-called adenopathic phase these deep glandular changes are not seen. In our first case the cutaneous ulceration occurred on the labia minora and labia majora, in areas apart from the inguinal gland involvement present. There was a lymphitis or lymphangitis of the involved sites. As to the specificity of the Frei test, commented upon by Dr. Robinson, there is no question in the minds of those who have done a large number of Frei tests about its specificity. We have done from 2,500 to 3,000 Frei tests and we feel that it is specific. One may get a positive Frei test with an asymptomatic lymphogranuloma inguinale just as one may get a seropositive asymptomatic syphilis. Positive Frei antigens have been produced in our case of lymphitis from maceration of the skin. Dr. Goldblatt brings up the point about Frei antigen giving a variable reaction. That is true of any antigen. It is an inherent property of antigens to give variable reactions. Hellerström brings out this fact and mentions that some antigens may be universal, giving the same type of reaction in all patients. Wherever there is lymphatic structure or lymphatic drainage, the virus of lymphogranuloma inguinale may go directly or by retrograde extension. We have seen erythema nodosum and erythema multiforme in the course of the disease. In testing a large series of cases

that were diagnosed chronic chancroidal infection with dmelcos antigen, we got one positive reaction proving that most of these cases were not chancroid. We feel that a large number of cases of chronic chancroidal infections which have not responded to the accepted treatment for chancroid will in the future be proved to be cases of the cutaneous phase of lymphogranuloma inguinale. As to the term lymphopathia venerea, we referred to Dr. Sulzberger's work in our previous papers and we are grateful to him for first calling our attention to this disease. We have adhered to the name lymphogranuloma inguinale to avoid confusion in the literature, because that is the name more frequently used. Ulcerative colitis and proctitis have occurred in our experience.

## PARA-AMINO-BENZENE-SULFONAMIDE AND ITS DERIVATIVES

EXPERIMENTAL AND CLINICAL OBSERVATIONS ON  
THEIR USE IN THE TREATMENT OF BETA-  
HEMOLYTIC STREPTOCOCCIC INFECTION:  
A PRELIMINARY REPORT

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The recent observations of numerous European investigators<sup>1</sup> that para-amino-benzene-sulfonamide and certain of its chemical derivatives exert a specific chemotherapeutic effect in beta-hemolytic streptococcal infection are of great interest.

It will be our purpose in this preliminary communication to offer confirmatory observations to certain of the results already obtained by the aforementioned observers and to add new observations regarding the mode of action of these substances.

In the course of our investigations we have used two samples of para-amino-benzene-sulfonamide, one supplied to us by the Jackson Laboratory of E. I. DuPont de Nemours and Company, the other in tablet form under the name of "Prontylin" by the Winthrop Chemical Company. Two derivatives of para-amino-benzene-sulfonamide have also been studied. The first of these, the hydrochloride of 4'-sulfamido-2, 4 diamino-azo-benzene, was labeled "Prontosil tablets," while the second, the disodium salt of 4'-sulfamido-phenyl-2-azo-7-acetyl-amino-1 hydroxy naphthalene-3, 6-disulfonic acid, was sent to us in a liquid state, labeled "Prontosil —2.5 per cent Solution." Both of these preparations

have been supplied to us by the Winthrop Chemical Company. The chemical structure of these products is presented in the structural formulas<sup>2</sup> on the opposite page.

We will not discuss the chemical properties of the substances except to state that in our experience the two preparations of para-amino-benzene-sulfonamide which we have used were soluble in water up to about 0.8 per cent and that, on standing, these substances tended to crystallize slowly out of solution. "Prontosil Solution," on the contrary, was a stable substance. "Prontosil Tablets" were relatively insoluble.

### THE MODE OF ACTION OF PARA-AMINO-BENZENE-SULFONAMIDE AND ITS DERIVATIVES

*In Vitro Experiments.*—We have confirmed the observations of Colebrook and Kenny<sup>2</sup> that dilutions of "Prontosil Solution" had no effect on the growth of beta-hemolytic streptococci in 0.075 per cent dextrose beef-infusion broth or in 50 per cent normal horse serum broth. This is shown in tables 1 and 2. The bacterial growth in the tubes containing "Prontosil Solution" approximately equaled that in the control tubes.

However, when various concentrations of para-amino-benzene-sulfonamide were used a marked reduction in the growth of the streptococci was observed. This occurred not only in the broth cultures but also in the presence of 50 per cent normal horse serum broth. Attempts to test this bacteriostatic action in undiluted horse serum failed because we were unable to secure consistent growths of the organisms in that medium.

It is also interesting to note in this respect that a 1:10,000 concentration of para-amino-benzene-sulfonamide in serum broth markedly inhibited the growth of alpha hemolytic streptococci, gamma streptococci, pneumococcus types I and II, several varieties of Neisseriae from the throat, Micrococcus tetragenus, Haemophilus influenzae and Haemophilus haemolyticus. The growth of Staphylococcus aureus, typhoid bacilli, para A, para B, enteritidis, Flexner, Shiga and several other gram-negative bacilli was not affected by this concentration of the chemical.

It may be of some importance that the chemical seemed to exert a greater bacteriostatic action on one of the strains of hemolytic streptococci than on the other two. This difference between strain Ellis on the one hand and strains C203 and Schw on the other has been observed repeatedly.

From the Department of Medicine, the Johns Hopkins University Medical School.

Read in part before the thirtieth annual meeting of the Southern Medical Association, Baltimore, Nov. 17, 1936.

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The authors are indebted for cooperation to the visiting and house staffs of the various hospitals who have assisted in this investigation.

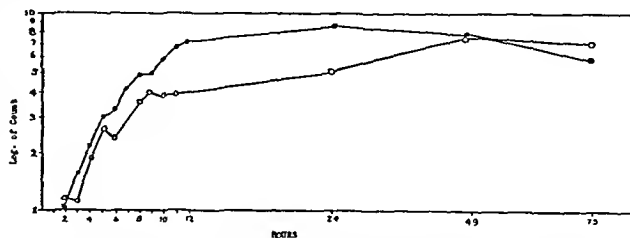
1. Colebrook and Kenny: Levaditi and Vaisman<sup>2</sup> and: Foerster: Zentralbl. f. Haut- u. Geschlechtskr. 45:549, 1933. Grütz, O.: ibid., 49:300, 1934; Med. Klin. 30:52 (Jan. 12) 1934. Veil, W. H.: Therap. d. Gegenw. 75:212 (May) 1934. Gmelin, L.: München. med. Wehnschr. 82:221 (Feb. 7) 1935. Klee, P., and Römer, H.: Deutsche med. Wehnschr. 61:233 (Feb. 15) 1935. Schreus, H. T.: ibid. 61:235 (Feb. 15) 1935. Anselm, E.: ibid. 61:264 (Feb. 15) 1935. Gantenberg, R.: ibid. 61:284 (Feb. 15) 1935. Gantenberg, R., and Thimme, Berthold: Med. Welt. 9:1009 (July 13) 1935. Imhäuser, K.: Med. Klin. 31:282 (March 1) 1935. Schranz, H.: München. med. Wehnschr. 82:419 (March 14) 1935. Nitti, F., and Bovet, D.: Compt. rend. Soc. de biol. 119:1277 (July) 1935. Recknagel, Karl: München. med. Wehnschr. 82:704 (May 2) 1935. Biczelli, K.: ibid. 82:871 (May 30) 1935. Einhauser, H.: ibid. 82:1263 (Aug. 2) 1935; Deutsche med. Wehnschr. 61:1263 (Aug. 2) 1935.

Fuge, Kurt: ibid. 61:1672 (Oct. 18) 1935. Roth, A.: ibid. 61:1734 (Oct. 25) 1935. Püschel, E.: Fortschr. Therap. 11:96 (Feb.) 1935. Temming, H.: Kinderarztl. Praxis 9:400, 1935. Fasal, P.: Med. Klin. 31:898 (July 5) 1935. Tréfouël, J.; Tréfouël, J. (Mme.); Nitti, F., and Bovet, D.: Compt. rend. Soc. de biol. 120:756, 1935. Riecke, H.: Ztschr. f. Hals-, Nasen- u. Ohrenh. 38:175, 1935. Tixier, L., and Eck, M.: Bull. Soc. de pédiat. de Paris 33:493 (Oct.) 1935. Lampert, J.: Zentralbl. f. Chir. 62:2947 (Dec. 14) 1935. Scherber, G.: Wien med. Wehnschr. 85:284, 346 and 783 (July 6) 1935 and 86:22, 1936. Causse, Loiseau and Gisselbrecht: Ann. d'oto-laryng., February 1936, pp. 194-199. Floch, H.: Bull. Soc. path. exot. 29:165, 1936. Férey, D.: Bull. méd. Paris 50:230 (April 4) 1936. Goissedet, P.; Despois, R.; Gailliot, P., and Mayer, R.: Compt. rend. Soc. de biol. 121:1082, 1936. Hörlein, H.: Proc. Roy. Soc. Med. 29:313 (Feb.) 1936. Kramer, W.: München. med. Wehnschr. 82:698 (April 10) 1936. Lemierre, LaPorte, Laudat and Daum: Bull. et mém. Soc. méd. d. hôp. de Paris 52:535 (April 6) 1936. Levaditi, C., and Vaisman, A.: Compt. rend. Soc. de biol. 121:803, 1936. Meyer-Heine, A., and Huguenin, P.: Presse méd. 44:454 (March 18) 1936. Sigel, Otto: Fortschr. Therap. 12:229 (April) 1936. Vermelin and Hartmann: Bull. Soc. d'obst. et de gynec. 25:153 (Feb.) 1936. 2. Colebrook, Leonard, and Kenny, Meave: Lancet 1:1297 (June 6) 1936.

The mode of action of para-amino-benzene-sulfonamide in a 1:10,000 concentration in 50 per cent horse serum broth was of interest and is shown in the accompanying chart. Growth curves showed that in mediums inoculated with rapidly growing streptococci (twelve hour cultures) the bacterial population at the end of two hours' incubation was the same in the control medium and in the medium containing para-amino-benzene-sulfonamide. However, from this time a marked divergence in multiplication of the cocci occurred and the curve of the normal horse serum broth culture rose rapidly during the first twelve hours, while there was a distinct lag in the presence of para-amino-benzene-sulfonamide. At the end of twenty-four hours the peak of growth had been passed in the normal horse serum broth medium. In the medium containing para-amino-benzene-sulfonamide growth continued slowly through the second twenty-four hours and the curve continued to rise, without, however, touching that of the normal horse serum broth medium. Then growth stopped and the number of viable cocci markedly decreased but not, however, at the rate experienced by the cocci in the normal horse serum broth, thus making the curves meet and cross. This suggested the possibility that a slow multiplication of the cocci was still taking place in the medium containing para-amino-benzene-sulfonamide. Another explanation might be that, in the concentration used, the para-amino-benzene-sulfonamide was bactericidal to a certain degree.

these tests are susceptible to the bactericidal effect of human serum. This phenomenon is of great importance in testing the growth of streptococci in human serum and has but recently been described by Tillett.<sup>3</sup>

The observation, however, that the normal rabbit cannot change "Prontosil Solution" to the active substance has seemed to us to be of great importance because it points toward the possibility that, for the



Growth curve of strain Ellis in normal horse serum broth and in normal horse serum broth containing para-amino-benzene-sulfonamide. Line with solid dots, 50 per cent normal horse serum broth; line with circles, 50 per cent normal horse serum broth + 1:10,000 para-amino-benzene-sulfonamide.

activation of "Prontosil Solution," infection with hemolytic streptococci, or changes brought about by infection, are necessary.

In order to test this hypothesis experimentally we first investigated the effects of high temperature on the activation of "Prontosil Solution" in vivo in the rabbit. Rabbit 271 in the incubator at 37 C. for several hours did not activate the "Prontosil Solution."

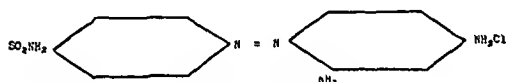
Then, following the suggestion of Dr. E. K. Marshall, we tested the effect of administering a strong reducing agent to rabbits previously injected with "Prontosil Solution." It was found that, if 2 Gm. of sodium formaldehyde-sulfoxalate in 20 cc. of distilled water was injected intravenously twenty minutes after 20 cc. of "Prontosil Solution" had been given by the same route, activation of the previously inert serum could be demonstrated. As will be seen in table 3, a definite degree of bacteriostasis was evidenced when streptococci were cultivated in the "Prontosil Solution"—sodium formaldehyde-sulfoxalate serum and that this power persisted to a minor degree over a period of twenty hours. In our experience the serum of rabbits injected with sodium formaldehyde-sulfoxalate alone did not show bacteriostatic serums.

These observations permit the postulation of the hypothesis that reduction is a factor in the activation of "Prontosil Solution." It is known<sup>4</sup> that hemolytic streptococci can, under certain conditions, bring about the reduction of some chemical substances. Certain preliminary observations which we have made suggest that this may explain the activation of "Prontosil Solution" in the presence of hemolytic streptococcic infection.

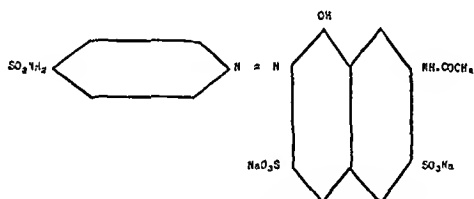
*In Vivo Experiments.*—There can be little doubt from the observations just recorded that activated "Prontosil Solution" and certain concentrations of para-amino-benzene-sulfonamide exert a distinct bacteriostatic effect in vitro and the assumption is that they act in a similar manner in vivo. However, it seemed to us that the results obtained in the treatment of infected mice (which will be described later) could not be attributed entirely to a bacteriostatic action on the part of these substances.

3. Tillett, W. S.: J. Exper. Med., to be published.

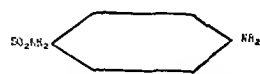
4. Hewitt, L. F.: London County Council Report No. 3116, ed. 3, p. 47.



Hydrochloride of 4-sulfamido-2, 4' diamino azo benzene (Prontosil).



Disodium salt of 4'-sulfamido-phenyl-2-azo-7-acetyl-amino-1-hydroxy-naphthalene-3, 6-disulfonic acid (Prontosil Solution).



Para-amino-benzene-sulfonamide (Prontylin).

The chemical structure of para-amino-benzene-sulfonamide and its derivatives.

*In Vitro and in Vivo Experiments.*—Colebrook and Kenny<sup>2</sup> have pointed out that the serum of a patient ill with streptococcic puerperal sepsis becomes increasingly bacteriostatic after multiple doses of "Prontosil Solution." They also noted that the serum of a normal rabbit which had received a large intravenous injection of "Prontosil Solution" did not exhibit bacteriostatic qualities. We have frequently confirmed the second of these observations but have had difficulty in repeating the first. This has been due to the fact that the strains of hemolytic streptococci which we have employed in



We therefore studied the exudate obtained by peritoneal puncture from mice which had been infected nine hours prior to the first puncture and treatment. In table 4 the results of these observations can be seen. In the experiment here outlined, para-amino-benzene-sulfonamide was used as the therapeutic agent. Similar results have been obtained when "Prontosil Solution"

TABLE 1.—Bacteriostatic Effect of "Prontosil Solution" and of Para-Amino-Benzene-Sulfonamide in Broth Cultures of Beta-Hemolytic Streptococci Incubated for Eighteen Hours

Substance	Strain	
	Ellis Original Inoculum 0.1 Ce. of 1:500,000 Dilution of a 13 Hr. Broth Culture	C203 Original Inoculum Same as for Ellis
Broth.....	75,000,000	70,000,000
Broth + Prontosil S 1:100.....	20,000,000	50,000,000
Broth + Prontosil S 1:1,000.....	25,000,000	70,000,000
Broth + P.A.B.S. 1:10,000.....	4,000	3,000
Broth + P.A.B.S. 1:100,000.....	20,000	20,000
Broth + P.A.B.S. 1:1,000,000.....	3,000,000	2,000,000

P.A.B.S. = para-amino-benzene-sulfonamide.

TABLE 2.—Bacteriostatic Effect of "Prontosil Solution" and of Para-Amino-Benzene-Sulfonamide in Broth Cultures of Beta-Hemolytic Streptococci Incubated for Eighteen Hours

Substance	Strain		
	Ellis	C203	Schw.
Original.....	35	60	47
Normal 1.....	240,000,000	250,000,000	260,000,000
N.H.S. + .....	180,000,000	380,000,000	100,000,000
N.H.S. + Prontosil S 1:1,000.....	170,000,000	250,000,000	
N.H.S. + P.A.B.S. 1:10,000.....	8,500	10,000,000	30,000
N.H.S. + P.A.B.S. 1:100,000.....	45,000	115,000,000	91,000,000
N.H.S. + P.A.B.S. 1:1,000,000.....	3,000,000	240,000,000	230,000,000

P.A.B.S. = para-amino-benzene-sulfonamide.

was employed. It is evident that phagocytosis of the streptococci by the polymorphonuclear leukocytes plays a paramount rôle in controlling the infection in the early stages of treatment and that later the monocytes join in this phenomenon. The following should be noted in respect to these experiments. Levaditi and Vaisman<sup>5</sup> believed that capsular production by streptococci was interfered with in the presence of these therapeutic agents. We were unable to confirm this observation.

We have noted already that, in vitro, the multiplication of streptococci was inhibited by para-amino-benzene-sulfonamide. It is possible that this may also occur in vivo, but in addition to this effect of the chemical we feel that the streptococci must also be damaged to permit such a marked degree of phagocytosis by the leukocytes. Thus, there is evidence that para-amino-benzene-sulfonamide and "Prontosil Solution" both inhibit the growth and injure hemolytic streptococci in the animal organism.

CURATIVE EFFECT OF "PRONTOSIL SOLUTION" AND PARA-AMINO-BENZENE-SULFONAMIDE IN EXPERIMENTAL BETA-HEMOLYTIC STREPTOCOCCIC INFECTIONS IN MICE

Our experience has been that a single prophylactic dose of 1 cc. of "Prontosil Solution" administered to mice, subcutaneously, twenty-four hours prior to infection by the intraperitoneal injection of from 100 to

1,000 minimum lethal doses of the strains C203, S24 or Schw was ineffective in protecting the mice against infection. While the survival time of the treated mice was longer than that of the untreated controls, no striking results were obtained. This result was to be expected because of the rapidity with which the "Prontosil Solution" was excreted in the urine.

In contradistinction to the prophylactic effects of "Prontosil Solution" the therapeutic effects of this substance were remarkable.

As noted in table 5, four different types of beta-hemolytic streptococci have been used in the therapeutic experiments. All the strains employed were at maximal mouse virulence; i. e., from 10<sup>-8</sup> to 10<sup>-9</sup> cc. of a twelve to fourteen hour blood broth culture regularly killed mice within forty-eight hours. It has been our experience with these strains during the past year that never has a mouse survived an intraperitoneal injection of

TABLE 3.—Effect of Parenteral "Prontosil Solution" on the Bacteriostatic Power of Rabbit Serum

Serum	Results (Original Inoculum = 200 Organisms)
Rabbit 270 before treatment.....	715,000,000
Rabbit 270 after receiving Prontosil S intravenously (20 minutes) .....	700,000,000
Rabbit 271 before treatment but temperature 105.6 when bled .....	700,000,000
Rabbit 271 6 hours after receiving Prontosil S intravenously (temperature 106.0 when bled).....	680,000,000
Rabbit 273 before treatment.....	800,000,000
Rabbit 273 after receiving Prontosil S intravenously (20 minutes) .....	1,000,000,000
Rabbit 273 after receiving Prontosil S and then (20 minutes) sodium formaldehyde sulfoxalate intravenously .....	65,000,000
Rabbit 273 after 20 hours.....	340,000,000

TABLE 4.—Effect of Para-Amino-Benzene-Sulfonamide on the Peritoneal Exudate in Experimental Hemolytic Streptococcic Peritonitis in Mice \*

Time of Examination of Peritoneal Exudate After Inoculation (Hours)	Therapy	No. of Colonies per Drop of Exudate	Differential Leukocyte Counts, Peritoneal Exudate			% Polymorpho-nuclears Showing Phagocytosis	% Monocytes Showing Phagocytosis
			Polymorpho-nuclears	Lympho-cytes	Monocytes		
Mouse 1	9	9 mg. Innumerable	70	9	21	0	0
	12	9 mg. Innumerable	58	0	42	0	0
	25	9 mg. Innumerable	77	4	19	54	20
	50	9 mg. 200	65	3	32	52	50
	74	9 mg. 80	28	9	63	25	55
	98	9 mg. 5	30	0	70	3	6
	122	9 mg. 0	15	19	63	0	1
	146	9 mg. 0	12	24	64	0	0
Mouse 2	170	9 mg. 0	17	20	63	0	0
	218	..... 0	14	30	56	0	0
	9	None Innumerable	48	29	23	0	2
	12	None Innumerable	40	45	15	0	0
Dead 28 hrs.	26	None Innumerable	40	32	28	0	0

\* Inoculum 100-1,000 MLD C203 Intraperitoneally.

10<sup>-6</sup> cc. of such a culture. This observation covered several hundred mice. Hence we feel reasonably certain that our results in this respect are completely valid. It is also of interest to note that with four exceptions all the 102 treated mice had positive blood cultures twelve hours after intraperitoneal inoculation.

In the preliminary experiments, the immediate survival rate in the treated mice was excellent. But, as can be seen, after the treatment was discontinued the mice began to die, some in the first few days, others as late as thirty days after the therapy had been discon-

5. Levaditi, C. and Vaisman, A.: *Compt. rend. Acad. d. sc.* 200: 1114 (May 15) 1935; *Compt. rend. Soc. de Biol.* 119: 946, 1935

tinued. In this respect our results differed from those reported by Colebrook and Kenny and others.<sup>6</sup> Because of an interval of generally twelve hours between the second and third treatments, we decided to infect two large groups of mice, one with strain C203, the other with strain Schw, and to treat them at four hour intervals for a period of sixty hours after the commencement of the therapy. By doing so we hoped to approach the treatment schedule which is followed in severe human cases. Then after this intensive period

tions in mice, the results seemed to be a little better than those obtained with "Prontosil Solution." The immediate survival rate was definitely augmented and more mice have survived over a period of thirty days. These observations are in harmony with those described by several European investigators.<sup>7</sup> The explanation of these late deaths after therapy has been discontinued can be made clear. One must remember that the white mouse lacks any natural resistance to intraperitoneal infection with multiple

TABLE 5.—Curative Effects of "Prontosil Solution" and of Para-Amino-Benzene-Sulfonamide in Experimental Beta-Hemolytic Streptococci Injections in Mice

Strain of Beta Hemo- lytic Streptococci	No. of Mice	Amount of Inoculum	Treatment Commenced, Hrs. After Infection	Time of First Blood Cul- ture, Hrs. After Infection	Blood Culture		Therapeutic Agent	Days of Treatment	Total Dosage (Mg. of Chemical)	Deaths in Each 24 Hour Period							Deaths in Periods of Days							
					No. Positive	Average Colonies per Cc.				1	2	3	4	5	6	7	8-11	12-16	17-23	24-30	31-38	39-48	49-64	
Da	6	0.000001, 100 to 1,000 MLD	8	12	6	130	P.S.*	5	125	..	..	..	..	..	..	..	+++	+	..	..	+	..	..	..
Da	8	0.000001, 100 to 1,000 MLD	Untreated control mice.....							+++	+++ ++	..	..	..	..	..	..	..	..	..	..	..	..	..
C203	6	0.000001, 100 to 1,000 MLD	8	12	6	1,225	P.S.	6	181	..	++	..	..	..	..	..	..	+++	..	..	0	..	..	..
C203	6	0.000001, 100 to 1,000 MLD	8	12	6	1,693	P.S.	7	156	..	+0	..	..	+	..	..	..	+0	..	..	..	..	..	..
C203	24	0.000001, 100 to 1,000 MLD	8	12	24	1,500	P.S.	14	255	..	++ +	0	..	++	..	..	+	+++	+	..	0	..	..	..
C203	20	0.000001, 100 to 1,000 MLD	Untreated control mice.....							++++++ ++++++ ++++++	++ + ++	..	..	..	..	..	..	..	..	..	..	..	..	
S24	6	0.000001, 100 to 1,000 MLD	8	12	0	395	P.S.	6	150	..	..	..	..	+	..	..	+++	+	..	..	0	..	..	..
S24	6	0.000001, 100 to 1,000 MLD	Untreated control mice.....							++ ++++	+	..	..	..	..	..	..	..	..	..	..	..	..	..
Schw.	6	0.000001, 100 to 1,000 MLD	8	12	6	850	P.S.	7	155	..	++	..	..	..	..	..	+	..	..	+	+	+	..	..
Schw.	6	0.000001, 100 to 1,000 MLD	8	12	6	5,440	P.S.	7	160	..	++	..	..	..	..	..	+++	..	..	..	..	..	..	..
Schw.	24	0.000001, 100 to 1,000 MLD	8	12	22	978	P.S.	14	255	..	++ +	++	..	..	..	..	..	++	0+	+++	0000	..	..	..
Schw.	20	0.000001, 100 to 1,000 MLD	Untreated control mice.....							+++ +++ +++ +++ +	+++ +++ +++ +++ +	..	..	..	..	..	..	..	..	..	..	..	..	..
C203	0	0.000001, 100 to 1,000 MLD	8	12	4	802	P.A.B.S.†		80	..	..	..	..	..	..	..	++	++	..	..	..	..	..	..
C203	6	0.000001, 100 to 1,000 MLD	8	12	5	383	P.A.B.S.†	7	117	..	..	..	+	..	..	..	+	..	..	..	..	..	..	..
C203	6	0.000001, 100 to 1,000 MLD	8	12	6	903	P.A.B.S.†	7	117	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
C203	10	0.000001, 100 to 1,000 MLD	Untreated control mice.....							+++ +++ +++	++	..	..	..	..	..	..	..	..	..	..	..	..	..

\* "Prontosil Solution."  
† Para-aminio-benzene sulfonamide (DuPont).  
‡ Para-amino-benzene-sulfonamide ("Prontyllin") (Winthrop).

+ Died of beta-hemolytic streptococci infection.  
0 Died of another infection (mostly mouse typhoid).

of early treatment we planned to taper off the therapy gradually over a two weeks period. This plan seemed to work very well in practice, because in the C203 group of treated mice there were but six deaths and in the Schw group seven deaths from streptococci infection during the first two weeks. However, after the cessation of treatment, deaths from streptococci infection appeared in both groups, although to a lesser degree than in the first groups of treated mice. When solutions of para-amino-benzene-sulfonamide were used in the treatment of these experimental infec-

lethal doses of a strain of hemolytic streptococcus of maximal virulence. It always dies. Neither is it easy to immunize these mice against these same virulent strains. We have tried repeatedly to immunize mice with C203 and Schw vaccines without obtaining a degree of immunity capable of offering resistance to 100 lethal doses of the homologous strains. With these facts in mind, one can understand why the mice die after treatment has ceased. Unless the infecting agent has been completely eradicated, the mouse will probably succumb.

6. Demagk, Gerhard: *Angew. Chemie* 48: 657, 1935; 61: 250 (Feb. 15) 1935. Levaditi and Vaisman.<sup>5</sup> Colebrook and Kenny.<sup>2</sup> Buttle, Gray and Stephenson.<sup>7</sup>  
7. Buttle, G. A. H.; Gray, W. H., and Stephenson, D.: *Protection of Mice Against Streptococcal and Other Infections by p-aminobenzene-sulfonamide and Related Substances*, *Lancet* 1: 1286 (June 6) 1936. Colebrook and Kenny.<sup>2</sup>

We have obtained results similar to those reported by Colebrook and Kenny and others<sup>7</sup> when we attempted to treat experimental mouse infections produced by hemolytic streptococci of low mouse virulence. We could prolong the survival period of the treated mice over that of the untreated mice but were unable to influence the final mortality rate in the treated animals.

we have attempted to evaluate its curative effects in patients ill with beta-hemolytic streptococcic infections.

It is always necessary in testing new therapeutic agents to adopt a skeptical attitude toward the results obtained. Too often have early brilliant therapeutic successes eventually proved to be due to chance or to optimism of the reporter. Bearing this in mind, it is

TABLE 6.—Summary of Nineteen Cases Treated with Para-Amino-Benzene-Sulfonamide and Its Derivatives.\*

Patient	Diagnosis	Sex Age	Duration of Disease (Days)	Bacterio- logic Culture	Prontosil, Gm.			Day of Admin- istration	Other Observations
					Parent- eral	Orally	Total		
1	Infected abortion; pelvic peritonitis	♀ 33	9	Uterus-beta- hemolytic streptococcus	1.75	13.2 Pron- tosil	14.95	9	Gravely ill; hb., 6.4 Gm.; W.B.C., 4,850; temp., 106.4 F. on day of treatment; two transfusions of citrated blood; temperature normal 17 hrs. after beginning of treatment; recovery from infection uneventful.
2	Erysipelas of left leg	♂ 2	1	B.H.S.; staphy- lococcus aureus	1.4	18.9 Pron- tylin	20.3	13	Temperature normal 48 hrs.; lesion did not advance after first treatment; oral administration for furunculosis; erysipelas lesions disappeared rapidly
3	Scarlet fever	♂ 14	1	B.H.S.	2.2	22.2 Pron- tosil	24.2	11	Temperature normal in 36 hrs.; throat cleared with great rapidity; uneventful convalescence
4	Erysipelas; lymph- angitis, left leg	♀ 26	1	B.H.S. in lesion and blood stream	3.75	28.8 Pron- tylin	32.55	10	Temperature normal in 60 hrs.; erysipelas lesion disappeared rapidly; leg ulcer healed rapidly
5	Acute tonsillitis	♀ 24	3	B.H.S.	2.5	15.0 Pron- tylin	17.5	4	Temperature normal in 30 hrs.; throat normal in 48 hrs.; discharged on 5th day with throat culture negative for B.H.S.
6	Chronic cystitis and cervicitis	♀ 36	?	B.H.S., group B	....	10.8 Pron- tosil	10.8	3	Urine became free from streptococci; recurrence 1 week after treatment; insufficient treatment
7	Infected traumatic injury, left eyeball; enucleation, left eye	♂ 44	2	B.H.S.; staphy- lococcus aureus; B. coli	3.25	18.0 Pron- tylin	21.25	7	Temperature normal in 48 hrs.; recovery uneventful
8	Traumatic injury left eye; purulent panophthalmitis; enucleation of left eye	♀ 3	2	B.H.S.	2.1	.....	2.1	2	Temperature normal in 48 hrs.; recovery uneventful
9	Chronic impetigo	♀ 2	3½ mos.	B.H.S.; staphy- lococcus aureus	....	42.0 Pron- tylin	42.0	15	Had resisted all therapy; lesions began to clear after Prontylin administration; lesions negative for B.H.S. within 4 days after institution of Prontylin therapy
10	Erysipelas, left leg	♀ 7	9	.....	1.25	4.2	5.45	3	Child gravely ill; erysipelas lesion spreading despite transfusions and antitoxin; temperature normal in 28 hrs.; recovery uneventful
11	Erysipelas, right leg; bronchopneu- monia	♀ 3	1	B.H.S.	....	.....	.....	..	Temperature normal in 48 hrs.; lesion disappeared rapidly, as did also the bronchopneumonia
12	Erysipelas, right ear; otitis media right ear; essential hypertension	♂ 35	5	.....	2.25	.....	2.25	2	Patient was recovering when drug was administered
13	Bilateral otitis media; erysipelas, right ear; bilateral maxillary sinusitis	♂ 58	4	B.H.S.	1.5	57.0 Pron- tylin	58.5	10	Temperature normal in 40 hrs.; erysipelas lesion disappeared rapidly; marked decrease in discharge on 5th day; right antrum drained on fifth day; uneventful recovery
14	Ludwig's angina	♂ 70	8	.....	3.25	.....	3.25	1	Died 22 hours after first parenteral injection
15	Cellulitis of legs; septicemia	♂ 57	7	Blood culture 640 colonies of B.H.S. per cc. of blood	2.5	.....	2.5	1	Died 9 hours after first parenteral injection
16	Acute bilateral oti- tis media and mas- toiditis; septicemia	♂ 5	24	Blood culture 2,150 colonies of B.H.S. per cc. of blood	11.75	.....	11.75	13	Gravely ill; possible right jugular thrombosis; meningismus; developed metastatic infections in both elbows and over right clavicle; blood culture negative on 5th day; hemoglobin fell to 40%; 3 transfusions after negative blood culture; sterile pleural effusion eleventh day; temperature normal 18th day discharged 26th day
17	Scarlet fever; cer- vical adenitis	♀ 6	9	Blood and cerebrospinal fluid negative	5.25	.....	5.25	4	Marked meningismus with 400 cells in C.S.F.; glands decreased rapidly; temperature fell to normal in 6 days
18	Scarlet fever; cer- vical adenitis; bi- lateral otitis media	♀ 6	18	.....	....	5.4 Pron- tosil	5.4	3	Septic type of temperature up to 104; multiple myringotomies both ears with abundant purulent discharge; temperature fell to normal in 24 hours; ears clear in 3 days
19	Acute follicular tonsillitis; right peritonsillar abscess	♂ 22	6	B.H.S.	2.5	7.2 Pron- tosil	9.7	4	Marked decrease in swelling and edema within 40 hrs.; temperature normal in 40 hrs.; abscess ruptured (?) at 26 hrs.; patient discharged 5 days after admission

\* Seven other patients have been treated with para-amino-benzene-sulfonamide and its derivatives since this table was prepared.

#### THE CLINICAL USE OF "PRONTOSIL SOLUTION," "PRONTOSIL TABLETS" AND PARA-AMINO- BENZENE-SULFONAMIDE

In view of the very definite therapeutic effect of para-amino-benzene-sulfonamide and its derivatives on experimental hemolytic streptococcic infection in mice and because of the encouraging reports of their use by European clinicians in human streptococcic infections,

possible that the good clinical results observed by us after administration of para-aminobenzene-sulfonamide and its derivatives were due to chance; but it is not possible that the results in treatment of experimental infections were. Therefore we believe that continued clinical observations of the effect of these substances in the treatment of hemolytic streptococcic infections in human beings should be vigorously prosecuted.

## TOXIC EFFECTS

In the course of observations on the patients presented in this report we have noted that the therapeutic agents employed are relatively nontoxic. The intravenous injection of "Prontosil Solution" frequently resulted in nausea, vomiting and an immediate bowel movement. As we have found that following a subcutaneous injection of "Prontosil Solution" the substance appears in the urine in fifteen minutes, we are of the opinion that the intravenous use of the product is unnecessary. We have not observed any changes in the urine, white blood cell count or red blood cell count that could be attributed to the therapeutic agent. None of our patients developed sulfemoglobinemia. We have been insistent that no saline laxative be used while a patient is under treatment. The only known toxic manifestation was that of fever. When a large dose (100 cc.) of "Prontosil Solution" was administered under the skin in a normal human being the temperature mounted to from 102 to 103 F. (rectal) in from eight to twelve hours. This fever lasted twelve hours and then the temperature declined rapidly to normal. A feeling of lassitude and slight frontal headache was experienced by the subject during the febrile period. This reaction was not observed in patients who received smaller divided doses of "Prontosil Solution" but has been observed in those who received a single large dose. No toxic symptoms were observed in mice that had received large amounts of "Prontosil Solution" over a long period of time.

The samples of para-amino-benzene-sulfonamide that we tested were definitely toxic for mice. A subcutaneous injection of 9 mg., repeated after a three hour interval, produced in the animals symptoms of a bilateral vestibular dysfunction and a curious spastic paralysis. However, within four hours these symptoms disappeared and the mice appeared as healthy as ever. In patients, long continued therapy with this substance did not result in toxic manifestations.

## DOSAGE

When "Prontosil Solution" is used, we feel that it is important to administer a large amount during the first twenty-four hours of treatment. Hence we have adopted the following measure for determining total dosage during the first twenty-four hours of treatment: For each pound of body weight up to 100 pounds (45 Kg.) we advise 1 cc. of the substance. Between 100 and 150 pounds (68 Kg.) the total first day dose is 100 cc. For patients weighing over 150 pounds the dose is determined on the basis of 0.75 cc. per pound (450 Gm.) of body weight. After the first twenty-four hours the total daily dose should be about one half of the amount administered in the first twenty-four hours except in patients suffering from beta-hemolytic streptococcic septicemia. In these individuals the original amount should be continued until the blood stream is sterile.

As it has been shown that para-amino-benzene-sulfonamide in a concentration of 1:10,000 is bacteriostatic in vitro, we have tried to attain a high concentration in the patients treated with this substance. We know little about the absorption and nothing about the excretion of this drug. However, we have found that some patients will tolerate a gram of para-amino-benzene-sulfonamide for each 20 pounds (9 Kg.) of body weight per day for at least one month.

When para-amino-benzene-sulfonamide is used orally in conjunction with "Prontosil Solution" parenterally,

one should decrease the estimated parenteral dose by 20 cc. for every gram of para-amino-benzene-sulfonamide administered. When one is administering either "Prontosil Solution" or para-amino-benzene-sulfonamide to patients, the total calculated daily dose should be divided into four parts and given at intervals of six hours.

Finally, it should be remembered that saline laxatives and cathartics should not be administered during the period in which these substances are being used as therapeutic agents.

## SUMMARY AND CONCLUSIONS

In view of the experimental evidence presented, we believe that the careful clinical use of para-amino-benzene-sulfonamide and its derivatives in the treatment of human beings ill with infections due to beta-hemolytic streptococci is warranted.

## CARCINOMA OF THE RECTUM

## FACTORS AFFECTING ITS CURE

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Several facts pertain to cancer of the rectum which favorably influence the prognosis. A more optimistic view with regard to malignant conditions here should prevail. Practically all patients with carcinoma of the rectum can be cured when adequate surgery is instituted in the early stages of the disease. Rectal cancers can be diagnosed easily and with certainty while the lesion is early and curable. This ideal falls far short of attainment. Lahey<sup>1</sup> believes that one patient in four with this condition can be relieved by surgery. Miles<sup>2</sup> reports 21 per cent of five-year cures for all cases seen presenting a rectal malignant growth. Fansler<sup>3</sup> writes that not more than 40 or 50 per cent of those patients are suitable for radical operation. Dixon,<sup>4</sup> reviewing a large series at the Mayo Clinic, states that in more than 50 per cent of the cases the growths were inoperable. Bowing and Fricke,<sup>5</sup> analyzing the end results of the treatment of 500 patients by the combined measures of surgery and radiation therapy, report 22.53 per cent of five year good results. Many facts concerning this disease make it possible for a larger percentage of patients with a rectal malignant condition to obtain relief. A discussion, therefore, of some of the factors that modify the probability of cure of the patient with carcinoma of the rectum seems timely. The records at the Scott and White Clinic of 167 patients having cancers of the rectum have been reviewed, and the study forms the basis for the conclusions in this presentation.

The extent of the neoplasm is the most important modifying factor. Cancer of the rectum, early, as

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1. Lahey, F. H., and Catell, R. B.: Abdominoperineal Resection of Rectum and Rectosigmoid for Cancer: Two Stages, *Am. J. Surg.* **27**: 201-213 (Feb.) 1935.

2. Miles, W. E.: Pathology of Spread of Cancer of Rectum and Its Bearing upon Surgery of Cancerous Rectum, *Surg., Gynec. & Obst.* **52**: 350 (Feb., No. 2A) 1931.

3. Fansler, W. A.: Carcinoma of the Rectum, *Journal-Lancet* **52**: 255 (April 15) 1932.

4. Dixon, C. F.: Treatment and Prognosis of Cancer of the Rectum, *Illinois M. J.* **68**: 89-93 (July) 1935.

5. Bowing, H. H., and Fricke, R. E.: Primary Rectal Carcinoma Under Radium Treatment, *Am. J. Roentgenol.* **32**: 635 (Nov.) 1934; Preoperative Radium Treatment of Rectal Carcinoma, *Sec. Therap. Radiology, Mayo Clinic*. Bowing, H. H.; Fricke, R. E., and Harper F. R.: Treatment of the Carcinoma of the Rectum by Radium, *Am. J. Roentgenol.* **25**: 644 (May) 1931.

cancer elsewhere in the body, is a local lesion and while in this stage of development is readily amenable to surgical removal, with the probability of permanent relief. The carcinoma begins in the mucous membrane from the crypts or glands of Lieberkühn as a node of proliferating, abnormal epithelium. It arises frequently from an adenoma or a papilloma, and according to Rosser<sup>6</sup> sometimes from an ulcer, a fissure or a fistula or from leukoplakia.

How long does a rectal cancer remain a local lesion? Its first method of spread is by continuity of tissue as the growth develops. The next is by metastasis through the lymphatics, and occasionally the cancer cells are disseminated by the blood stream. Lymphatic invasion and distant venous metastasis seldom take place before the muscular coats of the intestine have become deeply invaded or until after the lesion has grown entirely through its wall. Certainly the more deeply the lesion has penetrated into the intestinal wall, the greater the probability of metastasis. Gordon-Watson<sup>7</sup> writes: "It is probable that the state of lymphatic invasion is seldom reached under six months and usually takes longer." Miles states, "Direct extension through the muscular coat of the bowel appears to be a slow process and the fascia propria of the rectum is not usually invaded until the disease has existed for eighteen months." Wilkie<sup>8</sup> believes that cancer of the rectum remains a local disease probably at least a year.

It is impossible to ascertain the exact time at which a cancer of the intestine begins. Probably most of the growths have existed a few months before suggestive signs and symptoms were in evidence. Most lesions, therefore, are of a definitely longer duration than the patient's history would seem to indicate. In this study I found the average duration of symptoms for the patient with an operable malignant growth to be 9.4 months. One patient of the operable group gave a history dating back twenty-four months. The average duration of symptoms of those cases considered inoperable when first examined was fourteen months. Rankin<sup>9</sup> finds in the average case of rectal carcinoma that symptoms have been present about eleven months. Since the extent of the lesion is an important factor affecting the cure, it is an encouraging fact to know that for a majority of patients the cancers are local, removable and curable for many months.

The time at which the diagnosis is made is a vital factor, for it determines the extent of the carcinoma. This is also the one factor about which most can be done toward increasing the number of cures. Therefore an endeavor should be made to diagnose more early lesions. The symptoms and signs of early disease should be remembered. Blood in the stool is the most important first indication of cancer, and a mild rectal discomfort is next. The patient describes this as an uneasiness, a heaviness, a weighty feeling, a soreness or a mild cramping. Intense pain is practically never an early manifestation of this disease. A history of bleeding was given by 80 per cent of these patients, and the complaint of a rectal discomfort was made by 68 per cent. A change in bowel habit may be the

earliest symptom. These few signs and symptoms are sufficient to cause rectal cancer to be suspected, and, when suspected, a careful digital and proctoscopic examination should be made. Practically all rectal cancers can be diagnosed by these two simple procedures. Wheeler<sup>10</sup> states that 90 per cent of rectosigmoidal and rectal cancers can be diagnosed by digital palpation. Bargaen<sup>11</sup> writes that about 95 per cent of all rectal lesions are within reach of the examining finger and concludes that delay by the physician in making a digital examination is one of the chief factors contributing to the poor prognosis of carcinoma of the rectum. Certainly if digital and proctoscopic examinations with biopsy were done always on patients with such complaints, more early diagnoses would be made and the resulting number of cures for patients with rectal carcinoma would be materially increased. Lockhart-Mummery<sup>12</sup> states that more than 75 per cent of cures can be expected when the diagnosis is made early. Abel's<sup>13</sup> statistics show that 77 per cent of patients are free from recurrence five years after surgical extirpation when the operation is performed early before the glands become involved.

The size of the lesion is to be taken into consideration, since it is somewhat of an index to the duration of the disease. Cutting<sup>14</sup> stated that a carcinoma which has encircled three fourths of the intestine is of about one year's duration, while Miles believes that it probably requires eighteen months for a tumor to reach such an extent. The size of the neoplasm, however, is a poor index of its curability. Frequently the prognosis is more hopeful for the case presenting a large tumor than for the one presenting a smaller neoplasm. Pfeiffer<sup>15</sup> states that the size of the growth bears no necessary relation to metastasis; in fact, the relation is more likely to be inverse. McVay<sup>16</sup> also finds the tumors without glandular involvement to be about average in size. Several patients of our series with tumors 7 or 8 cm. in diameter have remained well after surgical extirpation, while, in contrast, others with cancers only 3 or 4 cm. in size have developed a recurrence following their operation. The explanation for the end results in these cases is to be found in the degree of activity of the malignant cell and in the different clinical varieties of rectal cancer. Three different kinds are seen: the papilliferous, the adenoid and the colloid. The papilliferous grows rapidly on the surface and may involve the entire circumference of the intestine and protrude into and fill its lumen, producing a very large tumor before there is deep invasion of the muscular coats by malignant cells. Therefore the papilliferous, fungating, protuberant neoplasm, growing chiefly into the intestinal lumen, metastasizes slowly and, even though a very large tumor has developed, is still a favorable lesion for removal; on the other hand, the ulcerating cancer of the adenoid or colloid variety which has penetrated deeply into the rectal wall, even though small, is frequently highly

10. Wheeler, W. J. de C.: Early Diagnosis of Carcinoma of Colon and Rectum, *Irish J. M. Sc.*, pp. 579, Sept. 1928.

11. Bargaen, J. A., and Leddy, E. T.: Carcinoma of Rectum: Causes for Poor Prognosis, *J. A. M. A.* 104:1201-1203 (April 6) 1935.

12. Lockhart-Mummery, J. P.: Excision of Rectum for Cancer, *Am. J. Cancer* 18:1-14 (May) 1933.

13. Abel, A. L.: Cancer of Rectum: Five Year Cures by Radical Abdominoperineal Excision, *Surg., Gynec. & Obst.* 60:481-482 (Feb., No. 2A) 1935.

14. Cutting, R. A.: Carcinoma of Anus and Rectum, *Am. J. Surg.* 10:547-556 (Dec.) 1930.

15. Pfeiffer, D. B.: The Principles Underlying the Surgery of Carcinoma of the Rectum, *Ann. Surg.* 86:374-387 (Sept.) 1927.

16. McVay, J. R.: Involvement of Lymph Nodes in Carcinoma of Rectum, *Ann. Surg.* 76:755 (Dec.) 1922.

6. Rosser, Curtice: The Etiology of Anal Cancer, *Am. J. Surg.* 11:328-333 (Feb.) 1931.

7. Gordon-Watson, C.: Treatment of Cancer of Rectum with Radium by Open Operation, *Proc. Roy. Soc. Med.* 21:9 (Dec.) 1927. Gordon-Watson, C., and Regand, C.: Discussion on Radium Treatment of Malignant Disease of Rectum and Anus, *ibid.* 28:1251-1263 (July) 1935.

8. Wilkie, D. P. D.: Excision of Rectum for Carcinoma, *Surg., Gynec. & Obst.* 48:677 (May) 1929.

9. Rankin, F. W.: The Diagnosis and Treatment of Carcinoma of the Rectum and Rectosigmoid, *South. Surgeon* 1:247 (Oct.) 1932.



malignant, may metastasize early, and often tends to recur after wide removal. The size of the tumor, therefore, is a poor index to its curability.

The pathology of rectal neoplasms is quite an important factor influencing the probability of cure. A specimen for biopsy can be obtained readily when the proctoscopic examination is being done. By this procedure the diagnosis usually can be definitely confirmed and the degree of malignancy ascertained. Occasionally the biopsy does not show the correct grade of cell activity and may fail even to demonstrate the presence of cancer. This probably is due to the fact that the section failed to include any of the actual tumor, or to changes in the tissue produced by degeneration and infection. A negative report, therefore, does not exclude carcinoma. Specimens have been obtained for pathologic study from 124 patients. Twenty-six of these were of the papillary variety, four were of the colloid variety, ninety-one were adenocarcinoma (simplex) and three were squamous cell epitheliomas.

A study of the degree of malignancy, based on cell differentiation as advocated by Broders, was made, and it was found that nine carcinomas were grade 1, fifty-five were grade 2, forty-eight were grade 3 and five were grade 4. The character of specimens obtained from seven lesions did not permit of grading. Sixty-four of the 117 cancers graded, or 54.7 per cent, were found to be either grade 1 or grade 2 in degree of malignancy. Bowing and Fricke report 70 per cent are in the grade 1 and grade 2 groups. Hayden and Shedden,<sup>17</sup> with a somewhat different method of grading, state that 77 per cent of rectal cancers are in the lower grades of malignancy. These neoplasms of grades 1 and 2 are slow to metastasize and, by wide surgical removal of such lesions, a high probability of cure may be expected. It is a fortunate fact, favorably influencing prognosis, that a definite majority of rectal carcinomas have a low degree of activity of the malignant cell.

Seventy of the seventy-six specimens obtained by removal of the growth permitted examination with reference to the depth of penetration of the intestinal wall by cancer and also with regard to the frequency of demonstrable glandular metastasis. The lesion was found superficial to the muscle in twenty-one specimens. The muscles were invaded by carcinoma cells in ten, and in forty-seven the cancer had penetrated through the intestinal wall to or beyond the serosa. That is, the carcinoma had invaded into or through the muscular coats in fifty-two of the seventy-three cases, or 71.2 per cent. The depth of penetration of the carcinoma into or through the intestinal wall definitely affects the probability of glandular metastasis and therefore the likelihood of cure. Dukes<sup>18</sup> states that as a rule lymphatic dissemination does not play any part in the spread of cancer of the rectum until the growth has penetrated by direct continuity into the perirectal tissues.

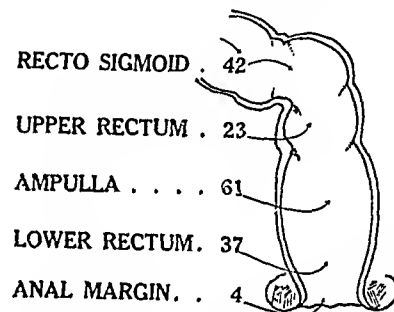
Glandular metastasis was demonstrated in only sixteen of the seventy specimens, or 23 per cent. Jones and McKittrick<sup>19</sup> found glandular metastasis in only 32 per cent. MacCarty<sup>20</sup> made a study of 1,826 rectal and sigmoidal carcinomas and reported glandular

involvement in 38 per cent. Dukes made a study of 100 cases and reported glandular involvement in forty. McVay, in a very detailed examination of 100 resected rectums, demonstrated metastasis to the glands in forty-seven. Such statistics indicate that rectal carcinoma is slow to metastasize to lymph glands and that for a majority of the patients the cancer remains local until late. Glandular metastasis markedly affects the curability. Rankin and Broders<sup>21</sup> report only 20.68 per cent of good results when the glands were involved and 57.87 per cent of good results when the glands were free.

The degree of malignancy should be considered in selecting the type of operation to be performed. Sometimes the grade of the cancer will be the determining factor in deciding operability. Certainly all definitely extirpable carcinomas of the rectum should be treated surgically. Surgery, however, should be advised more often for the more advanced or borderline lesions of the lower grades than would be considered for the higher degrees of malignancy of the same extent. Neoplasms of a highly malignant degree and of the borderline operability are treated preferably by radium and roentgen rays rather than by surgery. Radiation therapy is indicated for many of the extensive anal epitheliomas. However, a posterior hot-knife excision of the rectum is the preferable treatment for all operable squamous cell lesions of this location. A knowledge of pathology, therefore, is an invaluable aid in determining the preferable method of treatment. There are also four factors related to pathology which materially affect the prognosis. They are the different clinical varieties of cancer, the degree of activity in the carcinoma cell, the depth of penetration of the intestinal wall by malignant tissues and the presence or absence of glandular involvement.

The mobility of the growth is a very important factor influencing the treatment. All movable lesions are extirpable, and proper surgical excision offers to such patients the most for a favorable prognosis. Restriction in the mobility of the neoplasm decreases the operability, increases the hazard of surgical treatment and diminishes the probability of permanent relief. However, when a lesion is fixed it is important to remember that the fixation may be due to accompanying inflammatory changes rather than to an extension of the disease. The enlargement of the regional lymph glands is due frequently to a simple adenitis rather than to a metastatic malignant growth. Sometimes after a colostomy, by putting at rest the diseased intestine and by local treatments, the inflammatory changes subside and a cancer that apparently was fixed and inoperable becomes mobile and removable. Gordon-Watson also reports that some immobile neoplasms will be converted into operable tumors by radiation therapy.

The sex of the patient has a bearing on the cure to a slight degree. The prevalence of rectal cancer is



Location of the 167 carcinomas reviewed in this study.

17. Hayden, E. P., and Shedden, W. M.: Carcinoma of the Rectum, *Surg., Gynec. & Obst.* 51: 783 (Dec.) 1930.

18. Gordon-Watson, C., and Dukes, C.: The Treatment of Carcinoma of the Rectum, *Brit. J. Surg.* 17: 643 (April) 1930; abstr., *Internat. Abstr. Surg., Gynec. & Obst.* 51: 309 (Oct.) 1930.

19. Jones, D. F., and McKittrick, L. S., *Tr. Am. S. A.*, 1922, pp. 139-359.

20. MacCarty, W. C.: Size of Operable Cancers, Division of Surgical Pathology, Mayo Clinic.

21. Rankin, F. W., and Broders, A. C.: Factors Influencing Prognosis in Carcinoma of the Rectum, *Surg., Gynec. & Obst.* 46: 660-667 (May) 1928.

higher in the male. Buie<sup>22</sup> finds that 64 per cent are of the male sex. Pfeiffer states that the ratio is almost that of two to one. There were ninety-five males and seventy-two females in this group which was reviewed. That is, 57 per cent were males and 43 per cent were females. The pathology is not influenced, apparently, by the sex. Owing to the narrower male pelvis, surgical removal of a rectal neoplasm for him is more difficult and the pelvic peritoneum of the man is less resistant to infection than is that of the woman. Because of these facts, surgical extirpation of the rectum carries a higher mortality for the male. Sir George Newman<sup>23</sup> reports that the prospects of survival are better for women than for men after radical operation. Yeomans<sup>24</sup> states that the mortality is 7 per cent greater for men.

The age of the patient definitely affects the prognosis. The youngest patient in this group was 23; the oldest was 84. There were five patients in the third decade of life, sixteen in the fourth, thirty-three in the fifth, forty-five in the sixth, thirty-nine in the seventh, twenty-six in the eighth and three in the ninth. The tissues of the young are more elastic and have a richer blood supply, and their lymphatics are more open, factors that are favorable to the rapid growth and dissemination of a neoplasm, while the fibrotic, sclerosing changes accompanying senescence tend to retard the development and spread of a malignant condition. Therefore, in the young the lesion is usually of a high grade malignancy and of a more rapid growth and metastasizes early. Pathologic specimens were obtained from sixteen patients under 40 years of age. A study of these showed two to be grade 1, four to be grade 2, eight to be grade 3 and two to be grade 4. That is, practically two thirds of the patients under 40 had highly malignant tumors. When the neoplasm in the young is operable, it should be removed together with all lymph bearing tissue after the most thorough manner. Three patients under 40 were operated on now more than five years ago. Two of these are alive now, one eight years and one five years after the malignant growth was removed. Lockhart-Mummery writes: "I have no record of any patients under 30 who has not died from prompt recurrence." Meckling<sup>25</sup> states that a patient under 30 years of age does not recover from rectal cancer. Unquestionably the prognosis is grave for the young patient with carcinoma of the rectum.

The physical condition of the patient modifies the treatment and prognosis. All surgery is precluded for some on account of their age, and for others because of disease of either the heart, kidneys or lungs or some other debilitating illness; and only a restricted operation should be advised for some others, because of the hazard of a more radical surgical procedure. It is seldom necessary, however, that the benefits offered by surgical treatment be denied a patient with cancer of the rectum because of his physical status. A great deal can be done to rehabilitate the poor risk. Rest, foods, fluids, dextrose, blood transfusions and encouragement will do much to prepare such patients for an operation. There were four patients over 70 years of age for whom a radical removal of the rectum was performed and two others for whom a wide local excision of the lesion was done, and all had a satisfactory convalescence.

The mental attitude of the patient can be an important factor. Some are not willing to accept a colostomy, even though it would permit a safer and wider removal of their disease. For such patients the surgeon should be willing to give due consideration to other therapeutic measures or to other surgical procedures that will permit either the restoration of intestinal continuity or the making of a posterior anus. Some patients assume that their condition is hopeless and are unwilling to make the effort to get well. This is true of a few even after they have accepted surgery. There were twenty-two of this series who declined the aid offered by surgery. Radiation therapy offers the most to the patients who assume such an attitude.

The location of the lesion must be given consideration, for the pathologic types vary in the different parts of the intestine and the symptoms are modified by the portion that is involved. The smallest caliber of the large intestine is in the rectosigmoid. The cancer often grows along the blood and lymph vessels around the inside of the intestinal wall, producing annular, constricting tumors. The small caliber of the bowel and the nature and development of the neoplasms here fortunately tend to a rather early manifestation of symptoms. Owing to these facts, naturally, the first symptoms of a rectosigmoidal cancer are frequently those indicative of a partial obstruction. Sometimes patients with malignant growths in this region first consult a physician because of an acute obstruction. Neoplasms of the rectal ampulla, owing to the large size of the lumen, rarely cause marked obstruction and then only after the lesion is far advanced. Cellular, fungoid growths which are prone to early ulceration and bleeding are the type of tumors often seen here and in the lower part of the rectum. Blood and mucus in the stools are the usual first signs of a malignant condition of this part. Cancers of the anus are usually epitheliomas. They early become fissured, ulcerated and infected. Because of this and the resulting spasm and contraction of the sphincter muscles, a discomfort or even pain is frequently and early a manifestation of neoplasms of this location. The position of the carcinoma will also have a direct bearing on its accessibility and therefore the type of operation to be performed and the hazard of its removal. So the location of the lesion has a definite relation to the pathologic condition, the symptoms, the treatment and the prognosis.

Improper first treatment is a definite factor affecting the cure of rectal cancer. Many patients are treated for hemorrhoids, some being given ointments even without an examination. Occasionally the patient is treated for colitis. Sometimes an injection is made into a malignant lesion, and for others a local cauterization is done. A review of the records of these 167 cases referable to the nature of recent treatments before admission to the hospital shows that fifteen patients had a hemorrhoidectomy performed, nine were given injections for hemorrhoids, five had a local cauterization of the lesion, ten other patients had some other type of surgical work, and twenty-seven had some kind of medical treatment. It is seen by this review that sixty-six patients, or approximately 40 per cent, had some type of inadequate therapy before their conditions were definitely diagnosed. Most patients, previously subjected to either injections or local cauterization before having wide removal of the neoplasm performed, have not remained well. Incomplete operations unquestionably do harm by tending to disseminate the disease and by preventing the patient from coming earlier for proper treatment.

22. Buie, L. A., and Burgen, J. A.: Malignant Anal Lesions of Epithelial Origin. *Journal-Lancet* 53: 565 (Nov. 1) 1935.

23. Newman, George: Great Britain Ministry of Health Report on Public Health and Medical Subjects, London Bulletin 46, 1927.

24. Yeomans, F. C.: Perineal Excision of Cancer of Rectum, *Am. J. Surg.* 27: 226-230 (Feb.) 1935.

25. Meckling, C. C.: Cancer of the Rectum, *West Virginia M. J.* 31: 57-59 (Feb.) 1935.

The attitude of some physicians occasionally is discouraging. They assume that treatment is of no avail and therefore that all cases of rectal cancer are hopeless. While it is true that many of these patients come to the physician with lesions so advanced as to be irremovable, there are, on the other hand, more than 50 per cent of the patients for whom the growth can be removed with a definite prolongation of life for some, and for many others a permanent cure. As stated previously, twenty-two patients declined surgery and of the 145 remaining patients of this series the cancerous intestine was removed for seventy-six, or 52.4 per cent.

TABLE 1.—Type of Operation with Results

	Number	Hospital Deaths
Anterior excisions with colostomy.....	6	—
Anterior resections without colostomy.....	2	—
Combined excisions.....	9	2
Posterior hot-knife excisions with colostomy.....	48	1
Posterior hot-knife excisions without colostomy...	5	—
Local cautery excision of early lesions.....	5	—
Fulguration malignant papilloma.....	1	—
Total.....	76	3
Per cent.....		3.9

If the twenty-two patients declining had accepted surgery, the percentage of operability would have been materially increased.

The type and thoroughness of the operation performed are two of the most important factors influencing the curability of this disease. The combined abdominoperineal excision is the anatomically correct and classic operation; but to adopt it as a routine method has not seemed wise. Rankin<sup>26</sup> writes that he has found the operation as advocated by Miles not to be applicable for more than 20 per cent of these cases. Reporting on another group of patients, he states that less than one third were considered suitable for this type of excision. Wilkie states that the Miles operation presents difficulties and risks that are serious and unjustifiable in approximately 50 per cent of the cases. The combined operation certainly entails a greater surgical hazard. Dixon believes that the average mortality for the combined procedure is about 12 per cent and reports only 4 per cent for the posterior excision. Unquestionably rectal neoplasms should not and cannot all be operated on by the same surgical plan. A graded operation, with the procedure divided into two or more stages, is usually preferable, doing much to lower the surgical mortality. Occasionally a rectosigmoidal lesion can be removed by an abdominal approach. A majority of lesions in the rectosigmoid and upper part of the rectum, however, should have a combined abdominoperineal excision, usually in two stages. Some neoplasms of the ampulla are preferably removed by the combined method, but for a majority of tumors of the ampulla and for most cancers of the lower part of the rectum and anus a posterior hot-knife excision, following a preliminary colostomy, seems preferable.

Radiation therapy deserves proper consideration. Five year cures by this method of treatment have been reported by several, among whom are Bowing, Binkley<sup>27</sup> and Gordon-Watson. While my experience has been

limited, I would reserve this therapy primarily for the treatment of the patients with inoperable neoplasms, for those whose physical status will not permit surgery, for the patients who refuse to accept surgical treatment, for grade 4 malignant growths, for the extensive anal epitheliomas and as an adjunct to surgery. Practically all patients treated surgically were given either pre-operative or postoperative irradiation, and some were given both.

The instrument used by the surgeon for the excision may be a definite factor affecting the end result. The use of the hot-knife for the removal of a cancerous rectum has much to commend it. The hot-knife is a sharp, platinum, loop cautery tip, heated electrically. The advantage gained by the general adoption of the hot-knife for the excision of carcinomatous tissue has been stressed repeatedly by my senior associate, A. C. Scott.<sup>28</sup> My further experience with the cautery confirms conclusions published in a previous paper.<sup>29</sup> I find that the difficulty of the excision is not augmented by the use of the cautery knife. A line of cleavage is more readily obtained by it and therefore a more accurate dissection can be made. Larger and more advanced growths can be removed with the hot-knife, thereby extending the field of operability. The lymphatics are sealed when severed, and therefore there is less likelihood of dissemination of the cancer cells. There is diminished absorption of toxic substances from the wound, since the lymphatics are sealed. The loss of blood is less, for the hot-knife tends to close the capillary and small blood vessels. The postoperative pain is decreased. Because of these facts, the frequency and degree of shock are lessened and recurrence is definitely diminished.

In our clinic we have performed forty-eight consecutive posterior hot-knife excisions of malignant rectums with only one operative death, or a mortality of approximately 2 per cent. This fact would seem to justify the statement that it is a safer procedure than the usual knife excision. A surgical removal of the cancerous rectum by some method was performed for seventy-six patients. There were two other hospital deaths, or an

TABLE 2.—Glandular Metastasis Affecting Curability in Fifty Resected Specimens from Patients Operated on More Than Three Years Ago

	Num-ber	Good Results		Poor Results	
		Num-ber	Per Cent	Num-ber	Per Cent
Patients without glands involved....	40	27	67	13	33
Patients with glands involved.....	10	3	30	7	70

operative mortality for the entire surgical group of 3.9 per cent. The fact, which is substantiated by these statistics, that the surgical extirpation of a malignant rectum is a relatively safe procedure with a low mortality should be emphasized, in the hope thereby that patients will earlier and more readily accept treatment.

A detailed study has been made of fifty resected rectal carcinomas from patients operated on more than three years ago. The accompanying tables give an analysis of the work. Forty-eight patients were operated on five years or more ago. There were two hospital deaths, and two cases have not been traced.

26. Rankin, F. W.: Two Stage Resection for Carcinoma of the Rectosigmoid and Rectum, Surg., Gynec. & Obst. 53: 670 (Nov.) 1931; A Survey of the Treatment of Carcinoma of the Rectum and Rectosigmoid, Interstate Postgraduate Assembly, North America, October 1932.

27. Binkley, G. E.: Gold Radon Seeds in Rectal Cancer, Ann. Surg. 102: 72 (July) 1935.

28. Scott, A. C.: An Evaluation of Agents That Destroy or Remove Malignant Disease, J. A. M. A. 97: 385 (Aug. 8) 1931.

29. Brindley, G. V.: Cancer of the Rectum, Study of One Hundred Case Records, South. M. J. 25: 441-448 (May) 1932.

Twenty-two patients, or 50 per cent, of the remaining forty-four obtained from five to fourteen years of good end results from surgical treatment. Thirty-three of these forty-eight patients were operated on by the method of posterior cauter excision after a preliminary colostomy had been performed. The two untraced patients were in this group and two other patients are known to have died from some cause other than a recurrence of the malignant condition. Of the remaining twenty-nine, fourteen, or 48 per cent, obtained five years or more of good end results. Therefore the ultimate results obtained by a posterior hot-knife excision further commend its adoption for the extirpation of a rectal cancer.

TABLE 3.—*Degree of Malignancy Referable to Clinical Types*

Pathologic Report	Number Graded	Grade 1	Grade 2	Grade 3	Grade 4
Papillary adenocarcinoma..	26	7	11	8	..
Adenocarcinoma.....	84	2	42	35	5
Colloid carcinoma.....	4	..	1	3	..
Total.....	114	9	54	46	5
Per cent.....		7.00	47.4	40.6	4.33

TABLE 4.—*Extent of Lesions Affecting Curability: in Fifty Resected Specimens from Patients Operated on More Than Three Years Ago*

	Num-ber	Good Results	Per Cent	Poor Results	Per Cent
Lesions confined to mucosa.....	21	18	85.7	3	14.3
Invasion of muscle wall.....	4	3	75	1	25
Penetration to or beyond serosa.....	25	10	40	15	60

TABLE 5.—*Grade of the Malignancy Affecting Curability in Fifty Resected Specimens from Patients Operated on More Than Three Years Ago*

	Num-ber	Good Results	Per Cent	Poor Results	Per Cent
Grade 1.....	3	3	100	0	....
Grade 2.....	26	16	61.5	10	38.5
Grade 3.....	19	11	57.9	8	42.1
Grade 4.....	2	0	....	2	100

## CONCLUSIONS

Carcinoma of the rectum is a curable disease. Many factors influence the treatment and prognosis of the patient with a cancer of the rectum, making it wise to study and treat each case individually. Among these factors are to be considered the location, the size and the extent of the lesion, the mobility of the growth, the pathology of the neoplasm, the sex, age, physical state and attitude of the patient, the availability of radium and roentgen therapy, proper preoperative and post-operative care of the patient, and the instrument used for the excision of the malignant intestine. The salient facts to be remembered are that cancer of the rectum is a local lesion for a few months; that the spread of carcinoma here tends to be slow; that the first symptoms are a change in the frequency and character of stool; that the diagnosis can be made easily, early, with certainty by simple measures; that the rectum is not a vital organ; that a colostomy is not particularly disabling; that the surgical removal of a malignant rectum is a relatively safe procedure, and that wide, hot-knife excision of early lesions gives a high percentage of permanent cures.

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## ABSTRACT OF DISCUSSION

DR. CURTICE ROSSER, Dallas, Texas: A few years ago biopsy enjoyed an entirely undeserved oblivion. Partly because it has been found that "examination-massage" of a malignant tumor is probably as dangerous as or even more dangerous than the careful removal of a section of that tumor, and partly because of the perfection of instruments for biopsy, including the use of the coagulating current, biopsy is now a more or less standard procedure. In spite of the fact that a great many more physicians are now equipped by experience to recognize a typical malignant growth of the rectum by inspection and palpation, there continues to be a need for microscopic tissue examination. The statistics of Dr. Brindley have shown that a person with a grade 4 malignant growth of the large bowel will probably die of cancer eventually, regardless of what is done about it, and a biopsy in that instance might change one's plan of attack on the growth. At the other extreme, a person with a grade 1 cancer may survive after even a simple local removal; consequently, the advance information afforded by biopsy has definite value here. Frank recognition of the etiologic significance of benign lesions of the rectum and anus in relation to rectal cancer will do a great deal to advance the time at which a definite diagnosis can be made. That adenoma of the rectum is a direct etiologic factor is now generally conceded. I reported before this section in 1930 a group of cases of long standing, inflammatory and irritative lesions of the anal canal, such as hemorrhoids, fistulas and anal ulcers in which there was definite evidence that the benign lesions had an etiologic significance in connection with the malignant growth that was discovered superimposed. A mixed tumor of this type—an implanted malignant growth on the basis of an adenoma or an old inflammatory lesion of the anal canal—frequently fails to give a clear-cut picture on examination through the proctoscope. A biopsy is therefore advisable when the suspicion of malignancy is aroused. Accurate and comprehensive diagnostic measures are essential in the presence or possibility of any rectal neoplasm. The entirely laudable attempt to popularize rectal examinations on the part of the practitioner has at the same time deeply inculcated the idea that this procedure may properly consist entirely of the casual introduction of the index finger. The fact that the majority of rectal tumors in their curable stages are in the upper rectal zones suggests that careful direct visualization of the entire rectum and rectosigmoid is likewise indicated. The fortunate trend of opinion that has rescued biopsy from its previous disfavor affords an additional safeguard to the patient when the presence of a malignant condition or the degree of malignancy is undetermined.

DR. FRED W. RANKIN, Lexington, Ky.: I disagree with Dr. Brindley on one point. I have the firm conviction that the most important factor influencing prognosis is the activity of the cancer cell as graded by Broders' classification of malignancy, and I believe firmly that these other factors of duration of growth, glandular metastasis and the extension of the malignant process through the muscularis of the bowel and into the regional lymphatics, and beyond, are in direct ratio to this activity. Broders has shown very clearly just what Dr. Brindley's experience has been here, that the cancer of the rectum has a tendency to occur most often in the lower grades, 1 and 2. My figures were 65 per cent in the grade 1 and grade 2, and I think that this accounts in large measure for the hopeful prognosis following the successful extirpation of cancers in this region. Let me also emphasize the fact that in resected specimens of cancer of the rectum 46 per cent show glandular involvement. I believe that when possible radical surgery should be applied after the principles of Halstead not only to the breast, the lip, the tongue and the stomach, but also to cancers of the rectum. I heartily agree with Miles's statement that it is just as important to remove the mesentery of the sigmoid in doing a radical operation for cancer of the rectum as it is to remove the glands of the axilla in doing an operation for cancer of the breast. Within the last three years I have found myself changing more and more from the graded procedure of my own, which is a modification of Miles's operation, and somewhat similar to Lahey's modification, brought out in 1929, to the one-stage operation of Miles. In a high percentage of cases, however, debilitated and desiccated individuals are seen too late to apply this radical procedure in a

routine manner and for that reason it is necessary to resort to the less radical procedure of colostomy and posterior resection. In the last fifty cases I did eighteen one-stage operations, sixteen colostomies and posterior resections, and four of my own type of operations. In that group of resections, one patient died following resection and colostomy and eighteen survived radical one-stage operations but I don't think that is a fair way to estimate operative mortality, for, in the whole fifty, actually five patients died, four of them following colostomy alone.

DR. G. V. BRINDLEY, Temple, Texas: I wish to express appreciation to Dr. Rosser and Dr. Rankin for the manner in which they amplified the paper in their discussions. Unquestionably rectal neoplasms should not all be operated on by the same surgical plan. It was shown on the screen that I use six different types of operation. The location of the growth, the age of the patient, the degree of malignancy, the extent of the lesion and the patient's physical status are all very important factors in determining the type of operation to be performed. The hazard of the different procedures must be weighed in making the selection. It is generally accepted that a combined excision carries a mortality of about 12 per cent, contrasting with the 4 per cent mortality of a posterior excision.

## Clinical Notes, Suggestions and New Instruments

### QUININE TREATMENT OF MYOTONIA CONGENITA

WILLIAM A. SMITH, M.D., ATLANTA, GA.

Wolf<sup>1</sup> has recently reported striking benefit obtained by the use of quinine in four cases of myotonia and has concluded that quinine is a specific for this disorder, which has shown practically no response to all previous methods of therapy. I have had an opportunity to confirm this remarkable discovery in three cases, which will be briefly reported.

The familial disease known as myotonia congenita was first described in 1876 by Thomsen, a Danish physician. He himself and twenty members of his family were affected. The disease is characterized by tonic muscular spasms occurring at the start of a movement, which greatly restrict further action. With repeated attempts at movement the spasms relax and the movement gradually becomes more free, until there is no difficulty. After a period of inactivity, however, the spasm occurs on attempted activity. The condition is usually worse when the patient is cold or fatigued. Such tonic spasms, with marked delay in relaxation, occur not only on voluntary movement but also with mechanical or electrical stimulation, and even on reflex contraction such as coughing or sneezing. The skeletal muscles are often greatly overdeveloped, although muscular power may be diminished. The disorder may be generalized or limited to certain muscles. Symptoms usually begin in childhood but sometimes do not appear until puberty or later.

The disease causes considerable disability as well as great embarrassment. On arising from a chair there may be spasms in the legs and inability to move, the patient sometimes falling forward on his face. On attempting to walk fast or run, similar spasms prevent movement until relaxation occurs. Ascending stairs is especially difficult. In shaking hands, the patient often has difficulty in releasing the hand grip. In starting to speak, spasm of the tongue and lips may prevent speech for a few moments. It attempting to chew, spasm of the jaw muscles makes this very difficult at first. Even the ocular muscles may be involved. Neurologic examination usually gives normal results except for the hypertrophied muscles, the tonic spasms on movement and the slow relaxation following contraction.

The etiology is obscure. The condition simulates that produced by veratrine poisoning. By electromyographic studies, Lindsley and Curren<sup>2</sup> have shown that the spasm is a reflex phenomenon, which they thought due to abnormal irritability

of sensory organs in the muscles. Throughout the years no effective remedy has been known, although numerous methods of therapy have been tried.

The effect of quinine in the following cases has been very gratifying:

A white youth, aged 19 years, seen in November 1934, complained of difficulty of rapid movement, which had been present as long as he could remember; whenever he stopped moving, it would be difficult to get started again because of a muscular spasm. When first attempting to walk or run, his legs would become very stiff, which sometimes caused him to fall. In getting up from a chair, his knees would suddenly lock, and he would have to wait for them to relax before being able to move. He had noticed the same difficulty on use of the arms and had difficulty in releasing his hand grip. Later, similar disorders appeared in the muscles of the jaw and tongue with difficulty in starting to chew or to speak. By slowly "warming up" he would be able to continue these movements without difficulty. While attempting to drill in college, he was unable to keep up with the other boys, as whenever they stopped he would be unable to start marching again on command. He had had large muscles since childhood.

The examination showed enlargement of practically all the skeletal muscles. There were tonic spasms on sudden movements, most marked in the extremities. A myotonic reaction with marked delay in relaxation was also present on mechanical and electrical stimulation of the muscles. There were no other significant abnormalities. A diagnosis of myotonia congenita was made.

Sept. 27, 1936, he was given an intravenous injection of quinine dihydrochloride 7½ grains (0.5 Gm.) and in thirty minutes there was practically complete disappearance of all myotonic symptoms, including the myotonic reaction on electrical stimulation. The oral administration of 7½ grains twice daily has been found to be sufficient to maintain freedom from symptoms.

Two sisters, aged 17 and 8 years, had noticed similar though milder symptoms for several years. Both have obtained relief by the oral use of 5 grains (0.3 Gm.) of quinine daily.

### CONCLUSION

The value of quinine in myotonia congenita has been confirmed in three cases.

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### OPERATION FOR VOLVULUS WITH RECOVERY

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When one considers the embryology of the alimentary canal, it is surprising that anomalies of the intestinal rotation are not more common; probably they do occur oftener than they are recorded, owing to the fact that symptoms are absent. Out of a total of forty-eight cases reviewed by Dott, thirty-five were accidentally discovered, as misplacement did not give rise to symptoms or diagnosis was made late.

The case about to be reported is the first, we believe, in which operation was successfully performed when the patient was 4 days old. To understand clearly the condition to be described, the embryologic course will be discussed briefly in the embryo from the fifth week. At this time the canal consists mainly of three parts, foregut, midgut and hindgut, and all are attached by the common dorsal mesentery. The distal portion of the foregut forms the stomach and duodenum. From the midgut, the small intestine and remainder of the tube are formed. From the hindgut, the descending and sigmoid parts of the colon, the rectum and the tubular diverticulum of the allantois are formed. The midgut has a ventral attachment by the vitello-intestinal duct to the yolk sac, which is lost by the fourth week and, as the midgut grows, it is extended into the root of the cord as a temporary umbilical hernia. Rotation of the gut begins about the fifth week while it is in this position, the next stage occurring at about the tenth week. Because of the bulky hernial content, it is impossible for it to return through the narrow umbilical orifice *en masse*. The ileum is forced out, followed by the colon; as the colon elongates, the cecum descends into the right loin. This stage is anticlockwise and turns about the axis of the superior mesenteric artery of 270 degrees from the premature sagittal position of the loop.

1. Wolf, Alexander: Quinine: An Effective Form of Treatment for Myotonia; Preliminary Report of Four Cases, *Arch. Neurol. & Psychiat.* 36: 382 (Aug.) 1936.

2. Lindsley, D. B., and Curren, E. C.: An Electromyographic Study of Myotonia, *Arch. Neurol. & Psychiat.* 35: 253 (Feb.) 1936.



The third stage begins about the eleventh week and progresses until birth or a short time after it, being characterized by further descent of the cecum and fixation to the postabdominal wall of certain parts of the intestine, which reaches its normal position at about the fifth month. The importance of this stage is not so much the degree of rotation as the fixation of parts in such a way that displacement, and especially torsion and volvulus, are rendered impossible. The ileocecal angle thus is held steady by adhesion of the cecum and ascending colon.

The only derangement taking place during the first stage of rotation is extroversion of the cloaca, which includes the opening of the ureters, genital ducts and intestinal canal. The derangements occurring during the second stage may be a non-rotation of the midgut loop, a reversed rotation or a mal-rotation of the midgut loop. These, Dott believes, are due to the variation in size of the embryonic umbilical orifice. The third stage of rotation maladjustment would be due to early or delayed fixation of the cecum, the former causing an undescended cecum, the latter an overdescended cecum.

The type of obstruction in this case was a volvulus. The predisposing causes were a narrow base to the loop of intestine, an undue length of mesentery and a point of adhesion at the convexity of the loop, which can act as an axis of rotation. The exciting cause was a peristaltic motility or undue distention of intestine.

#### REPORT OF CASE

J. H., the first child of young parents, was born Sept. 19, 1935. Delivery was normal. The child weighed 6 pounds 13 ounces (3,090 Gm.) and passed meconium from the bowels on the first day. On the second day it passed mucus and about two drops of bright red blood. Rectal irrigations and glycerin and oil enemas were given. The result was a very small amount of flatus.

Physical examination was negative until the fourth day, when some distention was present. On the fourth day a duodenal tube was placed in the stomach and about one-half ounce (15 cc.) of thick viscid bile was withdrawn. Roentgenograms showed a diverticulum of the esophagus and obstruction in the ileum.

Drs. Lathrop and Donovan were called in consultation. The objections of the father and family to operation delayed matters for eight hours. In the meantime the baby's temperature rose from 99 to 103 F. and, during the day, emesis was yellowish green. The infant received 5 per cent dextrose in saline solution previous to the operation and afterward.

The child was operated on under local anesthesia, supplemented by ether. A right paramedian incision was made, the wall being almost one-eighth inch in thickness. Considerable amount of yellowish fluid appeared. The ileum was edematous. There was marked distention of the stomach and upper intestine. The mesentery was markedly indurated, and hemorrhagic areas were present. There was a twist in the longitudinal axis of 360 degrees in a clockwise direction. Above the constriction the intestine was dilated to about the diameter of  $1\frac{1}{2}$  inches, while below it was constricted to about three-eighths inch. The twist was reduced by rotating the whole mass in the anti-clockwise direction and the intestine was returned into as normal a position as possible with considerable difficulty owing to the amount of distention present. The abdomen was sutured in layers and closed without drainage.

Blood transfusion of 20 cc. of the father's blood was given after the operation and repeated the following day; continuous clysis of saline solution and 5 per cent dextrose was also given. Breast milk given after operation was not retained. Lavage was done, returning fecal-like material. Irrigations and stupes were ordered. Enemas of milk and molasses were given. One minim (0.06 cc.) of solution of posterior pituitary was given on the second day. Lavages were done every two to four hours for three days, as the stomach filled with fecal-like material. On the third postoperative day rectal irrigation returned brownish, with a few fecal particles. After the bowels started to move, the baby was able to hold breast milk by mouth in which 5 drops of whisky was added. Diarrhea followed, which was finally controlled by banana powder. One week following the operation the baby weighed 5 pounds 8 ounces (2,495 Gm.) and continued to gain weight slowly. The general condition has been good and at 1 year of age the child weighed 19 pounds 4 ounces (8,730 Gm.).

507 Church Street.

## Special Article

### THE PHARMACOPEIA AND THE PHYSICIAN

#### DRUG TREATMENT OF CARDIAC DECOMPENSATION

HENRY A. CHRISTIAN, M.D.

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*This is one of a series of articles written by eminent clinicians for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.*

By cardiac decompensation is meant a combination of symptoms and signs that indicate that the heart by reason of its abnormal condition no longer is able to maintain an efficient circulation. In cardiac decompensation is not included the circulatory failure of acute infectious diseases. Various forms of heart disease may lead to the condition spoken of as cardiac decompensation, such as chronic valvular heart disease, chronic nonvalvular or myocardial heart disease, chronic pericarditis or congenital cardiac lesions. As factors in the production of these forms of heart disease, rheumatic fever and hypertension play very important rôles, the former being the causative factor in almost all the chronic lesions of valves and the pericardium, the latter with arteriosclerosis of the coronary arteries, thyroid disease and possibly the effects of infections being the usual causative factors in the myocardial group. Syphilis of the aorta with aortic insufficiency is the cause of cardiac decompensation in a special group, while the same disease has a definite but quantitatively uncertain, probably slight, part in producing myocardial disease.

In the presence of these cardiac lesions in due course of time will appear the symptoms and signs of cardiac decompensation, of which the most important are breathlessness, cough, edema and cardiac enlargement. As a rule, a correct diagnosis of cardiac decompensation is made easily; not infrequently, however, the etiology in a given case cannot be recognized with certainty. Fortunately, in most patients with cardiac decompensation recognition of the exact etiology plays little part in methods of treatment; the chief exceptions to this are syphilis and thyroid disease, and here the use of the Wassermann reaction and determinations of basal metabolism along with other evidence give quite a clear clue to these relationships of etiology utilizable in treatment.

Given then any of these conditions with resultant cardiac decompensation sufficiently marked to interfere with the patient greatly, certain therapeutic procedures are indicated for each patient. Such a patient needs primarily physical rest; with few exceptions this should be bed rest with the patient comfortably propped in a half sitting posture; in a small number of cases a chair position is required for the first few days.

Since many cardiac patients have been prevented by their symptoms from getting sufficient sleep, a very important part of the early treatment is to give a drug that will produce a good night's rest; for this purpose hypodermic injection of morphine sulfate, from one-sixth to one-four grain (10 to 15 mg.), is most effective, and this can be repeated for a night or two until

other therapeutic measures have so improved the circulation that the patient will sleep satisfactorily without any further sedation.

The drug of greatest value in the treatment of cardiac decompensation is digitalis. With extremely few exceptions digitalis is effective when given by mouth, and no form is superior for mouth dosage to the very simplest form of the drug, pills or capsules of powdered digitalis leaves. For patients with marked decompensation not having received digitalis in any form within the past week the initial dose should be  $7\frac{1}{2}$  grains (0.5 Gm.) to be repeated in four hours and usually again four hours later, the patient thus receiving  $22\frac{1}{2}$  grains (1.5 Gm.) in the first eight hour period. After this, 3 grains (0.2 Gm.) or  $1\frac{1}{2}$  grains (0.1 Gm.) three times a day should be given and continued until a therapeutic effect or some evidences of toxicity result. The original directions of William Withering in 1783 as to giving digitalis cannot be improved on: "Let the medicine be continued until it either acts on the kidneys, the stomach, the pulse or the bowels; let it be stopped upon the first appearance of any one of these effects."

Tincture of digitalis may be substituted in mouth dosage for the powdered leaves if for any reason that seems desirable; rarely, however, in my experience is that the case; if for no other reason, the convenience of pills and capsules would give a preference to powdered leaves over the tincture; however, it has always seemed to me that the whole leaf has a therapeutic superiority to the alcohol soluble portions present in the tincture.

The foregoing dosage should be increased for cases of greater severity and for very large patients. Conversely, for patients with less marked degree of cardiac decompensation and for small patients the initial large doses may be curtailed or abandoned. This abandonment of the large initial doses particularly is indicated when the patient previously has been getting digitalis in any considerable dosage.

In all of these statements of dosage, it is assumed that all preparations of digitalis are of standard Pharmacopeial activity as determined by the biologic test contained in U. S. P. XI.

For patients extremely ill, in whom a digitalis effect must be prompt to save life, intravenous medication is indicated. For this, strophanthin or ouabain is best, the intravenous dosage being from 0.5 to 1 mg., not to be repeated within twenty-four hours and not to be used in a patient recently having received previously digitalis in other form in other than very small dosage. Extremely few patients need this intravenous form of therapy.

In some patients in whom nausea and vomiting prevent mouth dosage, strophanthin or ouabain, as described, can be used until the gastric symptoms subside sufficiently to permit a return to mouth dosage. In this type of patient, instead of strophanthin or ouabain intravenously, tincture of digitalis can be given by rectum in a dosage of 1 or 2 drachms (5 to 10 cc.) once or twice daily, followed by a small amount of physiologic solution of sodium chloride, the injection being preceded by a bland cleansing enema.

At present there is no advantage to be obtained by using any other than Pharmacopeial preparations of digitalis, notwithstanding the many proprietary digitalis preparations that are being offered with great enthusiasm to the medical profession, their dispensers making many claims for their superiority, claims that seem not justified as far as my own clinical experience goes.

In some patients with cardiac decompensation, edema is marked. Often it disappears rapidly as the result of the digitalis and rest therapy. When it does not, diuretic drugs are indicated. For mouth dosage one of the xanthin group can be used, as theobromine with sodium salicylate, theophylline or theophylline with sodium acetate. These should be given in two or three doses at two hour intervals every second or third day, the first dose being given early in the morning, the single dose of the theobromine group being from  $7\frac{1}{2}$  to 15 grains (0.5 to 1 Gm.) and of the theophylline group from 5 to  $7\frac{1}{2}$  grains (0.3 to 0.5 Gm.).

In case the xanthin group of diuretics are not sufficiently effective, the mercurial diuretics such as merbaphen (novasurol) should be utilized, for they are more effective as diuretics than are the xanthin group. However, they are not effective by mouth dosage but must be given parenterally, preferably intravenously, though they may be given intramuscularly with risk of some local irritation. These mercurials are prepared in ampules ready for parenteral dosage as a 10 per cent solution of the drug. The dose of this preparation is from 1 to 2 cc. by either route at two or three day intervals. Like the xanthin diuretics, they should be given early in the morning, so that the major diuresis ends before bedtime. Of the mercurial diuretics, salyrgan and mercupurin, not so far included in the Pharmacopeia, definitely are less toxic and more effective than merbaphen and so are preferable. At present there are available mercurial preparations of salyrgan and the mercurial portion of mercupurin, which are effective by rectum in the form of a suppository; the availability of these at times is a great help in the management of edematous cardiac patients.

To obtain the best effects from mercurial diuretics, often ammonium chloride or ammonium nitrate needs to be given for from twenty-four to forty-eight hours prior to using the diuretic in doses of 15 grains (1 Gm.) four times a day. These drugs should be given well diluted with water or fruit juice or in the form of tablets, coated so as to prevent solution by the gastric juice.

When there is hydrothorax present, this should be removed in the beginning of the treatment by tapping. It is inadvisable to attempt to treat this situation by diuretic drugs. Ascites usually disappears under diuretic therapy, as just described; failing to do so, mechanical removal is indicated.

In patients of this group in whom coronary circulation is defective, it is believed by some that improvement in the rate of coronary flow with resultant dilatation of the collateral vascular channels and eventual improvement in myocardial function can be brought about by the use of theophylline with ethylenediamine in doses of  $1\frac{1}{2}$  grains (0.1 Gm.) three times a day, the drug diluted in half a glass of water to decrease gastric irritation. I myself remain unconvinced of any great effectiveness from this drug for this purpose.

In a rare patient with cardiac decompensation having auricular fibrillation in whom digitalis fails to bring about improvement, betterment may come from making the cardiac rhythm regular by the use of quinidine sulfate. To accomplish this, after a test of quinine susceptibility by a dose of 3 grains (0.2 Gm.) of the drug, quinidine sulfate then should be given every four hours in a dose of 6 grains (0.4 Gm.) until rhythm becomes regular, or even larger dosage may be used. However, it is well to remember that to carry out such treatment has a certain definite, though small, risk, as fatalities

may follow quinidine sulfate dosage. If a patient receiving quinidine sulfate shows signs of collapse, caffeine in some of its forms (caffeine, citrated caffeine, and caffeine with sodium benzoate) should be given at once intravenously in 15 grain (1 Gm.) doses, or, if the pulse has failed, intracardiac injection should be attempted. At the same time artificial respiration should be instituted.

Active catharsis now rarely is instituted for patients with cardiac decompensation. If it is considered desirable, magnesium sulfate or compound jalap powder may be used. Mild catharsis to prevent constipation often is desirable for these patients; some form of cascara (extract of cascara, fluidextract of cascara, aromatic fluidextract of cascara) as a rule is satisfactory for this purpose. This failing, other procedures as advised in the article in this series on cathartics can be followed.

If the cause of the cardiac lesion inducing cardiac decompensation is syphilis, the syphilis should be treated after the cardiac decompensation has been managed in the ways described or before it develops. This is to be done with iodide, mercury and bismuth preparations as described in the article of this series describing the treatment of syphilis. As to the use of arsphenamine in syphilis of the aorta there is difference of opinion; my experience indicates that it is of value and that, if used cautiously, it is safe. Mercury or bismuth compounds should be given first for several doses at weekly or biweekly intervals and then followed by arsphenamine, the first doses of the latter being 0.2 Gm. Later the dose can be increased to 0.3 Gm. and eventually to 0.4 Gm. if there are no untoward reactions, the arsphenamine being given once or twice a week. When pain is present as a symptom of syphilitic disease of the aorta, treating the syphilis, as just described, often is very beneficial as concerns that symptom. Statistics seem to indicate that such treatment of the syphilis has practically no influence on cardiac decompensation but that it may slow the progression of the syphilitic lesion and so prolong life. Antisyphilitic treatment should be instituted as soon as the lesion is diagnosed, preferably before cardiac decompensation is in evidence. Those with experience with syphilis of the myocardium generally advise against arsphenamine but use the other antisyphilitic drugs in its treatment.

When hyperthyroidism is a causative factor in cardiac decompensation, proper surgical treatment of the thyroid should be carried out as soon as cardiac decompensation has been controlled sufficiently to make subtotal thyroidectomy reasonably safe. The results are very satisfactory.

With the form of cardiac disease due to thyroid deficiency or myxedema, striking improvement promptly follows properly adjusted mouth dosage of thyroid gland substance. Care must be taken, however, not to give it so as to restore too rapidly the thyroid deficiency, since in so doing one may place too great a burden on the heart and produce symptoms in this way, especially anginal pain. It is well to begin with a dosage not greater than one-fourth grain (15 mg.) of a thyroid gland preparation standardized as to efficiency by the method described in the Pharmacopeia. Determinations of the rate of basal metabolism serve as an effective guide to treatment in these patients.

During the early stages of treatment of cardiac decompensation, diet should be limited to small amounts of milk, from 800 to 1,000 cc. daily. After a few days, carbohydrate and egg should be added. Later a more

liberal diet based on the caloric requirements of the patient should be given. Frequent small feedings are indicated so long as decompensation persists. Fluid intake in these patients should be restricted to from 1,200 to 1,500 cc. As many of these patients are overweight, the diet should be gaged so as to bring about proper reduction in weight until the patient that has been overweight is from 10 to 15 pounds (4.5 to 7 Kg.) underweight; but this reduction must be carried out slowly. The diet must be adequate in constitution to prevent vitamin deficiency. Many cardiac patients need added vitamin in their diet, and some of these may be supplied by using properly standardized preparations as well as by giving diet adequate with respect to them.

Practically all patients with cardiac decompensation, after that has been treated satisfactorily, need to continue to take digitalis indefinitely in amounts just short of causing toxic disturbances. For the majority of patients this is 1½ grains (0.1 Gm.) of powdered leaves, once or twice daily; a few patients do better, on either more or less than this, as determined by trial.

Peter Bent Brigham Hospital.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**TETRACHLORETHYLENE.**—" . . . contains not less than 99 per cent and not more than 99.5 per cent of  $\text{CCl}_2\text{CCl}_2$ , the remainder consisting of alcohol." N. F.

For standards see the National Formulary under Tetrachlorethyleneum.

**Actions and Uses.**—Observations of many workers have shown that tetrachlorethylene is a useful anthelmintic for the treatment of hookworm infestation. It has been used against other worms with less success, although there is some evidence that it is useful in *Trichuris* infestation. It may be lethal to *Ascaris* but its use in that infestation is not advised because of the danger of causing migration of the worms. It is the consensus of the investigators that tetrachlorethylene is less toxic than carbon tetrachloride ( $\text{CCl}_4$ ) and at least as efficacious as the latter drug. It has a further advantage over carbon tetrachloride in that it does not lower the guanidine content of the blood, which is important in cases exhibiting a calcium deficiency. Untoward reactions are rare, but giddiness, vomiting and drowsiness have been reported in some cases. It is probably better to keep the patient (especially children) in bed during the treatment.

**Dosage.**—From 1 to 3 cc., depending on the age of the patient. Tetrachlorethylene is usually given in soft gelatin capsules but has also been administered to children on a lump of sugar. The gastro-intestinal tract should be thoroughly emptied before administering tetrachlorethylene. Fats and alcohol must be avoided, because they favor absorption of the drug. A dose of tetrachlorethylene should be followed by a saline cathartic of sodium or magnesium sulfate. One dose frequently suffices, but if necessary it may be repeated once after a period of from ten days to two weeks.

**NOTE.**—Broken capsules should be discarded; the solution should never be employed if it has been exposed to the air for more than a very brief time, because of the possibility of phosgene formation by decomposition.

**Tetrachlorethylene-Calco.**—A brand of tetrachlorethylene N. F., marketed in soft gelatin capsules each containing 1 cc. of tetrachlorethylene.

Manufactured by Calco Chemical Co., Inc. (a division of the American Cyanamid Co.), Bound Brook, N. J. No U. S. patent or trademark.

Tetrachlorethylene-Calco, 1 cc.

## Council on Foods

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.  
FRANKLIN C. BING, Secretary.

### LAMBERT'S V. M. C. AND V. M. P. NOT ELIGIBLE FOR THE LIST OF ACCEPTED FOODS

The W. H. Lambert Laboratory of St. Louis presented two products which they call V. M. C. (initials standing for vitamins, minerals, cereals) and V. M. P. (meaning vitamins, minerals, protoplasm) with the request that they be considered by the Council on Foods of the American Medical Association. Proposed advertising copy, descriptions of the products and other information required by the Council were also presented.

The product V. M. C., according to the information which the company has supplied, is a powdered mixture of sugar, cocoa, powdered skim milk, hard winter wheat, malt extract, wheat germ meal, dicalcium phosphate, brewers' yeast, karaya gum, alfalfa leaf meal and salt, flavored with vanillin. V. M. P. is stated to be a powdered mixture of karaya gum, alfalfa leaf meal, dehydrated lemon juice, brewers' yeast, wheat germ, dicalcium phosphate and citric acid. The company later informed the Council that the products have been fortified with a fish liver oil concentrate supplying vitamins A and D. The products are referred to by the company as "special purpose" foods. The Council cannot accept such hodgepodge mixtures for its list of accepted foods.

In the heyday of "patent medicine" interests a nostrum was essentially a mixture of drugs, endowed with a proprietary name, and exploited with unwarranted therapeutic claims. Today the manufacturer of "health foods" puts together a pot-pourri of alfalfa and other products, adds a little flavoring, and claims that the mixture is not a drug but a food. The composition of such bizarre products is generally predicated on the theory that the diet is deficient in a number of dietary essentials and that, if one mixes together various salts and inexpensive fat products with a little flavoring, it can be foisted on the unfortunate public as a panacea for whatever human imperfections and ailments the clever copy writer cares to mention. The advertising claims rival those made for the alleged virtues of the old-time "patent medicines." The ignorance of nutrition displayed by such promoters is equaled only by the extravagance of their claims.

Could the blatant copy of "patent medicine" concerns have produced anything more fanciful than the statements first proposed for Lambert's V. M. C.:

"Helps increase weight, aids digestion, stimulates appetite, builds up the blood, improves health and complexion, feeds nerves, benefits teeth, bone development, laxative."?

The claims for V. M. P. are equally extravagant:

"V. M. P. helps reduce surplus fat in a safe natural way. It improves the complexion, feeds nerves, benefits teeth, bone development, builds up blood, aids digestion and naturally eliminates constipation."

The advertising copy submitted for a proposed booklet describing the products expands on the absurd claims described on the labels. It introduces also amazing dietary advice on how to become beautiful both in face and in figure. The initial heading reads "Have an alluring figure, charm and health." There are many subheadings, such as "The secret of glamorous, attractive women." One is directed how to gain from 15 to 50 pounds in a new, quick, easy way, and, immediately following, how to reduce "ten to thirty pounds safely." The reader is told at the onset that "beauty secrets are between the covers of this book." Further on he is told that the "diet in this one volume tells you exactly how you can be as lovely as the stars if not lovelier."

From information which has more recently come to the attention of the Council, it appears that the label has been revised somewhat. A picture of an artistically posed young woman (unclothed except for a pair of shoes) has been substituted for much of the written material on the submitted label. The inference that the product can create such beauty, however, remains.

The Council on Foods believes the promotion of products such as V. M. C. and V. M. P. portends much harm, particularly because of the false sense of security that may be gained from their inadvised use. The Council voted, therefore, that Lambert's V. M. C. and Lambert's V. M. P. be not included in the list of accepted foods and that the company be informed of this action. This was done and an unsigned communication on the firm's letterhead was received; this was returned for proper signature. No further communication has been received from the firm and the Council has authorized publication of the foregoing report.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

#### VIOBIN

*Manufacturer.*—VioBin Corporation, Chicago.

*Description.*—Partially defatted and dehydrated wheat germ.

*Manufacture.*—Commercial wheat germ is extracted by organic solids to remove the fat. The solvent and oil are removed, the defatted wheat germ is treated to volatilize the traces of organic fat solvents, and the product is packed in cans.

*Analysis* (submitted by manufacturer).—Moisture 7.0%, total solids 93.0%, ash 4.9%, fat (ether extract) 2.1%, protein (N  $\times$  6.25) 38.0%, crude fiber 2.9%, carbohydrates other than crude fiber (by difference) 45.1%. Analysis of inorganic constituents showed K 1.08%, Ca 0.067%, Mg 0.353%, P 1.1%, Mn 0.009%, Fe 0.011%.

*Calories.*—3.6 per gram; 102 per ounce.

*Vitamins.*—Vitamin B<sub>1</sub>, from 14 to 18 units per gram (Sherman Chase), from 7 to 9 units per gram (International).

*Claims of Manufacturer.*—A special purpose food processed to prevent the possibility of development of rancidity; a rich source of vitamin B<sub>1</sub> and contains vitamin G.

#### (a) BLISS CRYSTAL WHITE SYRUP

#### (b) BLISS GOLDEN SYRUP

*Packer.*—Bliss Syrup and Preserving Co., Kansas City, Mo.

*Description.*—(a) A table syrup; corn syrup sweetened with sucrose syrup and flavored with vanilla. (b) A table syrup; corn syrup flavored with refiners' syrup.

*Manufacture.*—(a) Same as Bliss Pancake Crystal White Brand Syrup (THE JOURNAL, Nov. 18, 1933, p. 1635). (b) Same as Bliss Pancake Brand Golden Syrup (THE JOURNAL, Oct. 28, 1933, p. 1393).

*Claims of Manufacturer.*—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

#### BELLWOOD BRAND ORANGE JUICE

*Distributor.*—W. H. Williams Company, Inc., Richmond, Va.

*Packer.*—TreeSweet Products Company, Los Angeles.

*Description.*—Heated California Valencia Orange Juice practically equivalent to fresh orange juice in vitamin C content. The same as TreeSweet Pure California Orange Juice (THE JOURNAL, June 15, 1935, p. 2187).

#### BIG M BRAND HAWAIIAN PINEAPPLE CRUSHED AND SLICED

*Distributor.*—The Merchants Company, Hattiesburg, Miss.

*Packer.*—Hawaiian Pineapple Company, Ltd., San Francisco.

*Description.*—Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole canned pineapple (THE JOURNAL, April 8, 1933, p. 1106).

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 2, 1937

## CHEMOTHERAPY IN STREPTOCOCCIC INFECTIONS

Since the significant paper of Domagk<sup>1</sup> in 1935, renewed interest has developed in the possibility of chemotherapy in streptococcic diseases. A dark red dye synthesized by Mietzsch and Klarer seemed promising in animal protection experiments. The dye is the hydrochloride of 4'-sulfamido-2:4-diaminoazobenzene. Its toxicity both for mice and for human beings is remarkably slight. In Domagk's report "prontosil," as this dye has been named, was administered by stomach tube to twelve of twenty-six mice an hour and a half after intraperitoneal inoculation with virulent hemolytic streptococci of human origin. All of the twelve that received the dye survived at least seven days. Of the remaining fourteen animals, which served as untreated controls, thirteen were dead within three days and the fourteenth died on the fourth day. Partial corroboration of Domagk's work has been published by Levaditi and Vaisman and considerable suggestive clinical data have been supplied by other German and French investigators. In this issue of THE JOURNAL Long and Bliss<sup>2</sup> indicate the interesting results of their recent investigations at the Johns Hopkins University Hospital.

Colebrook and Kenny<sup>3</sup> have reported other experimental and clinical observations on prontosil and a more soluble modification, the disodium salt of 4'-sulfamido-phenyl-2-azo-7-acetylaminio-1-hydroxynaphthalene 3:6-disulfonic acid. Their preliminary mouse experiments failed to confirm Domagk's results. When, however, a different streptococcus strain was used which had been transmitted through a series of twenty-three mice and had acquired high virulence for these animals, the results differed from their first experiments. With the latter strain they began at once to get striking curative results in mice when the prontosil soluble was

administered subcutaneously or by stomach tube within a few hours after the intraperitoneal injection of streptococci. In fact, the results indicated quite clearly, they believed, that the administration of the drug does exert some curative effect on infections by these hemolytic streptococci in the mouse. The customary evolution to peritonitis and septicemia could be checked in the majority of the animals if treatment was begun within three hours of the injection of the culture. A group of twenty-four mice was tested for the prophylactic effect of prontosil. Of the twelve which received 50 mg. of prontosil subcutaneously before injection of the streptococci, only three died before the seventh day. Of the twelve control mice, nine died before the fourth day. When the surviving animals were subsequently killed, a large deposit of undissolved prontosil was found at the site of injection. It thus seems probable that the prophylactic effect observed was due to slow absorption from this depot. The mode of action of prontosil is obscure. The chief positive facts which emerge from their investigations are that multiplication of streptococci in the peritoneal cavity is prevented if the dye is administered within a few hours. It appears unlikely that the cocci are destroyed either by the drug itself or by some compound formed from it in the animal body. In vitro experiments made with human and rabbit serums disclose no evidence that administration of the drug promotes more active killing of the streptococci by the whole blood. Human leukocytes are but little affected. Apart from the slight growth-retarding influence exhibited by the serum of treated cases there is therefore not much to suggest that either the blood fluids or the blood cells play a predominant part in checking the invasion of the tissues by the streptococci. The hypotheses that the formation of a protective capsule by the streptococcus is interfered with, that the cocci in treated animals ceases to elaborate certain toxic products, that the drug activates the reticulo-endothelial system are all lacking in experimental support.

Buttle and his collaborators<sup>4</sup> have investigated a third related compound, paraaminobenzenesulfonamide base (known commercially as "prontylin") for its protective action in streptococcic infections of mice. The efficacy of a drug for protecting against streptococcic infection can be assessed, they believe, by two criteria: (1) an estimate of the number of average lethal doses of cocci against which the drug will protect when given to infected mice under optimal conditions for action and (2) an estimate of the latest time after infection when its administration will still be operative in saving the animals. The protective action of paraaminobenzenesulfonamide base was tested with six different strains of virulent streptococci. There was a definite difference in the duration and number of survivals between untreated and treated mice, and considerable difference

1. Domagk, Gerhard: Ein Beitrag zur Chemotherapie der bakteriellen Infektionen. Deutsche med. Wchnschr. 61:250 (Feb. 15) 1935.

2. Long, P. H., and Bliss, Eleanor A.: Para-Amino-Benzene-Sulfonamide and Its Derivatives, this issue, p. 32.

3. Colebrook, Leonard; Kenny, Meave, and the members of the honorary staff of Queen Charlotte's Hospital: Treatment of Human Puerperal Infections, and of Experimental Infections in Mice, with Prontosil, Lancet 1:1279 (June 6) 1936.

4. Buttle, G. A. H.; Gray, W. H., and Stephenson, Dora: Protection of Mice Against Streptococcal and Other Infections by p-Aminobenzenesulfonamide and Related Substances, Lancet 1:1286 (June 6) 1936.



in the protection against different strains and in the optimal dosage of the drug. Experiments with staphylococci and pneumococci failed to show any protection. Those with meningococci were uncertain and require further investigation. These observations tend to minimize the likelihood of the dye acting directly and exclusively on the reticulo-endothelial system.

Colebrook and his co-workers also reported briefly on certain clinical experiences with prontosil. Thirty-eight patients with puerperal fever due to hemolytic streptococci were treated by oral and intravenous or intramuscular doses of prontosil and prontosil soluble. The impression was that in many of the more severe cases the drug exerted a definitely beneficial effect manifested by a prompt fall of temperature and remission of symptoms. This was partially corroborated by the death rate, which was 8 per cent in the thirty-eight cases treated, 26.3 per cent in the thirty-eight cases admitted immediately prior to the use of the drug, and between 18 and 28.8 per cent for the four years 1931-1934.

The studies thus far reported abroad on the use of these dyes in the treatment of streptococcic infections are now apparently substantiated to a considerable extent by subsequent investigations. The animal experiments in this country need still further corroboration and there should be efforts to determine the mode of action under different circumstances and in different animals. The clinical observations reported present the usual optimism but there must be adequate clinical controls. Much painstaking effort is necessary before the use of such dyes can be placed on a completely scientific basis. It may be hoped, however, that further investigations will disclose a definite group of disorders characterized by high virulence and mortality which can be materially helped by appropriate chemotherapy.

### BRUCELLOSIS

The *Brucella* group of micro-organisms is commonly divided into *Brucella melitensis* (the goat strain), *Brucella abortus* (the bovine strain) and *Brucella suis* (the porcine strain), all of which may cause brucellosis in man. In a recent review of brucellosis in Iowa, Jordan and Borts<sup>1</sup> point out that infected cows and hogs are the usual source of infection in human brucellosis in that state. With the exception of hogs, which are known to be infected only with the porcine strain, animals may be infected with any of the three closely related types of *brucella* germs. The symptoms of the disease are weakness, sweating, fever, chills, loss of weight and aching. While treatment at present consists largely in relieving the symptoms of discomfort and the use of medicinal preparations aimed at shortening the duration of illness, some cases have been treated successfully by subcutaneous injections of a *Brucella* vaccine. During nearly a decade in which the disease

has been recognized in Iowa, one or more cases have been reported from all counties in the state. The State Hygienic Laboratories have had a total of about 2,254 positive blood tests during the ten years.

People who live on the farms are more subject to brucellosis than those who live in cities. On the farms the disease affects more farmers than farm wives, because the men come in contact with hogs and cows to a greater extent than do the women. From 1933 to 1935, 319 cases of undulant fever were reported to the Iowa State Department of Health. These have been classified according to residence in rural or urban areas and according to occupation. About half of the number occurred in rural areas, most of which were in male farm workers. In the urban districts the most commonly involved were merchants and professional people, followed by packing house workers, housewives and school children. Of the 318 patients classified according to age and sex, 73 per cent were male and 27 per cent female. The number of male cases of brucellosis exceeded the female in all age groups except the very young and those over 60.

More cases of undulant fever are reported during the summer months than during the cold season. This may be accounted for on the basis of increase (1) in discharges from infected animals following calving and farrowing, (2) in types of contact with infected animals, (3) in raw dairy products containing *Brucella*, and (4) in rate of multiplication of the organisms in dairy products owing to the higher temperature. In tracing undulant fever to the animal source, the agglutination test, blood culture and tests of animals and of milk specimens are the most important available methods. The control of the disease is dependent on measures of prevention of transmission through daily contact with infected animals or their environment. Prevention should be aimed especially at eradication of Bang's disease in cows, pasteurization of dairy products, vaccination, and limiting the chances for exposure in all forms of direct contact with animals that may be infected.

### ARTIFICIAL RADIOACTIVE MATERIAL

The possibility of applying artificial radioactive elements to biologic research and radiation therapy has aroused much interest. Some investigators have prophesied that artificial radioactive elements may eventually replace radium and radon for certain types of therapy.

M. and Mme. Joliot, son-in-law and daughter of the late famous Mme. Curie, were awarded the Nobel Prize (1934) for their discovery of artificial radioactivity. They bombarded boron with alpha rays, making a substance called radionitrogen, which gave off radiation resembling the radiation from radium. The life of the product, which is about fourteen minutes, is insignificant compared to the life of radium. Other investigators in many parts of the world have followed this line of research. For the bombarding medium some have

1. Jordan, C. F., and Borts, I. H.: *Brucellosis in Iowa*, Iowa Pub. Health Bull. 50: 4 (July, Aug., Sept.) 1936.

used the neutron, the electrically uncharged elementary particle possessing nearly the same mass as the hydrogen atom, and others have used the deuteron, the charged atom of heavy hydrogen. To date, more than forty elements have been made artificially radioactive, and the half-life of this radioactivity varies from a few seconds to about fourteen days.

In the radiation laboratory in the Department of Physics, University of California, a device called the cyclotron has been invented, which creates exceedingly high velocities of deuterons.<sup>1</sup> The high velocity of these deuterons is generated between the poles of a huge electromagnet. Essentially, its operation consists of deuterons being continuously accelerated round and round in a spiral. This gives them their high speed energy, which otherwise would be unobtainable. The deuterons reach a wall of one electrode and pass out of it through a slit; then they pass through a thin vacuum-tight metal window. Materials such as common salt are placed at this point. It is possible to bombard the sodium in the salt and make a product known as radiosodium. The half-life of radiosodium is fifteen and one-half hours. The chief advantages of these products would seem to lie in the homogeneity of their radiations, the suitability of their half-lives for therapeutic uses, and the nontoxicity of their decay products. Several other research laboratories have acquired cyclotrons, and more are obtaining them now.<sup>2</sup>

The life of the radioactive substance is short and therefore would probably not be as detrimental to the human being as radium when it is taken internally. More experimental work is required. At present it will be retarded because of the unavailability of machines to produce artificial radioactive materials. Other instruments have been developed for this purpose, but the cyclotron seems to present the greatest possibilities. Its bulk of several tons and its great expense necessarily restrict research activity except in localities where the cyclotron is available.

## Current Comment

### ORIGIN OF FECAL FAT

The products of digestion in the gastro-intestinal tract are not in the body until they have passed through the wall of the intestine. Two circumstances have combined to render difficult the precise determination of the so-called utilization of the major food materials and the evaluation of the factors influencing it; namely, the great difficulty in securing samples of blood and lymph at the immediate site of absorption from the intestine and the now well known fact that materials are excreted into the enteric canal as well as absorbed from it. Thus the fecal lipid may represent either unabsorbed fat, fat that has been excreted, or both. The presence of

bile is an important factor in the digestion and absorption of fat; in its absence there is a definite increase in fecal fat. In order to determine the origin of the lipid in the feces of subjects with bile fistulas, Shapiro and his co-workers<sup>1</sup> have fed, together with the diet, fat containing a known proportion of deuterium. This isotope<sup>2</sup> of hydrogen apparently behaves as ordinary hydrogen in metabolism and yet can be quantitatively determined in compounds containing it; it serves as an identifying "mark" for substances of which it is a part. The proportion of deuterium in the fecal fat equated with that in the food fat should thus serve as a reliable index to the origin of the fecal fat. It was found that of the deuterium-containing fat given with the food only 30 and 35 per cent respectively appeared in the feces of the two subjects studied. It was concluded "from these analyses that the remaining 65 to 70 per cent of the diet fatty acid was absorbed and that the greater part of the fecal fat in our patients originated from the fat secreted into the intestinal tract." The subjects received 0.7 and 2.1 Gm. of the deuterium-containing fat in the diet; it appears that such small amounts of fat can be largely absorbed even in the absence of bile and that, if all the food fat followed the course of the deuterium-containing fat, fecal lipid in the absence of bile has, to a large extent, an endogenous origin.

### CONTROL OF SYPHILIS

The Prosser White Oration, delivered by Dr. John H. Stokes before the St. John's Hospital and the London Dermatological Society, June 15, 1936, has been recently printed by the Public Health Service of the U. S. Treasury Department.<sup>1</sup> Much of this address considers the failure to control the spread of syphilis as effectively as present knowledge of the disease would imply. Stokes points out some shortcomings in the laboratory tests for syphilis. Thus, he believes that the darkfield examination has serious limitations as a practical diagnostic device. Similarly, the serologic tests for syphilis require a well organized mechanism, which partially inhibits their universal use. Furthermore, he points out as others have done that the clinical knowledge of the course and symptomatology of syphilis as well as the attempt to eliminate it is frequently underdeveloped in medical practitioners. The epidemiology of the disease also comes under consideration by Stokes. Modern treatment, while more effective than earlier methods, is more intricate and more prolonged and hence is frequently abandoned before optimal effects have been obtained. Stokes does not feel, however, that the clinic as such, as opposed to treatment by individual physicians, is the answer to the problem. He believes that better clinics rather than more clinics, and better trained physicians, should be more effective than requiring all treatment to be performed in clinics. Intensive effort with regard to the development of a public health policy for syphilis control and to widespread educational efforts offers the most promising method of controlling this still flourishing disease.

1. Lawrence, E. O., and Livingston, M. S.: The Production of High Speed Light Ions Without the Use of High Voltages, *Physical Review* 40: 19-35, 1932.

2. Locher, G. L.: Biological Effects and Therapeutic Possibilities of Neutrons, *Am. J. Roentgenol.* 36: 1 (July) 1936.

1. Shapiro, Arthur; Koster, Harry; Rittenberg, D., and Schoenheimer, Rudolf, *Am. J. Physiol.* 117: 525 (Nov.) 1936.

2. Isotopes in Physiologic Research, Editorial, *J. A. M. A.* 105: 1432 (Nov. 2) 1935.

1. Stokes, J. H.: The Control of Syphilis, *Ven. Dis. Inform.* 17: 315 (Nov.) 1936.

# AMERICAN MEDICAL ASSOCIATION BULLETIN

*Devoted to the Organizational, Business, Economic and Social Aspects of Medical Practice*

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SUPPLEMENT: SATURDAY, JANUARY 2, 1937

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## The New Bulletin

For some years, Fellows of the American Medical Association have received the AMERICAN MEDICAL ASSOCIATION BULLETIN each month, except for the vacation season. It was a separate publication issued as the organ of the House of Delegates to keep the Fellows of the American Medical Association apprised of developments from the point of view of organizational work. It contained also discussions of subjects of governmental, economic and social importance.

Since the coming years are likely to be exceedingly critical as far as concerns evolution in the nature of medical practice, the Board of Trustees has felt it expedient to discontinue the *Bulletin* and to substitute therefor a regular supplement to THE JOURNAL to be devoted to the organizational, economic, business and social aspects of medical practice. The material on this and the following seven pages constitutes the first section of this kind. It is proposed to publish a similar section each week, separately paged from THE JOURNAL but nevertheless an integral part. In order to make a more definite distinction of this material from that largely scientific, the material here included is typographically different and will be indexed as well as paged separately. Enough material is already available to indicate to some extent the nature of the subject matter for the next several months.

The American Medical Association has recently rebuilt its headquarters office in the interests of economy and efficiency. It is proposed to issue a series of articles adequately describing the headquarters office, including the personnel and the work of each of the departments. This will be followed by a history of the Association. The

Bureau of Medical Economics has completed an extensive study of rural medical service by individual states and will make available the results of this survey during the next eight to ten weeks. Reports will also begin to appear shortly covering the annual sessions of the secretaries and editors of the state medical societies, whose interests lie very close to the daily work of the physician. In the supplement there will also be available a regular space for notices of official meetings, such as those of the various councils and committees. The work of the Woman's Auxiliary, which was formerly included in the BULLETIN, has now assumed such proportions as to merit a special page for its activities.

The new BULLETIN will concern also a number of business aspects of medical practice. We have in mind particularly articles concerned with the investments of the physicians, his equipment, the establishment of collection agencies, telephone service, and credit rating bodies. Here also will be discussions of problems of taxation and other business questions.

The speed of modern civilization and the great widening of the scope of the activities of the American Medical Association are more than adequate warrant for speeding up the informational service in relationship to this work by having regular weekly announcements rather than an occasional monthly publication. The editors will be much interested to have from readers suggestions as to material that may well be included in a publication of this kind and also their personal views as to the extent to which such a publication will meet the increasing needs of the medical profession for reliable material in the field of medical economics.

## The Home of the American Medical Association

NOTE.—This is the first of a series of articles describing the headquarters office of the American Medical Association and the work of its various departments. Subsequent articles will appear week by week, until the series is completed, after which the articles will be published in pamphlet form.—ED.

### THE FIRST HOME

When the American Medical Association decided in 1883 to publish a journal, Dr. N. S.

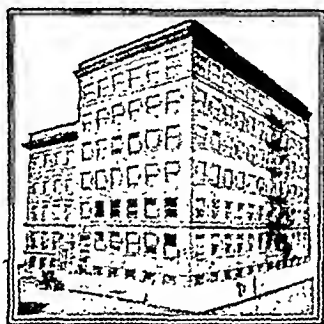
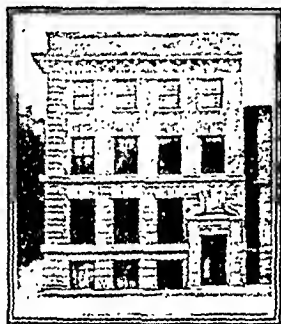
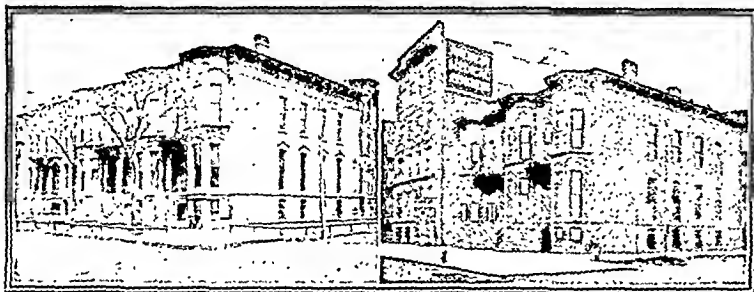


Fig. 1.—Above, at left, property first purchased at corner of Dearborn Street and Grand Avenue, containing five houses; the two at the left occupied the site of the first building. Below, at left, three-story and basement building originally erected, and occupied in December 1902. Above, at right, building of the Association as it appeared in 1910, a fourth story having been added in 1905; also remaining houses of original purchase. Below, at right, home of the Association headquarters from 1911 to 1923.

Davis of Chicago, who was the leader of the movement, became its first editor. Previous to that time the Association had a small membership—about 3,000—and published merely an annual transactions. There were no headquarters, except the office in which the permanent secretary, Dr. Atkinson, who lived in Philadelphia, conducted his practice. In fact, except for the time when the Association was in its annual session, its functions were nonexistent. The first editorial offices were those of Dr. N. S. Davis, and the first number of *THE JOURNAL* was issued from those offices on July 4, 1883. Thereafter as type and other equipment were purchased, *THE JOURNAL* moved successively to 68 Wabash Avenue (Nov. 23, 1888), to 86 Fifth Avenue, now Wells Street (Sept. 1, 1894), and to 61 Market Street (May 1, 1896). Each of the new locations was made necessary by the growth of *THE JOURNAL*. By 1896 it had reached a circulation of 8,000 copies weekly, and by 1902 this had increased to more than 25,000 copies weekly. Comparative figures indicate a circulation of 53,000 for 1910, 64,500 for 1915, 79,000 for 1920, 85,600 for 1925, 95,000 for 1930, 91,600 for 1935 and 95,400 for November 1936.

### THE PERMANENT HOME

In 1902 the growing demands for space prompted the Board of Trustees to consider the purchase of real estate for a permanent home. In March 1902, property was purchased at the northeast corner of Dearborn Avenue and Indiana Street, now Grand Avenue. This property consisted of 100 feet on Dearborn by 80 feet on Indiana, containing five two-story and and basement houses, at a cost of \$42,000. The value of the ground has increased materially. The first building of the American Medical Association was a three-story structure, 40 by 80 feet, with a high basement, of brick with stone trimmings, as shown in the illustration. Its cost was \$35,000.

Thereafter, an adjacent plot of ground 40 by 100 feet was purchased in June 1903 at a cost of \$15,000. This made the entire ground space owned by the Association 100 by 120 feet. Subsequently, additional ground was purchased on Grand Avenue, so that the plot owned by the Association is now 100 feet on Dearborn Street and 280 feet on Grand Avenue.

As has been mentioned, the circulation of *THE JOURNAL* rose steadily. Gradually the Coun-

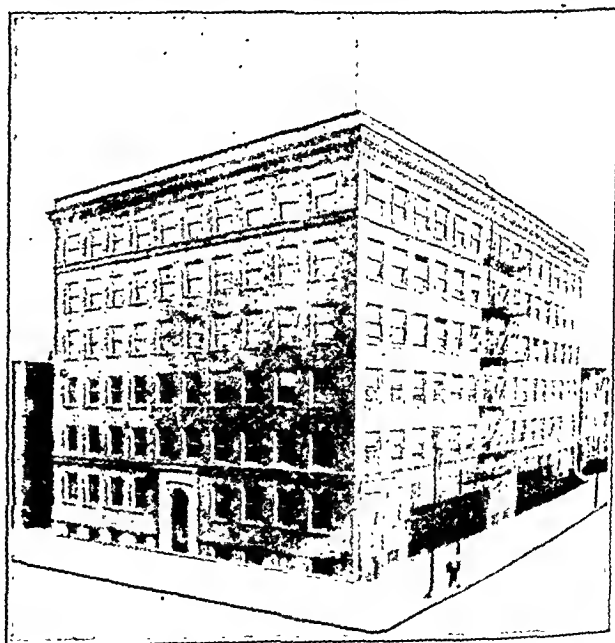


Fig. 2.—Six-story brick building before reconstruction.

cil on Medical Education and the Council on Pharmacy and Chemistry, whose histories will be related at a later date, and the Directory

department were established. Each of these expansions in service necessitated more room. The original plant had been twice enlarged, once by extending it in the rear and adding a fourth story, and a second time by occupying one of the adjoining houses. Then in 1909 the Board of Trustees, consisting of Drs. William H. Welch, Miles F. Porter, M. L. Harris, W. W. Grant, Philip Marvel, W. R. Townsend, Philip Mills Jones and W. T. Sarles (the remaining member, Dr. T. J. Happel, died before the Board could officially present its report), recommended at the Atlantic City session of 1909 the erection of a new building to cost approximately \$200,000. The money, in the shape of bonds, certificates of deposit in banks and cash, was on hand for the enterprise. The Reference Committee, which included Alexander R. Craig, Donald Campbell, E. D. Martin, J. W. Pettit and D. S. Fairchild, recommended the adoption of the report of the Board of Trustees. In March 1910, construction of the building was begun. It was of steel, brick and hollow tile, six stories with high basement, and occupied the corner of Dearborn Street and Grand Avenue, as shown in the accompanying illustration. To this building was given the number 535 North Dearborn Street, a number now famous throughout the medical world because of the accomplishments of the Association that it represents.

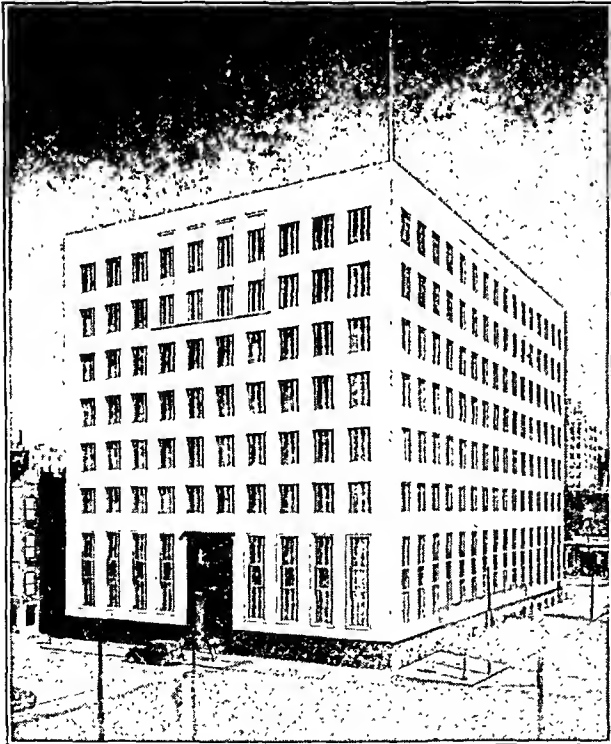


Fig. 3.—Eight-story and penthouse stone structure now headquarters of the Association.

The circulation of *THE JOURNAL* continued to grow, and the collateral printing and publishing business developed amazingly. It soon became apparent that the building must be completed.

The World War temporarily delayed the matter, but in May 1922 the Board authorized the completion of the building to include the central doorway and a six-story structure capable of expansion if additional stories should become necessary. It was little thought at the time that



Fig. 4.—Modernistic entrance of new building.

the rapid expansion of the next few years would demand the new stories promptly. Yet by 1935 conditions in the headquarters office were so overcrowded that a special committee of the Board of Trustees was appointed to look into the possibilities of finding a new site and of erecting a new building or of working out some other plan for expansion. The architects of the Association were called into consultation, and the recommendation was adopted for the development of two additional stories with a penthouse. The advice that quantities of stone might be purchased at an exceedingly favorable price having been given to the Board of Trustees, they recommended a new stone exterior for the building and redecoration of the interior so as to modernize the entire structure. This series of operations, just completed, has yielded the monumental building shown in the new illustration—a structure which has aroused the admiration of architects all over the country and which has become the subject of special articles in various architectural magazines.

In subsequent articles, the interior of the building and the various departments will be pictured and described.

(To be continued)



## Rural Medical Service

Are rural sections of the United States suffering from a lack of available medical service? If so, where are they and what are the conditions responsible for such deficiencies?

The Bureau of Medical Economics of the American Medical Association, with the assis-

TABLE 1.—Counties with More Than 2,000 Persons per Physician in 1918

State	1918 Counties	1917 Estimated Population	1918 Physicians
Alabama.....	2	68,251	23
California.....	2	22,914	8
Colorado.....	1	17,013	5
Florida.....	1	21,034	10
Georgia.....	8	53,010	20
Idaho.....	3	28,868	6
Kansas.....	4	92,181	7
Kentucky.....	5	59,407	40
Louisiana.....	7	134,033	60
Michigan.....	1	2,627	1
Minnesota.....	4	43,895	18
Mississippi.....	5	95,475	39
Montana.....	5	57,450	27
Nebraska.....	4	13,226	5
Nevada.....	1	3,045	1
New Mexico.....	1	12,824	4
North Carolina.....	15	278,366	118
North Dakota.....	7	54,600	19
Oklahoma.....	2	20,135	9
Oregon.....	1	21,169	10
.....	10	354,603	123
.....	7	41,462	7
Tennessee.....	3	18,362	7
Texas.....	11	100,425	45
Utah.....	2	12,126	5
Virginia.....	6	80,026	30
Wisconsin.....	3	30,455	13
Total.....	123	1,736,982	702

tance of the state medical associations, has undertaken an investigation to obtain the facts needed to answer these questions. The first step was to locate the counties with the largest population per physician. While making all possible allowance for the fact that a county is by no means a social or medical unit, it is the unit of nearly all available statistical compila-

TABLE 2.—Counties Having No Physicians According to American Medical Association Directories

State	1934			1936		
	Popula- tion	No. Counties	Land Area per Sq. Mi.	Popula- tion	No. Counties	Land Area per Sq. Mi.
California.....	241	1	776	241	1	776
Colorado.....	449	1	971	1,861	2	2,001
Idaho.....	4,838	..	2,032	4,103	1	7,956
Nebraska.....	11,532	3	3,111	9,505	4	4,091
North Dakota.....	3,669	2	3,212	8,412	2	1,943
South Dakota.....	4,857	5	3,729	3,669	2	3,212
Texas.....	411	1	850	6,120	6	5,595
Utah.....	411	1	850	411	1	850
Total.....	25,017	16	15,688	34,322	19	26,427

1930 census for population figures.

tions. It is also recognized that the ratio of population to physician is far from being an exact measure of medical service available. The most that can be claimed for such a ratio is that it is an indication of the extent to which such services are available.

According to the Medical Directory for 1934 there were sixteen counties in the United States

having no physicians; in 1936 there were nineteen. Since nearly all these counties were in isolated districts having an average population of about one person per square mile they do not present any general or typical problem. They are therefore considered only incidentally in this discussion. There were 297 counties located in thirty states in 1934 in which the population was 2,000 or more per physician. It is not assumed that this arbitrary figure necessarily marks the point at which medical service is insufficient but only that if any insufficiency does exist it might be found in the localities included in these counties. There was a total of 1,657 physicians in such counties in 1934 and 1,753 in 1936. This was an increase of 5 per cent in the number of

TABLE 3.—Counties with More Than 2,000 Persons per Physician—1934-1936

States	1934 Counties	1930 Popula- tion	1934 Physi- cians	1936 Counties	1936 Physi- cians	Same Counties 1918-1936
Alabama.....	16	410,781	180	14	181	1
Arkansas.....	4	81,657	35	3	36	..
Colorado.....	1	20,245	0	1	0	..
Florida.....	13	95,935	37	10	41	1
Georgia.....	33	317,748	129	27	136	6
Idaho.....	6	38,830	17	1	20	..
Kansas.....	6	28,366	12	4	13	1
Kentucky.....	19	294,286	120	15	121	4
Louisiana.....	9	181,640	59	7	74	4
Michigan.....	5	56,289	24	3	28	..
Minnesota.....	9	123,369	46	6	56	2
Mississippi.....	13	249,025	103	13	08	3
Missouri.....	5	59,891	20	5	20	..
Montana.....	13	56,053	21	10	22	2
Nebraska.....	8	36,568	13	7	11	3
New Mexico.....	7	76,457	31	5	30	1
North Carolina.....	31	761,028	305	27	314	13
North Dakota.....	14	133,460	50	12	51	4
Ohio.....	1	16,057	8	1	9	..
Oklahoma.....	5	73,491	30	4	29	1
Oregon.....	1	4,941	2	1	2	..
Pennsylvania.....	1	7,483	3	1	4	..
South Carolina.....	10	249,835	103	0	106	3
South Dakota.....	14	106,402	44	11	47	4
Tennessee.....	9	99,310	38	9	42	3
Texas.....	12	113,771	48	7	55	3
Virginia.....	18	317,077	120	12	136	3
Washington.....	5	29,220	10	3	14	..
West Virginia.....	6	87,911	35	4	40	..
Wyoming.....	3	10,835	5	1	8	..
Totals.....	297	4,137,939	1,657	233	1,753	62

\* This column shows the number of counties having more than 2,000 population per physician in 1918 (table 1) which had the same ratio in 1936.

physicians in these counties during a period when the increase in the total number of physicians in the United States was but a little over 2 per cent.

A study was made of the social and economic conditions in these 297 counties which might furnish some information on the question of the extent and availability of medical service. This included the assembly of information concerning income, retail sales, farm values, relief granted, and such vital statistics as could be found.

Because the county is not always a practical unit for the supply of medical services, the general hospital facilities in the adjoining counties were compiled with the rate of bed occupancy. The quantity of such facilities and

the degree of their use gives a rough idea of the extent to which physicians in neighboring counties are available.

These facts have been assembled for all states containing four or more counties with 2,000 or more population per physician. Such a factual foundation is a first step to any intelligent consideration of the question of the existence of localities without adequate medical service. Because of the wide local variations in the problems presented in different sections, the conditions in each state will first be presented to form a factual foundation for a general discussion of rural medical service, which will follow the discussion of individual states.

#### ALABAMA

There are sixteen counties in Alabama in which, according to the 1934 Medical Directory, there were 2,000 or more population per physician. In the next two years the number of physicians in these counties increased from 180 to 181. This increase and a redistribution in several localities reduced the number of persons per physician to less than 2,000 in two of the sixteen counties. Every one of the sixteen counties is in what the Federal Emergency Relief Administration designates as the "Eastern Cotton Problem Area."<sup>1</sup>

Cotton is raised in this area under the "share cropper" or tenant system, concerning which the report<sup>1</sup> says (p.22) "Obviously, the system was merely a variation of the old slave relationship and kept the cropper on the margin of economic existence." Between 1910 and 1916 this area was invaded by the boll weevil, which caused a reduction in the amount of cotton raised and still further lowered the average standard of living. The United States Census of Agriculture for 1935 indicates that the depression is producing another important change in this situation. All these sixteen counties have shown a tendency, since 1930, toward a more diversified farming system. The amount of cotton raised has decreased while corn, hay and other general purpose crops and the amount of livestock have increased.

All the information available indicates that by every standard that can be applied the economic condition of the population is below the average for the state. While the average per capita retail sales for the state is \$95 there is only one of the sixteen counties studied in which the per capita is as high as \$80. The median is between \$48 and \$50, with the lowest \$33 per capita. In the whole state 7.7 persons per thousand made an income tax return. In these sixteen counties the highest number per thousand is 3.8, the lowest 0.5.

The average value per farm for the entire state is \$1,347 and the value per acre is \$18.73.

This is much below the average for the whole United States, yet in only four of these counties does the value per farm reach the state average. In one county it is \$1,987 per farm and \$36.81 per acre. The median is between \$14.65 and \$14.69 per acre, and the value per farm centers around a little over \$1,000.

Resources are not available within these counties with which to maintain on a self-sustaining basis a decent standard of life as to housing, food, clothing or other necessities of life, including medical service.

Manifestly, the county is not a social or medical unit. If one is to determine the extent of medical facilities available it is necessary to include a wider area. These counties do not make up a contiguous group although they are located in the sections of the state with the poorest farming land and other economic disabilities. All of them have adjoining counties in which, by standards commonly accepted, there appear to be adequate medical facilities. Only one of the sixteen counties has a hospital. This hospital has twenty beds with an average occupancy of ten patients. The counties adjoining the sixteen counties studied have seventy-three hospitals, including duplications where one county adjoins more than one of the sixteen counties. These seventy-three hospitals have 7,851 beds and had an average patient occupancy in 1935 of 4,873, almost exactly a 62 per cent occupancy.<sup>2</sup>

Of the 181 physicians in these sixteen counties there were but twenty-three less than 40 years of age in 1934, and there were twenty-six under that age in 1936. The average age in rural communities has always been greater than in the cities.<sup>3</sup> While 79 per cent of all the physicians in the state of Alabama were under 60 years of age in 1934, only 58 per cent of those in these sixteen counties are below this age. This would seem to indicate that while younger physicians are entering these counties the age of the majority is still much above the average for the state.

Death rates by counties are notoriously unreliable. Deaths are reported in the locality where they took place and not where the deceased had made his home. Moreover, it is quite probable that statistics will be less accurate in localities such as are being studied than in other communities. Yet, since the death rate is one of the best tests of the efficiency of medical service it may be worth while to note the fact that the recorded rate is actually lower in the majority of these counties than in the state as a whole. The death rate in 1933 for the state of Alabama was 10 per thousand for the entire population; 8.4 for the white and 13.1 for the Negro population. A better comparison is probably that

2. Alabama Hospitals Registered by the American Medical Association, J. A. M. A. 106:798 (March 7) 1936.

3. Distribution of Physicians in the United States (Revised), Bureau of Medical Economics, American Medical Association, Chicago, 1936, pp. 56-57, 60-61.

1. Federal Emergency Relief Administration Division of Research, Statistics and Finance, 1935, pp. 20-23.

between the death rate in the rural districts of the state, which is 8.9 per thousand for the total population; 7.4 for the white and 11.6 for the Negro. There are only six out of the sixteen counties where the death rate is as high as that for the entire rural communities of the state.

So far as these figures have any value, they would seem to indicate that there is no striking lack of medical service in these counties.

#### ARKANSAS

Only four counties in Arkansas in 1934 had more than 2,000 population per physician. One of these is so close to Memphis, Tenn., as to be able to make use of its ample medical facilities. Moreover, in 1936 an additional physician moved into this county, which reduced the number of persons per physician to less than 2,000. For these reasons the discussion will be confined almost exclusively to the three additional counties. Two of these counties are in the "Eastern Cotton Problem Area"; the other is in the "Applacian-Ozark Area," another "problem area." The cotton counties are in localities where the "share cropper" problem has been so acute as to attract national attention in recent years.

The average retail sales per capita for the state of Arkansas amounts to \$97. In these three counties it is only \$52, \$37 and \$25 per capita annually. This is a rough measure of the "spendable income" and is manifestly too small to permit of any system of sickness insurance, since the estimates of the cost of good medical service, under such systems, vary between \$25 and \$30 per person annually.

The average value per farm for the state of Arkansas is \$1,486. For these counties the value is respectively \$1,003, \$1,050 and \$755. The average value per acre for the state is \$21.20 and for these three counties it is \$23.00, \$10.62 and \$8.59.

The total population of these three counties in 1930 was 39,690, and of these an average of 6,605 were on relief in the year ended June 1, 1935.

In the adjoining counties there are six hospitals with 635 beds in which the average occupancy in 1935 was 251, or 39 per cent. The other two counties have no hospitals in adjoining counties.

In 1934 there were twenty out of thirty-five physicians, whose ages can be determined, who were under 60 years of age. In 1936 this had increased to twenty-two out of thirty-six physicians, but it still shows a large percentage of physicians over 60 years of age as compared with the rural districts throughout the country.

The death rate for the state of Arkansas in 1933 was 8.9 per thousand, the rate for white persons being 8.3 and for Negroes 10.5. In these three counties the rate for the total population was respectively 7.3, 4.2 and 8.3.

#### FLORIDA

In the thirteen Florida counties with more than 2,000 population per physician, nearly all the standards of economic conditions are below the general level of the state as a whole. The counties themselves are located principally in the northern section of the state, where the soil is least productive and where the income from tourists is lowest. Two counties are in the Everglades, the other region of least satisfactory industrial conditions. The state Planning Board has recommended the complete withdrawal of seven of these counties from "arable land" districts; the partial withdrawal of three additional counties is also recommended, and one is included in a forest preserve.

The average retail sales per capita for the state of Florida is \$197. The average for nine of the thirteen counties in 1933 was less than \$100 and in four counties slightly more than \$100. In the state as a whole, 20.8 persons out of a thousand made a federal income tax return in 1933. There were but two of these thirteen counties where the number making such a return exceeded 7 per thousand. The mean of the thirteen counties is slightly above 3 per thousand.

The average value per farm for land and buildings in Florida was \$4,407 in 1933. The average value per acre was \$53.08. Only one of the thirteen counties reached this average. Only two of the remaining counties had a total value per farm as high as \$2,000 and only three counties had a value per acre as high as \$20. In four counties the value per acre was less than \$10.

Many of these counties have an extremely scanty population. The average population per square mile for the state is 26.8; only three of the thirteen counties reach this average, while there are seven in which the population per square mile is 9 or less. These facts suggest that in the majority of these counties it is impossible under present conditions for the existing population to make a living. As was mentioned before, this is also the opinion of the State Planning Board.

Neighboring counties had within a distance of 50 miles thirty-four hospitals with 2,633 beds. Of these only 1,433, or 54 per cent, were occupied in 1935. All these thirteen counties are rather small in area. It would appear that, even considering unfortunate economic conditions, medical services are available to a much greater extent than the fundamental necessities such as food, clothing and shelter.

The average age of physicians in sixteen states and the District of Columbia in 1933 shows that 20.26 per cent were over 60 years of age. In the eleven counties of Florida in 1934, 25 per cent of the physicians were 60 years of age or

4. Distribution of Physicians in the United States, Bureau of Medical Economics, American Medical Association, Chicago, 1935, pp. 62-63.

older; in 1936, 31 per cent of the physicians were 60 or more years of age. It is significant that four physicians moved into these communities between 1934 and 1936 and thereby reduced the number of counties having a population of more than 2,000 per physician from thirteen to ten.

In 1933 the death rate for the state of Florida was 12.1 per thousand; 10.5 per thousand for the white and 15.9 per thousand for the Negro population. The rate in the rural districts was 9.4 per thousand for the total population; 8 per

thousand for whites and 12.4 per thousand for Negroes. In only two of these thirteen counties was the death rate higher than the average for the state. In nine the death rate was lower than for the average of other rural communities in the state. Without claiming any high degree of accuracy for these figures, the fact that they are uniformly below the state average would seem to indicate that there is not a sufficient lack of medical service to increase mortality.

(To be continued)

## Official Notes

### RADIO BROADCASTS

The American Medical Association and the National Broadcasting Company are presenting the second series of dramatized health broadcasts under the title *Your Health*. The first broadcast in the new series, the thirty-second dramatized cooperative broadcast under the title *Your Health*, was given October 13. The theme for 1936-1937 differs slightly from the topic in the first series, which was "medical emergencies and how they are met." The new series is built around the central idea that "100,000 American physicians in great cities and tiny villages, who are members of the American Medical Association and of county and state medical societies, stand ready, day and night, to serve American people in sickness and in health."

The program is broadcast on the Blue network instead of on the Red network, as originally announced.

The topics are announced monthly in advance in *Hygeia*, the Health Magazine, and three weeks in advance in each issue of *THE JOURNAL*. The topics and speakers for the next three programs are:

January 5. "Smog." W. W. Bauer, M.D.

January 12. Winter Health Hazards. W. W. Bauer, M.D.

January 19. Don't Die of Diabetes. Morris Fishbein, M.D.

The time of the broadcast is Tuesday afternoon at 4 o'clock central standard time (5 o'clock eastern time, 3 o'clock mountain time, 2 o'clock Pacific time).

### COMMITTEE ON AIR CONDITIONING

The Committee on Air Conditioning, appointed by the Board of Trustees, including Drs. Carey P. McCord, Prof. C. P. Yaglou, Dr. Emery Hayhurst, Dr. Henry Williams and Dr. William F. Petersen, held a meeting at the headquarters office of the American Medical Association on November 6 for the purpose of organization and to outline a program of study and investigation. This is a committee of the House of Delegates and will render its report to the House at the next Annual Session.

### GRANTS FOR RESEARCH

Applications Invited for Aid in Research on Clinical Problems

The Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research on problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. For application forms and further information, address the committee at 535 North Dearborn Street, Chicago.

## Woman's Auxiliary

The Woman's Auxiliary expresses here its appreciation to the Board of Trustees and the officials of the American Medical Association for making available through this new bulletin a medium whereby the Auxiliary may be constantly aware of activities throughout the country.

Mrs. J. P. SIMONDS.

### The Annual Session

Our own officers, including our President, Mrs. Robert E. Fitzgerald, and our President-Elect, Mrs. Augustus S. Keck, are earnestly at work preparing for the forthcoming annual session in Atlantic City. The growing membership and activities of the Woman's Auxiliary are an indication of the increasing usefulness of its service to the medical profession. Our official work is becoming standardized, the groups in various states carrying out similar activities in accord with the plans that have been laid before our advisory committees in the medical profession.

### Pennsylvania

Members of the Auxiliary in Pennsylvania, under the leadership of Mrs. David W. Thomas, have reorganized

for a uniform fiscal year. They announce as their aims for the coming year increased membership, increased contributions to the Medical Benevolence Fund and Health Education. The president is visiting the various Auxiliaries with a view to consolidating these efforts. Health programs have been conducted in several counties, and special entertainments have been given in many communities for increasing the Medical Benevolence Fund.

A typical program is that of the Auxiliary in Lackawanna County, in which during the next six months there will be a joint social event with the medical society, several card parties, receptions for new members, health programs and special outings during the summer months.

In Pennsylvania the State Medical Journal regularly provides several pages for the Woman's Auxiliary, so that each branch may make a regular report of activities.

### California

The various branches of the Woman's Auxiliary of the California Medical Association have been developing an exceedingly active year. The Alameda County

Medical Association had in September a luncheon in which plans were developed for improving the Scholarship Fund and in which the members of the Auxiliary heard a statement on the issues in the election and the legislation that would come before the state legislature. The October session was a joint dinner with the medical society of the county.

In Fresno County the November session was devoted to a presentation of a debate on state medicine, given by boys representing local school organizations. The December session was a benefit card party, the funds to be used to provide *Hygeia* for libraries, schools and beauty parlors in Fresno.

#### Iowa

At its fall board meeting the Woman's Auxiliary to the Iowa State Medical Society met in Des Moines under

the presidency of Mrs. C. A. Boice. This auxiliary is conducting an essay contest, for which many prizes will be given. A recommended reading list for members of the Woman's Auxiliary has also been compiled by the Woman's Auxiliary to the Polk County Medical Society.

#### Tennessee

Several branches of the Woman's Auxiliary to the Tennessee State Medical Association have been concerning themselves particularly with education of the members in health topics. The Rutherford County organization has taken as a central topic "Contributions Women Have Made to Medicine," the opening session being devoted to the life of Jane Todd Crawford.

In Nashville, the program for the year will be concerned with health conditions in Nashville and Davidson County.

## Medical Economics Abstracts

### SEDGWICK COUNTY, KANSAS, MEDICAL SERVICE

In 1931 the Sedgwick County Medical Society reorganized and employed an executive secretary. One of the first things undertaken was a study of the costs of medical care and the planning of a method of medical service that would meet the needs of the three groups into which the population naturally divided—the indigent, the low pay and the well-to-do. Meetings were held with the Community Chest, the Chamber of Commerce and other citizens' welfare organizations. The FERA having been abandoned, the responsibility for the care of the indigent sick fell on the county commissioners.

There were three ways in which medical care might be given to people of this class: (1) they might be left to the charity of the private physicians, (2) the county might contract with full time physicians to care for the 35,000 persons on relief, or (3) the social agencies might set up competitive private clinics. In spite of the fact that one or all of these have been the customary methods of meeting this situation in American cities, the objections to them were so great that a fourth alternative was submitted by the county medical society.

A central application bureau, through which all requests for indigent medical care must go, was created. A rotating medical staff for the county hospital and down town outpatient clinic was organized, the members of which served without fees. The county pays a small monthly fee to the medical society. The medical society thereby undertook the conduct of a clinic. Social agencies cooperated in eliminating malingerers and competitive clinics. Except where there was a specific need, all other free clinics were eliminated. Every case is investigated by a social worker before admittance to the clinic, and no city or county official can receive medical care at the expense of public funds.

The administration of the entire arrangement, including the medical staff, is directed by an advisory council of the Sedgwick County Medical Society.

Having created and set in operation these two organizations, the committee undertook a study to determine the best methods of organizing a medical service bureau for the low income group. It is proposed that those who wish to take advantage of this service will, after investigation, be assisted in making satisfactory financial arrangements, including installment payments. The local community chest is sharing the cost of maintaining this particular service bureau.

It is believed that the foundations have been laid for a fairly comprehensive handling of the most difficult phases of medical service for these groups.

### MILWAUKEE SERVICE PLAN

After some years of study and favorable action by the membership, the Milwaukee County Medical Society opened the offices for a new medical service plan, Oct. 20, 1936. The pattern already tested in Wayne County, Mich., and a number of other counties is followed quite closely.

There is no disturbance of the professional relationship between doctor and patient. Emphasis is laid on the retention of the family physician. Any person who wishes to take advantage of the service may go to the office of the Milwaukee County Medical Society, where an expert will assist him in making the final arrangements that will be most convenient. The physician and, when necessary, the hospital, laboratory or other services needed will be consulted and methods of payment arranged to fit the resources of the patient. No charge is made to the patient for arranging for his medical care. The medical service is in no sense a collection agency, further than that after the financial arrangements are made payments will be made at the office of the Medical Service. In case any one wishes the help available through the service and is in doubt as to the choice of a physician, he may telephone the service, which will supply him with a list of physicians, from which a selection can be made. It is the beginning policy to avoid any extensive publicity that might too rapidly extend the scope of the service, until experience has thoroughly determined its possibilities.

### EYEGASSES FOR CHILDREN ON RELIEF

Four ophthalmologists have recently been added to the medical staff of the New York Emergency Relief Bureau. It is estimated that approximately 11,000 school children from home relief families are in need of glasses.

A traveling eye clinic has also been instituted which gives relief recipients with eye troubles appointments at conveniently located offices at fixed dates. Approximately 200 pairs of eyeglasses are now being distributed weekly.

The ophthalmologists do not give eye treatments to relief recipients. When such treatments are indicated, patients are referred to an eye clinic.



## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

**District Meeting.**—The Ninth Councilor District Medical Society met at the Hotel Seville, Harrison, December 1. The speakers were Drs. Francis Walter Carruthers, Little Rock, on "Diagnosis and Treatment of Vascular Diseases of the Extremities"; Sidney J. Wolfermann, Fort Smith, "Early Diagnosis of Intestinal Obstruction"; Melvin E. McCaskill, Little Rock, "Congenital Defects of the Uterus"; Grady W. Reagan, Little Rock, "Principles of Treatment of Gonorrhea," and Charles T. Chamberlain, Fort Smith, "Common Colds."

### CALIFORNIA

**Dr. Porter Returns as Dean.**—Dr. Langley Porter, who retired this year as dean of the University of California Medical School, San Francisco, has returned to the position at the request of President Robert Gordon Sproul. His appointment is effective immediately. He succeeds the late Dr. Williams McKim Marriott, who died shortly after taking over the duties of dean. Dr. Porter has been associated with the University of California since 1918.

**Heart and Tuberculosis Study.**—The California Heart Association has been organized with the following officers: Drs. John C. Ruddock, Los Angeles, president; John J. Sampson, San Francisco, vice president, and Howard F. West, Los Angeles, secretary-treasurer. The Los Angeles County Heart Association has been reorganized as a branch of the state group. It has been announced that a statewide program for the study and prevention of heart and vascular diseases will be undertaken cooperatively by the new California Heart Association and the California Tuberculosis Association. A cooperative program is also under way between the Los Angeles County heart and tuberculosis associations.

**Third Annual Graduate Assembly.**—The Alumni Association of the College of Medical Evangelists presented its third annual graduate assembly in Paulson Hall, Los Angeles, December 6. The following program was offered:

- Dr. Harry E. Alderson, San Francisco, Rhinoscleroma—A California Problem.
- Dr. John MacKenzie Brown, Los Angeles, Sinusitis in Children.
- Dr. Curle Latimer Callander, San Francisco, A New Amputation Through the Thigh at the Knee.
- Dr. James F. Churchill, San Diego, A Discussion of Cardiac Drugs and Their Uses.
- Dr. Harold K. Faber, San Francisco, Prophylaxis of Communicable Diseases.
- Dr. Alvin G. Foord, Pasadena, Laboratory Diagnosis for the General Practitioner.
- Dr. Verne C. Hunt, Los Angeles, Surgical Treatment of Duodenal and Gastric Ulcers.
- Dr. Alexander Ray Irvine, Los Angeles, Problem of the Cross-Eyed Child.
- Dr. William J. Kerr, San Francisco, Obesity and Its Complications.
- Dr. William S. Kiskadden, Los Angeles, Technic of Repair of Skin Defects.
- Dr. Alfred E. Koehler, Santa Barbara, Functional Indigestion.
- Dr. Verne R. Mason, Los Angeles, Hemoglobin.
- Dr. James N. Nichols, Los Angeles, Surgery of the Aged.
- Dr. Eberle Kost Shelton, Santa Barbara, The Thyroid and Pituitary Factors in Growth and Development.
- Dr. Roy E. Thomas, Los Angeles, The Management and Specific Treatment of Lobar Pneumonia.
- Dr. Howard F. West, Los Angeles, Deficiency Disease Conditioned by Gastro-Intestinal Pathology.
- Dr. Montague S. Woolf, San Francisco, The Commoner Surgical Diseases of the Rectum and Anus.
- Dr. Walter M. Dickie, director, state department of public health, Berkeley, Plague.

### COLORADO

**Personal.**—Dr. Fred A. Forney, medical director of the Modern Woodmen Sanatorium, Woodmen, Colo., has been appointed medical director and superintendent, succeeding the late John E. Swanger.

### FLORIDA

**Society News.**—Dr. Erasmus B. Hardee, Vero Beach, was elected president of the Florida East Coast Medical Association, November 14, at its annual meeting in Fort Pierce. Other officers are Drs. Frederick K. Herpel, West Palm Beach, and Frederick J. Waas, Jacksonville, vice presidents, and Elbert McLaury, Hollywood, secretary. The next annual session will be held in Hollywood. The Four County Medical Association

(St. Lucie, Martin, Okeechobee and Indian River counties) acted as host and Dr. Melton D. Council, Fort Pierce, president, was toastmaster.

### GEORGIA

**Pediatric Meeting.**—The fourth annual scientific session of the Georgia Pediatric Society was held in Atlanta, December 10, with the following speakers, among others:

- Dr. Julius H. Hess, Chicago, Present Status of Serum Therapy.
- Dr. John A. Toomey, Cleveland, Fundamental Unknowns in Infectious Diseases.
- Dr. William A. Mulherin, Augusta, Observations on Southern Pediatrics.
- Dr. Henry F. Helmholtz, Rochester, Minn., Use of Mandelic Acid in the Treatment of Urinary Infections.

### ILLINOIS

**Questions Answered by Radio.**—The state department of health has added a question box service to its weekly radio broadcast. The department will undertake to answer or discuss over the air questions of general interest concerning preventive medicine that may be submitted by listeners. Questions may be forwarded direct to the state department of public health at Springfield or to WGN, Chicago.

### Chicago

**Protection of Car for Society Members.**—The Chicago Medical Society through its trustees will pay \$50 for the arrest and conviction of any person forcibly entering or stealing the car of a member, or stealing a grip or instruments therefrom, or holding up a member while engaged in the practice of his profession during 1937. According to the society's bulletin, only one reward will be paid for convictions on combinations of the above offenses committed contemporaneously. A sticker will be given each member on payment of his 1937 dues, to be used for identification by the police department and other law-enforcing officers of Cook County.

### IOWA

**Releases for Newspapers.**—The speakers' bureau of the Iowa State Medical Society inaugurated a program during November whereby weekly articles on medicine and health will be released to the newspapers in the state. The releases are prepared in the central office, approved by a censorship committee of five physicians and then mailed to the newspapers. A similar plan has been carried out in Wisconsin, Minnesota and Illinois.

**State Journal Has New Editor.**—Dr. Lee Forrest Hill, Des Moines, has been appointed editor of the *Journal of the Iowa State Medical Society*, effective January 1. He succeeds Dr. Ralph R. Simmons, who was recently promoted to be medical director of the Equitable Life Insurance Company of Iowa. Dr. Simmons has been identified with the state journal for about thirteen years, the first three of which he served as associate editor. He will continue in the latter capacity.

**Dr. Haygood Deputy Health Commissioner.**—Dr. Marvin F. Haygood, recently medical director of the Georgia emergency relief administration, Atlanta, has been appointed director of local health services for the Iowa State Department of Health. He will have charge of developing district and county health unit programs under the social security act, it is reported. Dr. Haygood will also become deputy health commissioner, succeeding Dr. Frederick J. Swift, who resigned to become superintendent of the Iowa Soldiers Home, Marshalltown. Dr. Haygood was once director of the county health work for the Georgia State Board of Health. He served as city health officer of Knoxville, Tenn., for six years and as superintendent of the Georgia Tuberculosis Sanatorium at Alto, five years.

**Society News.**—Dr. Karl A. Menninger, Topeka, discussed psychologic factors in medicine before the Pottawattamie County Medical Society in Council Bluffs, November 16.—The Poweshiek County Medical Society devoted its meeting in Montezuma, October 13, to a discussion of medical economics; Dr. Joseph L. Ravitts, Montezuma, was the speaker.—Dr. William D. Paul, Iowa City, discussed coronary heart disease before the Washington County Medical Society in Washington, October 26.—At a meeting of the Winneshiek County Medical Society in Decorah, October 13, Dr. Maurice C. Melrose, Independence, spoke on the treatment of varicose veins and ulcer.—Dr. Edward H. Rynearson, Rochester, Minn., addressed the Woodbury County Medical Society in Sioux City, October 19, on recent advances in endocrinology. Dr. Louis M. Rosenthal, Chicago, addressed the society, November 19, on "Recent Advances in the Radiation Treatment of Cancer."

## KENTUCKY

**Society News.**—Dr. John H. J. Upham, Columbus, Ohio, President-Elect of the American Medical Association, addressed the Jefferson County Medical Society, Louisville, December 21. —Dr. Frank M. Stites Jr. addressed the Louisville Society of Physicians and Surgeons, December 17, on "Diseases of Later Life and Their Significance."

**Restoration of Ephraim McDowell's Home.**—At the annual session of the Kentucky State Medical Association in October, the committee on the Ephraim McDowell Memorial reported that the McDowell home in Danville has been purchased and is in the course of restoration as far as possible to the condition it presented at the time of Dr. McDowell's occupancy. Part of the purchase price was donated by the owners. For the remainder and for restoration purposes a WPA grant of \$13,500 was obtained on the condition that the title to the property be vested in the state park commission. A fund of \$10,000 has been raised from individual contributors, principally members of the Kentucky State Medical Association and the Southern Surgical Association, which also has a McDowell Memorial Committee. The committee also reported that the WPA architect has accumulated a collection of literature on Dr. McDowell, which will be placed in the memorial. It has been revealed that a building now being used as a pool room was undoubtedly Dr. McDowell's office and negotiations are under way to obtain it and restore it to its original state. The committee plans to have a bronze statue of the pioneer surgeon placed on the grounds if sufficient funds can be raised. Dr. Irvin Abell, Louisville, is chairman of the McDowell Committee and the members are Drs. Charles A. Vance, Lexington; Louis W. Frank and Arthur T. McCormack, Louisville; John Rice Cowan, Danville, and Carl C. Howard, Glasgow.

## LOUISIANA

**Society News.**—The Orleans Parish Medical Society was addressed, November 23, by Drs. Emmerich von Haam and Charles R. Lafferty on "Etiology of Venereal Lesions"; Eugene B. Vickery, "Some Minor Disorders of the Female Urethra," and Michael E. DeBakey, "Surgical Treatment of Scleroderma."

**The Chaillé Memorial Oration.**—The eleventh Stanford E. Chaillé Memorial Oration of the Orleans Parish Medical Society was presented December 14. Instead of one speaker as formerly, the program this year was given by the following three speakers:

Dr. Donald C. Balfour, Rochester, Minn., The Etiology and Treatment of Peptic Ulcer.

Dr. Frederick A. Collier, Ann Arbor, The Administration of Fluid in the Surgical Patient.

Dr. Arthur W. Allen, Boston, Acute Abdominal Emergencies.

**Dr. Bel Honored.**—A banquet was given in honor of Dr. George S. Bel, professor of medicine, Louisiana State University Medical Center, New Orleans, December 3, in celebration of his recent appointment as director of Charity Hospital. Patients, former patients, city and state officials, and friends attended the dinner. Judge William W. Westerfield presided and speakers included Gov. Richard W. Leche, at whose birth Dr. Bel officiated, Judge Rufus E. Foster, and Drs. W. D. Phillips and Frederick L. Fenno. Dr. Bel is emeritus professor of the theory and practice of medicine and clinical medicine at Tulane University of Louisiana School of Medicine.

**First New Orleans Graduate Assembly.**—The First New Orleans Graduate Medical Assembly will be held March 8-11. Instruction, clinical demonstrations, didactic lectures, round table discussions, and symposiums will make up the program, which will be presented by the following speakers, among others:

Dr. Ralph M. Waters, professor of anesthesia, University of Wisconsin Medical School, Madison.

Dr. Albert C. Furstenberg, dean and professor of otolaryngology, University of Michigan Medical School, Ann Arbor.

Dr. Anthony Bassler, New York.

Dr. Frank Lynch, professor of obstetrics and gynecology, University of California Medical School, San Francisco.

Dr. Russell Cecil, professor of clinical medicine, Cornell University Medical College, New York.

Dr. Lewis J. Pollock, professor of nervous and mental diseases, Northwestern University Medical School, Chicago.

Dr. Henricus J. Stander, professor of obstetrics and gynecology, Cornell University Medical College, New York.

Dr. Clifford B. Walker, associate clinical professor of surgery (ophthalmology), University of Southern California School of Medicine, Los Angeles.

Dr. Robert B. Osgood, John B. and Buckminster Brown professor of orthopedic surgery, emeritus, Harvard University Medical School, Boston.

Dr. John A. Kolmer, professor of medicine, Temple University School of Medicine, Philadelphia.

Dr. Julius H. Hess, professor of pediatrics, University of Illinois College of Medicine, Chicago.

Dr. Rolla E. Dyer, U. S. Public Health Service, Washington, D. C.

Dr. Eugene P. Pendergrass, assistant professor of radiology, University of Pennsylvania School of Medicine, Philadelphia.

Dr. William W. Babcock, professor of surgery and clinical surgery, Temple University School of Medicine, Philadelphia.

Dr. Abernethy Benson Cannon, associate professor of dermatology, Columbia University College of Physicians and Surgeons, New York.

Dr. George Gray Ward, emeritus professor of obstetrics and gynecology, Cornell University Medical College, New York.

Dr. George Morris Piersol, professor of medicine, Medical Chirurgical College, Graduate School of Medicine, University of Pennsylvania, Philadelphia.

Dr. Hugh Trout, Jefferson Hospital, Roanoke, Va.

Dr. Meredith F. Campbell, clinical professor of urology, New York University College of Medicine, New York.

## MARYLAND

**Personal.**—Drs. Arthur M. Shipley, professor of surgery, University of Maryland School of Medicine, and associate professor of surgery, Johns Hopkins University School of Medicine, and Louis P. Hamburger, associate in medicine, Johns Hopkins University School of Medicine, Baltimore, have been appointed consultants to the Baltimore City Health Department. —Elmer V. McCollum, Sc.D., Baltimore, has been appointed a member of the U. S. P. vitamin advisory board, succeeding the late Lafayette B. Mendel, D.Sc. —William E. Woodall, chief disinfectant, Baltimore City Department of Health, recently resigned. He had been associated with the department since Nov. 1, 1902.

**Society News.**—Dr. Rolla E. Dyer, U. S. Public Health Service, discussed "Typhus and Rocky Mountain Spotted Fever" before the Baltimore City Medical Society at its annual meeting December 4. Dr. Morris Fishbein, editor of THE JOURNAL, addressed the society meeting jointly with the Osler Historical Society, December 18, on "Medical Bookplates." Dr. Francis R. Packard, Philadelphia, discussed case reports of Dr. Philip Syng Physick at the Pennsylvania Hospital. —The Allegany-Garrett County Medical Society was recently addressed by Drs. John P. Stump, New York, on "Prevention of Deformities in Arthritis" and George H. Preston, Baltimore, "The Problem of the Care of Mental Cases in Maryland." —At a recent meeting of the Baltimore County Medical Society, Dr. Milton B. Kress, Towson, among others, spoke on "Modern Concepts of Collapse Therapy." —The Frederick County Medical Society was addressed recently by Drs. Cyrus F. Horine, Baltimore, on "Empyema in Children" and George H. Preston, Baltimore, "Relationship of the Family Physician to the State Institutions Caring for the Mentally Ill."

## MASSACHUSETTS

**Society News.**—Dr. Fletcher H. Colby, Boston, was chosen president of the New England Branch of the American Urological Association in Boston, November 12, and Dr. George C. Prather, Boston, secretary. —At a meeting of the Greater Boston Medical Society, December 1, Drs. Jacob Wallace, Gabriel J. Rubin, Harold J. Freedman, Morris Ingall and George Kahn discussed "Abdominal Pain in Infancy and Childhood." —Dr. Edwin B. Astwood, Baltimore, addressed the Harvard Medical Society, December 8, on "The Physiology of the Breast." —At a meeting of the Boston Pathological Society, December 1, Alfred Marshak, Ph.D., spoke on "Chromosome Structure, with Relation to Radiation," and Dr. Shields Warren, "The Effect of Radiation on the Skin."

**Medical Extension Courses.**—The Massachusetts Department of Education and the Massachusetts Society of Mental Hygiene began a series of lectures, November 12, on "Keeping Mentally Fit." With Dr. Henry B. Elkind, Boston, medical director of the state society for mental hygiene as the course leader, the lecturers include:

Joseph Jastrow, Ph.D., New York, Keeping Mentally Fit, November 12.

Dr. Douglas A. Thom, Boston, The Child: The Father of the Man, November 19.

Dr. Milton E. Kirkpatrick, Worcester, Adolescent Problems, December 3.

Dr. Abraham Myerson, Boston, Civilization and Its Discontents, December 10.

Dr. Jacob E. Finesinger, Boston, Practical Applications of Mental Hygiene, December 17.

Dr. Marianna Taylor, Boston, Moodiness and Fatigue, January 7.

Dr. Moses Ralph Kaufman, Cambridge, Psychoanalysis and Mental Health, January 14.

The lecturer to conclude the series, January 21, has not been announced.

## MICHIGAN

**Personal.**—Dr. Susie Hurst Thompson, formerly of Gary, Ind., has been appointed in charge of district number 2 of the Children's Fund of Michigan, including the counties of Ogemaw, Alcona, Iosco and Oscoda, with headquarters in West Branch. She succeeds Dr. Gladys J. Kleinschmidt, Ann Arbor, who resigned November 1. This work is conducted in cooperation with the state department of health.

**Model Constitution and By-Laws.**—A special committee will be appointed to study the constitution and by-laws of each of the fifty-four county medical societies of Michigan with a view to developing a model set of regulations with principles conforming to the constitution and by-laws of the state medical society. At a recent meeting of the executive committee of the council of the state society, this step was unanimously approved.

**Tribute to Physician.**—Dr. David D. McNaughton, Argyle, was guest of honor at a banquet, November 30, given to celebrate his completion of fifty years in the practice of medicine in Sanilac County. The hosts were Drs. George Evans and Sanford Martin Tweedie, Sandusky, sons of the late Dr. George S. Tweedie, a close friend of Dr. McNaughton. He was president of the Sanilac County Medical Society from January 1925 to October 1927. He is 70 years old.

**Society News.**—Dr. Albert C. Furstenberg, dean and professor of otolaryngology, University of Michigan School of Medicine, Ann Arbor, discussed "Acute Suppurations of the Throat, Mouth and Cervical Region" before the Wayne County Medical Society, December 14, in Detroit. Dr. Roy R. Kracke, professor of pathology, Emory University School of Medicine, Georgia, addressed the society, December 21, on "The Leukopenic Diseases—Their Etiology, Diagnosis and Treatment."—At a meeting of the Jackson County Medical Society in Jackson, November 17, Dr. Edward G. Martin, Detroit, spoke on "Differential Diagnosis of Anorectal Diseases."

**Dr. McLean Honored.**—Dr. Angus McLean, Detroit, was formally presented with the Order of the Crown of Italy, with the degree of commander, at a banquet recently given in his honor. About 500 persons were in attendance, with Dr. James W. Inches as toastmaster. The presentation was made by the Italian consul, Enrico G. Belcredi, and speakers included Mr. Frank Cody, superintendent of the Detroit public schools and president of Wayne University, and Police Commissioner Pickert of Detroit. Dr. McLean was associated with his alma mater, the Detroit College of Medicine and Surgery, now the Wayne University College of Medicine, from 1905 to 1913 as professor of clinical surgery. He served as city physician from 1888 to 1892; quarantine inspector for the Port of Detroit, 1893, became a member of the state board of health in 1905, and, in 1911, a member of the Detroit Board of Health. He is a past president of the Wayne County Medical Society and of the Michigan State Medical Society.

## MINNESOTA

**University News.**—The Center for Continuation Study at the University of Minnesota was dedicated, November 13-14. The building was financed in part by the PWA and contains living quarters and conference rooms, to be used for refresher courses of short duration.

**Congress of Allied Professions.**—Representatives of all professions allied in the delivery of medical care, including nurses, dentists, druggists, hospital executives and members of the bar, will be invited to an all day conference to be a feature of the eighty-fourth annual meeting of the Minnesota State Medical Association, St. Paul, May 3-5. The conference is scheduled for Monday; the speakers will include Dr. Morris Fishbein, editor of *THE JOURNAL*, Chicago; Father Alphonse M. Schwitalla, dean, St. Louis University School of Medicine, St. Louis, and Dr. Maxwell J. Lick, Erie, Pa., president of the Medical Society of the State of Pennsylvania.

## MISSOURI

**New State Health Commissioner.**—Dr. Herman S. Gove, Linn, since 1934 director of the department of child hygiene, state department of health, has been appointed health commissioner of Missouri, succeeding Dr. Elmer T. McGaugh, resigned. Dr. Gove, prior to 1925, was for several years health officer of Osage County. In 1925 he was appointed a member of the state board of health, serving a term of six years, and in 1933 was appointed director of licensure in the office of the state health commissioner. Aged 57, Dr. Gove is a graduate of the Marion-Sims College of Medicine, class of 1901.

**New Anatomical Society.**—The organization of the Kansas City Anatomical Society was announced November 28. Dr. William Byron Black, president of the Kansas City Society of Ophthalmology and Otolaryngology, was elected president. Other officers are Drs. Albert N. B. Lemoine, Kansas City, and Lyman Robert Forgrave, St. Joseph, vice president; Willis

E. Keith, secretary, and Oliver S. Gilliland, treasurer. Monthly meetings will be held by the new society, whose object is to offer postgraduate instruction. For the first three years the society's membership will be restricted to physicians interested in the eye, ear, nose and throat.

**Memorial Meeting to Dr. Marriott.**—A meeting in commemoration of the late Dr. W. McKim Marriott will be held in the auditorium of Washington University School of Medicine, St. Louis, January 3. Speakers will include Chancellor George R. Throop; Dr. Edwards A. Park, professor of medicine, Johns Hopkins University School of Medicine, Baltimore; Dr. Alexis F. Hartmann, professor of pediatrics at Washington, and Philip A. Shaffer, Ph.D., professor of biological chemistry and head of the department, Washington University School of Medicine. At the time of his death, November 11, Dr. Marriott was dean of the University of California Medical School, San Francisco, a position he assumed at the beginning of the school year. He had been dean of Washington University School of Medicine since 1923.

## NEW JERSEY

**Health at Trenton.**—Telegraphic returns to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million for the week ended December 19, indicated that the highest mortality rate (24.8) appeared for Trenton and the rate for the group of cities was 12.9. The rate for Trenton for the corresponding week of 1935 was 18.8 and that for the group of cities was 12.3. The annual rate for the eighty-six cities for the fifty-one weeks of 1936 was 12 as compared with 11.4 for the corresponding period of 1935. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that certain cities have a large Negro population or that they are hospital centers for large areas may tend to increase the death rate.

## NEW MEXICO

**Indian Service Meeting.**—Dr. Marshall E. Burgess, Oraibi, Ariz., was elected president of the Indian Service Medical Society at its semiannual meeting in Albuquerque in November; Dr. James C. Hancock, Fort Apache, Ariz., was made secretary. Dr. William L. Lockman, Mescalero, read a paper on Malta fever and Dr. Hancock a paper on treatment of trachoma. The next meeting will be at Phoenix, Ariz., in the spring.

## NEW YORK

**Society News.**—Dr. Edward K. Cravener, Schenectady, addressed the Medical Society of St. Lawrence County, November 19, on diseases of the hip joint in children.—Dr. Philip B. Barton, Amsterdam, discussed bronchoscopy in general medicine before the Medical Society of Fulton County, November 19.—Dr. Frederic E. Elliott, Brooklyn, addressed the Medical Society of the County of Nassau, Mineola, December 15, on "The Threat of Compulsory Health Insurance," and Courtney R. Hall, Ph.D., assistant professor of history at Adelphi College, Garden City, on "Medical History of Long Island."

**Dr. Farrand to Retire from Cornell.**—Dr. Livingston Farrand, president of Cornell University, Ithaca, since 1921, will retire June 30, it was announced recently. Dr. Farrand, now 69 years old, was graduated from the College of Physicians and Surgeons of Columbia University in 1891 and was instructor in psychology there from 1893 to 1901, adjunct professor of psychology from 1901 to 1903, and professor of anthropology from 1903 to 1914. In the latter year he became president of the University of Colorado and served there until March 1919, when he was made chairman of the central committee of the American Red Cross. He was with the Red Cross until appointed president of Cornell in October 1921. Among his other activities, Dr. Farrand was executive secretary of the National Association for the Study and Prevention of Tuberculosis from 1905 to 1914, editor of the *American Journal of Public Health*, 1912 to 1914, and director of tuberculosis work in France for the International Health Board of the Rockefeller Foundation, 1917-1918. Dr. Farrand has received many honors, including degrees from numerous universities and the decoration of the Legion of Honor of France. His successor at Cornell will be Edmund Ezra Day, Ph.D. (Harvard 1909), director for the social sciences of the Rockefeller Foundation since 1928 and of the General Education Board since 1933. He has contributed frequently to journals of psychology and anthropology.

## New York City

**Etching as a Hobby.**—The fifth annual exhibition of the Haden Etching Club, composed of dentists and physicians who etch as a hobby, was held at the Leonard Clayton Gallery, December 1-12. This year work of the last five years was shown in addition to new plates. Exhibitors included Drs. Leigh H. Hunt, Jacob L. Maybaum, Benjamin F. Morrow, Henry Smith Williams, Jerome Selinger, Harold S. Vaughan and Joseph F. Saphir. Also included in the exhibit was a self portrait of Sir Francis Seymour Haden, famous English surgeon-etcher, lent by the artist's grandson. Dr. Leigh H. Hunt is honorary president of the club; B. W. Weinberger, D.D.S., president, and Charles Berger, D.D.S., secretary.

**Personal.**—John T. Hanks, D.D.S., former director of the division of dentistry in the New York City Department of Hospitals, died suddenly November 17 on a subway train, aged 66. Dr. Hanks was a member of the committee on community dental service of the New York Tuberculosis and Health Association, for several years chairman of the dental supplies division for the American Red Cross in New York, and a member of the economics committee of the American Dental Association. In 1934 Federal Emergency Relief Administrator Harry Hopkins appointed him consultant on dental care for the FERA. Recently he was appointed a member of the World's Fair committee. —Joseph C. Hinsey, Ph.D., formerly professor of anatomy at Stanford University School of Medicine, San Francisco, has been made professor and head of the department of physiology at Cornell University Medical College. Dr. Hinsey succeeds Dr. Herbert S. Gasser, who became director of the Rockefeller Institute for Medical Research in July 1935.

**Lectures on Heart Disease.**—The New York Heart Association, the heart committee of the New York Tuberculosis and Health Association, is sponsoring lectures for practicing physicians on heart disease. The first four have been as follows: Drs. Robert H. Halsey, November 10, "Symptoms and Clinical Examination of the Cardiac Patient"; Clarence E. de la Chapelle, November 24, "X-Ray and Fluoroscopy of the Heart"; Robert L. Levy, December 8, "Clinical Electrocardiography"; Ernst P. Boas, December 22, "Hypertensive Heart Disease and Blood Pressure." The rest of the series will be:

- Dr. Edwin P. Maynard Jr., Cardiovascular Syphilis, at the New York Academy of Medicine, January 12.
- Dr. Eugene F. Du Bois, The Heart in Thyroid Disease, Cornell University Medical College, January 26.
- Dr. Harold E. B. Pardee, Arteriosclerotic Heart Disease, New York Academy of Medicine, February 9 and 23.
- Dr. Arthur C. DeGraff, Rheumatic Heart Disease, Bellevue Hospital, March 9 and 23.
- Dr. Cary Eggleston, Treatment of Heart Disease, April 13 and 27.

There is no registration charge or admission fee.

**Faculty Appointments at New York Medical College.**—The following faculty appointments, among others, were recently announced by New York Medical College and Flower Hospital:

- Drs. Robert S. Bickley and Henry Dawson Furniss, clinical professors of surgery.
- Dr. Thomas Drysdale Buchanan, clinical professor of anesthesia.
- Dr. Robin Hood, clinical professor of proctology.
- Dr. Leon S. Loizeaux, clinical professor of gynecology and obstetrics.
- Dr. Thomas Hodge McGavack, formerly of San Francisco, associate professor of medicine.
- Drs. Edward J. McCahe and Ferdinand Montgomery Smith, associate clinical professors of surgery.
- Drs. Harold E. Clark, Sexton C. Roane and Charles J. Goeller, assistant clinical professors of surgery.
- Louis B. Dotti, Ph.D., assistant professor of physiology and biochemistry.
- Dr. Edmund H. Huhner, assistant clinical professor of gynecology and obstetrics.
- Dr. Guilford Allen Robinson, assistant clinical professor of radiology.
- Dr. Paul M. Wood, assistant clinical professor of anesthesia.

Dr. Vincent T. Frankfurth, formerly assistant superintendent of the Michigan Farm Colony for Epileptics, Wahjamega, Mich., was made assistant medical superintendent of the Flower-Fifth Avenue Hospital. Miss Laura R. Logan, formerly director of nursing service at Cook County Hospital, Chicago, has been appointed principal of the school of nursing and director of nursing service at the hospital.

## OHIO

**Society News.**—Dr. Paul B. Magnuson, Chicago, addressed the Montgomery County Medical Society, Dayton, December 4, on "Types and Cases of Arthritis."—Dr. James G. Carr, Chicago, addressed the Stark County Medical Society, Alliance, November 12, on "Treatment of Heart Disease."—Dr. Anthony J. Lanza, New York, addressed the Mahoning County Medical Society, November 17, on "Trends in Medicine."—Dr. William Allen Pusey, Chicago, addressed the Academy of Medicine of Cincinnati, December 8, on "Disease, Gently of the Mind, with Special Reference to the Stimulating Influence of Skin Disease." At a meeting December 15 the speakers were Dr. Sidney M. McCurdy, Columbus, medical supervisor of the state industrial commission, on "Our Medical Relations with Each Other"; Dr. Roy J. Secrest, Columbus, assistant supervisor, "Compensable Injuries from the Medical Standpoint," and Judge Thomas M. Gregory, chairman of the commission, "Problems Encountered in the Administration of Workmen's Compensation."—Dr. Harve M. Clodfelter, Columbus, addressed the Muskingum County Medical Society at Zanesville, November 4, on "The Anemias and Their Treatment."

## PENNSYLVANIA

**State Tuberculosis Meeting.**—The forty-fifth annual meeting of the Pennsylvania Tuberculosis Society will be held in Philadelphia at the Benjamin Franklin, January 19-20. There will be sessions on health education, the need for additional tuberculosis hospital beds and modern health needs and a medical session. Among the speakers will be Drs. Esmond R. Long, Philadelphia; Jay Arthur Myers, Minneapolis; Robert E. Plunkett, Albany, N. Y.; Kendall Emerson and Harry E. Kleinschmidt, New York.

**Personal.**—Dr. Edgar S. Buyers, Norristown, was recently elected president of the Montgomery County Medical Society after having served as secretary for twenty-one years. It is reported that he was absent only once and that when he was on official business for the society. Dr. Buyers is chairman of the board of trustees of the Medical Society of the State of Pennsylvania.—Dr. Paul C. McAndrew, Scranton, has been appointed medical director of the Lackawanna County Tuberculosis Sanatorium to succeed Dr. Frank R. Wheelock.

## Philadelphia

**Second Postgraduate Institute.**—The Philadelphia County Medical Society announces its second annual Postgraduate Institute to be held at the Bellevue-Stratford, April 12-16. The subject this year will be "Diseases of the Chest and Upper Respiratory Tract."

**Society News.**—Dr. Charles H. deT. Shivers, Atlantic City, N. J., addressed the Philadelphia Urological Society, November 23, on "Newer Methods of Preoperative Study in Prostatic Hypertrophy."—Philip Bard, Ph.D., Baltimore, and Detlev W. Bronk, Ph.D., addressed the Philadelphia Neurological Society, November 27, on "The Significance of the Hypothalamic Representation of the Sympathetic Nervous System" and "The Control of Autonomic Activity and the Role of the Hypothalamus" respectively. At a meeting, December 18, the speakers were Drs. George M. Dorrance, on "Alcoholic Injection of the Gasserian Ganglion"; John Q. Griffith and Wilfred E. Fry, "Subarachnoid Hemorrhage with Special Reference to Papilledema," and Michael M. Scott, "Parietal and Cerebellar Lobe Atrophy Associated with Certain Cases of Multiple Sclerosis."

## Pittsburgh

**Society News.**—Dr. Hugh H. Young, Baltimore, addressed the Allegheny County Medical Society, December 15, on "Medical and Surgical Problems in Diseases of the Prostate."—Speakers at a meeting of the Pittsburgh Pediatric Society, December 11, were Drs. Hyman A. Slesinger, Windber, on "Pneumococcal Peritonitis"; Robert A. Knox, Washington, "Hyperinsulinism," and Ellsmer L. Piper, "A Study of the Initial Weight Loss in the New-Born."—At a meeting of the Pittsburgh Academy of Medicine, December 8, the speakers were Drs. Theodore Diller, on "Sexual Problems Which Confront the Medical Profession"; Alvan W. Sherrill, "Clinical Application of Fever Therapy," and Murray B. Ferderber, "Report of Cases Treated by Fever Therapy."

## WASHINGTON

**Dr. C. A. Smith Honored.**—Dr. Clarence A. Smith, Seattle, editor of *Northwest Medicine* since its establishment in 1903, was the guest of honor at a dinner given by the King County Medical Society at the Rainier Club, November 23. Dr. Robert D. Forbes, president of the King County society, presided and gave a brief review of Dr. Smith's life. Dr. Frederick A. Kiehle, Portland, represented the Oregon State Medical Society with a tribute to Dr. Smith. Mr. Judson Jennings of the Seattle Library and Mr. Charles W. Smith of the library of the University of Washington gave talks of appreciation for Dr. Smith's part in the development of the Seattle Medical Library, which has been one of his major interests. Dr. Arthur C. Crookall, Seattle, president of the Washington State Medical Association, presented a watch on behalf of the assembled group and other friends. Dr. Smith, 75 years old, was graduated from Columbia University College of Physicians and Surgeons in 1887 and went to Seattle shortly afterward.



## GENERAL

**International Conference on Fever Therapy.**—The first International Conference on Fever Therapy will be held at Columbia University College of Physicians and Surgeons, New York, March 29-31. The program is divided into four parts with committees in charge as follows: physiology, pathology and methods of production of fever, Drs. Frank W. Hartman, Detroit, chairman, and Charles A. Doan, Columbus, Ohio, secretary of the committee; miscellaneous diseases treated by fever therapy, Drs. Clarence A. Neymann, Chicago, chairman, and Frank H. Krusen, Rochester, Minn., secretary; syphilis, Drs. Walter M. Simpson, Dayton, Ohio, chairman, and Leland E. Hinsie, New York, secretary; gonorrhea, Drs. Stafford L. Warren, chairman, and Charles M. Carpenter, secretary, both of Rochester, N. Y. Those who wish to participate are requested to communicate with the chairman of the section in which they are interested and manuscripts must be submitted to the chairman before February 1. All who plan to attend are requested to register promptly with the general secretary, Dr. William Bierman, 471 Park Avenue, New York. The registration fee is \$15. Baron Henri de Rothschild, Paris, is general chairman of the conference and Dr. Walter M. Simpson, Dayton, is chairman of the American committee.

**Society News.**—Dr. Edward Stanley Ryerson, Toronto, was elected president of the executive council of Nu Sigma Nu at the annual meeting in New Orleans, November 28. Dr. Stuart Graves, University, Ala., is secretary.—The forty-first annual meeting of the Seaboard Medical Association of Virginia and North Carolina was held at Tarboro, N. C., December 1-3. The guest speakers included Drs. Raymond A. Vonderlehr, U. S. Public Health Service, on "The Hidden Scourge"; Howard A. Patterson, New York, "Present Day Trend in Surgery of the Thyroid Gland"; James P. Hennessy, New York, "The Occipitoposterior Position," and Charles W. Mayo, Rochester, Minn., "Recent Advances in Cholelithic Disease." Dr. Philip St. L. Moncure, Norfolk, Va., was elected president and the following were elected vice presidents: Drs. Robert J. Walker Jr., Tarboro; Frederick C. Rinker, Norfolk, Va.; Thomas M. Watson, Greenville, N. C., and Albert A. Crecy, Newport News. Dr. Clarence Porter Jones, Newport News, was reelected secretary, and Virginia Beach was chosen as next year's meeting place.—The Clinical Orthopedic Society met in Dallas, Texas, October 30-31. Officers elected were Drs. James E. M. Thomson, Lincoln, Neb., president; James A. Dickson, Cleveland, vice president, and H. Earle Conwell, Birmingham, Ala., secretary. The 1937 meeting will be in Chicago.

**Radio Forum on Growth of the Child.**—Future lectures to be given in the radio forum on the growth and development of the child, under the auspices of the National Congress of Parents and Teachers, the American Academy of Pediatrics and the National Broadcasting Company, are as follows:

- Dr. Alexander A. Weech, associate professor of pediatrics, Columbia University College of Physicians and Surgeons, New York, January 6, Energy and Growth.
- Dr. Roy G. Hoskins, research associate in physiology, Harvard University Medical School, Boston, January 13, Our Glands.
- Oscar Riddle, Ph.D., investigator, Station for Experimental Evolution, Carnegie Institution of Washington, Cold Spring Harbor, N. Y., January 20, The Action of Glands on Growth.
- Otto Glasser, Ph.D., Cleveland, director, department of biophysics, Cleveland Clinic Foundation, January 27, Effects of Light, Sun and Other Rays on Growth.
- Edwin C. MacDowell, Sc.D., Cold Spring Harbor, N. Y., investigator, Station for Experimental Evolution, Carnegie Institution of Washington, February 3, Heredity or Environment?
- Dr. Arnold L. Gessel, New Haven, director, Clinic of Child Development, Yale University, February 10, How the Mind Grows in Infancy.
- Walter R. Miles, Ph.D., professor of psychology, Institute of Human Relations, Yale University, February 17, How Children's Minds Grow.
- Walter J. Damrosch, New York, February 24, Importance of Music for Growing Children.
- John E. Anderson, Ph.D., director, Institute of Child Welfare, University of Minnesota, Minneapolis, March 3, Emotional Development in Children.
- Dr. Bert I. Beverly, Chicago, assistant clinical professor of pediatrics, Rush Medical College, March 10, The Connection Between Mind and Body Growth.
- Carleton Washburne, superintendent, public schools, Winnetka, Ill., March 17, Fitting the Course of Study to the Child's Mental Development.
- Frank N. Freeman, Ph.D., professor of educational psychology, University of Chicago, March 24, Education and Mental Growth.
- David B. Dill, Ph.D., associate professor of industrial physiology, Harvard Fatigue Laboratory, March 31, Athletics, Exercise and Fatigue in Growing Children.

The lectures are on the Blue network of the National Broadcasting Company every Wednesday from 4 to 4:30 p. m., Eastern Standard Time.

**"Eye Specialist" Wilkinson Sentenced to Penitentiary.**

—The U. S. Post Office Department announces that Matthew O. Wilkinson, alias Dr. Billingsley, alias Dr. Clark, alias J. E. Clark, was sentenced to four years in the Virginia State Penitentiary following his plea of guilty, Dec. 2-3, in Bedford, Va., to a state charge of swindling Mr. S. B. Hawkins, Moneta, out of \$625. Wilkinson, who was arrested in Milwaukee, August 31, and Harold N. Baxley, alias Jack Baxley, and Curtis Yeager, who were arrested in Pittsburgh, September 4, pleaded guilty to the same charge, the latter two being given five years each in the state penitentiary in Virginia. They had been arrested on charges of fraudulent use of the mails in connection with the collection of checks obtained from their victims in the "eyeswinding racket." According to the Post Office Department, December 11, these men will be tried later on the federal charges. When the authorities in California, where Wilkinson was wanted, were beginning to close in on him, he is said to have gone into other states to "practice." In May of last year the eyesight swindle was perpetrated in Arthur, Ill., by a man calling himself "Dr. Snyder of Tennessee." In 1933, in California, Wilkinson was identified through a photograph by a victim as the "Dr. J. C. Snyder" who had treated him. Elliott Wilkinson, said to be Matthew's brother, was also arrested in the recent round up, but no disposition of his case has yet been reported (THE JOURNAL, December 19, p. 2059).

**Orthopedic Surgeons' Meeting.**—The American Academy of Orthopaedic Surgeons will hold its fifth annual convention at the Hotel Cleveland, Cleveland, Ohio, January 10-14. The program will include clinical demonstrations and symposiums on shoulder disability, osteomyelitis, fractures of the ankle and low back pain. The speakers will include:

- Dr. Merrill C. Mensor, San Francisco, Injuries to the Accessory Processes of the Vertebrae.
- Dr. Charles W. Peabody, Detroit, Tendon Transference—Late Result Study.
- Dr. Henry H. Kessler, Newark, N. J., The Cineplastic Amputation.
- Dr. Charles Leslie Mitchell, Detroit, Phosphatase: Its Clinical Significance.
- Dr. Wingate Todd, Cleveland, The Roentgen Ray in the Assessment of Growth and Health.
- Dr. Frederick C. Kidner, Detroit, Torticollis.
- Dr. Herman C. Schumm, Milwaukee, Schanz Osteotomy for Fracture of the Neck of the Femur.
- Dr. W. Eugene Wolcott, Des Moines, Circulatory Studies and Nutrition of the Head of the Femur.
- Dr. Samuel Kleinberg, New York, The Value of Early Weight Bearing in the Treatment of Fracture of the Neck of the Femur.
- Dr. Paul C. Colonna, New York, Reconstruction Operation for Old, Ununited Fracture of the Femoral Neck.
- Dr. Jose Valls, Buenos Aires, Argentina, New Technic for Nailing Fractures of the Neck of the Femur.
- Dr. Charles B. Huggins, Chicago, Bone Marrow and Its Relation to Orthopedic Surgery.
- Howard B. Lewis, Ph.D., Ann Arbor, Mich., Some Aspects of the Utilization of Sulfur Compounds in Health and Disease.
- Dr. Halford Hallock, New York, Arthroplasty of the Hip Joint: An End Result Study of Seventy-Nine Unselected Cases.
- Dr. Beveridge H. Moore, Chicago, Effect of the Periosteum on the Position of Fracture Fragments.
- Dr. Albert B. Ferguson, New York, Roentgenologic Diagnosis of Tuberculosis of the Joints.
- Dr. Dallas B. Phemister and Cly H. Hatcher, Chicago, Pathology of Hematogenous Osteomyelitis.
- Dr. Edwin F. Cave, Boston, Tuberculosis of the Spine in Children.

There will be five radio broadcasts during the meeting: Drs. Melvin S. Henderson, Rochester, Minn., "The Accomplishments of Orthopedic Surgery"; Edwin W. Ryerson, Chicago, "Physically Handicapped Children and Adults"; Albert H. Freiberg, Cincinnati, "Infantile Paralysis"; Robert B. Osgood, Boston, "Recent Advances in Arthritis," and Willis C. Campbell, Memphis, "The Fracture Situation."

## CANADA

**Personal.**—Dr. Thomas A. Patrick, Yorkton, Sask., received a desk set from his colleagues in the Northern Saskatchewan Medical Association at a meeting recently as a tribute to his long service as a physician, almost fifty years. Dr. Patrick graduated from the University of Western Ontario School of Medicine, London, in 1888 and the University of Manitoba Faculty of Medicine, Winnipeg, 1889.

**University News.**—McGill University, Montreal, recently announced a grant of \$17,000 from the Rockefeller Foundation to cover a three year program of research in genetics and experimental cytology.—The following promotions at the University of Western Ontario, London, were reported in the *Canadian Medical Association Journal*:

- Dr. George H. Stevenson to be professor of psychiatry.
- Dr. William P. Tew, professor of obstetrics and gynecology.
- Dr. Earle M. Watson, professor of pathologic chemistry.
- Dr. Russell A. Waud, professor of pharmacology.
- Dr. David W. Crombie, assistant professor of medicine.
- Dr. Paul M. Andrus, assistant professor of radiology.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Nov. 21, 1936.

#### The Medical Uses of Radium

The report of the Medical Research Council on the medical uses of radium summarizes important recent work. At the Royal Cancer Hospital Dr. W. V. Mayneord has investigated the problem of radium dosage and the conversion of milligram hours into roentgens. The question has not been completely settled but there is general agreement among workers that 8 roentgens represents about the dose of radiation from 1 mg. of radium element screened with 0.55 mm. of platinum at a distance of 1 cm. for one hour.

#### THE CARCINOGENIC ACTION OF SCREENED RADIUM

Screened radium has been shown to be capable of producing the disease for the treatment of which it is most used. This research, by Dr. Joan Ross, is based on a case in which a radium needle, used in the treatment of cancer of the breast, became detached and penetrated the chest wall. Attempts to regain it failed and the patient died three years later from heart failure. At the necropsy the needle was found embedded in the interventricular septum of the heart, and there was in the liver a malignant hemangioma immediately under the site of the needle. The mode of spread of the growth through the liver tissue showed that its point of origin was in the part of the liver nearest the radium needle. This pointed to the conclusion that the presence of the needle so long adjacent to the position of the growth was the cause. Radium tubes 1 cm. long, each containing 0.1 mg. of radium screened with 0.55 mg. of platinum, were inserted into rabbits. These containers represent weak gamma-ray sources, the amount of hard beta-rays passing through being negligible. It was intended to open the peritoneum and anchor the tubes in the liver but this was found to be impracticable. After various trials one tube was placed in the chest wall on the right side close to the liver. Some shifting of the tubes occurred probably soon after insertion. Seven out of nine rabbits experimented on developed cancer in the immediate neighborhood of the tube. Six of the growths appeared at intervals between ninety-seven and 135 weeks, the seventh after 167 weeks. Five of the growths were sarcoma and two squamous-cell carcinoma. In all the cases of sarcoma except one (in which the animal was still alive) there were metastases in the lungs or elsewhere. One of the carcinomas had produced metastases in lymph glands and the lungs; the other did not show any. These experiments demonstrated the important fact that small amounts of highly screened radium acting for a sufficiently long period can produce malignant growths the character of which depends on the nature of the tissue in close proximity to the tube, though not in that immediately proximate.

#### CANCER OF THE BREAST

In cancer of the breast, radical operation is still the most usual treatment whenever practicable. At the Birmingham General Hospital, large and inoperable breast cancers have been treated with full doses of high voltage (200,000) x-rays. In some cases these tumors have been rendered operable from eight to ten weeks later. Microscopic examination of these irradiated breasts has almost invariably shown some islets of cancer cells surrounded by dense fibrous tissue. This raises the question of the advisability of removing such irradiated breasts and clearing out the axillae, even after radiation has caused disappearance of the tumor. At the Marie Curie Hospital, radical surgical removal is carried out whenever prac-

ticable. When radiotherapy is used, preference is given to the low intensity method of Coutard. During the past year smaller daily doses have been given over larger fields, with avoidance as far as possible of marked skin and connective tissue reactions.

#### CANCER OF THE MOUTH

The Aberdeen Royal Infirmary reports that, in carcinoma of the lower lip, radium element was used in twenty-one cases and radon in ten, with complete healing after a single treatment. Both the element and radon were fully screened and used interstitially. The impression has been gained that the early response to the radium treatment of secondary malignant nodes is improving.

Eight patients were treated for carcinoma of the tongue. In five the primary growth disappeared and the tongue healed after a single radium treatment. The radium was fully screened and the method was interstitial. In two cases the healed site was excised seven months after the radium treatment and no malignant cells were found on microscopic examination.

The Birmingham General Hospital reports that there is little difficulty in curing primary growths of the buccal cavity, provided the floor is not extensively involved. Effective treatment of secondaries in the neck is much more difficult. Radiation alone—whether radium or high voltage x-rays—rarely cures. The gland fields are treated by dissection, and as soon as the wound is sufficiently healed treatment by a radium collar or high voltage x-rays follows.

### PARIS

(From Our Regular Correspondent)

Nov. 24, 1936.

#### Social Insurance Questions

Up to now, every worker who has no dependent children and who earns 21,000 francs (about \$1,000, after devaluation of the franc) is obliged to take out social insurance. The employer pays a monthly premium equal to that paid by the worker. A worker who has two or more dependent children and who earns 25,000 francs must be insured. The government has recently proposed a law according to which these salary limits will be raised, so that a large number of workers not now insured will be obliged to join the social insurance organization. In a letter addressed by its president, Dr. Tissier, to the Federation of Medical Syndicates of France, dated August 6 and published in the September issue of the *Bulletin* of the Syndicate of Physicians of the Department of the Seine, the statement is made that, although the question of raising the limit of obligatory insurance is more of an economic than of a professional character, the extension of social insurance, especially in the region of Paris, to a considerably larger number of workers cannot fail to be of interest to the practitioners of this region. The application of the social insurance law has already affected the practice of medicine seriously and imposed a heavy burden, which the profession has accepted in a most loyal manner. Confronted with the proposed modification of the law, the profession feels itself entitled to claim an application of the law which will permit a physician at least to earn a living; hence the authorities are requested to consider the present plight of the profession in France before raising the limit of obligatory insurance. No one can ignore the loss of time, the vexatious examinations, the abusive investigations to which a practitioner is subjected in connection with the medical control demanded by certain caisses or bureaux which pay the claims for illness of the insured. This is especially true of patients treated by the practitioner at his office or at the home of the insured. These disagreeable encounters between the medical inspectors of the caisses and the practitioners, often taking place in the presence of the patients and tending to cause them to lose confidence in their medical atten-

dant, should in the future be avoided in the case not only of those already insured but also, if the proposed limit is raised, of those in the higher salaried brackets, who are more likely to consult a physician than those in the present lower brackets. The original law of 1930 had given the insured workers and their medical attendants a certain number of guaranties, such as free choice of physicians and the equitable adjustment of indemnities, which has induced the majority of the working class to accept the law. The law as modified in October 1935, which was not passed on by the legislature, added a number of restrictions, which have increased the power of the caisses or disbursing bureaus. The regional boards on which the organized medical profession is represented are seldom summoned to meet with the superior council of the social insurance organizations. The secretary of the federation, in his answer to this letter, stated that most of the abuses to which the local (Seine) organization had directed attention were only in the power of the main social insurance organization and its subsidiaries to correct. As to the higher limit of obligatory insurance, this will not go into effect, as proposed in the recent bill.

#### Discussion of Obligatory Retirement Bill

In the *Concours médical* of October 4 appears an analysis of the ideas of those members of the French chamber of deputies who are sponsors of the proposed Pomaret bill to oblige the members of all the liberal professions to surrender their licenses or diplomas when they have reached the age of 65 years and to retire without any thought of compensation by the government. The bill will come up for debate at the next session (November) of the chamber. In the article by Dr. Paul Boudin referred to, the sponsors of the bill are quoted as saying that "it is necessary to make places for those who wish to earn a living and establish a family. Social security demands the elimination of those who are enfeebled by age, i. e., whose intellectual and physical faculties are diminished as compared to those of younger individuals. Hence every profession should be organized from the corporative standpoint so as to permit all those who need repose to retire. No child should work before the age of 14, or 16, if possible. The public should be protected against quacks in every profession." Boudin comments on this by saying that but little has been done with regard to the last named in France. Such an exclusion of quacks would open up more places for the younger aspirants. The forced retirement law would not go into effect until Jan. 1, 1939, so as to permit the various professional groups to organize a system of pensions without, however, any aid from the government. Boudin heartily endorses the measures aiming to exclude quacks and discourage young men and women from overcrowding the liberal professions, as at present, by means of stricter entrance requirements and closer supervision during their courses in the professional schools. Every physician and dentist in France pays a relatively high tax, termed "patente," for the privilege of practicing. Boudin suggests that instead of this tax being paid to the state, it should be turned into a fund which shall serve as an endowment from which physicians or dentists shall be paid a pension should they choose to retire voluntarily at the age of 65. The various medical syndicates or unions are preparing to fight the Pomaret bill with all the resources at their command.

#### Increase in Cardiovascular Disease

In the June 27 issue of the *Presse médicale* two cardiologists, Lian and Cahana, state that the mortality of cardiovascular disorders is constantly increasing and at present exceeds that of pulmonary tuberculosis and cancer. This is shown in the tabulation of statistics for all of France, per hundred thousand inhabitants.

The principal reason for this increase in cardiovascular mortality is the longer average duration of life, which in the sixteenth century was twenty-one years, rising in 1900 to forty-seven years and in 1920 to fifty-four years. If one studies the statistics of cardiovascular mortality according to age, it is evident that it has increased only in those more than 45 years

#### Mortality in France

	1906	1911	1920	1930
Heart disease .....	120	115	106	139
Cerebral hemorrhage .....	83	86	80	80
Pulmonary tuberculosis ....	380	343	227	197
Cancer .....	114	112	128	130
Respiratory disorders .....	291	265	243	188

of age. The cardiovascular mortality has nearly doubled from 1900 to 1920 and tripled from 1920 to 1929 in persons more than 45 years of age. As the vascular diseases such as hypertension, angina pectoris and other coronary disorders, as well as atheromatosis in its various localizations, appear as a rule after the age of 40, it seems reasonable to conclude that the higher cardiovascular mortality is essentially due to the increased average duration of life. Deaths below the age of 40 represent only 3 per cent of the total number due to cardiovascular disease.

#### VIENNA

(From Our Regular Correspondent)

Oct. 22, 1936.

#### The First Austrian Roentgenologic Congress

The Austrian Society of Roentgenology held its first convention September 4-8 at Vienna. Professor Kienböck presided. The convention was attended by 300 leading roentgenologists from all parts of Europe; 119 prepared individual discussions were submitted and numerous discussions and demonstrations took place. The three principal topics under discussion and the men who introduced them by the reading of special papers were (1) "Roentgen Symptomatology as an Expression of Organic Function," Professor Leb of Graz, (2) "Clinical Practice and Methodology of Roentgen Cinematography," Professor Dessauer (a Jewish refugee from Germany, now residing in Istanbul), and (3) "Principles and Development of Roentgenotherapeutic Irradiation Procedures and Their Biologic Foundations," by Professor Schwarz of Vienna.

Professor Freund, himself the first to apply roentgen rays for therapeutic purposes, said in his introductory address that Vienna may be called the birthplace of roentgenotherapy. Freund recollected in this connection with what difficulty he established the new procedure as a part of the therapeutic armament. Any innovation that represents an advance of science has always at first to fight the battle for recognition. Freund said also that one might point with pride to the fact that Vienna has been the scene of a whole group of important developments in the field of roentgenology: roentgenotherapy, arteriography, pyelography, encephalography and other procedures.

The proceedings of the congress were arranged as follows: (a) Roentgenologic diagnostic methods for disturbances of the brain and spinal cord, the lungs and circulation, the digestive system and its subdivisions, the urinary passage, the female genitalia and the skeletal system. (b) The technic and physics of roentgenography: indirect and direct cinematography, kymography. (c) Roentgenotherapy: single session irradiation, saturation treatment, irradiation with extremely high voltage, distant irradiation, contact therapy. Combinations of therapeutic procedures: radium therapy in combination with roentgenotherapy; operative treatment in conjunction with radiotherapy. Moreover, some thirty papers on miscellaneous subjects were submitted.

Professor Leb of Graz, who spoke on the first principal topic, emphasized that the principal function of roentgenographic diagnostic procedure is the demonstration of anatomic changes within the human organism; with this, however, the possibilities of roentgen examination are by no means exhausted. Observations of the living organism disclose not only purely functional disturbances which often represent a preliminary stage of secondary anatomic disorders but other functional disturbances as well, by which whole pathologic syndromes may be established.

Of interest were papers by Professor Schüller of Vienna on the use of contrast solutions for demonstration of the cerebral cavities and by Löhr of Magdeburg on his own methodical investigation of the cerebral arteries. In the course of four years Löhr examined close to 900 cerebral and cranial lesions and arrived at the conclusion that disturbances of the vascular supply in the central nervous system, which are traumatic in origin, permit of remarkably good roentgen visualizations that are most helpful for prognosis. Professor Dyes of Würzburg, after considerable roentgenographic research on tumors of the brain, was able to make the following observations: In all tumor cases in which the seat is the lower posterior half of the posterior cranial fossa, enlargement of the ventricle is present. If, however, the seat is the upper and frontal half, enlargement of the fourth ventricle will be lacking but the three remaining ventricles will show enlargement. As long as the cerebrospinal fluid can enter the fourth ventricle the latter appears of normal size, and without further ado the seat of the tumor is in its lateral aspect to be determined. If the tumor is situated in the region of the sagittal suture, the upper part of the ventricle on the affected side is compressed. Tumors on the convexity present a similar picture. Tumors situated in the temporal region cause the ventricle of the affected side to appear concavely extended over the neoplasm. Excellent pictures of the respiratory mechanism were exhibited with the kymographion by Weber of Bern.

Schuster and Zdansky, both of Vienna, demonstrated how clearly alterations in the size of the heart following the performance of a single piece of work and different types of respiration may be portrayed by roentgenography.

A good part of the convention was taken up in discussion of the roentgenology of the gastro-intestinal tract. Although the lecture and reports on this topic were extremely interesting, by and large nothing fundamentally new was elucidated. Presser of Vienna discussed gastric tumors; Haas of Budapest, gastric motility; Ratkoczy, also of Budapest, circumstances that influence the gastric tonus. A sensation was produced by the explanations of Dillon of Moscow of the respiratory function of the digestive tract. By his experiments it was determined that man as well as many vertebrate animals and fish is capable of inhaling air into the stomach and intestine. The air is actually inhaled, not swallowed, and it may serve to assist respiratory function in general. Incontestable proof exists that it is possible for the organism to live for a certain time exclusively by means of the air inhaled into the digestive tract. Roentgen examination is therefore the best and most reliable test for the determination of whether a fetus will be born living or dead. In two cases cited by the author, new-born infants shown on necropsy to present complete atelectasis of both lungs had lived and cried, the one for a period of twenty-five minutes, the other for five hours.

Roentgen visualization of the appendix vermiformis and the causes of nonvisualization formed the subject matter of a large number of discussions.

Pape of Vienna gave a discussion of disturbances in the colonic power of locomotion and Werner of Bratislava a perhaps more important talk on the rapid testing of colonic function. By means of irrigoradioscopy supplemented by pneu-

mography, the entire large intestine can be completely visualized within eight hours, thus making it possible for the examination to be concluded within the same day.

The importance of roentgenology in recent years has increased; especially noteworthy are the improved methods of demonstrating the intricate urinary passages. Urography of the process of elimination is a useful procedure for functional testing of the kidney and kidney pelvis, especially as it provides indication or contraindication of operative intervention. The first impetus to the research on renal function by means of roentgen rays began in Vienna, although as early as 1887 the physiology of the pelvis of the kidney was investigated by Israel in Berlin. Later on this type of research came to be carried on in various countries.

Simon of Vienna contributed observations on functional alterations in the urinary tract and in the large intestine during pregnancy. It was established that the gravid uterus not only acts by mechanical compression of the urinary tract and the large intestine but gives rise to physiologic disturbances of function in both regions and these may be both toxic and incretory in nature. The atonic and congested state of the organs usually disappears completely subsequent to the pregnancy.

Roentgen cinematography may be said to have aroused greater interest than any other subject before the congress. Janker of Bonn and Reynolds of London, in two lectures on cinematography, differentiated direct and indirect cinematography and concerned themselves with the last-named method. Its principle is the photographing of the fluoroscopic appearance; it is possible to take from twenty-five to fifty pictures a second by means of modern apparatus. Occasionally a rate of as many as 100 pictures a second may be attained. If the direct method is used the size of the single picture corresponds to any of the usual roentgenograms. Consequently the number of pictures in a second and the length of the film are greatly restricted, transportation is rendered much more difficult and the expense is great. By the indirect method one is certain to obtain quickly produced inexpensive and excellent pictures for the study of organic function. It was first used by Reynolds in London in 1920-1921 but at that time presented great difficulties, owing to the imperfection of the technic. As the picture may now be taken speedily and the period of exposure is brief, the procedure is now completely without danger to the patient. Both Janker and Reynolds exhibited truly marvelous pictures before the congress. Especially worthy of mention were the visualizations of cardiac movement, of the acts of swallowing and of speaking, of an embolism artificially produced in animal experimentation, of gastric activity, and of the movements of the larynx and tongue in speaking and singing—in the last named the sound of the voice was reproduced.

The direct method was demonstrated by Van de Maele of Brussels. It permits of a rate of some eight pictures a second and the production of excellent individual pictures. It permits furthermore of a close study of the details of motility in various organs.

Kymography too enlisted the interest of the delegates. It was discussed by Stumpf of Munich.

The discussions of roentgenotherapeutic questions formed the high point of the transactions. Prof. Gottwald Schwarz of Vienna outlined the historical development of this branch. He described the establishment of the generally accepted roentgenometric unit, the roentgen, which was proposed by Villard of Paris in 1908 but first adopted as an international unit twenty years later. Roentgenotherapy has been materially improved in recent years, by Coutard of Paris in particular.

Latterly the controverted question has been the relative merits of the single session method. There is also rivalry between

the fractionated and protracted fractionated methods of irradiation. Evaluations of distance irradiation and of contact therapy were also attempted by the congress.

Wintz of Erlangen advocated single irradiation. Young, rapidly growing cells (such as carcinoma cells) are quickly destroyed by large doses. Irradiation by a series of doses decreases the radioactivity of tumors. Application of even the smallest doses may cause a tumor to become radiorefractive. As a rule the healthy cells in the vicinity of a tumor show themselves more capable of resisting the roentgen rays. Saturation therapy was discussed by Holfelder of Frankfurt. The effect of roentgen rays on a malignant growth is the stronger as the cancer cells are destroyed and the normal cells of the organism protected. This eventuates if the topographic trend of the tumor seat is exactly determined, the overlapping tissue layers delimited by means of a maximal compression and the tumor, so to speak, directly hit. Large doses are at first applied (full tolerance dose), followed by lesser doses for from four to eight weeks.

Coutard of Paris described the roentgen treatment of carcinoma by fractionated protracted daily irradiation and by irradiation in periodic series. This method has made possible the first permanent roentgenotherapeutic cures of carcinoma. The method is basic, dosimetric and quantitative. Its fundamental principle is the amount of the total dose and its physical distribution in space, irrespective of whether the daily dosage is strong or weak. Results are satisfactory only if the carcinoma is scarcely differentiated and infiltration has not yet set in and if the cells exhibit a considerable radiosensitivity that remains fairly constant during the treatment. The total dosage requisite for permanent cure did not as a rule differ greatly, no matter what the distribution. The dosages were from 6,000 to 8,000 roentgens for the larynx, from 7,000 to 8,500 for the pharynx and from 8,000 to 9,000 for the tonsils. The daily dose was around 500 roentgens in the shorter treatments and from 300 to 700 in the serial irradiation. The area of exposure varied from 50 to 125 sq. cm. It was interesting to note that if the total is greatly increased (to from 10,000 to 12,000 roentgens) the only result was deterioration and this was irrespective of the distribution of the application in point of time.

Schinz of Zurich, who spoke on the same topic, has customarily administered the simple fractionated irradiation when, because of the condition of the tumor, he could hope to achieve only a palliative effect. He resorted to the protracted fractionated procedure if the end result anticipated was not merely freedom from symptoms but permanent cure. When employing the first method he administered 1,500 roentgens within five days' time; in following the second method he administered from 4,000 to 15,000 roentgens, the amount depending on the seat of the tumor. Schinz, like Coutard, exhibited statistics on the successes and failures that he had experienced. Of interest are the data on mammary carcinoma. In the operable cases a protracted fractionated preliminary irradiation and a fractionated after-irradiation were administered, whereas in the inoperable cases three irradiations lasting fifty minutes each were administered every second day until a total dosage of 4,000 roentgens had been given, this requiring in all about fourteen days.

Pulmonary carcinoma was discussed by Popovic of Zagreb. In 30 per cent of seventy cases (sixty-eight men, two women, aged from 19 to 70) improvement, both subjective and objective, was obtained, but only two of the patients could be saved. Sgalitzer of Vienna discussed the methods of tumor irradiation in the central nervous system. His first choice was the fractionated method, by which, he said, severe manifestations were avoided. Roentgen treatment of cerebral disorders is best directed from several points of attack; extremely favorable

results have been obtained from the use of this procedure in hydrocephalus. In brain tumor cases also, irradiation from four or five points of attack is beneficial. Whether the cranium is open or closed is an important consideration in irradiation. Radiotherapy is contraindicated if increased compression of the brain is present, excepting in cases of hypophyseal tumor. The optimal end result in brain tumors is anticipated from operation followed by roentgen irradiation. Postoperative irradiation acts favorably in glioma and sarcoma cases in which it has been impossible to effect a radical intervention.

Gunsett of Strasbourg spoke on irradiation with tension as high as 600 kilovolts. This method is chiefly suitable for deeply situated carcinoma. Hard rays should be used. The speaker has administered from 3,500 to 4,000 roentgens in from four to five weeks with a fair measure of success. E. Maier of Vienna spoke on distant treatment with radium. In this type of therapy the "r"-afflux applied per minute is minimal in proportion to the roentgen "r"-afflux. It represents but a fraction of the last-named type of energy and therefore distant irradiation with radium cannot be replaced by roentgen irradiation.

Schäfer of Greifswald discussed the use of contact therapy in gynecologic cases. This method has its advantages: the skin is completely protected by the introduction of certain tubes into the bodily cavities and it is possible to irradiate the parametrium with powerful doses; at the same time healthy tissue is completely protected by filters. Schäfer used irradiation in fifty-six cases of carcinoma of the female genitalia, 38 per cent of which were cases of inoperable carcinoma of the cervix uteri. The primary results were excellent; a check up showed twenty of the cervical cases to be negative, and only one case showed deterioration. The period of observation has been too short to permit conjecture as to end results. It may be said, however, that cases in which marked favorable effect is lacking undergo further deterioration.

Chaoul of Berlin discussed the method of close roentgen irradiation that bears his name. This method was used with satisfactory results in treating 307 patients who presented directly accessible cancerous growths. Patients were submitted to rays of the most promising strength (usually from 6,000 to 10,000 roentgens per field); the administration of the dosage was distributed over several weeks. Melchart of Vienna emphasized that the future method of combating cancer will be the combination of surgery with roentgen rays and at the same time with radium. Wessely and E. G. Mayer, both of Vienna, discussed the present attitude toward treatment of malignant tumors of the upper respiratory and digestive tracts. In very severe cases irradiation should be introduced first and surgical intervention later; frequently the procedure must be reversed in order that the tumor may receive direct irradiation; this would be done in carcinoma of the accessory nasal cavities. Carcinoma of the inner larynx and of the pharynx with metastases in the glands, conditions in which extensive operative intervention was formerly indicated, are now, following the Coutard method, only irradiated.

Radon was discussed as a separate topic by several research scholars, among whom were Happel of Hamburg, Uhlmann of Istanbul and Wasserburger of Vienna. Among disease conditions that react well to this type of therapy are exophthalmic goiter, lymphangiomas, keloids, wounds that tend to heal imperfectly and small epitheliomas.

The report of Ziedses des Plantes of Utrecht created something of a sensation. It dealt with serioscopy, a technic that makes possible by means of multiple exposures the visualization of the body in a whole series of parallel planes, each of which may be considered separately. Among other independent discussions were those by Windholz of Vienna on roentgenotherapy of tumors and hyperplasias of the reticulo-

endothelial system (leukemia, xanthomatosis, blastomatoïd alterations). All these conditions were favorably influenced by roentgen and radium irradiation.

The paper of Freund of Vienna on the problem of occupational injuries from irradiation has yet to be mentioned. Prolonged exposure to roentgen rays produces a condition of general debility, best manifested in the morphologic hemograms. Leukocytes decrease permanently to around 5,000; the whole picture of chronic roentgen intoxication is quite like benzene intoxication as determined by the American Benzene Commission. Therapeutic measures consist of exposure to natural or artificial sun rays of all wavelengths, fresh air, gymnastics, and a regimen of unboiled milk, liver and bone marrow. In desperate cases blood transfusion together with the extirpation of the spleen is recommended. The best therapeutic measure, however, is removal of the patient from the injurious occupational surroundings.

### AUSTRALIA

(From Our Regular Correspondent)

Nov. 15, 1936.

#### A Commission to Study Hospital Lotteries

The government of South Australia appointed a royal commission to inquire whether it is desirable to institute lotteries in South Australia for the purpose of raising funds to assist in the finance of hospitals and other charitable institutions. The commission took evidence in the different states of the commonwealth and had special statistical information about lotteries of Great Britain, Ireland, France, the United States and Canada. The commission expressed itself in its report as being not unduly influenced by the religious or ethical aspect. It says it would not have felt justified in coming to its conclusion or objecting to the lottery system on the ground of ethical objection, if on other grounds it had been found desirable. There is a real difference in principle between a government on the one hand taxing private betting or other private activities of the people and on the other hand introducing a lottery for the purpose of raising money for one of its essential social services. In the former case the government takes no part in the promotion of the activities on which the tax is levied. In the case of a lottery, parliament either directly or through a department established by it promotes the lottery for the purpose of profit and takes an active part in inducing people to subscribe to it. No Australian government urges people by advertisement to bet on horse races in order that more revenue may be obtained from betting or to go to the pictures so that the amusement tax revenue may be increased, but when there are lotteries the public is definitely encouraged to do so.

The commission was much impressed in the course of its investigations by what appeared to be the political repercussions of lotteries either conducted by governments or under a government license. The commission gained the definite impression that lotteries conducted on the lines of those of New South Wales, Queensland and Tasmania tend to become the masters rather than the servants of the government that "controls" them. The commission considered that the state of affairs tends to demoralize governments. After full and careful investigation the commission satisfied itself that the lottery does not and cannot solve the hospital finance problem. Even in Ireland the immense Irish sweep has not relieved the government or the local authorities of their hospital obligations, and in Western Australia and in Queensland lotteries have not helped the government to any material extent. The existence of lotteries in four of the six Australian states, and the seeming benefits derived from them, give an impression that a lottery is desirable. After thorough investigation, however, the commission is satisfied that these benefits are more superficial than real.

It may appear difficult to understand why it is that, with all the revenue that lotteries bring in, the government or local

authorities do not secure corresponding relief. There are several contributing factors to this position: 1. The people of Australia are becoming more and more hospital minded, which means an increasing demand for accommodation. 2. The existence of a lottery tends to create in the people a demand as of right for a much higher standard of hospital buildings and equipment, and for more hospitals. 3. The practice has been generally to use lottery moneys for capital expenditure and therefore the cost of maintenance necessarily increases. 4. The existence of a lottery tends to decrease the voluntary contributions for hospital and charitable purposes, and this factor is greatly accentuated when there is a rate or tax for hospitals as well. 5. Where charities are associated with lotteries, the charitable institutions set up higher standards. 6. It may be that one of the reasons why lottery moneys are spent in the manner in which they are is that such expenditure provides an excellent advertisement for the lottery. For these reasons the commission found that the establishment of a lottery will not materially relieve the government or the local governing authorities of their burdens for hospitals or charities. In fact, because of the higher standard that is built up through the expenditure of lottery moneys as capital the ultimate burden is likely to be increased by the existence of a lottery.

Everywhere says the report there is a tendency to increase the prizes and especially the first prize; and everywhere the lottery is an exploitation of the gullibility of the public and the widespread gambling instinct. In fact, so deep seated has this legalized form of gambling become that it is doubtful whether any government would dare to introduce legislation to abolish these lotteries. The commission concluded that a lottery as a form of hospital finance provides an unstable method that is demoralizing to the government, distinctly injurious to traders and detrimental in the end to the poorer sections of the community, who contribute the bulk of the receipts. If the people who buy lottery tickets can easily afford the money, they can afford to pay their share of the direct taxation necessary to support hospitals. If they cannot afford the money, the state should not take their money. From the establishment of the "golden casket" in Queensland nearly twenty years ago the total receipts amounted to £12,000,000, the prize money amounted to £7,000,000 and the sum paid to hospitals and charities after payment of expenses was £3,000,000. These figures confirm the commission in its belief that the lottery does not and cannot solve the hospital finance problem and consequently it was recommended that the practice should not be permitted in South Australia.

### Marriages

ALEXANDER C. LEONARDO, Washington, D. C., to Miss Alleen L. Bingham of Greensboro, N. C., Sept. 15, 1936.

LAYMAN R. HARRISON, Long Island, N. Y., to Miss Claire C. Colligan of Morristown, N. J., Oct. 3, 1936.

JOHN WATTS FARTHING, Rochester, Minn., to Miss Esther Constance Tasa of Northfield, Sept. 26, 1936.

GLENN GREY PERRY to Miss Agnes Adelaide Williamson, both of High Point, N. C., in October 1936.

WILLIAM DEWEY HALL, Raleigh, N. C., to Miss Sue Ruth Hutto of Gaston, S. C., Oct. 17, 1936.

CRAWFORD DARY DUNHAM, New York, to Miss Margaret Todd of Butler, N. J., Oct. 17, 1936.

JOHN LOUDEN HILLHOUSE to Miss Virginia Jacobs, both of Birmingham, Ala., Oct. 10, 1936.

EDGAR LLOYD ROTHFUSS, Williamsport, Pa., to Miss Grace Clark of Carlisle, Sept. 8, 1936.

AL F. HOLLEY, Brewton, Ala., to Miss Vivian Thaxton at Porter in September 1936.

AUGUST M. HASEWINKLE, Markle, Ind., to Miss Rowena Dickman recently.



## Deaths

**Warren Stone Bickham**, formerly instructor in operative surgery at the Columbia University College of Physicians and Surgeons, New York, the New York Post-Graduate Medical School and Hospital and the New York Polyclinic Medical School and Hospital, aged 75, died Dec. 1, 1936, at his home in New York, of pneumonia and cardiovascular disease. Dr. Bickham was born in Shreveport, La., Aug. 23, 1861. He attended the University of the South, Yale University and the University of Louisiana and in 1887 received the M.D. degree from Tulane University of Louisiana Medical Department, New Orleans, and from the College of Physicians and Surgeons, Medical Department of Columbia College. For several years Dr. Bickham practiced in New Orleans, where he was visiting surgeon to the Charity Hospital, junior surgeon to the Touro Infirmary and demonstrator of operative surgery at Tulane. He later came to New York and, among other positions, was surgeon in charge of general surgery at the Manhattan State Hospital. He was the author of a well known textbook on "Operative Surgery," published in 1903, and seven volumes on "Operative Surgery," the last volume published in 1933. In 1906 he contributed sections on Amputations and Ligations in "Keen's System of Surgery." He had just completed a treatise on "Amputations and Artificial Limbs." Dr. Bickham was a fellow of the New York Academy of Medicine and of the American College of Surgeons. In 1925 he was awarded the honorary degree of doctor of laws by Tulane University.

**Charles Metcalfe Byrnes** • Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1906; member of the American Neurological Association; past president of the Philadelphia Neurological Society; demonstrator in anatomy at his alma mater from 1902 to 1903; instructor in clinical neurology in 1909 and associate since 1918; adjunct professor of anatomy at the University of Virginia Department of Medicine, Charlottesville, 1906-1909; lecturer in neuropathology at the University of North Carolina in 1935; neurologist to the Church Home and Infirmary; visiting neurologist to the Baltimore Eye, Ear and Throat Hospital; consulting neurologist to the Peninsula General Hospital, Salisbury, Md.; contributed to Forchheimer's *Therapeutics of Internal Diseases* in 1913 and Tice's *Practice of Medicine* in 1920; aged 55; died, Nov. 29, 1936.

**James Allison Hodges** • Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1883; member of the House of Delegates of the American Medical Association in 1923; emeritus professor of clinical, nervous and mental diseases at the Medical College of Virginia, and for many years president of the University College of Medicine; in North Carolina served as a member of the state board of health, associate editor of the *North Carolina Medical Journal*; fellow of the American College of Physicians; past president of the Richmond Academy of Medicine and member of the board of trustees; past president of the Medical Society of Virginia; in 1903 established the Hygeia Hospital and Sanatorium, which operated until 1920; aged 78; died, Dec. 15, 1936, at Greensboro, N. C.

**Thomas Long Catterson**, Spokane, Wash.; Detroit College of Medicine, 1887; member of the Washington State Medical Association; past president of the Spokane County Medical Society; fellow of the American College of Surgeons; at one time county physician and president of the city board of health; for many years on the staff of the Sacred Heart Hospital; aged 79; died, Oct. 20, 1936, of arteriosclerosis and senile dementia.

**William Louis Chapman** • Providence, R. I.; Boston University School of Medicine, 1897; member of the staff of St. Joseph's Hospital; on the editorial staff of the *Rhode Island Medical Journal*; was awarded the Alvarenga Prize of the College of Physicians of Philadelphia and the Fiske prizes of the Rhode Island Medical Society for various essays; music critic for local newspapers; aged 62; died, Nov. 15, 1936.

**William H. Bohart**, Vero Beach, Fla.; Rush Medical College, Chicago, 1891; formerly a practitioner in Chicago; at one time assistant clinical professor of surgery, Loyola University School of Medicine, Chicago; formerly on the staffs of St. Bernard's and Englewood hospitals, Chicago; for many years chief surgeon to the Chicago and Eastern Illinois Railroad Company; aged 67; died, Nov. 14, 1936.

**Alphonso Nicholas Codd**, Spokane, Wash.; Jefferson Medical College of Philadelphia, 1919; member of the Washington

State Medical Association, the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; aged 42; on the staffs of St. Luke's Hospital and the Sacred Heart Hospital, where he died, Oct. 31, 1936, of pneumonia.

**William B. Wolf** • Baltimore; College of Physicians and Surgeons, Baltimore, 1896; member of the American Urological Association; fellow of the American College of Surgeons; formerly associate professor of genito-urinary diseases, University of Maryland School of Medicine; on the staff of the Maryland General Hospital; aged 67; died suddenly, Nov. 1, 1936.

**James Joseph Boucher**, Hartford, Conn.; College of Physicians and Surgeons, Baltimore, 1904; member of the Connecticut State Medical Society; fellow of the American College of Surgeons; on the staff of the Mount Sinai Hospital and St. Francis Hospital; aged 61; died, Nov. 14, 1936, of an accidental gunshot wound, while hunting in Colombia.

**William Porter Ellis** • Painesville, Ohio; Cleveland Medical College, 1896; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1903; past president of the Lake County Medical Society; at one time member of the state legislature and coroner of Geauga County; aged 66; died, Nov. 8, 1936, of heart disease.

**Ray Arthur Edson**, Buffalo; University of Buffalo School of Medicine, 1907; member of the Medical Society of the State of New York, and the American Academy of Ophthalmology and Oto-Laryngology; assistant professor of ophthalmology at his alma mater; on the staff of the Buffalo General Hospital; aged 54; was found dead, Nov. 5, 1936.

**Jacob Clinton Atwell** • Butler, Pa.; Medico-Chirurgical College of Philadelphia, 1898; fellow of the American College of Physicians; past president of the Butler County Medical Society; served during the World War; on the staff of the Butler County Memorial Hospital; aged 62; died, Nov. 2, 1936, of pneumonia.

**Mary J. MacDuffee**, Devon, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; formerly on the staffs of the Children's and Polyclinic hospitals, Philadelphia; aged 86; died, Oct. 16, 1936, in the Presbyterian Hospital, Philadelphia, of arteriosclerosis and gangrene of the left leg.

**Ralph Raymond Harris** • Columbus, Ohio; Starling Medical College, Columbus, 1903; served during the World War; chief medical officer of the Veterans Administration in Cincinnati; on the staffs of the Grant and White Cross hospitals; aged 57; died, Nov. 12, 1936, of chronic myocarditis.

**Frank Webster Garber** • Muskegon, Mich.; Rush Medical College, Chicago, 1888; past president of the Muskegon County Medical Society; fellow of the American College of Surgeons; on the staffs of the Hackley Hospital and the Mercy Hospital; aged 77; died, Nov. 9, 1936, of coronary thrombosis.

**Joshua Shipley Devries** • Fremont, Neb.; Omaha Medical College, 1888; formerly county and city physician and coroner; past president and secretary of the Dodge County Medical Society; on the staff of the Lutheran Good Samaritan Hospital; aged 72; was found dead, Nov. 15, 1936.

**Edwin A. Long**, Johnson City, Tenn.; University of Louisville (Ky.) Medical Department, 1891; member of the Tennessee State Medical Association; at one time city health officer; on the staff of the Appalachian Hospital; aged 74; died suddenly, Oct. 27, 1936, at Palmer, Va., of myocarditis.

**William Albert Dearman** • Whitfield, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1906; fellow of the American College of Physicians; assistant superintendent of the Mississippi State Hospital; aged 58; died, Nov. 4, 1936, of a self-inflicted bullet wound.

**Thomas Vincent Buckley**, Girardville, Pa.; Medico-Chirurgical College of Philadelphia, 1910; member of the Medical Society of the State of Pennsylvania; deputy coroner; aged 52; died, Nov. 6, 1936, in the Sacred Heart Hospital, Allentown, of cerebral hemorrhage.

**Charles Eduard Max Fiseher**, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; formerly associate professor of medical biology, histology and embryology at his alma mater; aged 55; died, Nov. 16, 1936.

**H. Manning Brabham**, Ehrhardt, S. C.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; member of the South Carolina Medical Association; aged 70; died, Nov. 19, 1936, in the Tri-County Hospital, Orangeburg, of injuries received in a fall.

**Alton Bartlett Simonson**, Elsie, Mich.; Detroit College of Medicine and Surgery, 1926; member of the Michigan State Medical Society; on the staff of the Clinton Memorial Hospital, St. Johns; aged 35; was instantly killed, Oct. 22, 1936, in an automobile accident.

**Joseph P. Smyth** • Chicago; Rush Medical College, Chicago, 1888; clinical professor of medicine, Loyola University School of Medicine; on the staffs of St. Bernard's Hospital and the West Side Hospital; aged 74; died, Dec. 15, 1936, of coronary thrombosis.

**Fairfax Irwin** • Senior Surgeon, U. S. Public Health Service, Washington, D. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1877; served during the World War as adviser on sanitation for the U. S. Navy; aged 82; died, Oct. 28, 1936.

**William Frederick McBride** • Dayton, Ind.; Rush Medical College, Chicago, 1895; past president of the Tippecanoe County Medical Society; aged 65; died, Oct. 4, 1936, in a hospital at Lafayette, of a benign tumor of the prostate and myocarditis.

**Mott Hunton Arnold**, San Diego, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; member of the California Medical Association; aged 53; died, Dec. 9, 1936, of coronary sclerosis.

**Francis Marion Davis** • Greenville, N. C.; Harvard University Medical School, Boston, 1931; on the staff of the Pitt Community Hospital; aged 32; was instantly killed, Nov. 15, 1936, in an automobile accident near Morehead City.

**James Edmund Downs**, San Diego, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; Rush Medical College, Chicago, 1889; aged 82; died, Oct. 16, 1936, of hypostatic pneumonia and chronic myocarditis.

**Walter Louis Finn**, Iuka, Ill.; Missouri Medical College, St. Louis, 1899; member of the Illinois State Medical Society; state senator; served during the World War; aged 61; died suddenly, Nov. 7, 1936, of angina pectoris.

**Allen Collins Butterfield** • Grand Rapids, Mich.; Grand Rapids Medical College, 1906; aged 59; on the staff of St. Mary's Hospital, where he died, Nov. 13, 1936, of embolism, following an operation for appendicitis.

**Edward Alfred Brace**, Ellington, Conn.; University of Vermont College of Medicine, Burlington, 1911; served during the World War; aged 57; died, Oct. 22, 1936, in the Veterans Administration Facility, New York.

**John D. Dunham**, Pattonsburg, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; member of the Missouri State Medical Association; formerly member of the state legislature; aged 81; died, Oct. 6, 1936.

**Starr Ford**, Cincinnati; Medical College of Ohio, Cincinnati, 1897; formerly instructor in medicine at the University of Cincinnati College of Medicine; served during the World War; aged 71; died, Nov. 16, 1936.

**Theodore Tillman Shackelford**, Haskell, Okla.; University of Louisville (Ky.) Medical Department, 1910; past president of the board of education; served during the World War; aged 50; died, Oct. 18, 1936.

**Charles Roy Vickery**, South Bend, Ind.; Hahnemann Medical College and Hospital, Chicago, 1901; member of the Indiana State Medical Association; aged 65; died, Oct. 10, 1936, of coronary thrombosis.

**William S. Stewart**, Finleyville, Pa.; Medico-Chirurgical College of Philadelphia, 1887; served during the World War; past president of the board of education of Braddock; aged 72; died, Oct. 19, 1936.

**John A. Tuthill**, Le Roy, Ill.; State University of Iowa College of Medicine, Iowa City, 1881; formerly mayor and member of the school board; aged 81; died, Oct. 7, 1936, of angina pectoris.

**Edward Richardson Gardner** • Montrose, Pa.; Jefferson Medical College of Philadelphia, 1882; secretary of the Susquehanna County Medical Society; aged 83; died suddenly Nov. 3, 1936.

**Norman Halkier Goodenow**, Los Angeles; Rush Medical College, Chicago, 1892; member of the California Medical Association; aged 66; died, Oct. 14, 1936, of subacute bacterial endocarditis.

**Mearle C. Fox**, Westlake, Ore.; Willamette University Medical Department, Salem, 1909; member of the Pacific Coast Oto-Ophthalmological Society; aged 54; died, Oct. 31, 1936, in Los Angeles, of heart disease.

**Willis Wade Rutland**, Lagrange, Ga.; Southern Medical College, Atlanta, 1889; aged 73; died, Oct. 24, 1936, in the Dunson Hospital, of pyelonephritis and hypertrophic prostatitis.

**John Irvin Gossett**, Rule, Texas (registered by Texas State Board of Medical Examiners, Act of 1907); aged 61; was found dead in bed, Oct. 24, 1936, of coronary thrombosis.

**George W. Torrey**, Chicago; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; also a dentist; aged 65; died, Dec. 12, 1936, of coronary thrombosis.

**John Logan Avey**, Los Angeles; University of Louisville (Ky.) Medical Department, 1891; served during the World War; formerly state senator; aged 71; died, Oct. 17, 1936.

**Joseph Henry Witt**, Waco, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1885; aged 80; died, Oct. 27, 1936, in a local hospital, of senility.

**Henry Adolph Siebenborn**, Brooklyn; Cornell University Medical College, New York, 1899; aged 76; died, Oct. 26, 1936, of carcinoma of the right lung and arteriosclerosis.

**Henry S. Hadsel**, Oxford, Ohio; College of Physicians and Surgeons, Keokuk, Iowa, 1882; member of the Iowa State Medical Society; aged 84; died, Oct. 6, 1936.

**Neils Alfred Peterson**, Soldiers Grove, Wis.; Milwaukee Medical College, 1901; member of the State Medical Society of Wisconsin; aged 59; died, Oct. 30, 1936.

**Albertus G. Greenawalt**, Runnells, Iowa; Kentucky School of Medicine, Louisville, 1893; aged 68; died, Oct. 13, 1936, in Des Moines, of carcinoma of the pancreas.

**Elisha L. Lee**, Bridgeport, Ala.; University of Nashville (Tenn.) Medical Department, 1872; for many years bank president; aged 96; died, Oct. 16, 1936.

**Thomas E. V. Fariss**, Fairfield, Iowa (licensed by Iowa State Board of Medical Examiners in 1886); aged 90; died, Oct. 15, 1936, of myocarditis.

**Harold Talbot Cartwright**, East Rockaway, N. Y.; Long Island College Hospital, Brooklyn, 1917; aged 47; died, Oct. 25, 1936, of coronary occlusion.

**John Eddowes Beebe**, Chicago; Gross Medical College, Denver, 1895; aged 84; died, Nov. 14, 1936, of coronary thrombosis and arteriosclerosis.

**John Francis Keenan**, Brentwood, Md.; Howard University College of Medicine, Washington, D. C., 1885; aged 79; died suddenly, Oct. 12, 1936.

**Robert Wilfred Moss Clark**, Niagara Falls, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1934; aged 32; died, Oct. 25, 1936.

**James Percival Leahy**, New Bedford, Mass. (licensed in Massachusetts in 1902); aged 61; died, Oct. 31, 1936, of coronary thrombosis.

**Samuel Breese Smith**, Chicago; Dartmouth Medical School, Hanover, N. H., 1893; aged 73; died, Oct. 8, 1936, of cerebral hemorrhage.

**Lewis Gaddy**, Los Angeles; University of Tennessee Medical Department, Nashville, 1905; aged 66; died, Oct. 22, 1936, of arteriosclerosis.

**John Scoular Goodfellow**, Morrisburg, Ont., Canada; Trinity Medical College, Toronto, 1894; aged 65; died in October 1936.

**Melbourne F. Keith**, Moncton, N. B., Canada; University of the City of New York Medical Department, 1882; died in October 1936.

**Willis A. Mansfield**, Washington, Ill.; Chicago Medical College, 1884; aged 78; died suddenly, Oct. 30, 1936, of heart disease.

**Frank Lewis Anderson**, McIntire, Iowa; Louisville (Ky.) Medical College, 1893; aged 67; died, Oct. 20, 1936, of erysipelas.

**Henry L. Bartlett**, Templeton, Calif.; Northwestern University Medical School, Chicago, 1901; aged 66; died, Oct. 5, 1936.

**Alonzo L. Share**, Oklahoma City; Detroit College of Medicine, 1892; aged 72; died, Oct. 6, 1936, of cerebral hemorrhage.

**E. W. Robberson**, Gainesville, Texas (licensed in Texas under the Act of 1907); aged 85; died in October 1936.

**Jacob Jacobson**, St. Louis; Missouri Medical College, St. Louis, 1892; aged 67; died, Oct. 31, 1936, of heart disease.

**Milton B. Deck**, Bennet, Neb.; University of Maryland School of Medicine, Baltimore, 1879; died, Oct. 4, 1936.

## Correspondence

### ACCELERATED SERUM SICKNESS

*To the Editor:*—In their article on "The Therapy of (Horse) Serum Reactions" in *THE JOURNAL*, Nov. 21, 1936, Fantus and Feinberg state that the symptoms of "accelerated serum sickness" are "similar to those described under serum sickness" and that "the manifestations may differ in no way from those previously described in serum sickness, but usually they are much more severe and alarming."

Some authorities on this subject still confuse two entirely different phenomena; namely, allergic shock and serum sickness. The only symptom in common is urticaria and even this symptom is occasionally lacking. (Waldbott, G. L.: *The Prevention of Anaphylactic Shock with a Study of Nine Fatal Cases*, *THE JOURNAL*, Feb. 6, 1932, p. 446.) Allergic shock is always the result of a previously existing sensitization, regardless of whether or not it is inherited or acquired, and is characterized only by allergic symptoms. This reaction is due to an overdose of antigen above the individual's tolerance and—as it does in the anaphylactic animal experiment—it establishes a greater protection against the antigen in the patient. It is true that occasionally death has occurred so rapidly, particularly following intravenous or accidentally intravenous injections, that no symptoms could be observed. While such a situation accounts for greater difficulties in diagnosis, my experience with reactions following injections of pollen extract has given me sufficient clinical data to identify such an asymptomatic reaction definitely with allergic shock. The other type of reaction ("serum sickness" or "serum disease") is the expression of certain immunologic changes in the system of the non-allergic or allergic person which, as the authors admit, renders the individual either sensitive or more sensitive to this antigen. Its clinical course parallels closely that of an acute infection with hyperpyrexia and joint and glandular swelling and is at great variance with any manifestations observed in allergic diseases. The two types of reaction behave in the same characteristic manner regardless of what antigen is injected. (Waldbott: "Allergic" Shock from Substances Other Than Pollens and Serums, *Ann. Int. Med.* 7:1308 [April] 1934.)

Various other statements in this article are open to criticism: In view of the fundamental experiments of Bret Ratner, many find it difficult to adhere to the old theory that allergic shock can occur only in naturally sensitive individuals and that the same symptom complex should be called "anaphylactic" shock if the patient's sensitivity is assumed to be acquired. This more or less theoretical question becomes of profound practical importance when the authors advocate, as they do, a different treatment for both types of shock and state that to the "naturally sensitive" patient no horse serum should be given "under any circumstances or in any way." Even if a distinction between acquired and natural sensitivity on the basis of different types of antibodies and heredity were possible, there is not the slightest evidence either experimentally or clinically that human sensitivity responds differently to treatment according to its origin. I believe this is true regardless of whether or not man can be "completely" desensitized in contrast with the anaphylactic animal, an observation which is partially responsible for the distinction of "anaphylactic" and "allergic" shock.

The authors do not state that "accelerated serum sickness" is actually an intensified form of allergic shock which is due either to an accidental puncture of, and injection into, a small vein or to extreme sensitivity to serum which is administered subcutaneously. Accordingly, they do not discuss one of the most useful measures for preventing these dangerous reactions, namely, the guarding against an accidental puncture of venules, by selecting the proper site of injection, by repeated with-

drawals of the plunger before and during the injection for evidence of blood, by watching for bleeding after the injection, and by other precautions recently outlined elsewhere by M. S. Ascher and myself (*The Role of Accidental Puncture of Veins in the Production of Allergic Shock*, *Ann. Int. Med.* 9:1232 [March] 1936).

The value of rapid hyposensitization cannot be summarily dismissed, as it is done by the authors, merely because its original technic as advocated by Bcsredka and Freeman is not devoid of danger. There is increasing evidence that this method can be carried out as a safe procedure. Since our preliminary report on this subject (*Rapid Hyposensitization*, *J. Allergy* 6:93 [Nov.] 1934), Ascher and I have studied more than 300 patients treated with this method. We found that rapid hyposensitization is not only safe but in many instances the method of choice when quick action is needed. The key for its success lies in observing the following points: the starting with a sufficiently low dose, the careful gaging of subsequent doses, and the adjustment of the time interval between injections as determined by the degree of the local swelling from each individual injection.

GEORGE L. WALDBOTT, M.D., Detroit.

### THE INDIFFERENCE OF OUR MEDICAL SCHOOLS TO CAREERS IN PUBLIC HEALTH

*To the Editor:*—A recent inquiry into progress of New Mexico medical students in the field of public health reveals an astonishing lack of interest on the part of the deans of our medical schools in public health as a career for their future graduates.

In the last Educational Number of *THE JOURNAL* (Aug. 29, 1936, p. 664) was given a list of the medical schools showing the students registered by the state of their birth. It happens that in New Mexico only physicians who have lived for two years in this state are eligible for positions in the field of public health. In order that a record of eligible physicians in the younger age groups might be available in our office, I wrote to the dean of each school where New Mexico students are registered the following letter:

On page 664 of the Educational Number of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* I find that .... New Mexico students are registered in your school. I am very anxious to keep a record of the medical students from this state who may possibly become interested in public health service in order that the most promising of them may have an opportunity of postgraduate study in public health at the expense of the state if they are unable to afford such postgraduate study themselves. To this end I have prepared a card index and am enclosing herewith the cards relative to the students in your school and would be very grateful if you would be so good as to have them completed and returned to this office.

Of the nineteen so addressed, five did not answer at all. Of the remaining fourteen, only three replied to the inquiry regarding the student's interest in a career in public health, unless it was to say that of course they could not reply to this inquiry. Most deans apparently made the assumption that we should ask the student himself about his interest. While there was a general spirit of willingness to cooperate in this investigation on the part of the deans, only three medical schools showed a sense of responsibility in seeking to secure for their graduates an opportunity to pursue a career in public health. They were the University of Chicago, the University of Colorado and the College of Medical Evangelists in Los Angeles.

It is not clear whether this indifference to the student's future career is limited to the field of public health or whether perhaps deans of medical schools differ from the deans of other schools in feeling that a student's future career is entirely his own business and that the university has no responsibility in regard thereto.

J. ROSSLYN EARP, DR.P.H., Santa Fe, N. M.  
Director, New Mexico Bureau of Public Health.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### GLYCOSURIA IN PNEUMONIA AND OTHER INFECTIONS

To the Editor:—July 14, 1936, I sent to the hospital a youth of 20, very sick with left lower lobar pneumonia, marked cyanosis, a temperature of 103 F., pulse 130, respiration 48, pink sputum, vomiting frequently for the past two days, and taking almost no nourishment. At the hospital, oxygen was at once administered. The white blood count was 23,500 and blood sugar 0.166 Gm. per hundred cubic centimeters. The pneumonia proved to be type II. Immediately I had 10 units of insulin given by hypodermic injection, repeated three times daily for the next two days and then reduced to 4 units for two days, with none thereafter. The blood sugar on admission at noon after two days of vomiting was 0.166 Gm.; next morning (the 15th) it was 0.136 Gm., on the 16th it was 0.090 Gm. before breakfast and on the 20th after breakfast it was 0.111 Gm., the day of discharge from the hospital. The patient had no history of diabetes. Urine specimens were negative for sugar. He never cared for sweets. In THE JOURNAL, Jan. 18, 1936, page 259, is a brief abstract from Moscow telling of Drs. Sinelnikov, Perchik and Doroklova testing twenty-three cases of pneumonia, all showing high blood sugar and recovery occurring in all but one on the administration of insulin. I have not been able to locate other studies of blood sugar in pneumonia or severe acute colds. As a result of my observation I should invite further studies. A number of problems present themselves: 1. Is high blood sugar frequently present in pneumonia cases? If so, would not this provide a good growth medium for the offending bacteria? 2. If the blood sugar is usually high in pneumonia cases should not insulin be a natural additional weapon in combating pneumonia? 3. If high, when did blood sugar rise in any case of pneumonia? Was it during the prepneumonic upper respiratory infection? If so, could early giving of insulin possibly be a new means of preventing some pneumonias? 4. In the cases of high blood sugar, what is the cause of the sudden hypo-insulinemia (if it is such), toxemia, anoxemia or otherwise? Numerous other questions could be suggested. Owing to the remarkably speedy recovery in the case reported following the mentioned observation, I felt that widespread good could come to other physicians handling similar cases and possibly stimulate the study of blood sugars in pneumonias in various centers of the country. HENRY RAILE, M.D., Salt Lake City.

ANSWER.—Transient glycosuria has often been noted in infectious diseases. It has been found in diphtheria, scarlet fever, typhoid, influenza, infections with suppuration, Asiatic cholera, malaria, carbuncle or gangrene, and pneumonia.

A lowered dextrose tolerance was reported by Hamman and Hirschman in lobar pneumonia and acute tonsillitis (*Arch. Int. Med.* 20:761 [Nov.] 1917). Abnormal blood sugar curves in many acute infections were found by Olmsted and Gay, by Labbé and Boulin and by Andresen and Schmidt. Patients with oral sepsis or general sepsis frequently have a lowered carbohydrate tolerance. A deficient metabolism of carbohydrates has been described by Pemberton in arthritis.

Animal experiments by Rosenthal, by Tisdall, Drake and Brown, by Sweeney and Lackey and by Williams and Dick also indicate a decreased tolerance for dextrose in experimental infections.

It is now well known that infections in patients with diabetes mellitus cause a marked reduction of dextrose tolerance, and large doses of insulin are necessary to control an acidosis in such patients. An acute infection may be the precipitating cause of coma in a diabetic patient. Diabetes not infrequently develops after some acute infectious disease (typhoid, scarlet fever, influenza, diphtheria, tonsillitis, syphilis, rheumatic fever, mumps, focal infection, pneumonia). Diabetes may accompany or follow an acute pancreatitis, and some writers claim a relationship to gallbladder disease.

The toxemia of infectious diseases most likely reduces the production of insulin, as insulin injections restore the carbohydrate tolerance. The toxic products of many bacteria have a harmful effect on the islets of Langerhans and may either cause diabetes mellitus to develop or aggravate the disease if it is already present. In any infectious disease in which a definite disturbance of carbohydrate metabolism develops, insulin will be of value in sparing the islets and thus aid in the recovery or regeneration of these structures.

Williams and Dick (*Arch. Int. Med.* 50:801 [Dec.] 1932) studied the dextrose tolerance in 108 patients with acute infectious diseases. There were eight cases of pneumonia. The amount of dextrose in the twenty-four hour urine averaged 1.66 Gm. Three of these patients were reexamined after the crisis, with an average of 0.83 Gm. In two patients the reduced

tolerance persisted long after recovery from the pneumonia and it was necessary to restrict carbohydrates for several weeks. In two of five influenza patients there was a decided loss of tolerance. These two authors found that in patients with acute infections the most marked decrease in tolerance usually occurred in those who were severely ill or who had complications, or in those in whom two or more contagious diseases occurred in quick succession. The fasting blood sugar was found to be high in some cases of pneumonia. Warren and Root (*Am. J. Path.* 1:415 [July] 1925) have described necrosis of the islet cells in pneumonia.

From the data it is evident that a temporary glycosuria occurs in many acute infectious and contagious diseases. This is accompanied by an increased fasting blood sugar and reduced carbohydrate tolerance. There is most likely some damage to the islets of Langerhans with a reduced insulin production. The decreased tolerance may last for weeks or months. Insulin injections improve the tolerance for dextrose.

A high blood sugar is often found in pneumonia, and in such patients the use of insulin would be of definite value. The tendency to feed large amounts of carbohydrate may be a factor in exhausting the islet cells.

Insulin is an additional weapon in combating pneumonia in diabetic patients only so far as it improves the metabolism and general condition of the patient and thus increases resistance to the pneumococcus. It has been demonstrated that types I and II pneumococci are rarely found in healthy throats but are often found in the throats of persons in contact with type I and II pneumonia patients. Individuals who are exposed to pneumococci and who do not possess sufficient immunity will contract the disease.

The blood sugar rise in pneumonia is due to the toxemia and therefore develops after invasion of the lung and perhaps the blood stream by pneumococci. It cannot at present be stated that a prepneumonic infection of the upper respiratory tract leads to pneumonia because it sometimes causes a rise in the blood sugar. The prevention of pneumonia is based on a satisfactory immunization against the toxic agent of the pneumococcus and isolation of the patients with this disease.

In the cases presenting a high blood sugar the cause of the hypo-insulinemia is most likely damage to the islets of Langerhans produced by the toxic polysaccharides found in the capsule of the pneumococcus.

### ASTHMA

To the Editor:—Please describe the procedure in testing the sensitivity of patients suffering from asthma from causes in the home. Is any new symptomatic treatment being given now? I will appreciate any information with regard to the newer views and treatment of patients with asthma. Please omit name if published. M.D., Georgia.

ANSWER.—Several procedures may be followed. The safest method is to do scratch tests first. This consists of scarifying the skin, going through only the most superficial layers and being very careful not to draw blood. Twentieth normal sodium hydroxide is applied to the scratch and a small quantity of the dried allergen is rubbed into the sodium hydroxide. These materials may be purchased through several of the drug houses. The most common inhalant offenders are cottonseed, kapok, wool, silk, house dust, feathers, orris root, pyrethrum, mohair, cow hair, dog hair, cat hair, horse dander, rabbit hair and flax seed. If these are negative, intracutaneous tests with sterile liquid extracts may be tried, the prescribed concentrations being used. A further procedure that may be used is to take samples of various materials in the home, soak them in twentieth normal sodium hydroxide for a few hours, and use the supernatant fluid for scratch tests.

If any materials give reactions, they should be completely removed from the environment. If this is impossible, such objects as mattresses and pillows may be covered with rubberized cloth, with double stitching and tape used over the seams.

Of course, complete pollen and food tests should also be done. Molds have been shown to be factors in the etiology of some cases of asthma and should also be used in testing such a case.

The foods that react positively are eliminated from the diet. The pollens and molds that react are used for treatment.

For symptomatic treatment epinephrine hypodermically and ephedrine orally are still most important. Epinephrine may also be given by inhalation in 1:100 solution in a special nebulizer (De Vilbiss No. 44). Sedatives, as bromides, the barbiturates or chloral hydrate, are frequently of marked benefit. In intractable asthma, whisky, especially at night, tends to relieve the spasm.

Vaccines (autogenous or stock) may be used intracutaneously in gradually increasing doses.

Nonspecific protein therapy by means of injection of peptone, typhoid vaccine or milk protein may be used.

If inhalants such as house dust are used in treatment, they are best given intracutaneously.

Recently several reports on desensitization with histamine have appeared in the literature (Dszulich, A.: *Klin. Wchnschr.* 14:1593, 1935). Iodized oil instilled into the trachea has yielded good results in cases in which bronchiectasis is associated (Anderson, W.: *J. Allergy* 4:44 [Nov.] 1932). Inhalation of helium gas has been reported (Barach, A. L.: *Ann. Int. Med.* 9:739, 1935); also carbon dioxide inhalation (Farago, P.: *Ztschr. f. d. ges. exper. Med.* 91:114, 1933), acid therapy (Beckman, H.: *J. Allergy* 1:496 [Sept.] 1930), desiccated suprarenal gland (Barbour, D.: *Arch. Pediat.*, March 1, 1936), dextrose intravenously (Matzger, E.: *J. Allergy* 3:599, 1932) and ether anesthesia in intractable asthma (Troisier, J., and Boquien, Y.: *Bull. et mém. Soc. méd. d. hôp. de Paris* 47:310 [March 2] 1931).

#### LYMPHEDEMA OF LEGS

*To the Editor:*—A woman, aged 45, has had swelling of the right leg from the knee downward, for the past two years. In the morning the swelling is down, but toward evening the right leg is twice the size of the left leg. The swelling does not pit on pressure and the leg does not produce pain. The surface temperature seems the same as on the left leg. The only complaint the patient has is that she resents the massiveness and appearance of the limb when reminded by her friends of the difference in size. She refuses to wear an elastic stocking. When she came to me on her first visit I ruled out hernia and appendicitis. No operations had been performed. There was no liver enlargement, abdominal disturbance, dysuria, nocturia or urinary frequency. The specific gravity of the urine was 1.030. There was no albumin or sugar. Blood pressure was 150 systolic, 80 diastolic. Treatment consisted of Diuretic no. 1, Niemeyer's blue mass squill and digitalis, 1 grain (0.065 Gm.), one tablet every four hours for four days, Apiol and Digitalis tablets made by Upjohn, potassium citrate, 5 grains (0.3 Gm.), one of each after meals with one-half glass hot water. One week later the blood pressure was 140/82, the leg was less swollen, and the medication seemed to improve the condition. One month later she returned for treatment again. In the meantime she had the foot roentgenographed and it showed no bony pathologic changes or misplacements. A foot specialist taped the foot and prescribed an ankle to be worn. Every time I repeat the medication the leg becomes less swollen; as soon as medication ceases, the swelling returns. If the kidney is responsible for this impaired circulation, why doesn't the edema appear bilateral? Could a stricture of the saphenous opening be a cause for this condition? The patient has had one child; could there be an association of childbirth with this condition? The impairment of circulation seems to be localized, and the peculiar thing is that there is no pitting on pressure. Could this be one of those rare cases in which there is an impairment in the circulation of the lymphatics; but wouldn't this cause pitting? If there is a cirrhosis of the liver present, shouldn't there be a bilateral phenomenon rather than a localized condition? I am at a loss to inform the patient as to the cause of the swelling and I don't want to resort to the continued use of pills to allay the condition but would rather have you advise me as to how I should handle the case and advise the patient accordingly. I did not examine this woman internally to ascertain the presence of a fibroid, which might be responsible to vessel pressure internally and may cause impeded circulation.

P. R. EVANS, M.D., Tower City, Pa.

*ANSWER:*—The fact that only one leg is involved and that there is no evidence of constitutional disease, particularly of the heart or kidneys, strongly suggests that the swelling is due to local disease. Such a condition could arise as a result of chronic venous insufficiency caused by old thrombophlebitis or obstruction of the iliac vein from pressure, such as that exerted by a pelvic tumor. In thrombophlebitis the onset of swelling in the leg is usually fairly abrupt. In venous insufficiency that is caused by external venous pressure, it is more gradual. In either event the superficial veins of the lower part of the affected leg should be abnormally prominent and should empty more slowly than those of the other leg on elevation of the legs above the level of the heart. A more likely possibility is that this is a case of chronic lymphedema. In lymphedema it may be difficult to demonstrate actual pitting of the skin. The skin becomes coarse and thick, and the superficial fascia becomes markedly thickened and fibrotic. A roentgenogram taken for detail of the soft tissue will reveal the presence of a marked mottling in the subcutaneous region, caused by lymph pockets. Lymphedema may be attributable to recurrent episodes of lymphangitis of the skin which simulate local erysipelas. It may be caused by sclerosis of the iliac and inguinal lymph nodes resulting from lymphangitis, or it may be caused by invasion of the pelvic lymph vessels and lymph nodes by malignant tumors. Some cases of lymphedema are associated with trichophytosis of the feet, but in this type, as well as in the type that is caused by filariasis, there are usually recurrent episodes of lymphangitis and lymphadenitis. In another group are the congenital and hereditary types of lymphedema. A still further group, designated as lymphedema praecox, appears without any

recognizable etiologic factor. (Allen, E. V., and Ghormley, R. K.: *Lymphedema of the Extremities: Etiology, Classification and Treatment*; Report of 300 cases, *Ann. Int. Med.* 9:516 [Nov.] 1935.) In lymphedema it is usually possible to demonstrate some reduction in the size of the leg after the patient has been placed in bed, with the leg elevated to an angle of 30 degrees for forty-eight hours, but on account of the proliferating fibrosis in the superficial fascia the leg does not return to normal size, even after prolonged elevation. The only satisfactory treatment for lymphedema consists in the use of heavy elastic stockings or bandages, and operation of the Kondoleon type.

#### EFFECTS OF EXERCISE TEST ON EXTRASYSTOLES, MURMURS AND DIASTOLIC PRESSURE

*To the Editor:*—Kindly give your interpretation of the following in *Queries and Minor Notes*: Extrasystoles that do not disappear or even appear after the heart tolerance test, consisting of fifteen bends or twenty-five hops. Systolic murmurs that disappear in youth after the exercise test; also systolic murmurs, "no other heart findings," which disappear after exercise at the age of 40 or over, also drop in the systolic pressure after exercise test. It was stated that it is normal for the diastolic pressure to be elevated after the exercise test. My experience has been that it often drops even in young adults.

H. M. STRACHAN, M.D., Cleveland.

*ANSWER:*—Premature ventricular contractions will usually disappear during the exercise but reappear in the rest following the exercise. Occasionally, when not present before the exercise, they may appear in the rest after the exercise. Premature auricular contractions may follow a similar course or may appear after exercise and be more frequent after exercise and not disappear, or they may even first appear during exercise.

Systolic murmurs come and go with changes in tonus of the heart muscle or relative changes in different portions of the heart muscle. They may disappear after exertion as tonus increases or appear with conditions that decrease tonus, or because of the increased minute volume of blood passing through the valves.

Diastolic pressure usually follows the systolic and is usually more elevated following exercise. A fall in diastolic pressure after exercise has been assumed by some to be an index of myocardial damage. This may be true in some cases, but other normal physiologic factors may also be factors, and it is not safe to base an opinion on this alone.

#### AUSCULTATORY DETERMINATION OF BLOOD PRESSURE

*To the Editor:*—Will you please explain to me the following: In life insurance examinations with reference to blood pressure, I notice that they say diastolic fourth point and diastolic fifth point. Just what is meant by that?

JOSEPH HALTON, M.D., Sarasota, Fla.

*ANSWER:*—In the auscultatory determination of the arterial tension, five distinct phases of sound are heard. Each phase may vary considerably in duration and character, but the sequence is invariable. With inflation of the cuff to pressure above the systolic level, no sound is heard at the cubital fossa; but as the cuff is deflated one hears first sharp staccato clicks, which resemble normal cardiac sounds. This is the first phase, and the pressure at which these clicks appear is taken as the systolic pressure. The second phase is longer than the first and the sounds are best described as hissing or blowing murmurs. These arise because of whorls and eddies in the blood below the point of constriction. These sounds are transitory and disappear if constriction is maintained at this level of pressure. Occasionally, despite relatively rapid deflation, the sounds of the second phase disappear to cause the "auscultatory gap"; this phenomenon presumably occurs only in instances of hypertension and/or aortic stenosis. The transition to the third phase of sound is normally not sharply defined; the murmurs change to dull thuds, distinctly louder. The character of the thuds heard in the third phase varies with the condition of the arterial wall. When hypertonus of the artery exists and the walls are tense and rigid, the tones are louder than when the wall is relatively flaccid. The fourth phase appears when the thuds are abruptly muffled. The fourth phase is usually quite short and is soon followed by silence, which is the fifth point of change. Occasionally the fourth phase is prolonged and there is a considerable span between the appearance of muffling (fourth point) and silence (fifth point).

For many years the insurance companies were in the habit of requesting their examiners to determine the diastolic tension at the fifth point (in other words, at the disappearance of sound). However, it has been demonstrated repeatedly that this is incorrect. The true diastolic tension should be read at



the onset of the fourth phase, where the booming thuds are suddenly muffled. The average difference between these two points is about 5 mm. of mercury, but the error may be as much as 55 mm. As rating tables were based on the original fifth point diastolic tension, underwriters felt that the error was compensated for. It is wrong, nevertheless, to correct one error by introducing another. The present tendency of insurance medical directors to request both readings at the fourth and fifth points is to obtain figures for revision of their statistical data. The length of the fourth phase is variable and thus the error introduced by fifth point readings is inconstant. Just how inconstant this is can best be demonstrated by thousands of observations.

#### "C. N." DISINFECTANT AS INDUSTRIAL HAZARD

To the Editor:—I have recently had a case of gangrene of the fingers. This apparently occurred after exposure to a solution of C. N. in hot water. Would you kindly let me know the chemical composition of this product and whether there have been any case reports in the literature of gangrene following its use. Kindly omit name and address.

M.D., New York.

ANSWER.—C. N. is a coal tar disinfectant believed to be manufactured by the West Disinfecting Company and said to represent creosote containing aromatic hydrocarbons of double nucleus, the pyridine and chinoline bases, and the three isomeric cresols—ortho-, meta- and para-. Of the three cresols the ortho- and the para- are more toxic than phenol. Tricresol is a mixture of the isomeric cresols and is about nine-tenths as toxic as phenol. Saponated solution of cresol is a somewhat similar mixture of coal tar cresols along with soap solution. From the work of C. D. Harrington (*THE JOURNAL*, Feb. 13, 1909, p. 575) it may be recognized that the local effects of cresol are similar to those produced by phenol. Since phenol is well recognized as a source of gangrene, it is a tenable belief that cresols likewise may produce gangrene under conditions of appropriate exposure. Naturally, the probability of damage from cresols increases with the strength of the solution to which exposure is provided. Extensive discussion of the toxic properties of cresols (but without reference to C. N.) may be found in "Legal Medicine and Toxicology," by Peterson, Haines and Webster (ed. 2, Philadelphia, W. B. Saunders Company, 1926, second volume) and "Occupation and Health" (Geneva, International Labor Office, 1930, first volume).

#### EXOPHTHALMIC GOITER

To the Editor:—A girl of 16 is suffering from hyperthyroidism of probably a year's duration. The basal metabolism before treatment was plus 39 and after three weeks' bed rest, iodine therapy and ample diet was plus 17, with increase of weight from 109 to 121 pounds (49 to 55 Kg.) and improvement in well being, although nervousness, fatigue and emotional instability persist. The pulse at rest is 90. The heart shows no evidence of hypertrophy or impairment, although after an effort test the pulse failed to return to the previous rate in three minutes. The blood pressure remains 120 systolic, 72 diastolic. There is no evidence of other illness, except for a negative Wassermann reaction with plain antigen, 4 plus with cholesterinized antigen and 1 plus with the Kahn test. However, nothing in the history or examination tends to corroborate this observation. A thyroid specialist advises against roentgen therapy, as he says that results are too dubious and subsequent operation would be made very difficult as a result of fibrosis. Any advice you may give me as to my further handling of this case will be appreciated, especially as to the preference of irradiation or surgery. Kindly omit name.

M.D., New Jersey.

ANSWER.—The administration of iodine apparently does not eliminate the underlying factor responsible for exophthalmic goiter or primary hyperthyroidism, if one prefers so to designate this disease. Iodine, however, does control to a varying degree the symptoms of exophthalmic goiter. In a small proportion of cases it temporarily lowers the basal metabolic rate to within normal limits and for the time being completely eliminates the symptoms; later, in spite of the continued use of iodine, the basal metabolic rate returns to abnormally high levels and the symptoms recur. In a still smaller proportion of the cases, the basal metabolic rate remains within normal limits and the symptoms are completely controlled as long as the use of iodine is continued.

In those cases in which iodine either temporarily or permanently eliminates the symptoms, such complete control usually, but not always, results within two weeks following the institution of treatment. In the case described, however, iodine has not completely controlled the symptoms and the basal metabolic rate still is plus 17 per cent even though iodine has been administered for a period of three weeks. Furthermore, the rapid gain in weight that occurred in this case is not necessarily an indication that the disease is being controlled. In many cases

of exophthalmic goiter, particularly in girls, a rapid gain in weight may occur during a period when the basal metabolic rate is very high and when the disease is progressing; the weight may reach a level that is well above the individual's normal weight.

If in this case the diagnosis is correct and the criteria are all as they appear to be, a partial thyroidectomy would seem to be the treatment of choice. This conclusion would be materially strengthened if palpation revealed that each lobe of the thyroid gland was sufficiently large to be readily grasped between the thumb and fingers of the examining hand and if the lobes were found to be relatively firm to palpation. The positive serologic tests in this case may be false positives. The case should be reconsidered from this angle, however, after the symptoms of exophthalmic goiter have subsided, in the course of from two to four months, and possibly an examination of the spinal fluid should be made.

#### MULTIPLE SCLEROSIS

To the Editor:—A white man, aged 32 years, fell down some steps eight years ago. He noted no ill effects at the time but two months later his right foot seemed to slap when walking. This sensation gradually changed to one in which the leg felt dead and dragged when he walked. There was no loss of sensation, pain, heat or position. He had no pain but had frequent cramps. In two months the condition passed suddenly and he had almost complete relief. Approximately every six months he has had similar attacks in the legs alternately. These attacks usually followed family arguments. During one of the early attacks he had a sensation of a "loose sack about his abdomen . . . as though his shirt were hanging out." He had difficulty in retaining his stool, which was normal in consistency and frequency. He had no urinary disturbances. The attacks are sudden in onset and last from three to four weeks. He has occasional attacks of tachycardia. The present attack (four weeks in duration) involves both legs and arms, which had never been involved before. The leg symptoms are similar to those described. In the arms there is a numb sensation from the elbows down. He feels that the hands are swollen. He has trouble picking up small objects, but there is no loss of grip or strength. Sensations of heat, cold and pain are unchanged. There is no pain. The abdomen feels as though it were overloaded. He has had numerous blood Wassermann tests, all of which proved negative. He refuses to have a spinal fluid examination. There is no history of venereal infection. His wife, two children, brothers and sisters are healthy. Physically he appears to be normal. There is a slight horizontal nystagmus but the other eye signs are normal. There is no muscular atrophy. The knee jerks are markedly exaggerated. There is a spurious ankle clonus. There is no intention tremor or past pointing. The Romberg sign is negative. The Babinski reflex is present. Sensation of heat, cold, pain and position are normal. The blood count and urine analysis are normal. I believe that this is a case of early multiple sclerosis. Do you believe the history and physical signs would confirm this diagnosis? Kindly suggest a course of treatment. Please omit name.

M.D., Pennsylvania.

ANSWER.—This may well be a case of multiple sclerosis. Are the abdominal reflexes absent in whole or in part? Normal abdominal reflexes are unusual in cases of multiple sclerosis of long standing. There are three methods of treatment now in vogue which have been shown to be effective in many cases and also to have failed in many cases. Consequently there is no generally accepted therapeutic method. The simplest one is the administration by mouth of quinine hydrochloride in capsules in doses of 0.3 Gm. three times a day over a period of years. Richard M. Brickner has written numerous articles on this treatment, one of the recent ones appearing in the *Archives of Neurology and Psychiatry* in June 1935. The second method worthy of trial is the giving two or three times a week of intravenous injections of sodium cacodylate in increasing doses up to 1 or 1.6 Gm. Such a course of a month or two may be given during periods of exacerbation in patients who receive the quinine treatment. The third method, which is more cumbersome, is fever therapy. At the present time the induction of fever by electricity is most popular, and there has been great improvement in technic and apparatus.

#### ABORTION FOR GONORRHEA AND TUBERCULOSIS

To the Editor:—Would there be any danger in performing a therapeutic abortion in a patient with a two months pregnancy, acute gonorrhea and a tuberculosis of three years' duration; if so, what? Would it be safe to do a curettage on this patient? She is 23 years old. Please omit name.

M.D., Chicago.

ANSWER.—There would, indeed, be the greatest possible danger in the performance of a therapeutic abortion in the presence of acute gonorrhea, and the safety of a curettage on this patient would be about the same as that of smoking a cigar over an open keg of powder.

With the patient two months pregnant, the gonorrheal infection is at least limited to the vagina and cervix and can be

appropriately and effectively treated. An ill advised attempt at abortion would be almost certain to transform this into a gonorrheal metritis with parametritis and salpingitis.

Presumably the presence of tuberculosis in the patient in question has given rise to the thought by the correspondent that the pregnancy should be interrupted; assuredly this could not have been considered on account of the gonorrheal infection. Many authorities now maintain, with statistical evidence supporting their views, that pulmonary tuberculosis does not afford a valid reason for therapeutic abortion unless the patient's condition is becoming steadily worse. The latest editions of Williams' and of De Lee's textbooks discuss this in considerable detail.

#### ULCERATIVE COLITIS IN A CHILD

To the Editor:—I should like to know what regimen you would suggest in a case of so-called idiopathic ulcerative colitis in a child of 7½ years. The patient has been in bed for almost a year, the first four months of which was spent in a well recognized hospital where repeated stool examinations and cultures revealed no specific causative organism. *Streptococcus viridans* was found and an autogenous vaccine was made but therapy with this proved of no avail. The character of the stools (pus, mucus and blood) and the roentgenologic observations together with the objective symptoms make the diagnosis certain. A typical blood count consists of 4,000,000 red cells, 15,000 white cells and 60 per cent hemoglobin. The temperature range usually is from 98.6 to 100 daily. The weight (45 pounds, or 20 Kg.) and height (48 inches, or 122 cm.) have remained about stationary for the past year. The appetite is fair. The patient is confined to bed but would be up and around if allowed to be. There are no subjective symptoms except slight pain at stool. Colonic irrigations are painful and seem to aggravate the condition, as they are always followed by an increased amount of free bright red blood in the stools. The following therapeutic measures are being carried out: 1. General diet without roughage, vegetables being puréed or put through a sieve. No meat is swallowed. Meat juice is given daily. About 1 quart of milk is consumed daily and three quarts of coffee cream weekly. 2. Irradol-A thrice daily (4 cc.). 3. Calcium lactate by mouth (30 grains, or 2 Gm., daily). 4. Liver extract (Lilly's concentrated for parenteral use) 2 cc., injected into the gluteal muscles weekly. 5. Blood transfusions (from 100 to 200 cc. of whole blood) about every six weeks or two months by the multiple syringe method. This seems to give a boost each time. Specifically, what improvement can be expected by appendectomy or appendicostomy? Kindly omit name.

M.D., District of Columbia.

ANSWER.—Chronic ulcerative colitis is a severe destructive disease of the large intestine. It should be thought of much as one thinks of tuberculosis. The immediate prognosis in this disease when it attacks a child in the first decade is not good, but slow progressive improvement usually occurs. This may take from months to years but, as a rule, unless acute recurrent infection intervenes, gradual healing of the process will usually occur under the following regimen: a generous high calory, high protein and low residue type of diet, occasional small blood transfusions, sedatives and powders as indicated, and anticolitis serum given at intervals followed by the administration of vaccine from the organisms isolated from the rectal lesions. The injections of the serum and vaccine should be continued periodically for many months. Occasionally some improvement occurs following appendicostomy, but, if surgery becomes advisable, ileostomy is the preferable procedure. Either one of these procedures may be followed by such narrowing of the bowel that the stoma may have to be a permanent one. In a child of 7½ years this is undesirable.

#### TWIN PREGNANCY WITH DEATH OF ONE FETUS

To the Editor:—There is a question in a recent issue of *THE JOURNAL* (Nov. 7, 1936, p. 1583) pertaining to twin pregnancies in which one fetus died at some time previous to the delivery of a living fetus. A similar case has recently been observed except that at about three and one-half months there was premature rupture of the membrane surrounding one fetus. An x-ray diagnosis of twins was made. The patient was very desirous of having a child and the question arose as to the possibility of her carrying the other fetus along to a viable age. The patient promptly aborted both fetuses. Can you tell me whether there is any case on record of premature rupture of membranes in a twin pregnancy at a time before viability of the fetus and subsequent growth of one or both fetuses to age of viability? Please omit name. M.D., California.

ANSWER.—Multiple pregnancy is probably more common than the recorded literature would indicate. A fetus papyraceus or compressus might be missed if the placenta and secundines are examined too carelessly. In double ovum twins, one fetus may die and be expelled, the other going normally to term. Thus M. G. Burris delivered a living female infant weighing 7 pounds (3.2 Kg.) from a woman who gave a history of having passed a fetus 3 inches long with placenta and cord attached in the third month of the same pregnancy. (Burris, M. G.: *Canad. M. A. J.* 16:170 [Feb.] 1926.)

De Lee delivered a woman at term of twins who stated that five months previously she had had an abortion of four months (De Lee, J. B.: *Principles and Practice of Obstetrics*, 1936, p. 513). Dr. T. J. Watkins (quoted by De Lee) relates the case of the delivery of twins at three months and triplets at term of the same pregnancy. Early death of one fetus may not always be followed by abortion even though the fetus becomes macerated. T. J. Parks (*Am. J. Obst. & Gynec.* 21:112 [Jan.] 1931) reports the delivery of a 1,772 Gm. fetus, 43 cm. long, in a monochorionic twin pregnancy. The other fetus was small and macerated, and both amniotic sacs were found ruptured at the time of delivery. Other cases also have been reported. When abortion of twins occurs there may even be an interval of several months between the expulsion of the first and the second fetus, as in the case cited by G. H. Schneider (*Monatschr. f. Geburtsh. u. Gynäk.* 73:5 [April] 1926).

#### ICTERUS DURING TREATMENT FOR SYPHILIS

To the Editor:—A patient was seen Sept. 4, 1936, with a primary chancre of syphilis and a 4 plus Wassermann reaction. He has received six injections of neoarsphenamine (dosage 0.6 Gm, September 8, 11, 14, 21, 28 and October 4). In addition on September 8 and 11 he received two injections of bismuth salicylate 2 grains (0.13 Gm.). Four days after the last injection of neoarsphenamine he presented himself with marked jaundice and bile in the urine. He is symptom free, as the chancre has healed, and he has never had a secondary eruption. I would appreciate your advice as to the proper drugs to use in future treatment; in other words, I would like to have a full outline as to the method of conducting treatment in face of the jaundice. The urine examination is negative. I have not done a spinal tap as yet. Please omit name if published.

M.D., New York.

ANSWER.—Icterus occurring during the course of early syphilis under treatment with the arsphenamines is by no means infrequent. It has been variously interpreted as being due to the syphilitic virus, in other words an early syphilitic hepatitis, and as being caused by the arsphenamines, owing to their destructive effect on the spirochetes in the liver. Still others, Stokes in particular, look on it as an epidemic catarrhal jaundice complicating syphilis therapy. It has also been suggested that the icterus is due to a hepatic localization of the Herxheimer reaction.

Whatever the explanation, when icterus develops during arsphenamine therapy it is wiser to discontinue the arsenical injections and give a few doses of sodium thiosulfate (1 Gm.) every other day intravenously. The diet should be a low fat, high carbohydrate diet and in severe cases hypertonic dextrose should be given intravenously in doses of from 25 to 50 cc. of a 50 per cent solution. As soon as the icterus has subsided, treatment should be cautiously resumed with bismuth preparations. Determinations of the bilirubin content of the blood by means of the van den Bergh reaction and the icterus index should be used as controls.

Milian is practically the only author who advises a continuation of arsphenamine therapy in cases of jaundice on the assumption that it is of syphilitic origin.

The danger of a possible acute yellow atrophy of the liver should be kept in mind.

#### AURICULAR FIBRILLATION

To the Editor:—A woman, aged 42, was seen by me after a three day illness complaining of marked palpitation. The heart rate was over 200 but regular. There was no objective or subjective evidence of cardiac decompensation. The blood pressure was 120 systolic, 80 diastolic. After rest, sedatives and quinidine in 6 grain (0.4 Gm.) doses daily the heart rate slowed down to 100 but is totally irregular. Use of digitalis with subsequent quinidine administration and administration of the two together has failed to correct the auricular fibrillation (which I presume it is). There is present a mitral systolic murmur. The heart is not enlarged by percussion. The patient is comfortable. The patient was examined eight years ago and passed for life insurance and has had no illnesses or any rheumatic manifestation. The basal metabolic rate is plus 6. What is the cause of the irregularity? Is digitalis indicated? What can be done to correct the cardiac irregularity? Kindly omit name.

M.D., New York.

ANSWER.—The onset of auricular fibrillation may be preceded by rapid, regular pulse. An auricular fibrillation with a rate of 200 may appear regular. Digitalis is indicated only to control the rate of the heart and to maintain the heart rate at a level that gives the best clinical response.

An attempt can be made to restore the heart to a normal mechanism by means of quinidine, or the rate can be controlled indefinitely by means of digitalis in proper dosage. It is not so much the auricular fibrillation that is a mechanical deterrent as it is the rapid rate which accompanies it and which results in a decreased minute volume of blood being delivered by the heart.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

**ALASKA:** Juneau, March 2. Sec., Dr. W. W. Council, Juneau.

**ARIZONA:** Phoenix, Jan. 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

**CALIFORNIA:** *Reciprocity.* San Francisco, Jan. 6. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

**COLORADO:** Denver, Jan. 5. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

**CONNECTICUT:** *Basic Science.* New Haven, Feb. 13. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Homoeopathic).* Derby, Feb. 13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regular).* Hartford, March 9-10. *Endorsement.* Hartford, March 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

**DISTRICT OF COLUMBIA:** Washington, Jan. 11-12. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

**IDAHO:** Boise, April 6. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

**ILLINOIS:** Chicago, Jan. 26-28. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

**INDIANA:** Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

**IOWA:** *Basic Science.* Des Moines, Jan. 12. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

**MAINE:** Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

**MINNESOTA:** *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Jan. 19-21. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

**MONTANA:** Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

**NEBRASKA:** *Basic Science.* Omaha, Jan. 12-13. Director, Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

**NEVADA:** *Reciprocity.* Carson City, Feb. 1. Sec., Dr. John E. Worden, Carson City.

**NEW HAMPSHIRE:** Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

**NEW MEXICO:** Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.

**NEW YORK:** Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

**NORTH DAKOTA:** Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

**OREGON:** Portland, Jan. 5-7. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

**PENNSYLVANIA:** Philadelphia, Jan. 5-9. Sec., Board of Medical Education and Licensure, Mr. James A. Newpher, Education Bldg., Harrisburg.

**PUERTO RICO:** San Juan, March 2. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

**RHODE ISLAND:** Providence, Jan. 7-8. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

**SOUTH DAKOTA:** Pierre, Jan. 19-20. Dir., Division of Medical Licensure, Dr. B. A. Dyar, Pierre.

**VERMONT:** Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

**WASHINGTON:** *Basic Science.* Seattle, Jan. 7-8. *Medical.* Seattle, Jan. 11-13. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

**WEST VIRGINIA:** Charleston, March 1. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

**WISCONSIN:** Madison, Jan. 12-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

**WYOMING:** Cheyenne, Feb. 1. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

**NATIONAL BOARD OF MEDICAL EXAMINERS:** *Parts I and II.* Feb. 9-11, May 10-12, June 21-23, and Sept. 13-15. *Part III.* New York, Jan. 11-13 and Chicago, Jan. 19-21. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### SPECIAL BOARDS

**AMERICAN BOARD OF INTERNAL MEDICINE:** *Written examination will be held simultaneously in different centers of the United States and Canada in March. Practical examination will be given in St. Louis in April and at Philadelphia in June.* Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Rm. 1210, Des Moines.

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY:** *Written examination for Group B applicants will be held in various cities throughout the United States and Canada, March 6. Practical, oral and clinical examinations for Group A and B applicants will be held at Atlantic City, N. J., June 7-8. Applications must be received at least sixty days prior to the examination dates.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

**AMERICAN BOARD OF OPHTHALMOLOGY:** Los Angeles, Jan. 23. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

**AMERICAN BOARD OF ORTHOPAEDIC SURGERY:** Cleveland, Jan. 9. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

**AMERICAN BOARD OF OTOLARYNGOLOGY:** Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

**AMERICAN BOARD OF PATHOLOGY:** Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

**AMERICAN BOARD OF PEDIATRICS:** New York, Jan. 23. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

### West Virginia October Report

Dr. Arthur E. McClue, secretary, West Virginia Public Health Council, reports the oral and written examination held in Wheeling, Oct. 12-14, 1936. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Fourteen candidates were examined, all of whom passed. Nine physicians were licensed by reciprocity and 1 physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine.....	(1935)		87.5
Northwestern University Medical School.....	(1935)		89.3
New York University, University and Bellevue Hospital Medical College.....	(1934)		90.8
Duke University School of Medicine.....	(1933)		85.1
University of Cincinnati College of Medicine.....	(1935)		85.3
Hahnemann Medical College and Hosp. of Philadelphia.....	(1935)		84.1
Jefferson Medical College of Philadelphia.....	(1935)	87.8, 90.7	
Medical College of Virginia.....	(1934)	88.2, (1935)	86.3, 87.2
University of Virginia Department of Medicine.....	(1928)		88.3
	(1934)	89.6, (1935)	83.7

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1935)		Maryland
University of Michigan Medical School.....	(1932)		Penn.
Washington University School of Medicine.....	(1934)		Missouri
Ohio-Miami Medical College.....	(1913)		Ohio
Western Reserve University School of Medicine.....	(1934)		Ohio
University of Oklahoma School of Medicine.....	(1931)		Oklahoma
Temple University School of Medicine.....	(1934)		Penn.
Medical College of Virginia.....	(1911)		Virginia
University of Virginia Department of Medicine.....	(1932)		Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School.....	(1934)		N. B. M. Ex.

### Wisconsin Reciprocity Report

Dr. Henry J. Gramling, secretary, Wisconsin State Board of Medical Examiners, reports 11 applicants licensed by reciprocity at the meeting held at Madison, September 8, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University School of Medicine.....	(1932)		Illinois
Indiana University School of Medicine.....	(1930)		Indiana
State University of Iowa.....	(1932)		Iowa
University of Louisville.....	(1934)		Minnesota
Tulane University of Louisiana.....	(1915)		Louisiana
University of Minnesota.....	(1935)		Minnesota
Columbia University College of Physicians and Surgeons.....	(1932)		New York
Ohio State University College of Medicine.....	(1931)		Ohio
University of Wisconsin Medical School.....	(1927)		Michigan
Osteopath*.....			Illinois

\* Licensed to practice osteopathy and surgery.

### Indiana June Examination

Dr. William R. Davidson, secretary, Indiana State Board of Medical Registration and Examination, reports the written examination held in Indianapolis, June 23-25, 1936. The examination covered 15 subjects and included 100 questions. One hundred and eighteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Loyola University School of Medicine.....	(1936, 5),*	(1936)	84.9
University of Illinois College of Medicine.....	(1934)		82.4
Indiana University School of Medicine.....	(1935)		85.2
85.9, (1936) 78.7, 79.2, 79.7, 79.7, 79.9, 80, 80, 80, 80, 80.2, 80.2, 80.3, 80.5, 80.6, 80.6, 80.7, 80.8, 80.8, 80.9, 80.9, 81.1, 81.1, 81.2, 81.2, 81.2, 81.2, 81.4, 81.4, 81.4, 81.4, 81.4, 81.5, 81.5, 81.6, 81.6, 81.8, 81.8, 81.9, 81.9, 82, 82.1, 82.1, 82.1, 82.1, 82.3, 82.3, 82.3, 82.4, 82.5, 82.5, 82.6, 82.7, 82.7, 82.8, 82.8, 82.9, 82.9, 83, 83.1, 83.1, 83.2, 83.2, 83.2, 83.4, 83.4, 83.4, 83.5, 83.5, 83.7, 83.9, 84.1, 84.1, 84.2, 84.4, 84.4, 84.5, 84.5, 84.5, 84.6, 84.7, 84.7, 85.4, 85.5, 85.6, 85.6, 85.6, 85.6, 85.8, 85.8, 85.9, 86, 86, 86.3, 86.3, 86.3, 86.6, 86.6, 87.5, 87.7, 87.9, 90.4†			84.3
University of Kansas School of Medicine.....	(1933)		85.5
Tulane University of Louisiana School of Medicine.....	(1935)		82.9
St. Louis University School of Medicine.....	(1936)		82.6
Ohio State University College of Medicine.....	(1931)		82.6
Marquette University School of Medicine.....	(1936)		84.9
Queen's University Faculty of Medicine.....	(1936)		82.6

\* These applicants have completed the medical course and will receive the M.D. degree on completion of internship. Licenses have not been issued.

† This applicant has not received diploma, taking two years to complete senior work. License has not been issued.

## Book Notices

**A Text-Book of Pharmacology and Therapeutics or the Action of Drugs in Health and Disease.** By Arthur R. Cushny, M.A., M.D., LL.D. Eleventh edition, revised by C. W. Edmunds, A.B., M.D., Professor of Materia Medica and Therapeutics and Director of the Pharmacological Laboratories in the University of Michigan, Ann Arbor, and J. A. Gunn, M.A., M.D., D.Sc., Professor of Pharmacology and Director of the Nuffield Institute for Medical Research, University of Oxford, Oxford, England. Cloth. Price, \$6.50. Pp. 808, with 70 illustrations. Philadelphia: Lea & Febiger, 1936.

To keep a textbook on pharmacology down to date requires arduous work on the part of the authors. Not only must the authors be abreast of the increasing fund of knowledge related to drugs and their actions but the book must be brought into conformity with the ever changing standards of official compendiums such as the U. S. Pharmacopeia and the British Pharmacopeia. Since the decennial revisions of official books of standards became official this year, nearly every book dealing with official medicaments has undergone a revision. Cushny's *Pharmacology and Therapeutics* by Edmunds and Gunn is subject to increasing watchfulness because it covers not only the drugs of the United States but those standardized in the British empire. The 1936 revision has been thorough. Not only has the text been revised but there has been a noticeable rearrangement of the order of the book and discussions of the subjects. In this arrangement the idea has been that the simpler substances should be discussed first, leaving the more complex considerations toward the latter part of the book, though no didactic rule could be made. In common with most pharmacologies, it is necessary to have an introduction to the field of pharmacology and its definitions so that the student or consultant may interpret better the technical discussions.

To one who has followed the development of textbooks on pharmacology it is noted that therapeutics has been changing, particularly in the last few years, by intensive study of those extremely active substances which are loosely classified as vitamins, hormones or glandular principles. Twenty years ago almost no mention was made of liver and liver preparations; today they form an important part of *materia medica*. The same is true of the vitamins, which require approximately fourteen pages for a limited discussion by Edmunds and Gunn. Also noticeable is the much better understanding of glandular therapy today, as is evidenced by the technical discussions in pharmacologies. And yet these discussions cannot help but be simply epitomizations of the knowledge that is required for scientific clinical practice.

A particularly valuable discussion by the authors is that on the opium series. Space does not permit critical comment of many of the excellent chapters contained in this book. There is, however, one criticism to be made—the index is hardly ample for a book containing as much useful information as Cushny's *Pharmacology*. In accord with previous editions, the book is printed on excellent paper and the typographical setup is inviting. The bibliographies of the discussions, while ample, are not extensive. The book is one that will continue to receive recognition both in Great Britain and in the United States.

**Techniques chirurgicales.** Publiées par A. Gosset, chirurgien de la Salpêtrière. Avec la collaboration de L. G. Amlot, et al. Cloth. Price, 125 francs. Pp. 436, with 22 illustrations. Paris: Masson & Cie, 1936.

Of late there has been a tendency to group the works of many under the editorship of one individual. Gosset assumes such a rôle in this work. The book is divided into fifteen chapters. While it is not a manual for the student, it affords excellent reading for the experienced surgeon. Gosset's collaborators work at the Salpêtrière, where he has been director for the last twenty years. Much space is devoted to organization and hospital methods, sterilization, equipment, architecture of the pathologic and anatomic laboratories, the library and the operating room. It concludes with a roster of the surgeons and their assistants. It also carries the announcement that Dr. Le Noir, member of the Academy of Medicine and honorary physician of the hospitals, conducts in Gosset's service consultations in gastro-enterology, "meticulously carried out." Custom and taste obviously differ among men of science in various habitats. A great deal of space (more than a hundred

pages) is devoted to the details of sterilization and the biochemistry of anesthesia.

Petit-Dutailis contributes a chapter on neurotomy of the trigeminus through a posterior approach, which is written lucidly and is illuminatingly illustrated by Frantz, who created for himself an enviable reputation as a medical illustrator. His fine work is in decided contrast to the photography in the preliminary chapters, which is rather inferior. Sauvage and Wailon point out, as the result of an intensive study, that a combination of surgery and radium in cases of cancer affecting the upper jaw is effective, if attacked early. They stress the importance of early diagnosis and counsel that serious consideration be given to such apparently simple manifestations as nasal discharge, toothache and persistent sinusitis, which may all be telltale symptoms of an early carcinoma of that region. In their series of cases (many were desperate) they were able to observe successful results from three to ten years in nine instances. "If that is so," ask the authors, "how much better results may one expect in cases which are diagnosed early and promptly subjected to treatment." Soupault (chapter 7) discusses diaphragmatic hernia but offers nothing of a departure from the standard methods now in vogue. Charrier (chapter 8) describes gastrectomy as related to gastrojejunal ulcer. It is well illustrated, as is the succeeding chapter on gastrectomy for carcinoma by Georges Loewy. Gosset contributes chapter 10, on appendicitis. He uses the McBurney incision, which in certain quarters in England is being abandoned in favor of the pararectus approach. Gosset discusses indications for operative intervention in an excellent manner. He stresses what he stressed some thirty years ago: "My formula is simple," says Gosset; "operate always and operate promptly." He has no patience with procrastination, no matter under what form. Where expectancy seems indicated, his advice recalls the aphorism of Hamilton Bailey to "practice expectancy at the door of the operating theater." Again while the pendulum is still swinging on the question whether to drain or not to drain in appendicitis, Gosset justly reminds us that there exists no universal formula—that cases for drainage or those not to be drained must be selected; yet in every case of doubt "I drain," says Gosset, adding "What disadvantages can there come from drainage? These are certainly minor, but in certain cases the absence of a drain may spell death." To this dictum one may wholeheartedly subscribe. Another advantage of drainage, in the sense of Gosset, besides permitting septic material to find its way to the surface, is that the opening through which the drain emerges may be used to introduce antigangrenous and anticolibacillary serum, which when introduced intramuscularly are not as effective as when injected through the opening created by the drain. In cases of diffuse peritonitis, Gosset counsels counter drainage through the left iliac fossa; he reminds us that, in the iliac forms of appendicitis attended by much suppuration and operated on late, "one cannot always present the patient with the appendix." This chapter concludes with the treatment of right inguinal hernia with complementary appendectomy.

Intestinal obstruction, to which surgeons are paying much just attention of late, is ably discussed by Ledoux-Lebard, Thalheimer and Garcia-Calderon. These authors stress the importance of early diagnosis and depend mainly on radiology and the barium sulfate enema for the localization of the seat of obstruction. The chapter is illustrated by roentgenograms and concludes with indications for operative intervention. No mention is made of abdominal auscultation, so important a diagnostic medium according to certain American surgeons. Carcinoma of the large bowel claims the greater part of the remaining text. Right hemicolectomy is discussed by Gosset and illustrated by Frantz; carcinoma of the left colon is discussed by Ledoux-Lebard. In English literature exteriorization procedures are usually credited to Paul-Mikulicz; here Bloch's name is substituted for that of Paul. It seems that Bloch has preceded Paul in the thought of exteriorization of the bowel in carcinoma of the left colon, while Mikulicz, according to the late Lord Moynihan, contributed nothing original to the subject other than elaborating on the ideas of his predecessors. Fred Rankin is justly mentioned with reference to some technical details connected with operations on carcinoma of the colon. The importance of cecostomy is



stressed. The description of the procedure is graphic, thorough and painstaking. The illustrations are equally good. A clamp applied to the cecum to avoid soiling, while mentioned in the text, is not shown in the illustration; while this is not a serious omission to the advanced surgeon, it certainly is of utmost importance for the beginner. The other steps of the operation are well illustrated. The final chapters are devoted to a discussion on the results obtained from treating fibroids of the uterus surgically by Gosset and Funck-Brentano, and the treatment of complicated fractures of the ankle, by Guy Seille. A bibliography is attached to each chapter.

*Skyways to a Jungle Laboratory: An African Adventure.* By Grace Crile. Cloth. Price, \$2.75. Pp. 240, with 51 illustrations. New York: W. W. Norton & Company, Inc., 1936.

Mrs. Crile describes the journey from London to Nairobi by Imperial Airways—except from Paris to Brindisi—and adventures in connection with a "jungle" laboratory situated "in the richest territory in the world for abundance and variety of animal life." The first fifty pages are concerned with the journey to Nairobi and are replete with information on the country covered. The author, an intelligent observer, knows what she sees, whether on land or water, so that her descriptions are both interesting and informing. The journey from London to Khartoum may be regarded as within the borders of civilization, since Khartoum can be reached by rail and is attracting tourists. But what of the trip from Khartoum to Nairobi through much of darkest Africa? It took two days and a night. What about food and sleep? A few quotations will answer the questions:

Malakal: From the Grand Hotel at Khartoum "the plane was off at 6:40 a. m. . . . reached Malakal at 10:30. . . . The tall native chief broke a hole in each petrol tin with a big ugly knife, natives swarmed around to watch, and we were refueled. Meanwhile we were invited into a cool, screened tent for lunch. Here tables were spread and delicious Nile fish, potatoes, beans, a complate of mixed canned fruit and coffee were served on pretty Airways china. This is England—off at the end of nowhere."

Juba for the night: "We arrived at Juba about 3 o'clock in time for tea on the veranda. . . . The bedrooms were prettily furnished . . . each has a screened porch . . . electric fan. We luxuriated in hot baths. . . . During dinner a radio played in the next room and we heard quotations of the various stockmarkets, so we are not so far away from everywhere after all."

Entebbe: "It was still dark when we climbed into the plane (at Juba) with promise of breakfast at Entebbe some 340 miles on. . . . We breakfasted at nine on luscious pineapple, the best little finger-long bananas I ever ate, bacon, eggs, sausages and coffee. The hotel was clean and attractive."

Kisumu: "We stopped at Kisumu for breakfast. Apparently everything one plants at Kisumu grows. There were flowers of the most gorgeous hues all around the hotel."

As Nairobi is reached in two or three hours after one leaves Kisumu it is quite evident that "Skyways" over Africa entails no hardships; rather it would seem that this would be a fine pleasure trip. From Nairobi to "Journeys end," which means Maji Moto Camp, was by plane and automobile. "Maji Moto Camp consists of fourteen native huts built of mud, reed and bamboo, and thatched with straw, encircling a large ring where the fire burns at night and two boys stand guard. We are  $3\frac{1}{2}$  degrees south of the equator. The altitude is about 4,000 feet. Here night falls like a curtain. At five minutes of six it is light. At five minutes past six it is night." One of these huts became the "Jungle Laboratory." The staff consisted of Dr. and Mrs. Crile; Daniel P. Quiring, Ph.D., of the department of biology of Western Reserve University; A. B. Fuller, chief preparator of the Cleveland Museum of Natural History; Dr. W. H. Carr, a young English physician who went out to hunt but joined the group and assisted in the dissections; Bryan Cooper, a biologist, and Captain J. R. Hewett. In the division of the work Mrs. Crile was allotted the task to "weigh the organs and keep the records."

Animals dissected ranged from the elephant, rhino and hippo down to the innocent little dik dik. Of course it was necessary to catch and kill the animal before it could be dissected. Here is where the sport came in—a sport which supplied plenty of adventures and not a little danger. These, the adventures and dangers, the author has here recorded in a manner which, if equaled by her records of the dissections, will make the latter delightful reading. One hundred and fifty original photographs, many in group pictures, practically all taken by members of the staff, add interest and value to the book.

*Pédiatrie pratique. Répertoire de mises au point. Indications et moyens thérapeutiques.* Par Eugène Terrien. Paper. Price, 24 francs. Pp. 247. Paris: Masson & Cie, 1936.

This paper bound volume is in no sense a textbook, being more a brief outline of methods of treatment recently employed in the various ailments of children. The diseases or syndromes are arranged in alphabetical order. Usually little more than a page is given to any particular disorder, the discussion being limited to a brief description of the nature of the disease, occasionally a word as to its etiology or symptomatology, one or more brief paragraphs on treatment, usually including suggestions from a number of writers, and finally a terse conclusion. Some of the treatment recommended varies considerably from that employed in this country. In acro-dynia, acetylcholine and the x-rays are recommended. In adiposogenital dystrophy, anti-syphilitic treatment has at times been highly successful. In severe tonsillitis and pharyngitis, irrigation of the throat with seltzer water gives relief. For the practitioner of pediatrics, the book has some value. Its convenient arrangement and form as well as its brief but definite suggestions make it a concise little guide. The busy practitioner may in a few moments review the newest ideas in treatment and may at times find methods that are new to him.

*A Text-Book of Physiology.* By H. E. Roaf, M.D., D.Sc., M.R.C.S. Professor of Physiology in the University of Liverpool. Second edition. Cloth. Price, \$6.75. Pp. 679, with 338 illustrations. Baltimore: William Wood & Company, 1936.

This book is meant for medical students and others taking a first comprehensive course in physiology. As such it is a reasonably satisfactory work. It treats all the major fields of the subject and gives a great deal of information, though not always with a great deal of critical acumen. For example, it is stated categorically, and a chemical equation is written purporting to show, that the gastric hydrochloric acid is derived from a reaction between sodium chloride and carbonic acid.

A beginning student could scarcely be blamed for interpreting that statement literally. Another example of this type of defect appears in the last chapter, on emotional reactions. Here the ideology of psychoanalysis is freely, and without critical comment, incorporated as physiologic dogma. The assumption, for example, of a "censor" for an extensive subconscious mind is not based on acceptable scientific data and does not deserve unqualified acceptance in a teaching textbook of physiology. Other unjustifiable tacit assumptions greatly detract from the value of this portion of the book, although it must be admitted that the incorporation of some experimental psychology is in itself a real asset. These criticisms should not be taken to imply that there are not valuable sections in the book. The first chapter gives an excellent elementary account of the mechanics of posture and movement.

*New and Nonofficial Remedies, 1936, Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1936.* Cloth. Price, \$1.50. Pp. 542. Chicago: American Medical Association, 1936.

The appearance of the U. S. P. XI made necessary an extensive revision of the 1936 edition of New and Nonofficial Remedies. This seems somewhat paradoxical in view of the name of the Council's valuable book. But the fact is that there have always been included in New and Nonofficial Remedies a great many official drugs. Manufacturers apparently have appreciated the distinction given their brands by Council acceptance, and the public and the medical profession have certainly benefited by the Council's supervision of advertising claims for products the fundamental value of which has already been established. Of the fifty-four therapeutic agents added to the Pharmacopeia, forty-one as nonofficial preparations stood accepted for New and Nonofficial Remedies. The following is a list of the former N. N. R. preparations that are now official in the Pharmacopeia (the new pharmacopeial name is given): Acriflavine, Acriflavine Hydrochloride, Ethylene, Ethylhydrocupreine Hydrochloride, Scarlet Fever Antitoxin, Bismuth and Potassium Tartrate, Calcium Cresotate, Calcium Gluconate, Chlorbutanol, Emulsion of Liquid Petrolatum, Ephedrine, Ephedrine Hydrochloride, Ephedrine Sulfate, Diluted Erythritol Tetranitrate, Extract of Liver, Green Iron and Ammonium Citrates, Soluble Fluorescein, Mercuric Succinimide, Iodo-



plithalcin, Solution of Irradiated Ergosterol, Solution of Liver, Purified Solution of Liver, Solution of Parathyroid, Merbaphen, Neocincophen, Iodized Oil, Phenacaine Hydrochloride, Soluble Phenobarbital, Chiniofon Powder, Antimeningococcic Serum, Antipneumococcic Serum, Type I, Stomach, Theophylline with Ethylene Diamine, Theophylline with Sodium Acetate, Diphtheria Toxoid, Diphtheria Toxin for the Schick Test, Scarlet Fever Streptococcus Toxin, Tryparsamide, Old Tuberculin, Rabies Vaccine, Bacterial Vaccine made from the Typhoid Bacillus, Bacterial Vaccine made from Typhoid Bacillus and the Paratyphoid A and B Bacilli.

In most cases the New and Nonofficial Remedies tests and standards were taken over in whole or in part by the Pharmacopeia. This is eloquent evidence of the wisdom of the Council's selections since the appearance of the U. S. P. X.

Among the new products described in this edition of New and Nonofficial Remedies are Isopropyl Alcohol, Aminoacetic Acid, Larocaine Hydrochloride, Alurate and Sodium Alurate, Iprat Sodium, Ephedrine Hemihydrate, Azochloramid, Beta-Lactose, Pyrethrum Ointment, Meningococcus Antitoxin and Staphylococcus Toxoid.

Noteworthy revisions have been made of the chapters on Bismuth Compounds, Organs of Animals and Serums and Vaccines. These annual revisions place each succeeding edition of New and Nonofficial Remedies in a class by itself as an authoritative guide to therapeutic progress.

**Sport- und Arbeitsschäden: Eine Zusammenfassung klinischer Beobachtungen und wissenschaftlicher Erkenntnisse zur Biologie der Arbeit und Pathologie der Funktion.** Von Wilhelm Daezner, Direktor der 3. Chirurgischen Universitätsklinik im Städtischen Robert-Koch-Krankenhaus, Berlin. Mit einem Geleitwort von Professor August Bier. Im Jahre der XI. Olympischen Spiele 1936. Paper. Price, 8 marks. Pp. 136, with 133 illustrations. Leipzig: Georg Thieme, 1936.

The theme of this book is that sports should be used to strengthen and develop the body, as one might use medicine, and not overdone for the sake of records that demand using the last strength with the last breath. In Germany there is a tendency to overemphasize athletics for the sake of making new records and winning contests, as notably the Olympic games. Overtraining and overexertion are a detriment to physical development and well being. Generalized sports are not good for every one. Sports demand motions foreign to joints and organs. Athletic injuries are similar to industrial injuries, but the latter never demand overstrain except in the continued use of one set of muscles in certain types of work. Athletes are more prone to infection and their cuts, bruises and injured bones do not heal so well as other injuries. Athletes are often poor workers and cannot do good brain work when exercising too much. Hard exercise depresses the glandular activity and lessens the birth rate. A woman active in sport rarely brings up a child, and males have fewer offspring. Champion athletes, e.g., Cambridge and Oxford oarsmen, usually do not amount to much in life, are weak and die early. Pneumonia kills many athletes. Hypertrophied organs disturb the mutual relation of the organs. The proper athletics should be good for every one and not be reserved for a privileged class of good athletes. Properly indulged in, sports should improve the general health. Severe recreational exercise should not be combined with heavy work, but a brain worker should take up a sport. Critics have attacked this theory, especially coaches and athletes. A habitual athlete receives severe injuries as a result of his overactivity. Many so-called injuries are the result of damage from prolonged indulgence or overstrain. The author cites many illustrations of these injuries, including a javelin thrower whose humerus fractured while throwing, and a football player who fractured his femur while in the air. Tabler quotes observations on 1,400 Swiss mountaineers in whom injuries to the meniscus showed premature degeneration due to abnormal use of knees in the mountains. Many joints showing degenerative and proliferative changes, loose bodies and spurs are cited. Osteochondritis dissecans is shown in the knee, hand, wrist, foot, ischium and elbow. Bone changes occur, fractures, osteoporosis, split patellae, degenerative changes as in tibial tubercle, the navicular bone, the metatarsals, split fibulae and osseous proliferation. Injuries in the muscles, tendons and ligaments are illustrated. The illustrations are excellent, showing a great

variety of roentgenograms illustrating the different lesions. The book is well written and typically German in that it takes up the etiology and pathology rather exhaustively and says practically nothing about treatment. The multiplicity of examples and the redundant repetition of the main theme are calculated to impress the point on even the most ponderous of Teutonic intellects.

**Materia Medica and Therapeutics: A Text-Book for Nurses.** By Linette A. Parker, B.Sc., R.N. Sixth edition. Cloth. Price, \$2.50. Pp. 377, with 35 illustrations. Philadelphia: Lea & Febiger, 1936.

In a book that gives so much that is practical in so small a space, much has to be forgiven. There is no doubt that it fills the needs for which it is designed as well as and perhaps better than some other books on the subject. It would be desirable, however, if a person who teaches this subject and especially one who writes on it were somewhat better grounded in pharmacology than the author seems to be. Thus to mention strychnine as a true heart stimulant or to consider morphine and bromides as heart depressants is not in line with modern teaching. However, it probably does not do much harm, as professional ethics requires nurses to receive opinions respectfully on the action of drugs expressed by doctors who are not much better grounded in their knowledge of pharmacology.

**Fundamentals of Human Physiology.** By the late J. J. R. MacLeod, M.B., D.Sc., F.R.S., and R. J. Seymour, M.S., M.D., Professor of Physiology, Ohio State University, Columbus, Ohio. Fourth edition. Cloth. Price, \$2.50. Pp. 424, with 108 illustrations. St. Louis: C. V. Mosby Company, 1936.

This first venture into the field of authorship by a man whose major interest for many years has been the teaching of elementary physiology to college students is a well arranged and constructed textbook in which the good features of earlier editions have been retained and amplified on the basis of the author's experience in this particular field. Experience in teaching elementary physiology motivates a general criticism, which applies to most elementary textbooks on physiology; namely, too great a degree of attenuation of factual material and too little effort to apply facts to everyday life. A student in a course to which this textbook is applicable will in most instances never go any further in the study of physiology. It is all the more important, therefore, that every possible application be made to circumstances of living. This textbook fails largely to accomplish this end except in a brief appendix on public and personal hygiene devoted to communicable diseases, industrial hygiene, sewage disposal, water and food, hygiene of excretion, ventilation, hygiene of the nervous and muscular systems and child hygiene, but the discussion is too brief even to stimulate the student to further inquiry. There is an excellent glossary of physiologic terms, which should be a valuable aid to the beginning student. Some of the illustrations are poorly reproduced, such as figures 28, 42, 43, 45, 46, 64, 65, 66, 67, 68, 69, 70 and 89; pen drawings, color plates and diagrams are, however, well reproduced and are in general well selected. The sections on endocrines and vitamins are inadequate as to both content and presentation. The revising author has to a considerable degree failed to take advantage of an opportunity to make the subject of physiology live for the most eager and enthusiastic class of students of the subject, namely, those who elect to take the course for the sake of their own general enlightenment.

**Flisopatologia della ghiandola pineale.** Dal Dott. Francesco Molino, assistente nell'Istituto di clinica medica della R. Università di Genova. Paper. Price, 15 lire. Pp. 135, with illustrations. Rome: Luigi Pozzi, 1935.

This Italian monograph on the pineal body will be of interest to American readers chiefly by reason of its extensive bibliography, which includes over 300 references. The literature is covered to 1934; more recent publications of Engel, Saphir, Rowntree and his collaborators and other workers on the physiologic effects of pineal extracts are therefore not considered. The author presents brief summaries of knowledge of the pineal gland from many aspects, historical, phylogenetic, anatomic, histologic and physiologic, the latter including what little is known of its endocrine function and its functional relation to other organs.

Methodik der medizinischen Erbforschung unter besonderer Berücksichtigung der Psychiatrie. Von Dr. Bruno Schulz, Assistent am Kaiser Wilhelm-Institut für Genealogie und Demographie der Deutschen Forschungsanstalt für Psychiatrie in München. Paper. Price, 10.50 marks. Pp. 189, with 16 illustrations. Leipzig: Georg Thieme, 1936.

This is an extremely technical work concerning methods of handling statistical data on heredity. There are numerous mathematical equations, which a clinician will have difficulty grasping. The conclusions regarding the rôle of heredity in the production of psychoses are dealt with elsewhere. The book represents the technical attitude of the workers in the Munich institute toward the general problem. Once the material is obtained, it is probably satisfactorily handled mathematically. The clinician, however, wonders about the accuracy of diagnosis, the type of clinical records and the longitudinal studies of individual patients as they may affect the stuff with which the statistician deals.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Health Insurance: Disability Due to Myocarditis Resulting from Pneumonia.**—The defendant insurance company agreed to pay certain benefits to the plaintiff if he became disabled. Liability was limited to a maximum period of six weeks if he became disabled because of "any chronic or recurring disease." The plaintiff had pneumonia, which resulted in myocarditis from which disability ensued. The insurance company refused to pay more than the limited benefits provided in the policy. The plaintiff therefore sued and obtained judgment, from which the company appealed to the Supreme Court of Appeals of West Virginia.

The insurance company contended that since the plaintiff's disability was caused by a "chronic or recurring disease," myocarditis, he was entitled only to the limited benefits. The plaintiff protested that even though myocarditis is a "chronic or recurring disease" his disability actually grew out of his original illness, pneumonia, and that he was entitled to the full benefits provided by the policy. If, said the Supreme Court of Appeals, the meaning of the language of an insurance policy is in doubt, it should be construed favorably to the insured. In the present case, the insurance company assumed the risk of illness from pneumonia and also the risk of all the direct results of that disease. The circumstance that pneumonia directly resulted in a condition that could be described as another and different disease makes no difference. As long as it is a condition definitely attributed to the occurrence of the risk insured against, the fact that its severity may justify classifying it as an independent disease is not a determining factor. The insured undoubtedly had pneumonia and the pneumonia undoubtedly caused the heart condition that compelled him to give up his work. The plaintiff was therefore entitled to the maximum benefits provided by the policy. Judgment in favor of the plaintiff was affirmed.—*White v. Inter-Ocean Casualty Co. (W. Va.)*, 185 S. E. 203.

**Accident Insurance: "Death Resulting from Accidental Suffocation by Gases" Construed.**—The defendant insurance company issued to the insured two accident insurance policies in which it promised to pay certain benefits in case the insured died but limited liability to \$600 in event of "death resulting from accidental suffocation by illuminating or other gases or the accidental taking of any poison." Three days after the policies were issued, the insured was found in his garage overcome by the fumes escaping from the motor of his automobile. He died a few minutes later from carbon monoxide poisoning. The defendant claimed that the death resulted "from accidental suffocation by illuminating or other gases" and that therefore it was liable only to the extent of \$600. The plaintiff, the beneficiary under the policies, brought suit to recover the maximum benefits. The trial court sustained the defendant's motion to withdraw from the jury the question of liability over and above \$600 and, with the consent of the defendant,

entered a judgment for the plaintiff for that amount. The plaintiff thereupon appealed to the Supreme Court of Nebraska.

It was not disputed, said the court, that the insured died as a result of his inhaling the fumes from the exhaust of his automobile. That the death was therefore caused by the inhalation of gas cannot be denied. In *Birss v. Order of United Commercial Travelers*, 109 Neb. 226, 190 N. W. 486, it was said:

The term "gas" is, in a sense, a generic term and is broad and sweeping in its meaning. In Webster's Unabridged Dictionary it is defined as "an aeriform fluid; a term used at first by chemists as synonymous with air, but since restricted to fluids supposed to be permanently elastic, as oxygen, hydrogen, etc., in distinction from vapors, as steam, which become liquid on a reduction of temperature. In present usage, since all of the supposed permanent gases have been liquefied by cold and pressure, the term has resumed nearly its original signification, and is applied to any substance in the elastic or aeriform state."

The contention of the beneficiary was that death had not resulted from accidental suffocation, relying apparently on medical testimony to the effect that inhaled carbon monoxide gas does not stay in the lungs and does not therefore act as a mechanical barrier to respiration. Death results when there is sufficient concentration of carbon monoxide combined with the hemoglobin or red blood cells to displace the oxygen. But, said the court, in construing the contract of insurance, words used therein will be considered as used in their ordinary and popular sense. The definitions or constructions placed on them by the scientist or expert cannot control. "Suffocate," continued the court, is defined in Webster's New International Dictionary as "to kill by stopping respiration, as by strangling or asphyxiation," while the same authority defines "asphyxiation" as "a state of asphyxia; suffocation," and "asphyxia" as "apparent death, or suspended animation, in living organisms, due to deficiency of oxygen and excess of carbon dioxide, specif., in the blood, as in interruption of respiration from suffocation or drowning, or from the inhalation of irrespirable gases." "Suffocation" is defined in Dorland's American Illustrated Medical Dictionary (ed. 16) as "the stoppage of respiration, or the asphyxia that results from it," while the same authority defines "asphyxia" as "suffocation; also suspended animation from suffocation or a deficiency of oxygen in the blood."

In view of these definitions, the court was convinced that a person suffers death as the result of suffocation by gas whether death was due to a deficiency of oxygen in the blood or to an interruption of the physical act of breathing that would prevent the inhalation of sufficient oxygen into the lungs. The judgment of the trial court for the plaintiff for the limited benefits provided in the policies was therefore affirmed.—*Stone v. Physicians Casualty Assn. of America (Neb.)*, 266 N. W. 605.

## Society Proceedings

### COMING MEETINGS

- American Academy of Orthopedic Surgeons, Cleveland, Jan. 11-13. Dr. Philip Lewin, 55 East Washington St., Chicago, Secretary.
- American Orthopsychiatric Association, New York, Feb. 18-20. Dr. George S. Stevenson, 50 West 50th St., New York, Secretary.
- Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15-16. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.
- Eastern Section, American Laryngological, Rhinological and Otolological Society, Boston, Jan. 7. Dr. D. C. Jarvis, Quarry Bank Bldg., Barrre, Vt., Chairman.
- Middle Section, American Laryngological, Rhinological and Otolological Society, Chicago, Jan. 11. Dr. Alfred Lewy, 25 East Washington St., Chicago, Chairman.
- Mid-Western Section, American Laryngological, Rhinological and Otolological Society, Chicago, Jan. 11. Dr. Frederick A. Figi, 436 Tenth Ave. S.W., Rochester, Minn., Chairman.
- Pacific Coast Surgical Association, Seattle, Wash., and Victoria, B. C., Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.
- Society of Surgeons of New Jersey, Newark, Jan. 6. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.
- Southern Section, American Laryngological, Rhinological and Otolological Society, Memphis, Tenn., Jan. 13. Dr. Charles D. Blassingame, Physicians and Surgeons Bldg., Memphis, Tenn., Chairman.
- Western Section, American Laryngological, Rhinological and Otolological Society, San Diego, Calif., Jan. 30-31. Dr. David R. Higley, 3245 Fourth Ave., San Diego, Calif., Chairman.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Cancer, New York

28: 233-460 (Oct.) 1936

- \*Virus Tumors and Tumor Problem. P. Rous, New York.—p. 233.  
Solid Teratoid Tumors of Anterior Mediastinum: Report of Two Cases. J. P. Fox and C. A. Hospiers, Chicago.—p. 273.  
Ovarian Tumor of Brenner Type. F. Prosecher and J. Rosasco, San Jose, Calif.—p. 291.  
Significance of Amino Acids for Growth in Vitro of Human Fibroblasts: I. Growth Inhibiting Action of Glycine. J. P. M. Vogelaar and Eleanor Erlichman, New York.—p. 301.  
Effects of Osmotic Pressure on Normal and Malignant Fibroblasts. A. M. Brues and Claire McTiernan Masters, Boston.—p. 314.  
Permeability of Normal and Malignant Cells to Water. A. M. Brues and Claire McTiernan Masters, Boston.—p. 324.  
Studies in Carcinogenesis: III. Isomers of Cholanthrene and Methylcholanthrene. M. J. Shear, Boston.—p. 334.  
Further Quantitative Methods for Study of Transplantable Tumors: Growth of R39 Sarcoma and Brown-Pearce Carcinoma. R. Schrek, Nashville, Tenn.—p. 345.  
Effect of Size of Inoculum on Growth of Transplantable Rat Tumors. R. Schrek, Nashville, Tenn.—p. 364.  
Permanent and Transient (Fortuitous) Variations of Growth Components of Transplantable Rat Tumors. R. Schrek, Nashville, Tenn.—p. 372.  
Method for Counting Viable Cells in Normal and in Malignant Cell Suspensions. R. Schrek, Nashville, Tenn.—p. 389.  
Carcinoma of Breast in Homologous Twins. S. A. Munford and H. Linder, Clifton Springs, N. Y.—p. 393.

**Virus Tumors.**—Rous deals with the difficulties that stand in the way of the supposition that the general run of malignant growths are due to viruses. 1. The cause of cancer must be present wherever man is. But wherever he goes so do certain of his parasites. May he not take viruses as well? 2. The sporadic occurrence of cancers attests the lack of infectiousness. The natural incidence of the chicken tumors yields no sign whatever that they are caused by a virus. Their occurrence is highly conditioned and some of them obviously represent a triumph over resistance offered by the host. 3. In the failure of attempts to demonstrate an extrinsic cause for the generality of malignant mammalian tumors, technical difficulties may have been mistaken for a biologic principle. 4. The appearance of malignant tumors of the same sort in identical twins or in hereditary glioma of the retina and in von Recklinghausen's disease may mean no more than that when the soil and the contributory circumstances are right a carcinogenic agent, perhaps a virus, is effective as it would not otherwise be. 5. The experimental induction of cancer at sites where it never occurs normally indicates that some decisive condition or agent is evidently present in the areas at which they arise. Andrewes has given reasons for supposing this agent to be a virus entering the organism previously and ensconced in the epithelium at the time when the carcinogenic substance is applied—an indigenous virus, as he terms it. 6. Cancer does not spring full blown from normal cells but develops as the result of gradual and often long continued changes: The changes induced by all the various carcinogenic agents may be of a sort to urge a symbiotic virus or viruses to pathogenic activity. 7. Metastases of several differing sorts, representative of more than one germ layer, are occasionally encountered in patients dying of a teratoma that becomes malignant. Many teratomas are supposedly derived from pluripotential sex cells and, if one of these became infected with a tumor-producing virus, secondary growths of diverse character would occur as a matter of course. 8. Since viruses are highly specific in their action, one causing osteochondrosarcomas of the fowl, for example, another endo-theliomas only, an entire microcosm of viruses would be needed to account for all the malignant tumors. The assumption that certain tumors may be due to viruses should be accepted only so far as to lead one to make tests with these growths.

### American Journal of Medical Sciences, Philadelphia

192: 589-744 (Nov.) 1936

- Protamine Insulin in Treatment of Diabetes Mellitus. W. R. Campbell, A. A. Fletcher and R. B. Kerr, Toronto.—p. 589.  
Incidence and Differential Diagnosis of Hypoglycemic Convulsions. E. Ziskind, B. S. Hollombe and Ruth O. Bolton, Los Angeles.—p. 600.  
Supplemental Report of Case of Essential Pentosuria of Twenty-Eight Years' Standing, with Study of Specific Pentose Present. S. Solis-Cohen and L. Gershenfeld, Philadelphia.—p. 610.  
Phenolemia and Indoxylemia: Their Origin, Significance and Regulation. B. A. Houssay, Buenos Aires, Argentina, South America.—p. 615.  
\*Clinical Observations at High Altitude: Observations on Six Healthy Persons Living at 17,500 Feet and Report of One Case of Chronic Mountain Sickness. J. H. Talbott and D. B. Dill, Boston.—p. 626.  
Thyvetin in Thyrotoxicosis. T. B. Noble Jr. and K. K. Chen, Indianapolis.—p. 639.  
Use of Evipal (N-Methylcyclohexenylmethyl Barbituric Acid) in Coronary Occlusion: Note. S. Hirsch, New York.—p. 644.  
Atahric Pigmentation. A. J. Schechter and H. M. Taylor, Durham, N. C.—p. 645.  
Localized Radiculitis and Neuritis: Their Diagnosis and Treatment. J. C. Yaskin and C. A. Patten, Philadelphia.—p. 650.  
\*Is There Any Relationship Between Resistance and Susceptibility to Poliomyelitis and Diphtheria? C. W. Jungblut, New York.—p. 661.  
Relation of Physical Defects to Nutritional Impairment, Based on Examination of 30,000 Children of Twenty-One States: Physical Measurement Studies Number Five. W. M. Gafafer, Washington, D. C.—p. 669.  
Riedel's Struma. D. Eisen, Toronto.—p. 673.  
Eosinophilia and Skin Tests in Diagnosis of Trichinosis. R. A. Kilduffe, Atlantic City, N. J.—p. 689.  
Cystometric Studies: Value of Follow-Up Examinations. M. Muschat, Philadelphia.—p. 693.  
Higher Carbohydrate Diets in Treatment of Diabetes. F. B. Peck, Indianapolis.—p. 697.  
Glucose Tolerance in Paget's Disease (Osteitis Deformans): Note. F. L. Apperly and M. Katharine Cary, Richmond, Va.—p. 702.  
Agranulocytosis Following Ingestion of Cinchophen: Case. S. Shapiro and L. Lehman, New York.—p. 705.

**Clinical Observations at High Altitude.**—Talbott and Dill consider that the residence of from two to fourteen years of six healthy workmen at 17,500 feet is sufficient to call them permanent inhabitants. The unanimous admission of symptoms of acute mountain sickness in the first days after arrival at this altitude suggests that their occurrence is no indication of the ability to become acclimated to elevations as high as 17,500 feet. Colloid goiter and hyperthyroidism were not observed in any of the workmen. Other significant points in the physical examinations were normal blood pressure, a normal respiratory rate at rest, an emphysematous-like contour to the chest and clubbing of the fingers. In three subjects the pulmonic second sound was accentuated and greater than the aortic second sound. The average pulse rate for the six men at rest was 64. The absence of tachycardia at a high altitude suggests that the tachycardia of cardiac decompensation is not directly related to anoxemia. The data obtained from the examination of the arterial blood show among other changes a large increase in the oxygen capacity, cell volume and red cell count. The lowest saturation of arterial blood observed was 67.6 per cent, the highest was 84.6 per cent and the average for the six men was 75 per cent. In ten temporary residents at the same time of year at this altitude the average saturation was 76.2 per cent. The absence of any difference between the arterial saturation in the temporary and the permanent residents suggests that permanent acclimation is not associated with any significant change in this function of the blood. The average concentration of hemoglobin in cells for normal men at sea level is from 44 to 46 per cent of their volume of cells per liter. The average for the six subjects was 44. The carbon dioxide content of arterial serum varied between 30 and 40 per cent of its volume for the six men. The  $pH$  of the arterial serum reflected a mild degree of acidosis. The serum concentrations of potassium and chloride were normal or above normal and the concentrations of sodium were below normal. The concentrations of protein and calcium were within normal limits. The environment, symptomatology, physical examination and laboratory data of mountain sickness are distinct and in their totality are unlike any other disease. The syndrome represents more than the physiologic response to a high altitude. The disease is associated with prolonged anoxemia but the part that this plays in the pathogenesis is uncertain. Chronic mountain sickness is a progressive disease which manifests a remarkable recovery under increased oxygen pressure.

**Resistance and Susceptibility to Poliomyelitis and Diphtheria.**—In a series of neutralization tests with sixteen diphtheria antitoxic horse serums, Jungeblut secured complete inactivation of poliomyelitis virus of four samples and partial inactivation of one sample. There was no relationship between antitoxic potency and poliocidal power. Three monkeys that survived a full course of active immunization against diphtheria were protected against intracerebral infection with poliomyelitis virus. On reinfection, two animals developed a slight paresis, the third remaining entirely free from any symptoms of the disease. Poliocidal substances, although occasionally demonstrable in the serum of diphtheria-immune monkeys, appear with marked irregularity and show no correlation to the degree of antitoxic immunity, and their concentration at best is only very weak. The author sent 350 questionnaires in an attempt to gather further data as regards the relative frequency of diphtheria and poliomyelitis in the same child. Only 182 replies were received, with partial or complete answers. Among these were sixteen cases giving a definite history of diphtheria before the attack of poliomyelitis. This would tend to indicate a greatly increased incidence of diphtheria among the group of poliomyelitis patients (ages mostly from 1 to 10 years) when contrasted with the attack rate of diphtheria for the child population at large in New York City in the standard age group of from 1 to 9 years during the same period, which varied from 1.97 to 1.2 per thousand. Precise data as to the absence or presence of previous antidiphtheritic immunization and the clinical type of the disease were obtained from 165 returns. Among a group of seventy cases of poliomyelitis developing in children previously immunized against diphtheria, forty-five were of the paralytic type and twenty-five were listed as abortive. The other group of ninety-five cases of poliomyelitis developing in children who gave no history of previous antidiphtheritic immunization included seventy-five paralytic and twenty abortive cases. The material is meager, but it would seem that the incidence of paralysis was somewhat reduced in the diphtheria-immune children. The data are strongly suggestive of the operation of some common basic mechanism that governs susceptibility and resistance to both poliomyelitis and diphtheria.

### American Journal of Physiology, Baltimore

117:189-380 (Oct.) 1936. Partial Index

- Skin Potential and Impedance Responses with Recurring Shock Stimulation. T. W. Forbes, New York.—p. 189.  
 Glomerular Filtration and Urea Excretion in Relation to Urine Flow in Dog. J. A. Shannon, New York.—p. 206.  
 \*Effect of Acute Hemorrhage on Emptying Time of Stomach. E. J. Van Liere, C. K. Sleeth and D. Northup, Morgantown, W. Va.—p. 226.  
 Total Plasmapheresis. J. B. Stanbury, Edna Warweg and W. R. Amberson, with technical assistance of Verda I. McLendon.—p. 230.  
 Activity of Cardiac Sympathetic Centers. D. W. Bronk, L. K. Ferguson, R. Margaria and D. Y. Solandt, Philadelphia.—p. 237.  
 Study of Speed of Absorption Following Ingestion of Glucose and of Sucrose. Alice C. Roberts, Chicago.—p. 257.  
 Spinal Path for Responses to Cerebellar Stimulation. E. H. Ingersoll, H. W. Magoun and S. W. Ranson, Chicago.—p. 267.  
 Blood Flow in Circumflex Branch of Left Coronary Artery of Intact Dog. H. E. Essex, J. F. Herrick, E. J. Baldes and F. C. Mann, Rochester, Minn.—p. 271.  
 Carotene and Associated Pigments in Medullated Nerve. J. P. Bartz and F. O. Schmitt, St. Louis.—p. 280.  
 Absorption of Sodium Chloride from Small Intestine at Various Degrees of Anoxemia. E. J. Van Liere and C. K. Sleeth, Morgantown, W. Va.—p. 309.  
 Increased Water Exchange Following Eck Fistula in Dogs. L. A. Crandall Jr. and G. M. Roberts, Chicago.—p. 318.  
 Glucose Utilization of Phlorhizinized Dogs After Hepatectomy. D. R. Drury, H. C. Bergman and P. O. Greeley, Los Angeles.—p. 323.  
 Distribution of Glucose in Blood. I. Neuwirth, New York.—p. 335.  
 Comparison of Electrogram of Optic Cortex with That of Retina. S. H. Bartley, St. Louis.—p. 338.  
 Respiratory Reactions on Vertical Movements. E. A. Spiegel, Philadelphia.—p. 349.  
 Temporal Summation in Peripheral Nerve Fibers. E. A. Blair and J. Erlanger, St. Louis.—p. 355.

**Effect of Hemorrhage on Emptying Time of Stomach.**—Van Liere and his associates determined the normal gastric emptying time fluoroscopically in four healthy male subjects. After one tenth of their calculated blood volume was withdrawn, the gastric emptying time was prolonged an average of 41 per cent. In no case was it less than 25 per cent. Twenty-four hours after the hemorrhage, three of the four men still

showed a delay of from 15 to 20 per cent. One subject showed no delay twenty-four hours after the blood had been withdrawn. At the end of forty-eight hours the stomach had apparently regained its normal motility in all the subjects. The observations were also made on two dogs. They too showed a distinct prolongation in gastric emptying time.

### Archives of Neurology and Psychiatry, Chicago

36:917-1154 (Nov.) 1936

- Prognosis of Lethargic Encephalitis in Childhood. W. Healy, Boston.—p. 921.  
 Cerebrospinal Fluid Pressure. L. J. Pollock and B. Boshes, Chicago.—p. 931.  
 Radiculoneuritis with Acellular Hyperalbuminosis of Cerebrospinal Fluid. G. Guillain, Paris, France.—p. 975.  
 Aggressive-Submissive Behavior and Fröhlich Syndrome. D. M. Levy, New York.—p. 991.  
 Amphithymia: Some Syndromes of Depression and Elation. N. L. Blitstein, Chicago.—p. 1021.  
 \*Constitutional Differences Between Deteriorated and Nondeteriorated Patients with Epilepsy: I. Stigmas of Degeneracy. H. A. Paskind and M. Brown, Chicago.—p. 1037.  
 Frequency of Epilepsy in Offspring of Persons with Epilepsy, with Especial Reference to Differences Between Institutional and Extramural Patients. H. A. Paskind and M. Brown, Chicago.—p. 1045.  
 Emotional Factors in Mental Retardation: Reading Problem. R. C. Hamill, Chicago.—p. 1049.  
 \*Klippel-Feil Syndrome: Pathologic Report. L. W. Avery and C. C. Rentfro, Chicago.—p. 1068.  
 Regeneration of Posterior Root Fibers in the Cat. H. A. Paskind, Chicago.—p. 1077.  
 Meningo-Encephalomyelitis Neonatorum: Anatomic Report of Case. R. Richter, Chicago.—p. 1085.

**Epilepsy.**—Paskind and Brown discuss the differences in the presence of stigmas of degeneracy (malformations about the head and face) in epileptic patients with and without deterioration. They believe that stigmas of degeneracy may be accepted as constitutional, since they are developmental anomalies which remain unchanged throughout life, except for changes implicit in growth. The material for the comparisons consisted of seventy-nine epileptic patients with deterioration from three state hospitals and thirty-nine patients with no deterioration from three outpatient clinics. In order to allow time for deterioration to occur, no patient was accepted for the group of those not showing deterioration unless he had had seizures for at least four years; many of these patients had had seizures for decades. The results of the investigation show that all stigmas, with the exception of attachment of the ear lobe, accessory anthelix, partially fused helix and antihelix, unusually prominent upper lip and abnormally high palate, were more common in the deteriorated patients. In most instances these differences were marked, certain stigmas occurring several times as frequently in the deteriorated as in the nondeteriorated patients. In other instances certain anomalies were found in the deteriorated patients that were absent in the nondeteriorated patients. Anomalies of the eye were more than twice as common in deteriorated than in nondeteriorated patients, and those of the teeth were more than three times as common. Anomalies of the skull were less than one-third as frequent in nondeteriorated patients; those of the nose were one-half as frequent. Defects in palatal structure were almost twice as common in deteriorated as in nondeteriorated subjects. Of the deteriorated patients 56.6 per cent had twelve or more stigmas; in the group of nondeteriorated patients such profuse stigmatization did not occur in a single instance. It seems reasonable to believe that there is a correlation between stigmas of degeneracy (somatic developmental anomalies) and cerebral developmental anomalies. This suggests that an essential difference between institutionalized deteriorated and extramural nondeteriorated patients with epilepsy may be the more frequent presence of cerebral developmental anomalies in the patients with deterioration.

**Klippel-Feil Syndrome.**—Avery and Rentfro report a case of the Klippel-Feil syndrome with a pathologic study of the changes in the spinal cord. Not only did abnormalities exist in the upper portion of the dorsal and in the cervical region but throughout the dorsal vertebrae there was a cleft appearance of the bodies, seemingly indicating that the two developing halves of the body did not fuse well in the midline. What might be a hemivertebral body was seen in the instance of the second dorsal vertebra. There was also evidence that fusion occurred between the vertebral bodies. The segments of the

vertebral column were fairly well represented by the number of vertebral arches. It is suggestive that there was numerical reduction not of the segments but only of the vertebral bodies. The character of the defect in the spinal cord was also in the nature of a cleft in the posterior aspect of the cervical and the upper portion of the dorsal region. At these levels complete formation of the spinal cord failed to occur, so that a central canal was not formed but was represented by a layer of ependymal cells lining the posterior margins of the cord. Even at lower levels, at which the cord had been formed completely, the central canal was of abnormal location, size and contour. Other structures also were involved in the defect, as evidenced by gliosis of the posterior columns and distinct deviations in the character of the blood vessels and the connective tissue. These changes are referable to defects occurring in the formation of the original neural tube and are, the authors believe, a true expression of dysraphia.

### Archives of Surgery, Chicago

33: 733-912 (Nov.) 1936

- Neurofibroma and Neurofibrosarcoma of Peripheral Nerves Unassociated with Recklinghausen's Disease: Report of Twenty-Five Cases. E. C. Cutler and R. E. Gross, Boston.—p. 733.
- Effect of Posterior Pituitary Extracts on Motility of Gastro-Intestinal Tract. H. Necheles, M. Maskin, S. Strauss, A. A. Strauss and E. Taft, Chicago.—p. 780.
- Leiomyoma of Stomach. J. H. Conway, New York.—p. 792.
- Hypoparathyroidism Following Operation for Hyperparathyroidism Due to Adenoma Tolerance for Parathyroid Extract. R. D. McClure, Detroit.—p. 808.
- Spinal Anesthesia: Experimental Basis of Some Prevailing Clinical Practices, Co-Titi, New York.—p. 825.
- \*Congenital Abnormal Arteriovenous Anastomoses of Extremities, with Especial Reference to Diagnosis by Arteriography and by Oxygen Saturation Test. J. R. Veal and W. M. McCord, New Orleans.—p. 848.
- Cranial Venous Sinuses: Correlation Between Skull Markings and Roentgenograms of Occipital Bone. B. Woodhall and A. E. Seeds, Baltimore.—p. 867.
- Preparation of Operative Field: Report of Survey of Seventeen Surgical Teaching Clinics. W. C. Beck, Chicago.—p. 876.
- Lesions of Thyroglossal Tract. J. C. McClintock, Albany, N. Y.—p. 890.
- Sixty-First Report of Progress in Orthopedic Surgery. J. G. Kuhns, E. F. Cave, S. M. Roberts, J. S. Barr and R. J. Joplin, Boston; J. A. Freiberg, Cincinnati; J. E. Milgram, New York, and R. I. Stirling, Edinburgh, Scotland.—p. 895.

### Congenital Arteriovenous Anastomoses of Extremities.

—Veal and McCord present seven cases of congenital abnormal arteriovenous anastomoses of the extremities. The underlying principle, as stated by Sabin and by Woollard, is that the common capillary plexus on which both arteries and veins develop is the basis for the persistence of a direct communication between the two systems. That the condition is not often considered a diagnostic possibility is shown by the fact that, of the twenty-three cases reported by Horton from the Mayo Clinic, in only one was the condition recognized prior to the patient's admission. Undoubtedly many cases have been overlooked in all clinics, while in others the disease has been diagnosed as varicose veins or ulcers, trophic ulcers, thrombophlebitis, arthritis, elephantiasis or peripheral vascular disease and treated accordingly. The first principle of diagnosis is a careful history. All patients should be questioned closely concerning the onset of their varicosities, the location of the first noted and the possible etiologic factors involved. Cases of varicose veins which follow thrombophlebitis, infections of various sorts, surgical incisions and repeated pregnancies rarely need further consideration from this standpoint. But the group of cases in which the varicosities present early in life, without obvious cause, in which they are unilateral and in unusual locations and in which they are associated with ulceration, arthritic changes and hemihypertrophy need further consideration, though again only a small number of them will prove to be true abnormal arteriovenous communications. The cases should be studied by gross comparative examination of specimens of blood from the normal and from the affected extremity, by the oxygen saturation test and by arteriography. The oxygen saturation test reveals the exact location of the anastomosis and is of decided value in cases in which the anastomosis is not sufficiently extensive to change the character of the blood throughout the limb and in which the diagnosis may be missed because the specimen of blood is taken from an

area too remote from it to be affected by it. By means of arteriography it is now possible to locate the supposed anastomosis with absolute accuracy as well as merely to confirm its existence. Injection of the vascular system with stabilized solution of colloidal thorium dioxide demonstrates as no other method can the exact site of the abnormal communication, its size and the number and extent of the vessels involved. The arteriograms are not always easy to interpret, and abnormalities involving the small arteries and veins can be detected then only by comparison with normal standards. Through use of arteriography it is possible to determine which patients should be treated by surgical measures, which can safely be treated by the injection of sclerosing substances if the Perthes test demonstrates the adequacy of the deep circulation and which must be left untreated unless and until amputation proves necessary.

### Journal Industrial Hygiene and Toxicology, Baltimore

18: 471-582 (Oct.) 1936

- Effects of Heat and Humidity on Human Body. C. K. Drinker, Boston.—p. 471.
- Physiologic Effects of High Pressures. L. A. Shaw, Boston.—p. 486.
- Industrial Operations in Compressed Air. O. Singstad, New York.—p. 497.
- Causation of Pneumoconiosis. P. Drinker, Boston.—p. 524.
- Clinical Aspects, Diagnosis and Treatment of Pneumoconiosis. W. I. Clark, Boston.—p. 537.
- Incidence of Silicosis in Trap Rock Quarry Workers as Determined by X-Ray. L. J. Goldwater, New York.—p. 550.
- \*Chronic Nicotine Toxicity: I. Feeding of Nicotine Sulfate, Tannate and Bentonite. R. H. Wilson and F. DeEds, San Francisco.—p. 553.
- Id.: Effect of Nicotine-Containing Diets on Blood Sugar Concentration of Albino Rat. R. H. Wilson and F. DeEds, San Francisco.—p. 565.
- Toxic Encephalopathy and Volatile Solvents in Industry: Report of Case. Dorothy E. Donley, Cincinnati.—p. 571.

### Journal of Lab. and Clinical Medicine, St. Louis

22: 113-220 (Nov.) 1936

- Bacteriologic Studies of Blood of Normal Individuals and Rheumatic Fever Patients. Esther Meyer and Virginia Ryan, Chicago.—p. 113.
- Xylose Tolerance of Rabbits with Uranium Nephritis. H. W. Larson, New York.—p. 117.
- Agranulocytosis in the Negro: Case Report with Etiology and Comment. J. C. Norris, Atlanta, Ga.—p. 125.
- Rate of Disintegration of Platelets. I. Olef, Boston.—p. 128.
- \*Value of Air Conditioned Rooms in Treatment of Seasonal and Perennial Asthma. A. Trasoff and G. Blumstein, Philadelphia.—p. 147.
- Primary Carcinoma of Thymus Gland: Case Report. H. A. Slesinger, Windber, Pa.—p. 151.
- \*Fever Accompanying Induced Reticulocyte Crisis of Pernicious Anemia. W. M. Fowler, Iowa City.—p. 155.
- Blood Picture in Two Cases of Agranulocytosis: Following Treatment with Neosphenamine, with Especial Reference to Myelocytes and Juveniles. J. P. Crawford, Washington, D. C.—p. 157.
- Studies on Circulation: Dye Injection Method: Effect of Digitalis on Patients with Normal Cardiovascular Systems. J. W. Moore and J. M. Kinsman, Louisville, Ky.—p. 165.
- Relationship of Vitamin C to Hemorrhagic Diatheses. D. J. Stephens and Estelle E. Hawley, Rochester, N. Y.—p. 173.
- Study of Decamethylenediguanidine Bitartrate (Anticoman). P. L. Ewing and H. Segenreich, Chicago.—p. 180.

**Air Conditioned Rooms in Treatment of Asthma.**—The results of Trasoff and Blumstein with forty asthmatic patients confirm those of Gay, who was able to obtain favorable results in his asthmatic patients within one hour after their admission to an air conditioned room, and that of Nelson, Rappoport and Walker, who report 50 per cent improvement in their asthmatic patients within three hours or less. Only certain extrinsic forms of asthma are likely to benefit from this method of treatment. One should not expect to obtain relief in such an atmosphere when sensitivity exists to the animal danders, which are contained in that room, such as feathers. Intrinsic factors are not controlled or removed. As in the case of Gay, patients suffering from bacterial allergy cannot expect any benefit in such rooms. This explains the failure of treatment in the perennial as well as mixed asthmatic patients in air conditioned atmospheres. The air conditioned room has some diagnostic value. Failure to obtain immediate relief in such an atmosphere would justify the exclusion of pollen as a factor.

**Fever Accompanying Pernicious Anemia.**—In a series of 206 cases of pernicious anemia in which remissions were induced by liver therapy, Fowler observed fever ranging from 102.4 to 106 F. coincident with the reticulocyte crisis in eight



cases. In each of these cases a concentrated form of liver extract was administered, to one patient intramuscularly, to the others orally. Every conceivable extraneous cause for fever was excluded. The temperature rose rather suddenly, returning to normal more gradually over a period of from twenty-four to forty-eight hours. In two cases in which reticulocyte counts were being done daily, the highest temperature coincided exactly with the highest reticulocyte count and in three it occurred during the period of decline. In the three cases in which reticulocyte counts were not made, the fever appeared during the time when the crisis was to be expected. In several of the cases the fever was accompanied by a slight chill; in the others there were no associated symptoms of any kind. None of the patients had a leukocytosis. There was no apparent relationship between the occurrence of fever and the pretherapeutic erythrocyte level. The continuous low grade fever characteristic of pernicious anemia during relapse, manifested by many of the 206 patients, disappeared in most cases after the reticulocyte crisis. The fever observed was not referable to the reticulocytosis alone, and the authors are unable to give a satisfactory explanation of its mechanism.

### Journal of Nutrition, Philadelphia

12: 329-428 (Oct. 10) 1936

- Factors Influencing Incidence of Dietary Hemorrhagic Disease in Chicks. H. J. Almquist and E. L. R. Stokstad, Berkeley, Calif.—p. 329.
- Metabolic Studies of Eskimos in the Canadian Eastern Arctic. I. M. Rabinowitch and Florence C. Smith, with technical assistance of Eleanor V. Bazin and Marjorie Mountford, Montreal.—p. 337.
- Influence of Vitamins A, B or D, Anemia or Fasting on Rate of Fat Absorption in Rat. Margaret House Irwin, H. Steenbock and A. R. Kemmerer, with technical assistance of Janet Weber, Madison, Wis.—p. 357.
- Influence of Certain Hydrotropic and Other Substances on Fat Absorption. Margaret House Irwin, Janet Weber and H. Steenbock, Madison, Wis.—p. 365.
- Relation of Calcium and of Iron to Erythrocyte and Hemoglobin Content of Blood of Rats Consuming a Mineral Deficient Ration. J. M. Orten, A. H. Smith and L. B. Mendel, New Haven, Conn.—p. 373.
- Inverse Relation Between Growth and Incidence of Cataract in Rats Given Graded Amounts of Vitamin G-Containing Foods. P. L. Day and W. J. Darby, Little Rock, Ark.—p. 387.
- Blood Sugar in Rats Rendered Cataractous by Dietary Procedures. P. L. Day, Little Rock, Ark.—p. 395.
- Comparison of Biologic and Chemical Methods for Determination of Vitamin C in Canned Strained Vegetables and Study of Its Variation from Year to Year. Flora Hanning, East Lansing, Mich.—p. 405.
- \*Storage of Vitamin C by Normal Adults Following a Period of Low Intake. Patricia H. O'Hara and Hazel M. Hauck, Ithaca, N. Y.—p. 413.

**Storage of Vitamin C by Normal Adults.**—O'Hara and Hauck planned and administered to four normal women a basal diet adequate in other respects but containing only 5 mg. of vitamin C. They found that the amount of vitamin C necessary to restore the tissues to saturation after a month on this diet ranged from 2,200 to 2,800 mg. when administered in daily doses of 200 mg. The difference between intake and excretion up to the point of saturation following prolonged deprivation of vitamin C may afford some indication of the maximal vitamin C reserve. On this basis, tissue reserves at saturation appear to be of the order of from 2,500 to 3,000 mg. In these experiments, capillary resistance did not give an adequate indication of the state of nutrition with respect to vitamin C.

### New Orleans Medical and Surgical Journal

89: 211-266 (Nov.) 1936

- Endemic Typhus. W. H. Seemann, New Orleans.—p. 211.
- Some Public Health Aspects of Parasitic Infections in the Southern United States, with Especial Reference to Louisiana. E. C. Faust, New Orleans.—p. 213.
- Physical Defects of Children of Preschool and School Age. E. A. Socola, New Orleans.—p. 221.
- Congenital Heart Disease with Presentation of Case and Pathologic Specimens. Rena Crawford, New Orleans.—p. 223.
- Some Principles in Treatment of Fractures of Forearm. H. T. Simon, New Orleans.—p. 227.
- Management of Ruptures of Posterior Urethra: Remarks Concerning Alkaline Urinary Infections. M. H. Foster, Alexandria, La.—p. 232.
- Empyema Thoracis. M. T. Green, Ruston, La.—p. 237.
- Reactions of Relatives: Problem in Psychiatry. L. L. Cazenavette, New Orleans.—p. 240.
- Simple and Efficient Aid in Diagnosis of Endocrine Dysfunctions. R. A. Paine, Shreveport, La.—p. 244.

### Oklahoma State Medical Assn. Journal, McAlester

29: 383-424 (Nov.) 1936

- Cough: Its Relation to Pharyngeal and Nasal Infection. L. C. McHenry, Oklahoma City.—p. 383.
- Acute Otitis Media in Children. H. C. Childs, Tulsa.—p. 387.
- Treatment of Pneumonia. R. Q. Goodwin, Oklahoma City.—p. 388.
- Recent Outbreak of Lobar Pneumonia in Tulsa and Vicinity. S. Goodman, Tulsa.—p. 392.
- Empyema. J. B. Gilbert, Tulsa.—p. 397.
- Use of Papain in Prevention of Reformation of Peritoneal Adhesions. B. W. Ward, Tulsa.—p. 399.
- Therapeutic Uses of Medicinal Gases in Office and Bedside Practice. Mary Edna Sippel, Tulsa.—p. 402.

### Rhode Island Medical Journal, Providence

19: 151-170 (Oct.) 1936

- \*Narcosis Therapy in Psychoses. G. H. Alexander, Providence.—p. 151.
- History of the Rhode Island Hospital. J. M. Peters, Providence.—p. 155.

19: 171-186 (Nov.) 1936

- The Schilling Hemogram in Appendicitis. H. E. Gauthier, Woonsocket.—p. 173.
- Coronary Thrombosis. R. I. Lee, Boston.—p. 177.

**Narcosis Therapy in Psychoses.**—During the last six months Alexander employed deep narcosis therapy in five cases, in one of which discontinuance of the therapy was forced on the fourth day, because of potentially dangerous physical complications. Of the four completed cases, two patients were well enough to leave the hospital approximately one week following narcosis therapy and have remained entirely well for periods of four and six months respectively. Both of these patients presented variable degrees of excitement, bizarre behavior, delusions and probably hallucinosis and were classified as schizophrenic reaction types. The patient presenting a deep stupor reaction and persistent preoccupation, with suicidal trends, responded with definite improvement for a period of two weeks, followed by gradual relapse, although not to the same low level as existed prior to narcosis treatment. The remaining patient, who presented an acute excitement in a predominantly manic-depressive, manic picture, failed to show any improvement following narcosis therapy. Sodium amylal was used exclusively as the narcotizing agent. The question as to the specific action of barbituric acid derivatives, as opposed to a general effect of a prolonged period of narcosis, however produced, must remain unanswered until prolonged narcosis is obtained by other drugs. Whatever the fundamental mechanisms underlying narcosis therapy may be, and despite our lack of accurate knowledge of them today, a sufficiently close temporal approximation is noted between treatment and response to warrant the assumption of a causal relationship, as opposed to merely coincidental improvement, or improvement associated with the normal course of recovery from the illness, and to sustain the feeling that, in the treatment of selected psychotic states, prolonged narcosis therapy has a definite value.

### Southwestern Medicine, Phoenix, Ariz.

20: 367-408 (Oct.) 1936

- Management of Intrathoracic Goiter. J. W. Hendrick, Dallas, Texas.—p. 367.
- Recent Advances in Otology: Petrositis, Facial Nerve Surgery, Cochlear Tone Localization. R. C. Martin, San Francisco.—p. 371.
- \*Indications for Open Operation in Fractures. B. L. Schoolfield, Dallas, Texas.—p. 374.
- Ocular Changes from Central Nervous System Syphilis and Administration of Tryparsamide. F. C. Cordes, San Francisco.—p. 377.
- Dinitrophenol Cataract. H. F. Whalman, Los Angeles.—p. 381.
- Laboratory Aids in Diagnosis of Enteric Infections. M. Greenfield, Santa Fe, N. M.—p. 385.

**Indications for Open Operation in Fractures.**—Schoolfield gives the following indications for open operation: fractures that cannot otherwise be replaced and maintained or cases in which too much loss of time would be occasioned by conservative methods, interposition of soft parts between fragments, or small isolated fragments that have not united, in all likelihood will not unite and are not essential to good function, nonunion and malunion. Of the fractures requiring open reduction, transverse fracture of the patella is a preeminent example. Wide separation of the fragments usually results

from the strong pull of the quadriceps group. Open reduction should be the rule in such circumstances. Fractures of the olecranon will often show more rapid and definite results with open fixation, though much will depend on the amount of separation of the fragments. Fractures about the distal end of the humerus will often require open reduction and fixation. The humerus, femur, radius, ulna and even the tibia are often the seat of fractures that do not lend themselves to sustained reduction. This may be due to the obliquity, the presence of unmanageable, sharp-pointed spicules or other mechanical difficulty, aided and abetted by marked muscular spasm. Open reductions are especially demanded in fractures neglected for days or weeks. Open reduction and fixation should be considered in the transverse fracture of the posterior part of the os calcis with its natural tendency to upward displacement because of the pull of the calf muscles.

### Surgery, Gynecology and Obstetrics, Chicago

63: 417-560 (Oct.) 1936

- Pathologic Physiology of Stone in Common Bile Duct: Clinical and Surgical Significance. W. Walters, Rochester, Minn.—p. 417.
- \*Toxemia of Pregnancy. J. R. Goodall, Montreal.—p. 425.
- Appendicitis in the Small Hospital: Critical Analysis and Discussion. R. F. Sengstacken, New York.—p. 438.
- Duplication of Congenital Malformations in Brothers and Sisters and Among Other Relatives: Study of Sibling Defects in Forty Consecutive Families. D. P. Murphy, Philadelphia.—p. 443.
- Clinical Studies on Influence of Certain Drugs in Relation to Biliary Pain and to Variations in Intrabiliary Pressure. W. L. Butsch, J. M. McGowan and W. Walters, Rochester, Minn.—p. 451.
- Three Hundred Mixed Tumors of Salivary Glands, of Which Sixty-Nine Recurred. J. McFarland, Philadelphia.—p. 457.
- Surgical Treatment of Tumors of Mediastinum. W. D. Andrus and G. J. Heuer, New York.—p. 469.
- Repair of Cleft Palates Primarily Unsuccessfully Operated on. E. C. Padgett, Kansas City, Mo.—p. 483.
- Simple Method of Amputating Exteriorized Bowel with Carr Hilar Lobectomy Clamp: Modified Second Stage Mikulicz Operation. W. L. Wolfson and R. E. Rothenberg, Brooklyn.—p. 497.
- Fixation of Fractures of Neck of Femur by Introduction of Kirschner Wires. F. G. Dyas and L. J. Aries, Chicago.—p. 499.
- \*Conservative Surgical Treatment of Carcinoma of Penis: Technic for Partial Amputation. R. M. Nesbit and W. A. Keitzer, Ann Arbor, Mich.—p. 504.
- Treatment of Fractures of Os Calcis by Pin Traction: Study of End Results. W. R. MacAusland, Boston.—p. 506.
- \*Treatment of Trichomonas Vaginalis and Trichomonas in Male. E. L. Cornell and L. W. Riba, Chicago.—p. 511.
- Further Observations on Treatment of Fracture Dislocations of Cervical Spine with Skeletal Traction. W. G. Crutchfield, Richmond, Va.—p. 513.
- Fractures of Condyles of Tibia. E. H. Caldwell, New York.—p. 518.
- Large Bowel Obstruction. R. V. B. Shier, Toronto.—p. 523.

**Toxemia of Pregnancy.**—Goodall considers that there is but one toxemia of pregnancy in the third trimester but that it has a very protean symptomatology. The reason for this lies in the idiosyncrasies of the patients and in the susceptibilities and reserves of systems and of individual organs to a common toxicity which bathes all the tissues generally and commonly. Susceptibility to eclampsia varies in different patients. It is important to recognize this factor, as it frequently determines the course of the disease. In the child-mothers the susceptibility to eclampsia is high, owing to instability of their nervous systems. Many women, though chronologically mature, are infantile in nerve development and instability and as such are as susceptible as children to the convulsive expression of toxemia, when from their years one might expect a milder form of reaction. The blood pressure in the early months of pregnancy ranges between 30 and 60 diastolic and between 60 and 90 systolic. It slowly rises in the third trimester under normal conditions but should not exceed from 70/100 to 80/110. In abnormal states, blood pressure begins to rise and may reach very high registration throughout the later months. In the third trimester, high maternal blood pressure leads to grave placental disease and coincidentally grave fetal circulatory disturbances. High blood pressures are commonly associated with progressive placental edema, deposition and sclerosis. Toxemia does not affect the placenta in this manner. Toxemia produces placental hemorrhages and placental retroplacental and intraplacental hemorrhages are found principally in true toxic cases and usually in the low grade types of toxemia, cumulative and of long standing, but rarely with a blood pressure greater than 125 systolic. Placental

and its final expression, massive death of the placenta, is found in the acute true toxemias. The vast majority of cases of clinical toxemia have no symptoms, and the only signs are a progressive pallor and an intractably rising blood pressure. These are not cases of uncomplicated toxemia. They are toxic cases only possibly in a secondary way. But primarily the blood pressure arises out of dyscrasias other than those due to pregnancy. They constitute the great majority of the patients who have persistence of high blood pressure after delivery and eventuate after some years into chronic cardiovascular-renal cases. In such cases pregnancy is merely an incidental association, not without its influence on the primary disease and not always a baneful associate.

**Surgical Treatment of Carcinoma of Penis.**—Nesbit and Keitzer agree with Dean and Campbell that a lesion involving less than the distal half of the penis should have simple amputation from 1.5 to 2 cm. proximal to the involved portion. In cases in which there are regional metastases, gland dissection should be done at a later date if deemed advisable. The authors' technic of local amputation is as follows: After sterile preparation of the patient, the glans, with the lesion, is wrapped in sterile gauze to avoid contamination of the wound. A circular skin incision is made about the penis, from 1.5 to 2 cm. proximal to the involvement. The skin is bluntly dissected toward the base for a short distance and the dorsal vessels are ligated. The ventral aspect of the organ is now brought into view and the corpus spongiosum is incised at the level of the original skin incision. A number 20 F. catheter is inserted into the urethra to be used as a guide during the dissection of the corpus spongiosum from the corpora cavernosa. If the line of cleavage is found, the procedure is relatively easy; otherwise one must avoid injury to the spongy body and urethra by sharp dissection within the adjoining capsules of the corpora cavernosa. The corpora cavernosa are transected 1.5 cm. above the level of the corpus spongiosum. The cavernous arteries are ligated. Two heavy chromic mattress sutures are placed horizontally through the entire thickness of the corpora cavernosa. These sutures shape the distal end of the stump. Four vertical sutures through the corpora cavernosa capsule bring the stump to a conical shape. A suture tacks the corpus spongiosum over the rounded end, bringing the urethra out the midpoint with 1 to 1.5 cm. projecting beyond the end of the stump. The skin is trimmed to fit the stump and closed on a horizontal line with interrupted silk sutures. The importance of allowing the corpus spongiosum to project beyond the stump cannot be overemphasized. The retraction that always occurs provides a normally functioning meatus, which projects a millimeter or two and allows the free passage of a normal urinary stream. Failure to allow for this retraction results in either stricture or retraction of the meatus, or both. Petrolatum gauze dressings are applied and changed daily. The catheter is left in until the skin sutures are removed. The end result is a well shaped and satisfactory urinary and sexual organ.

**Treatment of Trichomonas in Male.**—During the last seven years, thirty cases of male Trichomonas infections have been observed in clinical and private practice by Cornell and Riba. It is their impression that the Trichomonas infection in the male is acquired solely through sexual contact. There may be no symptoms. Usually symptoms of chronic prostatitis are present. A urethral discharge is present when the urethra is involved. Examination of fresh urethral and prostatic secretions or urinary sediment with the microscope will reveal the motile organisms. In general, the same principles of treatment have been used as in other nonspecific infections of the lower part of the urinary tract in males. Prostatic massages and urethral and deep instillations have caused a disappearance of Trichomonas in all cases that were treated adequately and followed up. Five cases of Trichomonas prostatovesiculitis were complicated with multiple strictures of the anterior urethra. The damaged urethra may be a factor in paving the way for Trichomonas infections. Three of the wives who have been examined harbored Trichomonas in the vagina. When urethral strictures are found, they should be eradicated if possible. Weak acriflavine base solution (1:2,000) has been the most useful drug in clearing up the urethral infections.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Medical Journal, London

2: 745-792 (Oct. 17) 1936

- Delirious States. B. Hart.—p. 745.  
Pulmonary Tuberculosis and Pregnancy. J. Young.—p. 749.  
Id. H. Cohen.—p. 751.  
Etiologic Relation of Streptococcus Haemolyticus to "Rheumatic" Diseases. W. Goldie and G. J. Griffiths.—p. 755.  
Measurement of Muscle Tonus. J. D. O. Kerr and L. D. W. Scott.—p. 758.

## Journal of State Medicine, London

44: 559-620 (Oct.) 1936

- Local Authorities and Cancer, with Especial Reference to the Bradford Scheme. F. E. Chester-Williams.—p. 559.  
Some Considerations for Closer Coordination of Work of the Health Officer and the Medical Profession. C. E. Goddard.—p. 575.  
Observations on Health and Safety in the Factory. A. Massey.—p. 580.  
\*Errors in Average English Dietary Exposed by Pregnancy. G. W. Theobald.—p. 587.  
English Dysenteric Infections. A. F. Hurst.—p. 598.

**Errors in Average English Dietary Exposed by Pregnancy.**—Theobald advances the hypothesis that all the toxemias of pregnancy, including the pyelitis of pregnancy and puerperal insanity, are caused by deficiencies in the diet. The earliest manifestation of the toxemias of pregnancy is the onset of one or more of the following symptoms: insomnia, headaches, cramps and vomiting. These symptoms, in the absence of some definite cause, arise as the result of disturbance of the calcium metabolism. The dietetic deficiency hypothesis differs fundamentally from all the other hypotheses that have been advanced to explain the etiology of the toxemias of pregnancy. Not only does it correlate all the toxemias of pregnancy but it implies that there is no essential etiologic difference between ordinary morning sickness and the decay of teeth associated with pregnancy on the one hand and eclampsia on the other. All recent surveys of the dietaries of the people of England have shown that the average individual in the islands is inadequately fed. Secondary anemia is much too prevalent among the women in this country. The author has suggested that every school throughout the country should instruct girls to take iron for one month in the year. The other substances of which pregnancy teaches that there is all too frequently an inadequate intake are vitamins A, B and D and iodine.

## Lancet, London

2: 833-892 (Oct. 10) 1936

- Infections of Fingers and Hand. R. M. Handfield-Jones.—p. 833.  
Cross-Infection with Hemolytic Streptococci in Otorhinologic Wards. C. C. Okell and S. D. Elliott.—p. 836.  
Impairment of Anterior Pituitary Functions by Follicular Hormone. B. Zondek.—p. 842.  
Experimental Production of Sarcoma with Thorotrast. F. R. Selbie.—p. 847.  
\*Treatment of Asthmatic Attacks by Inhalation of Adrenalin. N. A. Nielsen.—p. 848.  
Acholuric Jaundice in the Adult. M. Kremer and W. H. Mason.—p. 849.

**Treatment of Asthmatic Attacks.**—Nielsen treated more than 400 attacks of asthma in forty patients with inhalation of a 10 per cent solution of epinephrine, nebulized in the triplex or asthminhal spray. The dose may be expressed in milligrams, each compression of the ball of the triplex spray (side tube) nebulizing an amount of the solution corresponding to one-twelfth mg. of epinephrine, each compression of the asthminhal spray corresponding to one-eighteenth mg. The dose has varied between one-sixth and 1 mg., most often being from 0.5 to 0.75 mg. In all cases the treatment was very successful. The effect appears almost immediately. In slight attacks the respiration is eased after a few inhalations of the solution, and half a minute after the end of the inhalation the respiration is no longer sibilant and the rhonchi have disappeared. In a case of status asthmaticus, in which subcutaneous injection of 1 mg. of epinephrine had been without effect, the condition improved considerably on inhalation. It is difficult to determine the duration of the effect obtained. In a few cases, when the patients were in status asthmaticus, the effect seems to have lasted a fairly short time, though seldom less than an hour; in one case, however, it was only ten minutes.

No change in sensitivity toward epinephrine was observed. The patients have not complained of palpitations or other subjective symptoms. One patient inhaled 1 mg. of epinephrine twelve times at intervals of an hour without any inconvenience. The favorable result is considered to be due to a local effect of epinephrine.

## Medical Journal of Australia, Sydney

2: 415-446 (Sept. 26) 1936

- Treatment of Chronic Arthritis. A. H. à Court.—p. 415.  
Treatment of Osteo-Arthritis and Rheumatoid Arthritis. A. L. Ducker.—p. 418.  
Medical Practice During Goldfields Era in Victoria. E. A. Mackay.—p. 421.  
Contribution to Technic of Bronchography, with Description of New Type of Introducer for Intratracheal Catheterization. J. O'Sullivan.—p. 428.  
\*Investigation into Thick Blood Drop Method of Diagnosis in Leprosy. T. M. Clouston.—p. 430.

2: 447-480 (Oct. 3) 1936

- Fibrositis: Treatment by Physical Means. F. May.—p. 447.  
Gas Anesthesia in a Melbourne Public Hospital, 1931-1936. G. Kay.—p. 458.

**Thick Blood Drop Method of Diagnosis in Leprosy.**—In performing Clouston's procedure the first drop of blood taken from an apparently well finger or thumb is wiped away and then another drop is taken and a thick drop preparation is made. This is then dried in air, under glass covers, dehemoglobinized in distilled water and again dried as before. The film is then stained by the Ziehl-Neelsen method, 5 per cent sulfuric acid being used for decolorization. Counterstaining is carried out with aqueous methylthionine chloride for three minutes. To test the efficacy of the method employed, eighteen nodular cases were investigated; acid-fast bacilli were found in skin sections and nasal smears in all. Fourteen cases showed acid-fast bacilli in the thick blood drop preparation. In the majority of the preparations acid-fast bacilli were abundant, being present both singly and in clumps and many being intracellular. In addition to the nodular cases, the blood of thirty-six patients in segregation with milder cutaneous leprosy was examined. Acid-fast bacilli were found after prolonged search in only two cases. Blood films from twenty-one persons attending the outpatient clinic were also examined. No evidence of Microbacterium leprae was found in any of these films. The patients from whom these films were taken had all suffered from neural leprosy, their infections were all clinically inactive and the examination of skin sections and nasal smears within the last two years has given negative results, eighteen having given negative results within the last nine months. Ten suspected patients were also examined with negative results. These were patients having a small area of hypopigmentation, not necessarily, though usually, associated with anesthesia or analgesia and with no acid-fast bacilli in skin section or nasal smear. Negative results were obtained with eight children whose ages ranged from 6 to 10 years, born in the leper station of leper mothers. The results of this investigation support the conclusions reached by Lowe in India. The technic is not suitable for early or latent cases of leprosy.

## Journal of Oriental Med., Dairen, South Manchuria

25: 49-60 (Sept.) 1936

- Pathologic-Anatomic Studies of Kaschin-Beck's Disease. M. Aiso and N. Hayashi.—p. 49.  
Quantity of Iron Contained in Blood in Kaschin-Beck's Disease. M. Aiso and N. Hayashi.—p. 52.  
Value of Sorghum-Hirse as a Vitamin C Free Diet, and Experimental Scurvy of Guinea-Pigs. M. Sugiura.—p. 53.  
Reducing Substances in Malt of Soya Beans Produced in Manchuria. M. Sugiura.—p. 54.  
Syphilis Transmitted by Blood Transfusion. K. Tasaki.—p. 54.  
Report on Suppuration After Aseptic Operation. T. Nakajima.—p. 55.  
Liver Cirrhosis Due to Congenital Obliteration of Choledochus: Case. G. Ishiyama.—p. 56.  
Method of Extracting Acid-Fastness from Acid-Fast Bacilli (Promile-Gas Method). T. Hashimoto.—p. 57.  
Surgically Extirpated Splenomegaly in Manchuria. S. Hayashi.—p. 57.  
Cultivation of Tubercle Bacilli: Part I. Method of Isolation of Tubercle Bacilli by Means of Gas Producing. H. Tsubosaki and H. Inoue.—p. 58.  
Demonstration of Virus of Spotted Fever (R. Exanthematofebri) in Sections from Various Organs of the Rat. R. Okamoto and S. Matsuyama.—p. 59.

## Bulletin de l'Académie de Médecine, Paris

116: 215-248 (Oct. 20) 1936

- Mortality of Children Aged from 5 to 15 Years. A. Loir and H. Legang-noux.—p. 219.
- Vaccination Against Yellow Fever with Laigret's Vaccine. C. Mathis, C. Durieux and M. Mailhis.—p. 226.
- \*Prognostic Value of Bactericidal Power of Serum in Pulmonary Tuberculosis. P. Courmont and H. Gardère.—p. 238.
- \*Cholesterol and Methylated Antigen Associated in Treatment of Tuberculosis. F. Barbary.—p. 242.

**Bactericidal Power of Serum in Tuberculosis.**—Courmont and Gardère report observations on the prognostic value of the bactericidal action of serum in pulmonary tuberculosis. Previously they described how in vitro tests of the bactericidal power of serum to homogeneous liquid cultures of the tubercle bacilli could be performed. Culture growth could be stimulated or inhibited by the addition of the serum removed from certain tuberculous patients. The method in brief involves the use of four tubes of culture medium with definitely measured proportions of bacilli and serum. The forty cases studied in this report were taken from persons with active tuberculous lesions. The blood was drawn during the first days of hospitalization and before any treatment had been instituted. Eleven of these patients had a weak bactericidal power and five of these died. The other twenty-nine patients showed a strong bactericidal power of the serum and only four died. Thus, among the group of patients showing the weak bactericidal power of the serum, 45 per cent died, while only 13 per cent of those with a strong bactericidal serum died. They concluded from these and previously published results that investigation of the bactericidal power of the serum can be of some prognostic value in pulmonary tuberculosis. From the standpoint of general pathology these facts are important: it seems logical to believe that increase in the bactericidal power of the blood of certain animals almost entirely refractory to tuberculosis and the elevation of bactericidal power of the blood of tuberculous persons are excellent signs of general resistance.

**Cholesterol and Methylated Antigen in Treatment of Tuberculosis.**—Barbary adopted a preparation consisting of 0.05 cc. of benzyl cinnamate, 0.1 cc. of pure cholesterol, 0.125 cc. of camphor and 5 cc. of pure olive oil washed with alcohol in the treatment of tuberculosis. One ampule containing 5 Gm. of this solution and 0.5 or 1 Gm. of the dilute methylated antigen of the Pasteur Institute and, finally, another ampule of the prepared solution were aspirated into a 10 cc. syringe. The mixture was then injected subcutaneously but extremely slowly. For the first two weeks the injections were made twice a week. On each intervening day two ampules of the cholesterol solution without the antigen were injected. Following this course of treatment there was a week of rest. For the succeeding two weeks the same technic was repeated but the amount of antigen doubled. The procedure was continued as long as necessary. There were no reactions, no shock and no interruption of daily occupation from this method of treatment. It is applicable in different forms of tuberculosis, including the pulmonary, osseous, cutaneous and ganglionic, and is effective in adults as well as children. The results were slow with some and fast with others but were evidenced by an arrested evolution of the process, drop in temperature, increase in weight and a more or less active regression of the lesions.

## Presse Médicale, Paris

44: 1681-1704 (Oct. 28) 1936

- \*Hemostatic and Coagulant Effects of Primary Octylic Alcohol on Hemorrhagic Syndromes. A. Clerc, J. Sterne, J. Delamare and R. Paris.—p. 1681.
- Carbolated Antirabic Vaccines: Italian Method of Treatment of Rabies. P. Remlinger and J. Bailly.—p. 1682.
- Latest Results of Albee's Operation for Pott's Disease of Adult. G. Leclerc.—p. 1684.

**Hemostatic Effects of Octylic Alcohol.**—Clerc and his colleagues state that previous work has demonstrated that bodies which lower superficial tension exert a coagulating action on the blood. This action can be demonstrated by simple mixtures in vitro, but it is even more marked following intravenous injection in the dog. They report ten cases, in all of which hemorrhagic states existed from various causes, treated in the attempt to increase the coagulability of the blood. The preparation used consisted of a pure octylic alcohol in 10 per cent ethyl alcohol, the eventual titer being about 1:1,000. Fifteen cubic centi-

eters of this solution was injected slowly into the vein. The coagulation time was taken from the vein of the opposite arm immediately before and fifteen minutes after the injection. Bleeding time was also determined by the classic method of Dukes. The most important result of these experiments was the definite harmlessness of the method. The coagulation time was found shortened in eight of nine patients. This was effected with great rapidity. The degree, however, varied from case to case. The duration varied widely but was observed to last from about seven days to eight weeks. The bleeding time seemed to be little modified. The clinical results were favorably influenced and there was a tendency for hemorrhages to disappear. The mode of action remains obscure. Because of the innocuousness of the procedure it can be tried without risk in any case of hemorrhagic state. While further investigation is necessary, these preliminary results are encouraging.

## Clinica Medica Italiana, Milan

67: 655-726 (Oct.) 1936

- Roentgen Differential Diagnosis of Aortitis. R. Avegno.—p. 657.
- Diffuse Sarcoma of Stomach: Classification. L. Loi.—p. 678.
- \*Alterations of Structures at Base of Cranium in Lipoid Nephrosis. G. Barbaro-Forleo.—p. 696.
- Behavior of Glycemia in Acute Inflammation of Lung. A. Bologna and G. C. Sironi.—p. 705.

**Changes in Structures at Base of Cranium in Lipoid Nephrosis.**—Barbaro-Forleo reports two cases of lipoid nephrosis. The roentgen examination of the structures at the base of the cranium showed the presence of sphenoid sinusitis, perisinusitis of the nearby sinuses and anatomic changes of the structures of the thalamo-encephalohypophyseal region. The author believes that lipoid nephrosis originates in dysfunctional disturbances of the hypophysis and the thalamo-encephalon. He advises x-ray examination of the base of the cranium in other cases of lipoid nephrosis and, if possible, anatomopathologic studies of the hypophysis and diencephalon in necropsies made on cadavers of persons who suffered from lipoid nephrosis.

## Riforma Medica, Naples

52: 1471-1504 (Oct. 31) 1936

- Formation of Free Bodies in Hernial Sac: Cases. I. Scalone.—p. 1471.
- Postapnoic Curve in Voluntary Apnea: Diagnostic Value. V. Gambini.—p. 1472.
- \*D'Amato Sign for Diagnosis of Pleural Effusion. A. Sacchetti.—p. 1476.

**Diagnosis of Pleural Effusion.**—The D'Amato sign for diagnosis of pleural effusion consists in the change of dullness from the vertebral column to the cardiac area for displacement of pleural fluid from the posterior to the anterior costomediastinal sinus during postural changes of the patient. The sign was described by the author in the *Riforma medica* 51:1503 (Oct. 5) 1935 and abstracted in *THE JOURNAL* Dec. 28, 1935, page 2190. Sacchetti investigated the sign in a great number of cases. His results confirm those of D'Amato with respect to the value of the sign in diagnosis of pleural effusion. The author advises resorting to the sign, which he considers easy to determine and as valuable as Maragliano and Grocco's signs, for the diagnosis of pleural effusion and for the differential diagnosis of several diseases of the respiratory tract.

## Brasil-Medico, Rio de Janeiro

50: 991-1012 (Nov. 14) 1936

- \*Alkali Reserve in Tuberculosis. A. Baer Bahia.—p. 991.
- Adenofibroma of Trachea: Case. T. Falcão.—p. 996.
- Diagnosis of Leprosy in Santos: Work in Ambulatory Gaffrée e Guinle. A. Gonçalves de Castro Cerqueira.—p. 998.
- Prevention of Tuberculosis. J. R. Da C. Doria.—p. 1000.

**Alkali Reserve in Tuberculosis.**—Baer Bahia says that acidosis is one of the most frequent complications of tuberculosis. Whether acidosis precedes the development of tuberculosis or is caused by it is not known. In tuberculous acidosis a vicious circle is established. Acidosis retards the processes of organic combustions and this retardation increases the acidity of the body fluids. Administration of tuberculin induces modifications in the acid base equilibrium. Patients with a low alkali reserve show an intolerance to tuberculin, which is manifested by tachycardia and loss of weight. Patients with a

normal or slightly increased alkali reserve show a relative bradycardia and increase in weight after the administration of tuberculin. Gold salts administered to tuberculous patients induce a decrease in the alkali reserve which oscillates between 10 and 20 per cent. The decrease of the alkali reserve in these cases is independent of the dose of gold salts injected provided it does not surpass from 0.25 to 0.1 Gm. of the salt. A decrease in alkali reserve is produced immediately after the injection and lasts about three hours and a half. In cases of intolerance to gold salts the use of sodium bicarbonate or citrate controls intolerance. The study of the physiology of the acid base equilibrium in tuberculosis shows the importance of metabolic disturbances in the beginning and development of tuberculosis. The latter is an infection, but its development depends on special dysergic conditions of the patient.

### Revista Médica Cubana, Habana

47: 1103-1208 (Nov.) 1936

- \*Does Function of Diaphragm Return in Phrenicectomized Patients? R. M. Boza Mesa.—p. 1103.  
Infantile Hysteria Cured by Psychoanalysis. B. Cardelle y Penichet and L. Muñiz Angulo.—p. 1125.

**The Diaphragm in Phrenicectomized Patients.**—Boza Mesa states as a fact that the diaphragm resumes its function after phrenicectomy. He followed the evolution of paralysis in a group of eight patients and found that in all cases the collapse of the lung was successfully obtained and the mobility and functions of the diaphragm were reestablished within one and five years after phrenicectomy. The several hypotheses given in the literature as an explanation for the resumption of diaphragmatic functions are supplementary innervation by the phrenic nerve of the opposite side to that on which phrenicectomy was done, and innervation from the intercostal, subclavian or accessory phrenic nerves or else by sympathetic fibrils. The author's report confirms the reports in the literature on the reestablishment of diaphragmatic function after phrenicectomy and the time in which the function is resumed. The mechanism by which mobility and function of the diaphragm are reestablished depends on certain factors not yet determined.

### Semana Médica, Buenos Aires

43: 1249-1320 (Nov. 5) 1936. Partial Index

- Excretion Urography. H. D. Berri.—p. 1249.  
Transplantation of Bovine Hypophysis in Human Beings. C. P. Waldorp, J. Reforzo Membrives and S. E. Luchetti.—p. 1277.  
\*Adiposogenital Dystrophy from Late Syphilis: Case. J. B. Galand.—p. 1288.  
Acute Edema of Lung in Mitral Stenosis and Insufficiency: Case. D. Boccia.—p. 1296.  
Pregnancy and Pernicious Anemia. M. Mordegliá and E. Terán Piedrabuena.—p. 1302.  
Fibromyxoma of Abdominal Wall: Case. R. Pini and M. Nicastro.—p. 1307.

**Adiposogenital Dystrophy from Late Syphilis.**—In the case reported by Galand a man, aged 69, acquired syphilis at 23 and was insufficiently treated. Some time later he married and had two children. At the age of 38 he suffered from a semigeneralized alopecia, which left only a small amount of hair on his head. This was followed soon by the establishment of excessive thirst, polyuria, feminine obesity, diabetes insipidus and a typical Fröhlich syndrome. The condition lasted ten years, at the end of which time he was given antisyphilitic treatment, which controlled obesity and diabetes and started regrowth of the hair. The treatment, however, had no effect on the sexual disturbance. A diagnosis of adiposogenital dystrophy from late syphilis was made. The blood changes (oligocythemia, oligochromemia and mononucleosis), the presence of metabolic disturbances and the conservation of a clear mind, which are characteristic properties of adiposogenital dystrophy, were present in the patient's case. The syphilitic etiology is undoubted. Roentgen studies of the skull and of the sella turcica showed normal structures, but the functions of the hypophysis could not be evaluated. The author believes that the adiposogenital dystrophy developed from functional disturbances of the hypophysis by a syphilitic gumma located in the hypophyseal region or by a syphilitic meningo-encephalitic process. His opinion is based on the previous existence of obesity and diabetes (two conditions that originate in functional hypophyseal disturbances), the previous existence of thirst and

polyuria (two conditions that originate in anatomic changes of the hypothalamus) and the satisfactory results of anti-syphilitic treatment in controlling these disturbances.

### Medizinische Welt, Berlin

10: 1537-1572 (Oct. 24) 1936. Partial Index

- Is Meat Diet Unnecessary and Harmful? P. Schenk.—p. 1537.  
Diurnal Rhythms in Their Significance for Hormone Therapy. A. Jores.—p. 1542.  
How to Recognize and Overcome Resistance in Treatment of Neuroses. O. Kant.—p. 1545.  
\*Carcinoma on Basis of Endometriosis. E. Vogt.—p. 1548.  
Diseases of Urinary Organs During Pregnancy. O. Wolf.—p. 1550.

**Carcinoma on Basis of Endometriosis.**—Vogt, after reviewing a case that was described by Hanser, reports a case of his own. The patient, a woman now 53 years of age, underwent roentgen castration at the age of 35 on account of severe hemorrhages. There were recurrences of the hemorrhages, which were counteracted by repeated irradiations. In August 1935 the patient was again hospitalized on account of severe hemorrhages and this time the uterus was removed by an abdominal radical operation. The recovery was uneventful, but after ten months the woman complained of a downward pressure, backache and a peculiar sensation in the rectum. The examination revealed nodular thickening of the posterior vaginal wall below the scar and a tough, irregular infiltration in the entire rectovaginal septum. The histologic examination of a nodule of the posterior vaginal wall disclosed a carcinoma on the basis of a benign endometriosis.

### Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

103: 185-304 (Oct.) 1936. Partial Index

- Estrogenic Hormone as Sex Specific Growth Hormone and Its Relation to General Growth Hormone. L. Seitz.—p. 185.  
Problems in Operation of Genital Prolapse. A. Mayer.—p. 194.  
Method of and Indications for Cesarean Delivery. R. T. von Jaschke.—p. 198.  
\*Reexamination and Simplification of Pregnancy Reaction According to Visscher and Bowman. B. Friedrich.—p. 211.  
Bactericidal Action of Blood in Puerperal Fever and Cervical Carcinoma. F. Daels.—p. 217.

**Modification of Pregnancy Reaction According to Visscher and Bowman.**—Friedrich directs attention to the chemical pregnancy reaction of Visscher and Bowman (*Deutsche med. Wchnschr.* 60:1837 [Nov. 30] 1934; abstr. *THE JOURNAL*, Feb. 2, 1935, p. 431). Numerous experiments and modifications convinced him that the outcome of the reaction is chiefly determined by the hydrochloric acid. Methyl cyanide and hydrogen dioxide seem to be least involved in the reaction, and phenylhydrazine hydrochloride gives the fluid the basic yellow color. If these three reagents are omitted, the color changes only from yellowish brown to brown. However, if these three reagents are used and only hydrochloric acid is omitted, there is no reaction whatever. To prove that the gonad-stimulating factor is the only hormone which, when treated with hydrochloric acid, produces a color reaction, the author tested a number of other hormone preparations. He found that, aside from slight turbidities produced by thyroxine and insulin, the gonad-stimulating factor remains the only hormone which, when heated with hydrochloric acid, gives a strong color reaction with a rather coarse precipitate. The same 312 urine specimens, which he examined according to the technic of Visscher and Bowman, he examined also according to two methods devised by himself. In the first he added to 1 cc. of urine, the specific gravity of which had been brought to 1.015, 3 drops of a 25 per cent solution of hydrochloric acid and heated this mixture for twenty-five minutes in a boiling water bath. A clear, permeable light brown fluid without a precipitate indicates a negative reaction, but the test is positive if the urine is reddish brown or a dark brown and if a precipitate makes it turbid. In the second method 5 drops of a 25 per cent solution of hydrochloric acid are added to 1 cc. of urine (specific gravity of 1.015). Then the mixture is heated to the boiling point for exactly two minutes over the Bunsen burner. A light brown indicates a negative reaction; a reddish brown or dark brown a positive reaction. A precipitate is usually absent with this technic. Only five contradictory results were obtained in the 312 specimens of urine (tested with the Visscher-Bowman and the author's technics). The hydrochloric acid method gave the correct results in these five cases.



**Zentralblatt für Chirurgie, Leipzig**

63: 2593-2640 (Oct. 31) 1936

- \*Arteriographic Presentation of Injuries of Cerebral Vessels. W. Löhr.—p. 2359.
- Newer Methods of Treatment in Cases of Prostatic Disease in Which Operations Cannot be Performed. O. Henningsen.—p. 2608.
- Types of Splints for Transport of Fractures. M. Tiegel.—p. 2612.
- Surgical Treatment of Trophoneurotic Decubitus Ulcers of Feet. A. N. Popovici, M. V. Ghimpezeanu, A. Valcanu and G. Georgescu.—p. 2617.
- Ictenolytic Icterus Cured by Splenectomy: Case. F. Dobos and J. Erdély.—p. 2619.

**Injuries of Cerebral Vessels.**—Löhr cites cases treated at the surgical clinic of the State Hospital of Magdeburg-Alstadt in which demonstration and localization of thrombosis or injury to one of the larger cerebral vessels was made possible by arteriography. The author has in mind cases of severe injury to brain tissue presenting complicated neurologic symptoms and an indefinite history. It is here that arteriography is capable of rendering service in establishing a diagnosis and permitting more active treatment. This is particularly true of hemorrhages from the epidural or subdural vessels, since it is this type of case that constitutes the most frequent indication for surgical intervention in order to relieve the classic symptoms of increased intracranial pressure. Experience with surgery of brain tumors as well as that with hemorrhagic pachymeningitis demonstrates that, besides the purely mechanical effect, bleeding is capable of producing a toxic effect as well. The author likewise calls attention to the fact that the conservative method of lumbar puncture is not always a safe procedure in the severe cases complicated by swelling of the brain. The surgeon's problem is to be able to select from the cases of brain injury those due to bleeding and, when possible, to aid them by the removal of blood clots or by arresting the bleeding. Arteriography constitutes the most reliable method for localization of the bleeding. The method is indicated in cases of skull and brain injury in which the history and the neurologic examination fail to establish an accurate diagnosis of epidural or subdural hemorrhage.

**Polska Gazeta Lekarska, Lwów**

15: 845-864 (Nov. 1) 1936

- Anomalous Division of Cells and Its Influence on Development of Some Individual Characteristics. J. Alexandrowicz.—p. 845.
- Investigations on Acute Form of Tuberculosis Among Rabbits: So-Called Tuberculosis of Yersin Type. F. Van Deinse and M. A. Domalski.—p. 847.
- Comparative Research on Tubercle Bacilli in Immunized and Non-immunized Rabbits. T. Kiclanowski and E. Lukidis.—p. 848.
- Degeneration and Regeneration of Peripheral Motor Neurons: Morphologic Functional Aspect. W. S. Holobut and B. Jalowy.—p. 849.
- \*Value of Microscopic Examination of Liver in Diagnosis of Death by Drowning. B. Popielski.—p. 856.

**Diagnosis of Death by Drowning.**—Popielski says that it is often impossible to make a diagnosis in cases of drowning. He reviews the literature and the minutes of postmortem examinations in cases of death by drowning and finds that the supposed signs, (1) excess of venous blood supply in the liver, (2) weight of the liver and (3) the dark red color, are the same symptoms that appear in cases of asphyxiation. He experimented on thirty-six animals and concluded that microscopic examination of the liver is not dependable and therefore impractical. He summarizes his views as follows: A superfluity of venous blood in the liver has a distinct value. It always appears in cases of death by drowning and so aids in the diagnosis. This change may be verified in histologic specimens and, when other anatomic symptoms are lacking, points to death by drowning. But it is also found in asphyxiation.

**Vrachebnoe Delo, Kharkov**

19: 577-656 (No. 7) 1936. Partial Index

- Vitality of the Heart. G. N. Nikolaev.—p. 585.
- Comparative Evaluation of Water Tests for Fractional Diagnosis of Circulation. T. I. Meerzon and A. N. Berinskaya.—p. 587.
- Effect of Histolysates on Take of a Transplant. F. Briker and I. Zilbert.—p. 595.
- Ultrafiltrability of Strain Neoplasms. M. F. Runova.—p. 601.
- \*Insulin Therapy in Pneumonia of the Aged. S. N. Sinelnikov.—p. 603.

**Insulin Therapy in Pneumonia of the Aged.**—Sinelnikov regards pneumonia as a state of nondiabetic pathologic acidosis running a course characterized by a pronounced anoxemia with a considerable increase in the blood sugar, increased breaking

down of albumin and fat, and marked lowering of the chloride metabolism. Achard was the first to refer to insulin as an alkalizing agent, and Kogan-Yasnyy was the first to apply it in the treatment of pneumonia. The blood sugar of the pneumonia patients was found to vary between 0.120 and 0.160 at the peak of the temperature curve. With the fall of the temperature the blood sugar content was from 0.09 to 0.08 per cent. The chlorides at the height of the disease varied between 0.58 and 0.6, during the crisis from 0.93 to 6.8, and several days after the crisis from 8.8 to 12. Insulin was administered twice daily in doses of from 0.5 to 1.5 Gm. The author reports 122 cases of croupous and of bronchial pneumonia treated by this plan without a fatality. In a specially selected group of eighteen elderly patients there was not a single fatal issue. The author reports four cases in which the insulin therapy did not prevent death. On necropsy these were shown to have been complicated respectively by carcinoma, active tuberculosis, infarct of the left lung and a ruptured aortic aneurysm.

**Nederlandsch Tijdschrift voor Geneeskunde, Haarlem**

80: 5289-5380 (Nov. 28) 1936. Partial Index

- Pneumocephalus. W. G. Sillevius Smitt.—p. 5296.
- Acceleration of Normal Delivery. H. P. A. Smit.—p. 5303.
- \*Local Disturbances of Autonomic Innervation Resulting from Trauma. C. T. Van Valkenburg.—p. 5311.
- Pain in Shoulder. L. L. Posthuma.—p. 5317.
- Unusual Case of Hypercresis. B. Van Tricht.—p. 5319.
- Venereal Mixed Chancre of Neck: Case. J. Nieuwenhuysse and P. J. Van Putte.—p. 5322.
- Enlargement of Vagina and Uterus Produced by Estrogen. R. Schuurmans.—p. 5326.

**Disturbances in Autonomic Innervation.**—Van Valkenburg describes three cases of neurovegetative disturbances of traumatic origin. In the first case a disturbance in the sympathetic innervation of the hands and the forearms developed in a man who, as the result of a fall, held himself with his hands in order to keep from drowning until he was rescued. Following this, pain and stiffness developed in his hands and he was unable to work. An examination four months later revealed changes in the hands and lower part of the arms resembling those of acromegaly (skin cold, pasty and with red and blue spots; nails dry and brittle). Some of the fingers were bent and could not be actively stretched out; attempted passive stretching caused severe pain. The sensitivity was not impaired and the electrical irritability was likewise normal. Roentgenoscopy revealed atrophy of the hands and lower part of the arms. The condition improved in the course of time. The author is convinced that the disorders were caused by a local impairment of the sympathetic innervation, which in turn resulted from the blunt force exerted on the hands in the course of the fall. The second case concerns a man in whom trophic disturbances developed in the region of the peroneal nerve following a fracture of the tibia. In the third patient the disturbances in the sympathetic innervation developed as the result of a stroke of lightning.

**Acta Medica Scandinavica, Stockholm**

90: 1-314 (Oct. 7) 1936. Partial Index

- \*Pancreatic Secretion in Man After Intravenous Administration of Secretin. G. Ågren and H. Lagerlöf.—p. 1.
- Processes of Stimulation and Inhibition of Connective Tissue. V. G. Boudyline.—p. 59.
- Immediate Effect of Splenectomy on Blood Picture in Essential Thrombopenia. S. Wahlqvist.—p. 81.
- Experimental and Clinical Observations on Influence of Hypophyseal and Parathyroid Preparations on Secretory and Motor Functions of Stomach. D. M. Rossiisky, J. J. Kantorovitch, J. J. Karmasine and A. A. Jouravel.—p. 151.
- Standardization of Liver Extracts. J. Dedichen.—p. 195.
- \*Autocerebrospinal Fluid Therapy of Epidemic Cerebrospinal Meningitis of Children. J. S. Weiner and S. F. Bakkaal.—p. 214.

**Pancreatic Secretion in Man.**—Ågren and Lagerlöf state that, although Bayliss and Starling performed their classic secretin experiments in 1902, there are still authors who express doubts as to the existence of a secretin stimulation as an integral part of normal digestion. On the basis of their experiments the authors state that it is possible to give the following picture of the effect of secretin stimulation on the digestive mechanism in man: After the intravenous injection of secretin a lively discharge of pancreatic juice sets in, usually before a minute has elapsed. The volume of secretion reaches its maximum within twenty minutes, usually within ten minutes,

the peak being followed by a rather slow decline. Parallel with the volume there is, as a most conspicuous feature, a rapid rise in the concentration of bicarbonate. The concentration first lags a little behind the volume and, after the maximal concentration has been reached, declines somewhat slower than the volume. The authors consider the dosage of secretin used in their experiments a submaximal dose. With this dose the maximal bicarbonate concentration is closely milliequivalent to the blood plasma and the gastric juice. The discharge of the pancreatic enzymes follows a somewhat different course. There is during the first ten minutes a great amount of enzymes (trypsin and diastase) excreted in the first abundant secretion of juice, an amount no doubt representing material stored in the gland before the hormone stimulation. After this sudden peak a secretion of presumably new-formed enzyme becomes apparent, about the time the bicarbonate concentration reaches its maximum. This enzyme production continues at a rather constant level for a considerable time, at a higher rate than before the secretin stimulation. As the volume of the juice diminishes the enzyme concentration increases. In normal persons after the secretin injection, bile does not appear in the duodenal content or in occasional traces only. In persons who have had their gallbladder removed but who otherwise are normal, the situation is different. Here every sample after the secretin injection is more or less heavily stained with bile. Secretin thus stimulates the flow of bile in man, a flow which in unimpaired normal persons on the whole is taken up into the gallbladder just as it is in animals. The variations in secretin response in the different individuals of the series might be considered within moderate limits, the agreement between repeated tests on the same person being close.

**Autocerebrospinal Fluid Therapy of Epidemic Meningitis in Children.**—Weiner and Bakkal during 1933, 1934 and 1935 treated fifty patients suffering from cerebrospinal meningitis. Seven were treated with a polyvalent meningococcus serum, nineteen by lumbar punctures and twenty-four by subcutaneous injection of the patients' own cerebrospinal fluid. The authors were impressed with the unsatisfactory results of the polyvalent vaccine therapy. The results were poorest with the method of lumbar puncture. Of the nineteen patients so treated, fifteen died. Of the twenty-four patients treated by hypodermic administration of the patients' own cerebrospinal fluid, nineteen recovered and five died. Despite the small number so treated, the authors regard this simple method of treatment as more promising than any heretofore attempted.

### Finska Läkaresällskapet's Handlingar, Helsingfors

79: 755-838 (Sept.) 1936

Result of Roentgen Treatment of Carcinoma of Neck of Uterus. J. J. Chydenius.—p. 755.

Attempts with Anticarrhal Vaccine. E. Wolff.—p. 765.

\*Intravenous Anesthesia with Sodium Salt of *n*-Methyl-Cyclo-Hexenyl-Methyl Barbituric Acid: Three Years' Experiences. H. E. Blomquist.—p. 773.

\*Adsorption Ability of Plasma Proteins: Continued Investigations. M. C. Ehrström.—p. 802.

Blood Groups and Gonoreaction. T. Packalén.—p. 808.

**Intravenous Anesthesia with *n*-Methyl-Cyclo-Hexenyl-Methyl Barbituric Acid.**—On the basis of 529 cases of anesthesia with the sodium salt of *n*-methyl-cyclo-hexenyl-methyl barbituric acid from 1933 to 1936, Blomquist states that the anesthesia occurs quickly and without disagreeable sensations; there is no excitation, but more or less muscular tension not infrequently occurs, perhaps with trembling of the body for several minutes. The awakening is usually quick and pleasant. It can be given without preparation, but a preanesthetic may advantageously be used, especially in young persons. It is suitable for all operations of short duration in which there is no danger of aspiration and as the introductory anesthesia in long continued interventions, particularly where there is fear of narcosis and in psychic disturbance, and is an excellent means for weak old persons. The dosage should receive especial attention; biologic dosage is recommended. The author advises against the use of this anesthetic in cases in which there are disorders of the liver and kidneys and in greatly dehydrated persons and says that the dosage must be given with greatest care in cases of toxic injury and fever. Postnarcotic unrest is an occasional drawback, and now and then a person resistant to the agent is encountered.

**Adsorption Ability of Plasma Proteins.**—Ehrström says that in cachexia due to tumor, as in nephroses in the sense of nephropathies with pronounced albuminuria, the adsorption ability of the plasma proteins is lowered and likewise does not depend on a hypoproteinemia or a hypo-albuminemia. A probable explanation of the phenomenon is to be sought in the disturbed synthesis of the plasma proteins. In nephrosis the loss of albumin through the kidneys leads to a primary reduction in the blood albumin, which is eventually compensated by an increased synthesis of plasma proteins. In cachexia from tumor the hypoproteinemia occurs because of an increased breaking down or defective synthesis. In both cases the hypothesis is that the disturbed synthesis of the plasma proteins results in the formation of plasma proteins not of equal rank with the proteins in the normal system but having a defective adsorption ability.

### Ugeskrift for Læger, Copenhagen

98: 935-960 (Oct. 1) 1936

Sanctorius Sanctorinus: Experimental Physiologist from Beginning of Seventeenth Century; with Investigations on His Relation to Danish Medical Science, on Tercentenary of His Death. E. Gotfredsen.—p. 935.

\*Hyperglobinemia with Disturbance of Central Nervous System on Toxic Infectious Basis with Remarks on Differential Diagnosis with Regard to Myelomatosis: New Case. J. Bing, M. Fog and A. V. Neel.—p. 944.

Two Rare Lesions of Divers. N. I. Nissen.—p. 950.

**Hyperglobinemia.**—Bing and his co-workers have previously reported two cases characterized by marked hyperglobinemia, with resulting high blood sedimentation reaction and positive formol reaction, and extensive changes in the central nervous system, especially in the cauda equina, spinal roots and medulla, together with changes in the spinal fluid. In the case now reported, a woman aged 57, with like changes in blood and spinal fluid, there were both in the central nervous system and outside it in the various organs localized inflammatory changes with numerous lymphocytes, plasma cells and cells belonging to the reticulo-endothelial system; in the bone marrow, signs of lively cell proliferation appeared but no signs of myeloma were found. Similar changes in the blood were seen in two microscopically verified cases of myelomatosis, but in the case in which the spinal fluid was examined it was normal, and in the other in which the central nervous system was examined, no changes were found which agreed with those in the three cases of hyperglobinemia with disturbance of the central nervous system described.

98: 961-980 (Oct. 8) 1936

\*Osteomalacia of Spinal Column. E. Meulengracht and A. R. Meyer.—p. 961.

\*Xanthomatosis Universalis Given Roentgen Treatment: Case. P. A. Blinkenberg.—p. 968.

Fourth International Congress for Experimental Cell Research in Copenhagen, August 10 to 15, 1936. H. Okkels.—p. 972.

**Osteomalacia of Spinal Column.**—Meulengracht and Meyer state that in four patients, who subsisted for a long time on a one-sided diet, a disorder of the spinal column developed with osteoporosis, hour-glass deformity and breaking down of vertebrae, changes similar to those in the so-called nonpuerperal forms of osteomalacia. The factors that lead to the development of osteomalacia are assumed to have been active in these instances. Depending on the kind and degree of the causative nutritional deficiency, the changes in the spinal column may appear alone or in combination with other deficiency symptoms. A case of combination with scurvy is reported.

**Roentgen Treatment of Xanthomatosis Universalis.**—Blinkenberg says that in his case of universal xanthomatosis in a girl, aged 2, clinical recovery after roentgen treatment over a period of three months is manifest two years after the end of treatment. The roentgen doses were all small, so that no epilation appeared, even on the cranium, where most of the treatment was given, and treatment of such large fields with larger doses would hardly have been possible without grave effect on the whole organism. He believes that irradiation was the curative factor, because the processes in the cranium were still developing while the other affected places were better treated and did not subside until sufficient treatment had been given locally.

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## CLASSIFICATION AND TREATMENT OF THE HEMORRHAGIC STATES

VALUE OF ROENTGEN IRRADIATION OF THE SPLEEN  
IN ESSENTIAL THROMBOCYTOPENIC  
PURPURA HAEMORRHAGICA

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SAN FRANCISCO

Werlhof<sup>1</sup> first published his description of "morbus maculosus haemorrhagicus" in 1775, but knowledge concerning the nature of hemorrhagic disease has been slow in advancement. Since his publication, many attempts have been made to segregate various clinical types of purpura and to define their relationship to a defect in the clotting mechanism. Although efforts to explain the many etiologic factors concerned and the particular defect involved have not been entirely successful, certain aspects have been clarified by recent contributions to hematology. In view of the additional new facts, the present discussion will be devoted to a partial reclassification of the hemorrhagic disorders and to methods of treatment.

### CLASSIFICATION OF THE HEMORRHAGIC STATES

Hornung<sup>2</sup> in 1734 divided purpura into three groups: purpura simplex, febrile purpura, and purpura scorbutica. Since then from time to time various attempts have been made to subdivide purpura into clinical entities. Among these endeavors may be mentioned the contributions of Willan,<sup>3</sup> Schönlein,<sup>4</sup> Henoch,<sup>5</sup> Morawitz<sup>6</sup> and Kugelmass.<sup>7</sup> At present it must be recognized that the difficulties inherent in the problem of bleeding and blood clotting offer limitations in constructing an entirely satisfactory classification of the hemorrhagic states. Pepper and Farley,<sup>8</sup> in their textbook on hematology, give a clearer concept of the fundamental factors involved by means of a classification based largely on a deficiency of certain elements

essential to coagulation. A classification from a clinical point of view may be made, as in the accompanying tabulation, depending on the defect in the clotting mechanism or the vascular tree.

In addition to a carefully taken history of the course of illness and a thorough physical examination, laboratory aid is necessary for the diagnosis of hemorrhagic diseases. The laboratory procedures should include, as recorded in figure 1, the red blood cell count and hemoglobin concentration, the hematocrit determination, and the white blood cell and differential counts. These are done to determine whether or not anemia is present, and its type if present; whether the bone marrow is showing changes characteristic of leukemia or of one of the leukemoid processes. In all types of hemorrhagic disease it is especially important to enumerate the platelets and to determine the bleeding time and the time required for a specimen of blood to coagulate and to retract. In addition to these, it may be necessary to determine the fibrinogen content of the blood plasma and the degree of resistance or fragility of the platelets as evidenced by the prothrombin time.

In recent years it has become more and more apparent<sup>9</sup> that lessened capillary resistance or increased fragility is associated with spontaneous bleeding into the skin. An estimation of the capillary resistance may be made by the so-called Hess,<sup>9</sup> Rumpel-Leede<sup>10</sup> or tourniquet test. A modification of this is the flicking test. If a more accurate estimation is required, the Dalldorf<sup>11</sup> apparatus may be employed, and the number of petechiae produced under negative pressure in a small area may be counted.

In all types of hemorrhagic disease resulting from decreased formation of platelets, the bleeding time is increased, capillary hemorrhages appear in the skin following slight trauma or venous stasis, and there is a failure of the clot to retract. The clot is formed within normal time. There may be considerable variability between the degree of capillary resistance and the platelet level. Some patients exhibit markedly increased permeability of the capillaries, although the number of platelets is well above 100,000 per cubic millimeter of blood.

Since specific nutritional elements are needed to maintain the integrity of capillaries<sup>12</sup> and to form liver and blood proteins, a detailed history of the dietary habits of the patient should be recorded.

On the basis of the information gained with regard to a familial hemorrhagic tendency, the physical signs and

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2. Hornung, A. L. F.: *De Purpura Sive Febre Miliari*, Jena, 1734.

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7. Kugelmass, I. N.: *Clinical Control of Chronic Hemorrhagic States in Childhood*, J. A. M. A. 102: 204 (Jan. 20), 287 (Jan. 27) 1934.

8. Pepper, O. H. P., and Farley, D. L.: *Practical Hematological Diagnosis*, Philadelphia, W. B. Saunders Company, 1933, p. 310.

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10. Leede, C.: *Hautblutungen durch Stauung Hervorgerufen als Diagnostisches Hilfsmittel beim Scharlach*, München. med. Wchnschr. 58: 293, 1911.

11. Dalldorf, Gilbert: *A Sensitive Test for Subclinical Scurvy*, Am. J. Dis. Child. 46: 794 (Oct.) 1933.

12. Wolbach, S. B., and Howe, P. R.: *Intercellular Substances in Experimental Scorbutus*, Arch. Path. & Lab. Med. 1: 1 (Jan.) 1926.

the abnormalities of the blood, the hemorrhagic diseases may be classified, within limitations, as in the tabulation.

The actual cause of platelet deficiency in a given patient may be undetermined. Accordingly these may be designated as idiopathic or essential thrombocytopenia. Certain investigators are of the opinion that the

### Classification of Hemorrhagic Diseases

- I. Deficiency in blood-clotting elements
  - A. Thrombocytopenic purpura
    1. Essential (idiopathic)
      - a. Splenic
      - b. Ovarian (David's disease)
      - c. Deficiency in megakaryocytes
      - d. Allergic (focal infections, drugs)
    2. Symptomatic
      - a. Bone-marrow destruction
        - Aplastic anemia
        - Leukemia
        - Myelophthisic anemia
        - Arsenic intoxication
        - Benzene
        - Radium
        - X-rays
        - Septicemia
  - B. Fibrinogen
    1. Liver disease (cirrhosis, chloroform and phosphorus poisoning, leukemia)
  - C. Calcium
- II. Abnormality in blood-clotting elements
  - A. Obstructive jaundice (cysteine)
  1. Qualitative alteration of fibrinogen
  - B. Hemophilia
    1. Qualitative blood platelet deficiency
- III. Defect in vascular mechanism
  - A. Allergy
    1. Schönlein-Henoch's purpura
    2. Focal infection
  - B. Nutritional
    1. Scurvy (vitamin C deficiency)
    2. ? Protein deficiency
  - C. Infectious diseases
    1. Subacute bacterial endocarditis
    2. Acute infectious diseases
  - D. Arteriosclerosis
  - E. Toxic (snake venom, histamine, quinine, potassium iodide, phenolphthalein)
  - F. Congenital
    1. Hereditary hemorrhagic telangiectasia

spleen is responsible for the platelet deficiency, by actually destroying these elements of the blood,<sup>13</sup> by removing them by phagocytosis, or through some regulatory influence exerted on the megakaryocytes in the bone marrow.<sup>14</sup> Others<sup>15</sup> believe that severe bleeding from the mucous membranes may be associated with a deficiency of ovarian hormone and concomitantly with a reduction in the circulating platelets.

The relationship between the megakaryocyte and the formation of platelets is still a matter of controversy. In a recent study on patients with idiopathic thrombocytopenic purpura, Lawrence<sup>16</sup> found that in this disease the bone marrow may present no abnormal morphologic characteristics or the megakaryocytes may be abnormal. Further studies such as his, by biopsy methods, are indeed indicated in this disease. Should the megakaryocyte in time be definitely proved to be the precursor of the platelet, a more satisfactory explanation may be offered of depressed marrow function, especially that occurring in association with certain allergic phenomena and infectious diseases and following the ingestion of certain drugs.<sup>17</sup> However, it is well recog-

nized that malignant neoplasms, leukemia, septicemia, arsenic, benzene, x-rays and radium may depress platelet production either through mechanical or through chemical destruction of the bone marrow.

In the presence of marked destruction of hepatic tissue or obstructive jaundice the blood fibrinogen may be quantitatively or qualitatively altered. Although formerly it was thought that calcium deficiency was responsible for the bleeding tendency of the jaundiced patient, it has been shown by Carr and Foote<sup>18</sup> that no important quantitative change in the clotting elements occurs but that the quality of fibrinogen and fibrin is definitely altered. These investigators believe that this is due to an accumulation in the blood of incompletely metabolized products of proteins, probably cysteine and its related mercaptans.

The relationship between the vascular system and an increased tendency to hemorrhage has not been adequately studied. It is presumed that the minute capillaries become weakened by sensitization through some bacterial product or drug and thus exhibit an allergic state. Often during the course of infectious diseases—epidemic meningitis, typhoid—petechial hemorrhages appear in the skin through interaction of the bacterial toxin on the endothelial structures or by actual lodgment of bacterial emboli. When the arterioles are altered by arteriosclerotic changes, they may be easily ruptured following slight trauma and thus account for ecchymoses found on the backs of the hands of elderly persons.

Further than this, easy bruising should make one think of a deficiency in vitamin C. It is now well recognized that subclinical scurvy<sup>19</sup> may exist without

PT: MRS. C. H.			
BEFORE TREATMENT		EXAMINATION OF BLOOD	
AFTER TREATMENT			
JAN. 14, 1936	COAGULATION TIME: 15 MIN. (NO CLOT RETRACTION AFTER 4% NaCl)	JAN. 23, 1936	COAGULATION TIME: 5 MIN. (GOOD CLOT RETRACTION AFTER 1 HOUR)
HGB. 42% (56 Gm. SWD)	BLEEDING TIME: 15 MIN.	HGB. 52%-73% (SWD)	5 MIN. (GOOD CLOT RETRACTION AFTER 1 HOUR)
RBC. 3,750,000	PROTHROMBIN TIME: 25 MIN. (DUE TO TROMBOCYTOSIS)	RBC. 3,820,000	6 MIN. (DUE TO TROMBOCYTOSIS)
WBC. 43,750	TOURNIQUET TEST: POSITIVE	WBC. 6,000	TOURNIQUET TEST: NEGATIVE
PLATELETS 80,000	MONO. 5%	PLATELETS 210,000	MONO. 10%
RETICULOCYTES 42%	5 PLATELETS SEEN PER 100 WBCS ON FILM	RETICULOCYTES 65%	PLATELETS PRESENT ON FILM IN NORMAL NUMBERS
PMN. FIL. 51%		PMN. FIL. 6%	
NON-FIL. 20%		PMN. 11%	
PME. 6%		PMB. 3%	
S. LYM. 14%		S. LYM. 5%	
MONO. 5%		MONO. 10%	
CHARACTER OF THE CLOT	SEDIMENTATION RATE: 25 MM. IN 15 MIN. 21.5 " " 45 " "	CHARACTER OF THE CLOT	
PT'S CONTROL	VOLUME PACKED RBCS: 23 CC/100 CC BLOOD	PT'S CONTROL	
	MEAN CORPUSCULAR VOL. 62 CU/		
	MEAN CORP. HGB. 15.1		
	MEAN CORP. HGB. CONC. 20%		

Fig. 1 (case 2).—Laboratory aids necessary for the diagnosis of hemorrhagic diseases. Before and after roentgen irradiation over the spleen.

evidence of gross subcutaneous or subperiosteal hemorrhages and may be suspected in a person subsisting on an inadequate diet. Case 1 is an example of this:

CASE 1.—Subclinical scurvy; hypochromic anemia; menapausal psychosis.

History.—K. R., a widowed Irish woman, aged 46, entered the San Francisco Hospital April 15, 1935, in the service of Dr. L. H. Briggs, because of weakness and dizziness. For ten years prior to entry, a variety of complaints had developed among which were almost constant occipital headache and vague pains in the left side of the body, the left arm, left leg and left side of the chest. An intractable insomnia had developed and she had noted hot and cold flushes passing over her body. Her menstrual periods had become slightly irregular at

18. Carr, J. L., and Foote, F. S.: Progressive Obstructive Jaundice: Changes in Certain Elements of the Blood and Their Relation to Coagulation. *Arch. Surg.* 29: 277-296 (Aug.) 1934.

19. Mettler, S. R.; Minot, G. R., and Townsend, W. C.: Scurvy in Adults. *J. A. M. A.* 95: 1089 (Oct. 11) 1930.

13. Brill, N. E., and Rosenthal, Nathan: Treatment by Splenectomy of Essential Thrombocytopenia (Purpura Haemorrhagica). *Arch. Int. Med.* 32: 939-953 (Dec.) 1923.

14. Krumhaar, E. B.: Functions of the Spleen. *Physiol. Rev.* 6: 160 (Jan.) 1926.

15. David, W.: Ueber "Purpura"-Erkrankungen bei Frauen. *Med. Klin.* 22: 1755-1756 (Nov. 12) 1926. Nagy, G.: Ist es Berechtigt, im Rahmen der Hämorrhagischen Diathesen eine „Purpura Dysovarica“ als Selbständiges Krankheitsbild anzunehmen? *Ztschr. f. klin. Med.* 102: 284, 1925.

16. Lawrence, J. S., and Knutti, R. E.: The Bone Marrow in Idiopathic Thrombocytopenic Purpura. *Am. J. M. Sc.* 188: 37 (July) 1934.

17. Loewy, F. L.: Thrombocytopenic Purpura Due to Idiosyncrasy Toward Hypnotic Sedormid (Ureide Preparation) Allergotoxic Effects. *Lancet* 1: 845 (April 21) 1934. Stephan, R.: The Reticulo-Endothelial Cellular System of the Spleen in Relation to Blood Coagulation. *München. med. Wchnschr.* 67: 309 (March 12) 1920.

the flow more profuse than formerly. For ten years her dietary habits had been improper but during the past two years had been exceptionally so because of anorexia. Her breakfasts consisted of rolled oats with a small amount of milk and coffee, and for lunch she usually ate two or three slices of bread with the addition, about once or twice a week, of a helping of lima beans. The evening meal was usually more liberal



Fig. 2 (case 1).—Petechial hemorrhages on the forearm of patient with subclinical scurvy as result of positive test with tourniquet.

and consisted of soup and potatoes, cooked carrots or lima beans about twice a week, one slice of tomato about once in two weeks, and ham or corned beef every Sunday. She has neither cared for, nor does she eat, oranges or other fresh fruits and vegetables.

**Examination.**—The patient appeared slightly undernourished, in no obvious distress but with definite evidence of diminished mental acuity. The skin was pale, warm and moist, and there was no evidence of eruptions. The mouth was edentulous, and the tongue was slightly glossy and smooth but not tender. There was no lymphadenopathy. Neither the spleen nor the liver was enlarged. There was no edema of the ankles.

**Laboratory Procedures.**—The test meal revealed an achlorhydria. The blood examination showed red blood cells 3,300,000, hemoglobin 50 per cent (7 Gm.), color index 0.59 and leukocytes 3,850, with a normal differential count. The bleeding time was three minutes, and the platelets were 160,000 per cubic millimeter. A specimen of blood clotted in five minutes (method of Lee and White) and showed normal retraction. The sphygmomanometer cuff was applied above the elbow and inflated to just below systolic pressure. At the end of five minutes a shower of petechial hemorrhages appeared down the forearm, and about seventy-five were counted in an area 2.5 cm. in diameter. This is considered a definitely positive result of the tourniquet test.

**Course of Illness.**—A diet consisting of boiled milk and crackers was prescribed for the patient in order to eliminate the ingestion of foods containing vitamin C. She was given daily intravenous injections of 150 mg. of the sodium salt of cevitamic acid. On the fourth day of treatment the sphygmomanometer cuff was again applied to the arm and inflated, but very few petechiae appeared. This was considered a negative result of the tourniquet test. Figure 2 is a reproduction of a photograph showing the petechial hemorrhages that appeared in response to the tourniquet test prior to the treatment with the sodium salt of cevitamic acid, and figure 3 shows the result of a negative test four days later.

#### TREATMENT OF THE HEMORRHAGIC DISEASES

The foregoing is an example of the satisfactory treatment of subclinical scurvy with the sodium salt of cevitamic acid.

With regard to idiopathic thrombocytopenic purpura haemorrhagica, various methods of therapy have been suggested as being beneficial in the control of bleeding. Among the various drugs that have been used with supposedly beneficial results may be mentioned shock therapy with foreign protein, liver extract<sup>20</sup> both by mouth and parenterally, iron, ergot, snake venom<sup>21</sup> and cevitamic acid. Frequently more than one factor is operative in the causation of the hemorrhagic tendency, and the bleeding represents a summation of the various abnormalities. Accordingly, various methods of therapy must be used before satisfactory results may be expected. A dietary regimen has been suggested by Jones and Tocantins<sup>22</sup> and by Kugelmass<sup>7</sup> for patients who have had an inadequate intake of protein and foods containing vitamin C. In cases of mild purpura associated with a focus of infection, a permanent cure often follows the removal of the source of infection. Undoubtedly frequent transfusions of whole blood are of value in ameliorating symptoms in fulminating cases



Fig. 3 (case 1).—The forearm after four daily injections of the sodium salt of cevitamic acid. Note the fading petechiae and the failure of new ones to appear following the application of the tourniquet. (The larger pigmented areas are sites of venipuncture.)

of purpura. Removal of the spleen by surgical means is not entirely satisfactory. The mortality rate is high and a high percentage of patients have a recurrence of symptoms.<sup>23</sup>

20. Wits, L. J.: Pathology and Treatment of Anemia (Goulstonian Lecture), *Lancet* 1: 809, 1932.

21. Taylor, K. P. A.: Apparent Cure of Purpura Haemorrhagica by Bothropic Antivenin, *Bull. Antivenin Inst. America* 3: 42 (July) 1929.

22. Jones, H. W., and Tocantins, Leandro: The Treatment of Purpura Haemorrhagica, *J. A. M. A.* 100: 83-88 (Jan. 14) 1933.

23. Kracke, R. R.: The Effect of Splenectomy in the Purpuric Diseases, *South. Surgeon* 2: 203-211 (Sept.) 1933.



In 1920 Stephan<sup>17</sup> presented evidence showing cessation of hemorrhage in two patients with purpura fulminans following roentgen irradiation of the spleen. This was corroborated two years later by Bucky and Guggenheimer,<sup>24</sup> who additionally demonstrated a rise in blood platelets after this method of treatment. Since then there have been additional reports<sup>25</sup> in the literature emphasizing the usefulness of roentgen irradiation in patients with thrombocytopenic purpura haemorrhagica. Recently, Mettier, Stone and Purviance<sup>26</sup> concluded that a rapid rise in blood platelets occurred following irradiation of the spleen in five patients with this disease. Seven patients comprised the group for study. One patient died while under observation from an acute fulminating type of purpura. In another patient with chronic recurring purpura of two years' duration, splenectomy had been performed several months prior to roentgen irradiation. This patient subsequently had a recurrence of symptoms and on this

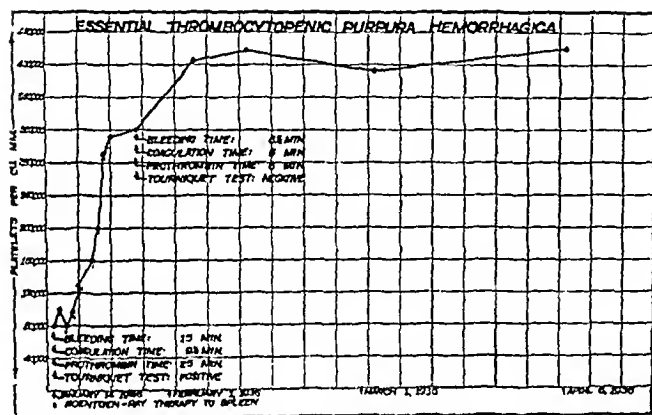


Fig. 4 (case 2).—Effect of roentgen irradiation over the spleen in a patient with thrombocytopenic purpura haemorrhagica. Note the rapid increase of the blood platelets.

occasion radiation was directed over the long bones. It was observed in the other five patients receiving treatment over the spleen and the patient receiving radiation over the long bones that an increase in circulating blood platelets was evident within from twenty-four to forty-eight hours after the first exposure to the roentgen rays. The platelets rose to as high as 250,000 and 500,000 per cubic millimeter in nine days, depending on the individual case. Treatments were given daily or every other day in doses of 200 roentgens until a total of from 1,200 to 3,300 roentgens was administered.

Since this report there has been an opportunity to observe an additional case, which may be reported as follows:

**CASE 2.**—*Recurring essential thrombocytopenic purpura haemorrhagica; hypochromic anemia.*

**History.**—C. H., a white American woman, aged 32, first visited her physician Aug. 4, 1935, complaining of bruising easily with slight trauma, bleeding from the gums and nose, profuse menses and generalized petechial hemorrhages in the skin and mucous membranes. In the past she had been well except for an attack of acute catarrhal jaundice five years previously. For many years she had been subject to frequent attacks of allergic dermatitis, and it was of interest to note

that there was a familial history of asthma on the maternal side. She stated that she did not use any drugs except an occasional tablet of acetylsalicylic acid and that her diet included an abundance of fresh fruit and vegetables.

**Examination.**—The patient appeared fairly well nourished and developed. There were small purpuric spots distributed over the body and some oozing of blood from the gums. There was no demonstrable lymphadenopathy, and the spleen was not palpable; other than this, the physical examination showed no abnormalities.

Examination of the blood showed erythrocytes 4,280,000 per cubic millimeter, white blood cells 5,200 and a hemoglobin concentration of 78 per cent. The bleeding time was over fifteen minutes and the coagulating time, with a capillary tube, was eight minutes.

**Course of Illness.**—The patient was observed over a period of approximately five months, during which time she received on different occasions transfusions each of 500 cc. of whole blood, injections of calcium chloride, a diet rich in vitamin C, and finally injections of moccasin snake venom. During this time there were remissions and exacerbations of her illness, but at no time was she free of a hemorrhagic tendency.

Jan. 14, 1936, the patient was admitted to the University of California Hospital. The abnormal physical manifestations were essentially those just reported, and the patient showed spontaneous hemorrhages into the skin and mucous membranes. The spleen could not be palpated, and there were no obvious foci of infection.

The examination of the blood, as recorded in figure 1, showed erythrocytes 3,760,000 per cubic millimeter, a hemoglobin concentration of 40 per cent (Sahli) (5.6 Gm.), reticulocytes 4.6, platelets 5 per hundred white blood cells in the stained film, and 80,000 per cubic millimeter by actual count. Following a small puncture wound in the ear, bleeding continued after fifteen minutes. A specimen of blood clotted in nine minutes, but there was failure of the clot to retract.

**Course of Illness and Therapy.**—The patient was given daily roentgen irradiation over the splenic area in doses of 200 roentgens until she had received a total of 1,400 roentgens. On the fourth day of treatment the platelets had risen to 135,000 per cubic millimeter and on the seventh day were approximately 300,000. Coincidentally, there was a cessation of spontaneous bleeding; the clotting time was reduced to five minutes and normal retraction occurred. The bleeding time was six minutes. In figure 4 are shown a summary of the treatment and a graphic presentation of the number of platelets for a period of three months after roentgen irradiation was first given to the patient.

#### SUMMARY AND CONCLUSIONS

If a careful history is taken to discover a familial hemorrhagic tendency, the dietary habits of the patient, the presence of recent infection or the use of marrow-depressing drugs, and if the blood is studied correctly in conjunction with determination of the permeability of the capillaries, a case of purpura can almost always be properly classified.

In planning satisfactory treatment, all these factors must be properly evaluated. Repeated roentgen irradiation over the spleen in suitable dosage is an excellent means of increasing the number of circulating blood platelets in patients with idiopathic thrombocytopenic purpura haemorrhagica.

#### ABSTRACT OF DISCUSSION

DR. E. B. REED, Lincoln, Neb.: I wish to ask the author how long his patients remained well after irradiation.

DR. STACY R. METTIER, San Francisco: The first patient was treated in April, two years ago. She had a recurrence four months later, was treated again and has remained well since. I have seen her at monthly intervals. Her platelets have remained within 300,000 per cubic millimeter and she has had no recurrence of the hemorrhagic phenomena. One other patient, following treatment, has remained well for about eighteen months, and another patient for about fifteen months. These are the patients I have had the opportunity of studying longest.

24. Bucky, G., and Guggenheimer, H.: Roentgen Stimulation of Bone Marrow, *Klin. Wchnschr.* 1: 11 (Jan. 1) 1922.

25. Hippe, H., and Kochmann, R.: Die Behandlung der thrombopenischen Purpura in Kindesalter mit Röntgenbestrahlungen der Milz, *Jahrb. f. Kinderh.* 136: 302, 1932.

26. Mettier, S. R.; Stone, R. S., and Purviance, Katherine: The Effect of Roentgen-Ray Irradiation on Platelet Production in Patients with Essential Thrombocytopenic Purpura Haemorrhagica, *Am. J. M. Sc.* 191: 794 (June) 1936.

THE TREATMENT OF ENCAPSULATED  
BRAIN ABSCESS

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Although there has been advance in the treatment of brain abscess by modern methods, the mortality still remains strikingly higher than that reported by Macewen<sup>1</sup> in 1893. In recent years my associates and I have been using with slight modifications the method described by King<sup>2</sup> in 1924. This consists of direct transcortical exposure of the abscess, uncapping the presenting wall and packing of the cavity in one stage. The increased intracranial pressure then theoretically everts the abscess wall. Though we feel that this is the best method to date, we have had our share of failures, owing chiefly to technical difficulties arising in the treatment of deep-seated abscesses.

The first of these difficulties lies in the fact that though the overlying brain is removed in the exposure of the abscess capsule there is still considerable trauma to the adjacent brain. The latter is not removed and may predispose to purulent encephalitis. Secondly, when the capsule in a deep-seated abscess is opened either advertently or inadvertently, collapse of the capsule may occur with loculation and consequent reformation of the abscess. Especially is this true with thin-walled abscesses. Thirdly, even though the abscess is successfully drained the intracranial pressure may return so quickly to normal that the abscess capsule is not extruded, and healing results with extensive scar formation. A new method described by King<sup>3</sup> in which the gauze packing becomes adherent to the wall and aids in its eversion might tend to obviate this. In our experience the percentage of epilepsy following the drainage of brain abscesses has been exceedingly high and we believe it has usually been due to massive scar tissue.

A method which would bring the abscess to the surface where it could be easily drained or removed, thus minimizing the difficulties mentioned, was suggested by the following case:

CASE 1.—G. C., a 15 year old boy, entered the University Hospital June 21, 1933, with a history that he had always been well until December 1932, when he had an infection of the upper respiratory tract lasting about three days. This was followed by swelling of the right eye and right side of the face and neck. This was accompanied by headache, nausea and vomiting, and elevation of temperature. The headache had gradually increased up to the time of admission, and there had developed some photophobia and stiffness of the neck.

On examination the fundi showed bilateral papilledema of 2.5 diopters without hemorrhages or exudate. The visual fields were normal. There was slight rigidity of the neck, but Brudzinski's sign was negative. There were no cranial nerve palsies. The abdominal reflexes were present and all deep tendon reflexes were equal and active. There were no abnormal cerebellar signs. X-ray studies of the head revealed slight separation of the suture lines, convolutional atrophy and destruction of the dorsum sellae. There was no abnormal calcification. The paranasal sinuses were negative except for a slight loss of sharpness in the superior margin of the right frontal sinus.

From the Department of Surgery, University Hospital, clinic of Dr. Max M. Peet.

Read before the Section on Nervous and Mental Diseases at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Macewen, William: *Pyogenic Infective Diseases of the Brain and Spinal Cord*, New York, Macmillan Company, 1893.

2. King, J. E. J.: *The Treatment of Brain Abscess by Unroofing and Temporary Herniation of Abscess Cavity with the Avoidance of Usual Drainage Methods*, Surg., Gynec. & Obst. 39: 554 (Nov.) 1924.

3. King, J. E. J.: Personal communication to the author, Nov. 22, 1935.

The white blood count was 15,000, the hemoglobin 85 per cent. The urine was normal and the blood Kahn reaction negative. A diagnosis was made of probable right frontal abscess. A ventricular air injection was performed to establish definitely the location of the lesion. Only a few cubic centimeters of air could be instilled. The left frontal horn was seen to be displaced to the left; the right frontal horn was not visualized.

The following day a trephine opening was made over the right frontal lobe. On exploration with a cannula no lesion was encountered. It was then felt that a right frontal tumor was present. Accordingly, a right sided frontoparietal osteoplastic flap was turned down. The dura was opened and no surface abnormality seen. A cannula was passed deep into the frontal lobe and an abscess cavity entered. As soon as the pus appeared the needle was withdrawn. Bone was removed from the bone flap for an area the size of a silver dollar (38 mm.) directly over the puncture wound. The dura was left open here and it was hoped that the subarachnoid space would become obliterated and the abscess become more superficial. The bone flap was replaced and the scalp was closed in the usual manner except for an area over the bony defect. An iodoform pack was placed through the scalp and bony defect directly on the cortex. The sutures were removed on the fourth day after operation, the wound remaining clean. On the ninth postoperative day the patient was returned to the operating room. The cortex was clean and bulged slightly. The abscess was tapped. It had become much more superficial. The edematous brain overlying the cortex was removed with the electric loop. The capsule was opened and a pack easily placed within. Because of the marked thickness of the wall, the fact that the abscess was so superficial and the subarachnoid space so well sealed off, it was decided to remove the entire capsule. This was easily accomplished with traction and wiping with cotton pledgets, but at the last moment a small hole was made in the ventricle. Though this was easily seen and a muscle graft was inserted, a cerebrospinal fluid leak developed in five days and the patient died of meningitis at the end of two weeks.

This case was unfortunate in its handling from start to finish. However it was demonstrated that an encapsulated abscess would rise toward the surface were a decompression made over it, in the presence of increased intracranial pressure.

CASE 2.—L. M., a youth, aged 17 years, was admitted to the University Hospital July 26, 1935, with a history that five weeks previously he had noted the onset of severe left frontal headache with swelling of the tissues about the left eye. A slight coryza persisted for several days, the patient having been sufficiently ill to remain at bed rest for six days. The headache had disappeared for five days following its onset but had recurred and persisted up to the date of admission.

The patient was well developed and was not acutely ill but was obviously suffering headache. The left palpebral fissure was smaller than the right. There was a bilateral papilledema of 2 diopters without hemorrhages. The visual fields were normal. There was a slight right sided facial palsy of central type. The neurologic examination was otherwise entirely negative. X-ray studies of the skull revealed clouding of the left frontal sinus with evidence of destruction along its superior margin. The white blood count was 11,300 per cubic millimeter; the hemoglobin was 86 per cent. A diagnosis was made of osteomyelitis of the left frontal bone with underlying brain abscess. In view of the patient's comparatively good condition it was felt that the infected bone should be first removed and the epidural space explored. Accordingly, a left Killian and left external ethmoidectomy was performed by Dr. J. H. Maxwell, August 6. The left frontal sinus was found to be filled with pus and purulent granulation tissue. There was an osteomyelitis of the anterior table of the frontal sinus with a very extensive dural exposure from necrosis of the inner table. The dura was covered with thick, purulent granulation tissue. A complete Killian operation was done. The floor of the frontal sinus was removed. A narrow supra-orbital bridge was left in place. The dura was definitely tenser than normal. The infection had extended to the right frontal sinus so that the entire partition between the two frontal sinuses was removed and part of the anterior table of the right frontal sinus. Following this, a complete exenteration of the ethmoid sinuses

by the external route was performed. Convalescence was uneventful. The headache persisted, however, and the papilledema increased slightly.

September 4, under local anesthesia, a transverse incision was made about 2 inches above the left eyebrow. An opening was made in the left frontal bone about the size of a silver dollar. The dura was opened. The subarachnoid space was not sealed off. This was obliterated as well as possible by electrocoagulation. There was slight brain herniation. The abscess wall was felt with the exploring needle at about 2.5 cm. The abscess cavity was not entered. The needle was immediately removed and an iodoform pack was loosely placed over the brain substance. No rise in temperature followed this procedure.

September 7, under nitrous oxide anesthesia, the iodoform pack was removed. A moderate herniation of edematous brain was present. This was easily removed by suction. The firm



Fig. 1.—Patient 3, showing operative site six months after operation.

abscess capsule was seen to be flush with the skull defect. The abscess wall was opened with the electric loop. It was fully one-eighth inch (3 mm.) in thickness. By traction and careful dissection the entire abscess wall, which was the size of a hen's egg, was removed. The cavity remaining was seen to be entirely sealed off from the general subdural and subarachnoid spaces. A small gauze pack moistened with metaphen in oil was placed here. Three days after operation the cavity remaining after excision of the abscess had obliterated itself. The patient's condition improved rapidly. There was a small amount of purulent discharge. A slight herniation developed. In retrospect we realize that this should have been prevented by lumbar puncture. This would have hurried healing and prevented the cerebrospinal fluid leak which subsequently developed. This cerebrospinal fluid leak appeared exactly three weeks after operation. A lumbar puncture was performed and the needle left in place for three hours. Dehydration with sucrose and limitation of fluids was commenced. When the patient was dressed the following day it was found that the gauze which was covering the brain herniation had been actually drawn into the cranial cavity through the defect in the skull, because of its adherence to the retreating brain substance. It was extricated with some difficulty. Lumbar drainage was again performed the following day. There never again was any cerebrospinal fluid discharge. The dehydration was kept up for one week, when it was discontinued. Rapid epithelization now took place, and the patient was discharged October 14

with only a small area the size of a dime (18 mm.) which had not epithelized. Two weeks later the patient returned to check up with the wound perfectly healed. A letter was received from the patient April 10, 1936, stating that he was perfectly well and symptom free.

This case again shows that an encapsulated abscess can migrate toward the surface beneath a decompression, in the presence of increased intracranial pressure. A fairly deep abscess has here been brought to the surface, where it could have been easily and safely drained had we not chosen to remove it.

CASE 3.—W. L., a laborer, aged 20, entered the University Hospital Oct. 22, 1935, in a semicomatose condition. There had been a history of pain over the left frontal region since early July. The patient's physician stated that the left frontal and maxillary sinuses were cloudy on transillumination. There had been no nausea, vomiting or generalized headache, and there was no history of acute infection.

October 8, because of the persistent pain, an operation was performed elsewhere under general anesthesia in which "the anterior tip of the middle turbinate on the left side and a few anterior ethmoid cells were removed. No pus was seen." The patient's condition seemed to improve until October 21, when his headache again became very severe, and the night following he could not be aroused. He was accordingly transported to this hospital.

The patient was dehydrated, semistuporous, incontinent and hiccuping frequently. The fundi showed bilateral papilledema of 2 to 3 diopters with hemorrhages. There was slight stiffness of the neck, but Kernig's sign was negative. There was no facial paralysis. The right knee and achilles jerks were somewhat more active than the left. Babinski's sign was positive on the right. The white blood count was 26,000. The urine contained a small amount of albumin. The temperature was 100.8 F., the pulse was 72, and respirations were 16 and abnormally deep. Intravenous 50 per cent sucrose was given with some improvement in the patient's condition. The following day he was taken to the operating room. Because of his precarious condition it was felt that the abscess should be tapped immediately. Accordingly, a left sided trephine opening was made about 2 inches above the eyebrow. The abscess wall was encountered at about 2.5 cm. It was entered and thick, greenish pus later proved to contain *Staphylococcus aureus* was evacuated. Approximately an ounce (30 cc.) was removed. Purposely no attempt was made to evacuate the abscess. The bone defect was then enlarged to the size of a silver dollar (38 mm.) and the dura widely opened. The surface vessels were coagulated and the subarachnoid space sealed off. An iodoform pack was placed over the cortex. The following day the patient's condition was greatly improved. Five days later the patient was taken to the operating room and placed under nitrous oxide anesthesia. It was seen that there was a brain herniation of approximately 3 cm. The edematous brain was removed by suction and was no more than 1 cm. in thickness. The thick abscess capsule was then seen. It projected at least 2 cm. above the bone defect. The abscess capsule was opened. By means of traction and careful dissection with cotton pledgets the entire abscess wall was removed except for a narrow stalk about 3 mm. in diameter which ran down into the brain substance. The stalk was cauterized. A surprisingly small cavity remained. The subarachnoid and subdural spaces were apparently entirely sealed off. A small pack of gauze wet with metaphen in oil was placed within the cavity. Several stitches at the outer margins of the scalp incision were taken.

The temperature reached 104 rectally the day of operation but within two days was practically normal and remained so. The patient's general condition improved rapidly. Eight days later, under ether anesthesia, a left sided Killian operation was performed by Dr. A. C. Furstenberg. The anterior wall of the left frontal sinus was removed. The thickened, inflamed lining mucous membrane was immediately seen to be covering the dura. Dr. Furstenberg remarked that it was of unusual interest to observe that the inner wall of the frontal sinus had been destroyed to such an extent that there were not even sequestrums present and the dura and brain had pushed forward, completely filling the frontal sinus. The inner wall of

the frontal sinus on the right side was present, and the cavity was perfectly clean. A fairly complete exenteration of the ethmoids was done and the sphenoid sinus explored. The latter was found to be normal. The ethmoids were the seat of inflammatory and polypoid mucous membrane, but there was no pus present. The fronto-ethmoid cells were completely exenterated and free communication was established between the left frontal sinus and the nose. The left frontal sinus, however, was only a potential cavity because it was completely filled with brain covered by dura. The ethmoidal area and frontonasal duct were packed with petrolatum gauze and the incision was closed for primary union. The wound healed satisfactorily.

The brain abscess wound, in the meantime, was healing in exactly the same manner as was described in the previous case. A slight herniation developed. Again, in retrospect, we realize that this should have been prevented by lumbar puncture. Exactly eighteen days from the date of excision of the brain abscess, a cerebrospinal fluid leak developed from the center of the granulating tissue. Lumbar drainage was immediately performed. Intravenous 50 per cent sucrose was given, and dehydration commenced with complete limitation of fluid. The following day cerebrospinal fluid was again seen. Lumbar drainage was performed for four hours in the morning and two hours in the evening. The temperature rose to 101.6. Cerebrospinal fluid never appeared again. No further lumbar punctures were done. Three days after the last puncture, the patient having been kept on strict dehydration, a large cavity was seen beneath the bone defect. Fluids were immediately recommenced. Within a few days clean granulation tissue had filled the skull defect. Ultraviolet rays were now given locally to stimulate healing. The patient was discharged December 14 with the wound practically healed. Jan. 18, 1936, he returned because of an attack of generalized convulsions. Shortly afterward a soft tissue abscess was evacuated at the site of the previous sinus operation. The patient was seen April 18 (fig. 1) stating that there had been no further convulsions and that he was entirely symptom free. The neurologic examination was negative. Pulsation was present over the scar.

Again is seen how closely case 2 has been paralleled. The patient's precarious condition, however, made partial evacuation of the abscess necessary before the bony focus was excised.

CASE 4.—J. A., a youth, aged 20 years, entered the University Hospital Sept. 17, 1935, with a diagnosis of pansinusitis and osteomyelitis of the anterior wall of the left frontal sinus. Brain abscess was suspected at this time because of previous headache and vomiting. The fundus examination was negative, as was the neurologic study. The patient did not appear in any way acutely ill. A bilateral Killian operation was performed. There was osteomyelitis of the inner table of the left frontal sinus as well as of the left frontal supra-orbital ridge. The dura on exposure was found to be thickened, and brain abscess was suspected beneath. Following this operation the patient's symptoms cleared up rapidly, and though abscess was still suspected he was discharged to return should symptoms of a cerebral lesion reappear. The patient was again seen December 10. There was bilateral papilledema of 4 diopters with hemorrhages. The visual fields were normal, as was the remainder of the neurologic examination except for a slight bilateral sixth nerve palsy. The white blood count was 12,800. A left frontal abscess was suspected. December 14, through a trephine opening just back of the hair line in the left frontal area, the abscess wall was palpated at a depth of exactly 3.5 cm. from the brain surface. The decompression was enlarged to the size of a silver dollar (38 mm.). The surface vessels were coagulated and the arachnoid sealed to the cortex. Three days later there was brain herniation over the defect of about 2.5 cm. The edematous brain was removed by suction down through the skull defect. The abscess capsule was seen 0.5 cm. beneath the inner wall of the anterior margin of the defect. Two days later a small amount of edematous brain had risen above the defect. This was sucked away and it was now found that the firm capsule had risen 0.5 cm. above the outer surface of the skull. No rise in temperature and no symptoms followed either of these procedures. The following day the abscess ruptured spontaneously. The capsule, however, remained at

the surface. The dome of the capsule was then excised and an iodoform pack placed within the cavity. The day after, cerebrospinal fluid was seen coming from the subarachnoid space at the edge of the wound. In spite of the presence of pus in the vicinity, lumbar drainage was performed and dehydration commenced. The wound was left exposed and was frequently irrigated with metaphen. There was no further escape of cerebrospinal fluid, and from then on convalescence was entirely uneventful. The patient was discharged five weeks later with the wound almost entirely healed. A letter dated April 8 stated that the patient was entirely well and symptom free.

At the time of excision of the dome of the capsule the dissection must have been carried too far laterally, thus opening the subarachnoid space. It was not realized until the following day, when the escape of cerebrospinal fluid was seen. It should easily have been avoided.

#### TECHNIC

Preliminary to the drainage of any brain abscess the original bony focus, should one be present, is obliterated, provided the patient's condition permits. This means mastoidectomy, exenteration of paranasal sinuses, or excision of other areas of osteomyelitis of the skull. Theoretically this should prevent reinfection after the abscess has been dealt with and at the same time excludes epidural abscess as a cause for the symptoms. From one to two weeks after this procedure, depending on the state of the wound and the condition of the patient, a trephine opening is made over the suspected area. (If possible, an abscess should be attacked where it is closest to the surface. McKenzie<sup>4</sup> has stressed that where the abscess is encountered obliquely to the exploring needle a new opening should be made over what is visualized as the most superficial part of the abscess.) The dura is opened and a dull exploring cannula is passed through the cortex in the direction of the abscess. When the rubbery feel of the wall is encountered the cannula is withdrawn without piercing the capsule. The bone opening is then enlarged to about the size of a silver dollar (38 mm.). The dura is further opened in a stellate manner. The brain then herniates slightly. The surface vessels are coagulated and the arachnoid sealed to the cortex at the margins of the wound. An iodoform pack is placed to further the formation of adhesions, thus completely sealing off the subdural and subarachnoid spaces at the margins of the defect. One is still working in a sterile field. This procedure is performed under local anesthesia, as there is no desire at this stage to heighten the already increased intracranial pressure.

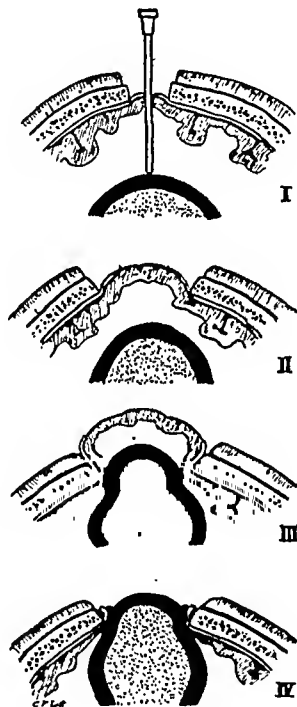


Fig. 2.—First stage: I, abscess wall palpated with cannula through trephine opening; II, opening in bone enlarged, dura opened, surface vessels and arachnoid coagulated. Second stage: III, four days later, showing migration of abscess and herniation of brain; IV, herniating brain removed by suction; abscess ready for drainage or excision.

4. McKenzie, K. G.: The Treatment of Abscess of the Brain, Arch. Surg. 18: 1594 (April) 1929.

The next stage is performed from three to four days later. The abscess capsule, if smooth walled and not bound down, will have migrated to the surface, covered by edematous brain. The latter is now easily removed by suction. If the abscess has not risen sufficiently above the surface, one can wait several days more and again remove any edematous brain covering the capsule. I believe that if one waits sufficiently long the abscess may completely extrude itself. Case 3, in which the abscess had migrated so that its dome was at least 2 cm. above the skull defect, illustrates this principle. The abscess would undoubtedly have completely delivered itself had sufficient time been given. At the time that the abscess is drained or excised nitrous oxide is used, since it is well known to increase the intracranial pressure. I feel that this aids in removal of the capsule or extrusion of its contents. If one prefers drainage to complete excision of the abscess it is probably best accomplished by cutting off the dome and stitching the walls to the subcutaneous tissues, as described by Horrax.<sup>5</sup>

The one important factor in the postoperative treatment is the prevention of brain herniation by lumbar puncture and dehydration, when necessary. King<sup>3</sup> has stressed this point in a personal communication and I am entirely in accord. Had the slight herniation that developed in cases 2 and 3 been prevented, healing would have taken place quicker and the cerebrospinal fluid leak which undoubtedly came from the ventricle would not have occurred. The fact that the leaks were so readily controlled in both cases by lumbar puncture and dehydration is good evidence that they could have been prevented.

#### SUMMARY

No attempt has been made to discuss the etiology, symptomatology and actual drainage of brain abscess. A procedure is merely given by which a chronic encapsulated brain abscess can be more easily dealt with. I have shown in these four cases that a brain abscess can migrate to the surface beneath a decompression, in the presence of increased intracranial pressure. Adson and Craig<sup>6</sup> have stated: "Cerebral abscesses are invariably situated below the cortex. Occasionally a stalk can be seen to extend from the meninges to the abscess, but, more often than not, no trace of invasion can be demonstrated." From this statement one may deduce that in most cases of encapsulated abscess there is nothing to prevent their changing position under certain pressure conditions. Could all abscesses be drained at the surface under circumstances which would minimize the possibility of meningitis, the mortality would undoubtedly diminish.

#### ABSTRACT OF DISCUSSION

DR. R. GLEN SPURLING, Louisville, Ky.: Dr. Kahn has made a valuable contribution to the treatment of deep seated, thick walled cerebral abscesses. I feel strongly that his method does not apply to the treatment of subacute abscesses. In my experience, during the subacute stage, the repeated tapping method of Dandy is preferable to any other. He has demonstrated a simple, effective way of promoting migration of the abscess to the surface before any attempt is made to establish drainage. My attempts to draw manually the wall of the abscess to the surface, after the contents have been evacuated, have often been successful and at other times most unsuccessful. Too frequently the wall is not dense enough to withstand the tugging required to accomplish this end. In such circumstances a tube drain is resorted to and, as a consequence, most of them

eventually refill, and the whole procedure has to be repeated. It has been my experience that, when the abscess wall can be stitched to the skin through an opening in the cerebral cortex, dura and bone sufficiently large to allow herniation of the capsule, the patient has an excellent chance to recover. Now that this method of handling the more deep seated ones has become available, the death rate from chronic cerebral abscesses should be still further reduced.

DR. JOSEPH E. J. KING, New York: Dr. Kahn's procedure is a contribution to the work on brain abscess. In 1924 when I described an operation for brain abscess it never occurred to me that a deep seated abscess could be herniated to the surface and treated in the manner suggested. I never proposed that the operation described by me could so be used. Now that Dr. Kahn has shown how to bring a certain number of abscesses to the surface, it makes me more hopeful in dealing with the deeper seated abscesses. It is remarkable how much interest has been shown in the subject of brain abscess during the last two decades. It is strange that there could have been such a lull after the splendid contribution by Sir William Macewen in 1893, and much that he taught seems to have been forgotten or overlooked until the last two decades. The mortality rate in cases of brain abscess will necessarily be rather high. Many rupture into the ventricle or into the meninges without having been previously recognized or localized. Some will do so after operation. Some very good series of recoveries have been reported, the largest being that of Adson and Craig. Grant, Coleman, Horrax, Cahill and others likewise have reported a number of recoveries. In Grant's rather large number of cases there were quite a few which did not even come to operation for one reason or another. The patients were too ill or were moribund. Therefore the mortality rate, taking all cases by and large, will necessarily be rather high. Adson and Craig's procedure is quite similar to the one described by me. Horrax and others have operated on abscesses when possible, with a rather wide open approach which allows of proper inspection of the cavity. Grant, Coleman and others continue to use a small drainage tube (catheter) through a small opening. Grant has devised a very ingenious instrument for introducing the catheter into the abscess. All have reported comparatively good results in operable cases. I have seen, excluding a number of traumatic brain fistulas, thirty-five cases of nonmetastatic abscesses and six cases metastatic in origin; so that there is no one operation for the treatment of brain abscesses, not only for the reason that they are not all alike but also because various types of operations have given fairly good results. There are a number of ways to enter this city, and one may be as good as another. I am grateful to Dr. Kahn for the information regarding deep abscesses. It will be of decided benefit. I am glad to know that he, Cairns and others have successfully used the procedure described by me. In my hands it has given fairly good results. I expect to continue its use.

DR. WALTER E. DANDY, Baltimore: I can't refrain from expressing very radical disagreement with this method of Dr. Kahn and Dr. King. To me a fungus, a wide open wound or a cerebrospinal fistula is a matter of horror. I feel strongly that surgeons do far too much in treating brain abscesses. There is one important rule in the treatment of any infection of the brain: to go slowly and do as little as possible; with abscesses that little is merely to relieve the intracranial pressure by tapping, not draining, the abscess. Nature will do the rest. Give nature a little time and a little well directed assistance with a single chronic brain abscess, and most of them will be cured without disfigurement, without fungus formation and without cerebrospinal leakage and the danger of meningitis. In my experience simple tapping has been far and away the best treatment in the handling of such abscesses. Unfortunately more abscesses of the brain are multiple than single, and then one has very different problems with which to contend. But a single abscess is really a very simple lesion to treat.

DR. TEMPLE FAY, Philadelphia: I believe that Dr. Kahn has really made a definite contribution to the treatment of brain abscess. Here are two illustrations from my experience: A boy, aged 16, was struck on the head by a bucket of coal falling 16 feet and sustained a compound fracture of the skull. The surgeon who attended the boy operated to remove the particles of bone, encountered active hemorrhage from the lateral sinus, packed the sinus, and eight days later attempted to remove the packing. Infection had occurred. Another hemorrhage fol-

5. Horrax, Gilbert: A Method for the Treatment of Certain Chronic, Encapsulated Brain Abscesses, *S. Clin. North America* 14: 1179-1186 (Oct.) 1934.

6. Adson, A. W., and Craig, W. M.: The Surgical Management of Brain Abscess, *Ann. Surg.* 101: 7 (Jan.) 1935.



lowed, and the sinus was packed again. Thirty days later the patient was sent to my clinic with infection around the wound, a large open area from the decompression, and fungating brain, with a piece of packing extending down into the right parietal lobe. Because of the active infection in the wound we had no alternative and didn't dare to operate. We allowed the brain to herniate. I thought the boy was going to die. He was hemiplegic and stuporous. Transfusions were given and five weeks passed. I simply cut off the herniated portions of the brain. The abscess, including the packing, eventually extruded itself. To my amazement the boy recovered and is now attending school. He has fair use of his left side. He had a spontaneous recovery, and the wound was eventually closed. The second case, in a child of 6 years, was one in which I suspected a subdural abscess. I found a large subdural, infected hematoma with pus. I was afraid to leave the bone flap in place for fear there would be osteomyelitis. I removed the flap and, in so doing, accomplished what Dr. Kahn has already pointed out, decompressed the abscess. The boy today is ready to leave the hospital, although the abscess cavity contained 90 cc. of pus. I was extremely interested in what Dr. Kahn said about giving the anesthesia to help express the abscess. In the original work of Ambroise Paré is a fine account of a series of brain abscesses well treated. Perhaps in those days they let them go until, as Dr. Dandy said, they had become very focal processes, and nature does a great deal for them. But Ambroise Paré's method was to open the skull by trepan and insert a lead tube into the cavity. He naively states that each day, on dressing the patient, he required that the patient hold his nose, take a deep breath and strain so as to push forth the sanguineous material. That is the first record I have seen that deliberate attempts to increase intracranial pressure help evacuate an abscess or move these abscesses toward the surface. Dr. Kahn is to be congratulated for his well founded observations and method of treatment.

DR. JAMES RUDOLPH JAEGER, Denver: The less a brain abscess is disturbed, the better off the patient will be, provided adequate drainage is instituted. As Dr. Kahn has pointed out, many of these abscesses are very deep, going right up to the ventricle, and there is a very thin barrier between the abscess and the ventricle itself. There is no question that many abscesses extend into the lateral ventricle and fill the whole ventricle and yet the patient may recover.

DR. PERCIVAL BAILEY, Chicago: I would like to express the same horror of herniation. There are areas in the brain where one would hesitate to provide such hernias and certainly where one would hesitate to decompress such an abscess because of the resulting neurologic defects. In those cases I would call attention to the method recently devised and proposed by Vincent and his associates in Paris. He taps these abscesses repeatedly, as Dr. Dandy proposed, and, after weeks and months have elapsed, he deliberately goes in and extirpates the abscess as he would a tumor. Last summer he showed me a series of fifteen or twenty surgical specimens which he had treated and removed in this way. I was impressed by his results and have since then been handling abscesses in that way myself, with one exception. This abscess occurred in a boy who had osteomyelitis of the skull. A large portion of the skull had been removed. An abscess afterward developed directly underneath this area. An opening was made into the abscess through this area from which the skull had been removed. A drain was put in; herniation occurred, and the abscess extruded itself through this opening and was completely taken off, without any difficulty at all, as Dr. Kahn has stated. But that wasn't the end of it, because once the abscess was out the brain also came out and kept coming until the ventricle ruptured, and the cerebrospinal fluid poured out through this opening. Since the herniation occurred through the speech area, the boy was hemiplegic and aphasic as well. I am sure that if this abscess had been treated by tapping, simple tapping, it could afterward have been extirpated, if necessary, if it did not heal. Dr. Dandy suggests that they usually do; that has not been my experience. But if it had not healed, it could afterward have been extirpated as Vincent suggests, with considerably less defect to the patient than occurred in handling it in this way. Why the brain kept on coming out in this case I think was the fact that the boy had had some chronic meningeal inflammation which had disturbed the circulation of the spinal fluid, so that the pressure in the ventricles continued to rise. Repeated lumbar punctures had no influence in preventing the herniation.

DR. EDGAR A. KAHN, Ann Arbor, Mich.: I would like to answer Dr. Bailey first. Once the abscess is out there is no need for herniation in any cases I have seen, unless there is an underlying abscess, and it is very possible that that was a metastatic case.

DR. BAILEY: The boy is still alive. He is still draining cerebrospinal fluid and is hemiplegic and aphasic.

DR. KAHN: There is no reason why that herniation should continue. In these three cases, as soon as the abscess was extruded there was a cavity, but a surprisingly small cavity that filled in two or three days. The whole thing could have been easily controlled with lumbar punctures.

DR. BAILEY: We made encephalograms and ventriculograms, and we didn't find any evidence of another abscess. That doesn't prove it isn't there.

DR. KAHN: In answer to Dr. Dandy, I first make a trephine opening. I do not make a big opening. I tap first through this small trephine opening. If I find the abscess, I make a decompression no larger than a silver dollar (38 mm.). That does not give a big herniation. The abscess does come up. As for repeated tapplings curing these heavy, encapsulated abscesses with a virulent infection, I know of nobody else who has had the results that Dr. Dandy has had.

DR. FRANCIS C. GRANT, Philadelphia: May I interject at this moment that I have had five out of seven patients with encapsulated abscess recover from simple tapping.

DR. KAHN: I didn't realize that. But in the hands of other people I don't know that such results have occurred. This isn't a complicated method at all. It is used in the deep seated abscesses. I think one of the most technically difficult things is to get in and drain an abscess that lies from 2 to 3 cm. down.

## INSULIN SHOCK THERAPY IN SCHIZOPHRENIA

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Recently Sakel<sup>1</sup> and Dussik and Sakel<sup>2</sup> introduced insulin as a therapeutic agent in the shock treatment of schizophrenia. Their reported good results have been confirmed by Müller,<sup>3</sup> Wortis<sup>4</sup> and Wilson.<sup>5</sup> Glueck<sup>6</sup> has discussed the methods and importance of this new treatment as carried out at Münsingen, Switzerland. Gross<sup>7</sup> and Georgi<sup>8</sup> have studied the humoral changes during insulin shock.

A few months ago I began to use this treatment, employing the technic described by Dussik and Sakel.<sup>2</sup> Although I have observed only three cases, it seems worth while to relate my experiences because (a) this form of therapy is new and every contribution may be of some importance; (b) I have treated old rather than new cases, since it is difficult to evaluate and therefore to make allowances for the tendency to remission early in the course of the disease, and (c) I may emphasize the difficulties and hazards involved in the application of this treatment.

### REPORT OF CASES

CASE 1.—H. B., a woman, aged 27, had, eight years before, when she was a school teacher, developed a depression with

From the Michell Sanatorium.

The author is indebted to Dr. Heilbrunn, staff member of the State Hospital at Münsingen, Switzerland, for his suggestions regarding this form of therapy.

1. Sakel, Manfred: Neue Behandlung der Schizophrenie, Vienna, M. Perles, 1935.

2. Dussik, K. T., and Sakel, Manfred: Ztschr. f. d. ges. Neurol. u. Psychiat. 155: 351-415, 1936.

3. Müller, M.: Schweiz. med. Wchnschr. 39: 929 (Sept. 26) 1936.

4. Wortis, Joseph: J. Nerv. & Ment. Dis. 84: 497 (Nov.) 1936.

5. Wilson, Isabel G. H.: A Study of the Effects of Shock Treatment in Schizophrenia, Board of Control II, U. S. Sanatorium, Olin, 1936, cited in Hypoglycemic Shock Treatment of Schizophrenia, J. A. M. A. 107: 1720 (Nov. 21) 1936.

6. Glueck, Bernard: The Hypoglycemic State in the Treatment of Schizophrenia, J. A. M. A. 107: 1029 (Sept. 26) 1936.

7. Gross, M.: Schweiz. med. Wchnschr. 29: 689 (July 18) 1936.

8. Georgi, F.: Schweiz. med. Wchnschr. 39: 935 (Sept. 26) 1936.

paranoid ideas. She left school, spent several months in a mental hospital and after two years made a spontaneous but, subjectively, only a partial recovery, since she continued to have strong feelings of guilt and mild depressions, usually during her menses. Her father and a maternal aunt have been treated in mental hospitals. She married five years after the onset of her illness and gave birth to a baby girl one year later. There is no history of marital unhappiness. The patient entered the sanatorium four months ago very much depressed. She complained of vague uncomfortable sensations and repeated constantly "I am losing my mind." Intervals of great excitement to the point of screaming and violence alternated with periods of deep depression, during which the patient refused to speak to or to look at any one. She exhibited several stereotyped gestures and grimaces and on a few occasions had visual hallucinations. At times she broke into foolish, causeless laughter. She refused to see any members of her family. Physical examination was essentially negative. There was a mild secondary anemia.

Insulin was given intramuscularly in an initial dose of 15 units. This was increased by from 5 to 10 units daily until a maximum of 95 units was reached. As the dosage mounted the patient occasionally exhibited short periods of somnolence, alternating with periods of excitement; accompanying the latter there were occasionally slightly increased perspiration and mild, generalized twitchings. The magnitude of the reaction was not directly proportional to the amount of insulin given, nor was it inversely proportional to the height of the blood sugar, which never fell below 40. The order in which the various signs of insulin shock might appear was absolutely unpredictable and completely irregular. At 95 units, after a period of intense excitement, a severe circulatory collapse suddenly developed without unconsciousness, in spite of the fact that the patient had been digitalized. She was given sugared tea by mouth, epinephrine and caffeine intramuscularly and dextrose intravenously. Her condition was critical for two hours; that evening her temperature rose to 102.2 F. During the following week only from 50 to 65 units was given, during which time the patient had periods of excitement and/or somnolence, although there were days on which the insulin had no apparent effect. The dose was then slowly increased, and at 75 units, after a period of light somnolence and very mild twitching, strong tonic and clonic convulsions suddenly developed and she went into a state of circulatory collapse, for which epinephrine, alpha-lobeline and intravenous dextrose were required. Thereafter, doses of from 50 to 60 units occasionally brought about similar but milder attacks. Great care was taken to give sugar early. There was never any profuse perspiration or salivation.

Throughout the course of the treatment and to a degree apparently unrelated to the severity of the reaction, it was possible to establish good contact with the patient for several hours at a time. As the end of the treatment was approached (after twenty-four insulin shocks) the patient showed a marked improvement; she happily awaited her husband's visits, chatted freely during his stay and showed great interest in her child. At present she is progressively becoming better adjusted to her environment. Her stereotyped mannerisms are less and less noticeable. She is eager and happy to see her family. Her emotions are labile and she laughs somewhat too freely. She exhibits a deep interest in the course of fellow patients to whom she had previously paid no attention. She is now ready to go home for convalescent care.

In contrast to this patient, who exhibited almost none of the typical reactions so carefully described by Dussik and Sakel, are patients 2 and 3, who are still being treated:

CASE 2.—P. Z., a man, aged 25, first exhibited some depressive signs about one year before admission. Marked paranoid symptoms developed two months before. On admission he was excited and violent and had all types of hallucinations. He showed marked improvement after a few weeks of physical therapy but suddenly suffered a complete relapse, during which even graver delusions developed than he had presented on entrance. Treatment was started with 20 units of insulin, and by the time 50 units had been reached the patient went through all the typical "phases" described by Sakel, the period of

"activated psychosis" always being preceded by one of profuse perspiration and a subjective feeling of great weakness. Although treatment of the patient is still in progress, it is evident that on awakening from the induced coma he is becoming increasingly more cooperative, and it is possible to establish good contact for progressively longer periods.

CASE 3.—M. X., a woman, aged 31, started in her psychosis six months ago with ideas that she was infected with syphilis and tuberculosis. At first the diagnosis of compulsion neurosis was made, but later, it became evident that the patient was a paranoid schizophrenic. She felt that a certain man had hypnotized and infected her, and so on. The patient suffered greatly with her fixed hypochondriacal ideas, and it was impossible to convince her of their imaginary character. She has received ten treatments beginning with 15 units and increasing to 60 units; she has reacted with typical "wet" shocks. There have been marked cardiac irregularities in spite of digitalization. The patient's compulsive ideas tend to grow weaker during the hypoglycemic state and for some hours afterward, although it is obviously too early to draw any definite conclusions.

A complete report, including a discussion of the psychologic phenomena, will be made after a suitable period.

#### CONCLUSIONS

1. These patients differ not only from each other in the type of their reactions but also in the magnitude and type of their response to any given amount of insulin. The application of this treatment imperatively requires the constant presence of the physician and of efficient nurses, because of the hazards involved.

2. From my limited experience, insulin shock therapy may show many serious deviations from the typical reactions. In patient 1 there were no typical "wet shocks," and she never fell into deep somnolence or coma. At the point at which increasing somnolence or coma might be expected, this patient went into either severe epileptiform convulsions or a circulatory collapse so profound that immediate intervention was necessary. Blood sugar determinations proved to be of little value in predicting the course of the reaction; much more important was careful observation of the pulse and blood pressure.

3. In the cases reported I observed what Dussik and Sakel term "activated psychosis"; this manifests itself by such symptoms as increased restlessness, a tendency to violence and an exaggeration of all the presenting symptoms. The patients then went into actual shock; as they recovered from this the sensorium seemed to clear. During and after the treatment it seemed to be possible to influence the patients in a psychotherapeutic way. In my opinion too the type of reaction in patients 2 and 3 ("wet shock") is not as dangerous as that described in the first case.

4. Patient 1 first developed psychotic symptoms eight years ago; this initial attack lasted two years. It was possible to bring this patient, refractory to all other forms of therapy, out of her psychosis in seven weeks and send her home. This period is to be compared to her first illness of two years' duration. I believe that the second patient is making rapid progress.

5. Finally, it is suggested that to decide definitely on the value of this form of therapy it might be well to establish some central office where all the data could be conveniently assembled and compared. Since most institutions are prepared to carry out only a few of these time and energy consuming treatments at any one time and since there is such a wide diversity of opinion as to the point at which a patient may be considered to have gained a "remission," such uniform statistics would be of incomparable value.

106 North Glen Oak Avenue.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Venereal Diseases: Physical Examination of Suspected Rapist.**—The accused was charged with the crime of rape committed on a young girl under the age of 12 years. The girl developed gonorrhea after the alleged rape and while the accused was in jail under arrest for the crime a physician, accompanied by two or three policemen, went to the jail and subjected him to an examination to determine whether he had gonorrhea. The physician was permitted to testify that the examination disclosed that the accused was infected with gonorrhea. A conviction followed and the accused appealed to the Court of Appeals of Kentucky.

The examination, the accused contended, was made over his protest and against his will and consent. The physician, however, and others present at the time of examination testified that the accused consented to it and made no protest whatsoever. There was no evidence, the court said, to show that any force or duress was resorted to by the physician or others present to induce the accused to submit to the examination, or that he was otherwise intimidated. In the absence of such a showing, if the accused willingly submitted to the examination and offered no protest or objection to it, the evidence obtained thereby was competent; otherwise it would be incompetent. The mere fact that the officers were present was insufficient, in the opinion of the court, to raise the presumption of duress. But whether the examination of the accused's person was made with or without his consent should have been submitted to the jury under appropriate instructions. The trial court should have instructed the jury in substance that, if they believed from the evidence that the examination of the accused's person was made against his will and without his consent, the evidence obtained thereby was illegal and incompetent; but if made with his consent or without objection by him, it was competent for their consideration. The failure of the trial court so to instruct the jury constituted a prejudicial error. For that error, in addition to others, the Court of Appeals reversed the judgment of conviction and remanded the case.—*McManus v. Commonwealth (Ky.)*, 94 S. W. (2d) 609.

**Compensation of Physicians: Liability for Medical Services Allegedly Rendered by Physician to His Brother.**—The plaintiff, a physician, brought suit against his brother's widow to recover the reasonable value of services he allegedly rendered to his brother. Between May 1, 1926, and Oct. 10, 1934, the plaintiff contended, he rendered professional services to his brother for which he had not been reimbursed. He made no demand on his brother for payment during the latter's lifetime because of a promise by the brother to name the plaintiff as legatee in his will. The brother, however, left his estate to his widow. The trial court held that part of the amount claimed was barred by the three year statute of limitations but rendered judgment for the plaintiff in the amount of \$500. The defendant appealed to the court of appeal of Louisiana, second circuit.

In Louisiana, said the court, parol evidence is inadmissible to prove any liability on the part of a deceased person "if a suit upon the asserted indebtedness or liability shall have been brought within a delay of twelve (12) months after the death of the deceased," unless the evidence consists of the testimony of at least one credible witness, besides the plaintiff, or unless it be corroborated by a written acknowledgment or promise to pay signed by the debtor. The record in this case disclosed that the plaintiff's brother died in the latter part of 1934 and that suit was filed in February, 1935, or within "a delay of twelve months" after the death. The only proof tending to establish the asserted indebtedness was that given orally by the plaintiff. The court felt impelled, therefore, to hold that the plaintiff's suit failed because of noncompliance with the requirements of the Louisiana law with respect to proof.

Furthermore, the court said, although the plaintiff testified generally that he attended and administered to his brother as

a practicing physician and that he expected and was entitled to compensation for the services which he gave, his own testimony regarding many of the details of his visits and the claimed medical acts performed not only did not benefit his cause but was injurious to it. Opposed to the testimony of the plaintiff that he actually rendered medical attention was that of several other reputable witnesses. The decedent was a patient in a sanatorium for several months in 1932 and for a similar period in 1934. A large part of the plaintiff's total claim was for alleged services rendered during these two periods. The testimony of the physician who operated the sanatorium, that of the decedent's regular family physician, and that of two nurses who attended him was to the effect that the plaintiff visited his brother in the capacity of a relative and not as an attending physician. During these stays in the sanatorium, the decedent was solely under the care and supervision of other physicians. Furthermore, the court said, the record contained uncontradicted testimony that it is not the common practice in the medical profession for a physician to make a charge for services rendered to his brother or to other members of his immediate family. In view of these facts, the court thought that the judgment of the trial court for the plaintiff was manifestly erroneous. The judgment was reversed and the plaintiff's suit dismissed.—*Longino v. Longino (La.)*, 169 So. 186.

**Pneumoconiosis: Liability of Employer at Common Law.**—The plaintiff contracted pneumoconiosis during the course of his employment with the Libby-Owens-Ford Glass Company and instituted suit at common law to recover damages. The company interposed a general motion to dismiss the action, contending that the complaint failed to charge it with having violated any statute of Illinois and that in the absence of a statute the company was not liable to the plaintiff for any disability due to an occupational disease. The trial court sustained the motion to dismiss, the appellate court affirmed the judgment of the trial court, and the cause was brought before the Supreme Court of Illinois by appeal on a certificate of importance.

It is a long established rule of common law origin, said the Supreme Court, that an employer must furnish his employee a reasonably safe place in which to work. An examination of the cases in Illinois and at common law which support this rule discloses that it is based on decisions involving accidental injuries rather than occupational diseases. Reflection, continued the court, makes it apparent that this must be so because occupational diseases were unknown to the common law. The weakness of the argument on behalf of the employee, said the court, lies in its failure to distinguish between a "safe" and a "healthful" or "sanitary" place in which to work. At common law no duty devolved on employers to furnish a healthful or sanitary place of work for employees. The judgment of the appellate court for the defendant was therefore affirmed.—*McCreery v. Libby-Owens-Ford Glass Co. (Ill.)*, 2 N. E. (2d) 290.

**Medical Practice Acts: Sale of Nostrums.**—Posey was convicted of practicing medicine without having registered in the office of the district clerk. He appealed to the court of criminal appeals of Texas.

The medical practice act of Texas declares that a person shall be regarded as practicing medicine (1) who publicly professes to be a physician and treats or offers to treat any disease, disorder, physical deformity or injury; or (2) who treats or offers to treat any disease, disorder, physical deformity or injury for compensation. A witness testified that he went to Posey and complained of boils on his neck and aches and pains in his body. Posey told the witness that he thought that his medicine would do him good and sold him a quart of medicine or tea. Subsequently, the witness made a return visit and purchased a second quart of the tea. On another occasion the witness had a carbuncle on his neck and he went to Posey, who told him that he had some salve that might do it good. A box of the salve was purchased by the witness. On still another occasion the witness called on Posey and told him that he had some pains in his knees and Posey sold him a bottle of liniment, expressing the opinion that the liniment

Dr. Robert H. H. H. H.

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place. Of three cases of oral tears in the lower half of the globe, two have been operative successes and one, after an immediate success, recurred. In two cases of moderate myopia the lower half of the retina was detached, but no retinal hole was found. Katholysis was employed in an attempt to pin down the retina immediately behind the ora serrata and just in front of and behind the equator by two lines of punctures in these respective planes passing between the lower borders of the internal and external rectus muscles. There was immediate success, but one recurred one month and the other two months after operation. In the upper half of the globe the sealing of extensive rents and large horseshoe-shaped tears has not been effective. Katholysis alone is insufficient to effect firm and reliable union between the choroid and retina around large tears situated in the upper half of the globe and should be augmented by surgical diathermy. Recently it has been the author's practice in such cases to make a number of punctures with the kathode over the site of the hole and to circumvallate its edges with two or three rows of punctures set 0.5 mm. apart and, outside this, to apply two or three rings of Larsson's surface diathermy, the points of contact on the sclera being placed 2 mm. apart. The results have been successful in three cases of large upper temporal horseshoe rents and in two cases of multiple round holes treated by this modification.

### British Medical Journal, London

1:1-56 (Jan. 2) 1937

- \*Surgical Diagnosis. W. H. Ogilvie.—p. 1.
- \*Chronic Meningitis in Weil's Disease. F. Murgatroyd.—p. 7.
- \*Nutritional Anemia in the East End of London. L. Findlay.—p. 12.
- \*Diagnosis of Malignant Disease of Pharynx. R. Pilcher.—p. 13.
- \*Ultraviolet Irradiation in Treatment of Varicose Ulcers, Varicose Eczema and Varicose Veins. A. Eidinow.—p. 16.
- The Problem of Endemic Goiter. R. McCarrison.—p. 29.

**Chronic Meningitis in Weil's Disease.**—Murgatroyd describes a case of Weil's disease associated with a progressive type of chronic meningitis, in which the first evidence of meningitis was observed four months from the beginning of Weil's disease. *Leptospira* was recovered from the cerebrospinal fluid six months and from the urine of the patient eight months after the onset of the illness. No sign of meningitis was recorded during the early typical stage of the disease, which was accompanied by jaundice. Although the patient had apparently had an attack of visceral Weil's disease in December 1935 and was still infected months later, his serum and cerebrospinal fluid possessed practically no agglutinating power against the infecting organism and against various other strains of *Leptospira*. The diagnosis was made by demonstrating the organism in the cerebrospinal fluid and urine by guinea-pig inoculation. Until an antileptospiral serum was administered, the illness was apparently steadily progressive. Since Weil's disease may occur without jaundice, it should be considered in any obscure case of meningitis. Indeed, since Weil's disease may fail to present any specific syndrome, its possibility should be borne in mind in any case of obscure pyrexia.

**Ultraviolet Irradiation in Treatment of Varicose Ulcers and Eczema.**—When Eidinow took charge of the light department of the St. John Clinic four years ago, ninety-two patients suffering from varicose ulcer and varicose eczema had been attending once or twice a week for more than three years. Although they had regularly received local treatment with ultraviolet rays emitted from the tungsten arc, their lesions did not heal. The technic of treatment was changed and after three months sixty-six of these patients were completely healed and discharged cured. The technic adopted included: (1) exposure of the ulcer and the skin area from 1 to 1½ inches surrounding the edge of the ulcer to massive doses, equivalent to six erythema doses of rays, emitted from the quartz air-cooled mercury vapor lamp and (2) application of adhesive elastic bandages. The result of such treatment has been consistently successful. The exposure to ultraviolet rays of wavelength shorter than 3,000 angstrom units sterilizes the surface of the ulcerated area and augments the circulation; this promotes the healing and makes the surface wound inoffensive and free from unpleasant odor. The lamp is placed at a distance of 12 inches for ten minutes. A vacuum type of quartz air-cooled mercury vapor lamp, consuming 2.5 amperes and 105 volts between the electrodes, is employed. This is equivalent to five times the erythema dose of the normal white skin.

Immediately after exposure the tissue paper protecting the rest of the leg is removed and an elastic adhesive bandage is tightly applied from the base of the toes, over the foot including the heel, and up the leg to the knee. The patient is instructed to keep the bandage clean but not to interfere with it in any way. It is kept on for one week, when the patient again reports. The bandage is then removed, the skin is cleansed with acetone and the treatment is repeated. Week by week the ulcer area becomes smaller until healing ultimately occurs. The cases of varicose veins selected for such therapy were those in which the health of the patient or the enormous size of the veins did not permit treatment by injection of sclerosing solutions or by ligature. Treatment was applied twice a week for eight weeks. In varicose eczema the technic is similar to that applied in the treatment of varicose ulceration. There is an intensive exposure to ultraviolet rays, equivalent to six normal skin erythema doses, to localized patches of eczema, and the normal skin for half an inch surrounding each zone is also irradiated. An elastic adhesive bandage is then applied to the whole foot and leg and left undisturbed for one week. The ultraviolet irradiation causes an active inflammatory reaction, followed by edema, blistering, and finally exfoliation of the skin. Bandaging the limb with adhesive strapping and thus keeping the treated lesion covered gives relief to the patient, as the painful symptoms following intensive ultraviolet irradiation are thereby diminished. Healing of the skin gradually takes place, and week by week steady improvement may be recorded. The treatment is repeated once a week for from six to eight weeks; by this time healing is well advanced. During the last five years more than 240 cases of varicose ulcers have been treated, 90 per cent of which have been healed within six months. Patients are asked to report afterward for examination every two months for intervals as long as from one to two years.

### Lancet, London

1:1-66 (Jan. 2) 1937

- Incidence, Mortality and Treatment of Hemorrhage in Gastric and Duodenal Ulcer. A. F. Hurst and J. A. Ryle.—p. 1.
- Blood Changes After Surgical Operations. W. W. Walther.—p. 6.
- Fibrinolysis Following Operation. R. G. Macfarlane.—p. 10.
- Chest Deformities in Asthma. H. H. Moll.—p. 12.
- Remote Effects of Puerperal Sepsis. M. Kenny.—p. 14.
- Therapeutic Action of *p*-Aminobenzenesulfonamide in Meningococcal Infection of Mice. H. Proom.—p. 16.
- The Plaster Bed. F. P. Fitzgerald and K. I. Nissen.—p. 18.
- \*Rapid Ambulatory Treatment of Scabies with Benzyl Benzoate Lotion. A. Kissmeyer.—p. 21.
- Mental Changes in Families Affected by Dystrophia Myotonica. O. Maas and A. S. Paterson.—p. 21.
- Posture and Diuresis in Treatment of Renal Calculi. R. O. Ward.—p. 23.

**Treatment of Scabies with Benzyl Benzoate Lotion.**—With the help of the hospital dispenser, Kissmeyer improved the formula of the benzyl benzoate lotion used by Ludwig Nielsen and simplified the method of treatment so that it could be carried out in forty-five minutes without causing any damage to the skin. Since January 1933 some 8,000 cases of scabies have been treated in which it has proved practically ideal. The treatment is an ambulatory one; only children of less than 1 year of age should be treated in the hospital. It seldom gives rise to any dermatitis or irritation of the skin, and even cases of scabies pyogenically infected and very young children can be treated without any serious after-effects. The formula consists of equal parts of soft soap (British Pharmacopeia 1932), isopropyl alcohol and benzyl benzoate. The quantity necessary for each patient is about 150 Gm. The patient anoints the whole body with soft soap, rubbed with special care into those parts commonly attacked by the acarus. He then soaks in a warm bath, at 100 F., for ten minutes, rubbing himself during the bath. While wet the body is brushed all over with the lotion for five minutes with a brush of Russian pig bristle, special attention being paid to the affected parts. The patient then rests, allowing the body to dry, and then continues the brushing for a further five minutes, after which the body is dried gently and the patient resumes the clothes worn before the treatment was started. Twenty-four hours later a second bath is taken and clean clothes are put on. Underclothes are not disinfected but only washed and, if possible, boiled. Bedclothes should be boiled or otherwise sterilized. All members of a family or household should be treated on the same day, even though they may not show any signs of scabies.

would relieve the pains. According to this witness, Posey made no physical examination of him, did not diagnose his condition, and did not write for him a prescription. Posey did not, according to the evidence, publicly profess to be a physician or surgeon. If we understand the testimony in this case, said the court of criminal appeals, it wholly fails to show that Posey charged, directly or indirectly, for any treatment of any disease, disorder, physical deformity or injury. If it be a violation of the law, the court said, for a person to go to another and ask for his recommendation or opinion as to what medicine might be of benefit to him, if used, it is quite likely that the proprietors of practically every drug store in the state of Texas could be held to be practitioners of medicine because of their recommendations to people who come to them for medicine for supposed ailments claimed by the would-be purchaser. Expressing the opinion that the testimony in the case failed to support the conviction, the court of appeals reversed the judgment of the trial court and remanded the case.—*Posey v. State (Texas)*, 94 S. W. (2d) 451.

**Harrison Narcotic Act: Sufficiency of Indictment Against Physician.**—Dr. H. A. Glatzmayer was convicted of violating the Harrison narcotic act under an indictment charging him with having dispensed narcotics as a registered physician not in pursuance of written order forms and "not in the course of his professional practice." The physician appealed to the United States circuit court of appeals, fifth circuit, contending that the indictment was insufficient because it did not allege that the person prescribed for was not a patient.

The Harrison narcotic act, said the court, makes it a crime to sell narcotics except in pursuance of a written order on a prescribed form. The act provides, however, that nothing in it shall apply to the dispensing or distribution of any of the narcotics mentioned in it to a patient by a physician in the course of his professional practice only. The indictment might have charged simply the dispensing of narcotics not on order forms, ignoring the fact that the accused was a physician, thus leaving to him to prove his immunity. The indictment alleged, however, that the accused was a registered physician and in order to state a case the indictment had to go further and negative the physician's privilege. This it effectively did by alleging that the prescriptions were not issued in the course of his professional practice. A patient is a sufferer under treatment by a physician. If the physician is acting in the course of his professional practice, necessarily he has a patient. Conceivably, a physician may have a patient under treatment and might dispense to him drugs not to alleviate his condition but to gratify his craving for them, as he might in like manner dispense to a person not a patient. To sustain the physician's privilege there must be a patient and a dispensing in the course of professional practice. The words "not in the course of his professional practice" as used in the indictment, said the court, constitute an allegation that the dispensing by the physician was not done as a physician. The indictment, in the opinion of the court, was sufficient to state an offense. The judgment was affirmed.—*Glatzmayer v. United States*, 84 F. (2d) 192.

**Basic Science Act: Referendum Measure Improperly Submitted to Voters.**—The Arizona legislature in 1933 enacted a law providing that all applicants for licenses to practice the healing art must, before being permitted to take examinations to test their fitness to practice, demonstrate their proficiency in the sciences of anatomy, physiology, pathology, chemistry, bacteriology and hygiene by passing an examination conducted by a nonsectarian, impartial board of examiners. Thereafter a referendum petition on this law was filed in the office of the secretary of state. The Arizona constitution provides that referendum measures shall be submitted to the voters at the "next regular general election" following the filing of the petition. A vacancy having occurred in the office of Representative of Arizona to the Congress, the governor of the state called a special election to fill the vacancy. It was at this election that the referendum measure was submitted and approved by the people.

In the present proceedings, one St. Louis Estes was convicted of practicing the healing art without having obtained a certificate from the state board of examiners in the basic

sciences. He appealed to the Supreme Court of Arizona, contending that there was no law in the state requiring that he obtain a basic science certificate in order to practice the healing art. With this contention the Supreme Court agreed. The referendum measure, said the court, was improperly submitted to the voters and consequently it did not become a law. The constitution required that the measure be submitted at the next "general" election. It was erroneously submitted at a "special" election. The judgment of conviction was reversed and the cause remanded with directions to dismiss the charge.—*Estes v. State (Ariz.)*, 58 P. (2d) 753.

## Society Proceedings

### COMING MEETINGS

- Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association of Anatomists, Toronto, Ont., March 25-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
- American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Pediatric Society, University, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.
- American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Gelling, 947 East 58th St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Ft. Smith, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- District of Columbia, Medical Society, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, D. C., Secretary.
- Federation of American Societies for Experimental Biology, Tenn., April 21-24. Dr. Shields Warren, Boston, Secretary.
- Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.
- Georgia, Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.
- Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.
- Nebraska State Medical Association, Omaha, May 11-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.
- New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
- Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
- Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, 203 Ainsworth Bldg., McAlester, Secretary.
- South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
- Tennessee State Medical Association, Knoxville, April 13-15. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.
- Texas, State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
- Western Branch of American Public Health Association, Phoenix, Ariz., April 13-15. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.



## Mémoires de l'Académie de Chirurgie, Paris

62: 1423-1482 (Dec. 16) 1936

Torsion of the Testicle: Case. R. Pétrignani.—p. 1432.

\*Total Thyroidectomy for Irreducible Decompensated Cardiopathies:

Four Observations. P. Santy and M. Bérard.—p. 1434.

Dangers of Introducing Radioactive Substances in Organism. C. Lefebvre.—p. 1446.

Systematic Appendectomy in Surgical Treatment of Acute Appendicitis. Djémil Pacha.—p. 1449.

**Thyroidectomy for Decompensated Cardiopathies.**—Santy and Bérard, basing their work on the fact that in myxedema the circulatory flow is slowed down without any peripheral signs of heart failure, tried to supply an artificial equilibrium between an insufficient heart and the vital needs of the organism by lowering the basal metabolism. In their four cases the technic was more or less the following: Incision under local anesthesia so that all muscles of the neck, including the hyoid, were conserved intact, except the pretracheal muscles. Access over the right lobe of the thyroid body, which is dissected from above downward. Ligation of the branches of the superior thyroid artery with fine silk thread in the capsule, which is gradually detached from the thyroid body, while every small vessel is ligated. One should try to remain between the capsule and the parenchyma. Below is noticed the inferior parathyroid, which is pushed back behind the capsule. The left side is approached in the same manner. No recurrent nerve is seen here. The first patient shows continued cardiac improvement. The intense dyspnea is lessened. She can get up and about. She shows no sign of thyroid insufficiency; her metabolism is not below normal. The second patient lived about a year following the operation and it seems that the thyroidectomy at least did not harm her. In the third patient, one month after the thyroidectomy, there was a more regular rhythm of the heart, the edemas subsided and the dyspnea was less pronounced. The fourth case proved a complete failure, probably because of endocardiac lesions. Of twenty-one patients operated on by other authors, fifteen died inside of eighteen months. There were one success and three improvements. It is likely that the indications were not correct. However, an ideal indication is unusual. It is therefore certain that surgical therapy is still a hazardous procedure in decompensated heart diseases.

## Presse Médicale, Paris

45: 73-96 (Jan. 16) 1937

Influenza: General Review: I. Epidemic Influenza and "Hog Flu." A. Bèclère.—p. 73.

\*Malignant Abdominal Lymphogranulomatosis. C. Bacaloglu and M. Enachesco.—p. 76.

"Liver Crises" and Cholecystitis. R. Jahiel.—p. 78.

\*Practical Importance of Examining Reticulocytes in Peripheral Blood for Clinical Study of Pulmonary Tuberculosis. M. Szour and C. Bergenbaum.—p. 79.

**Malignant Abdominal Lymphogranulomatosis.**—Bacaloglu and Enachesco state that Paltauf and Sternberg occupy an important place in the work on reticulo-endotheliosis, or Hodgkin's disease. This disease shows itself under all kinds of forms, general and local, and assails one organ or a group of organs. Its gravity is high and its prognosis always fatal. Its origin is obscure and it belongs to the inflammatory neoplasms of an unknown virus. It is a mistake to think of Hodgkin's disease as a tuberculous disease. In tuberculosis of longer standing one often sees a lymphogranuloma developing side by side with tuberculous lesions. In the same manner one sometimes sees an epithelial cancer imposing itself on the wall of a tuberculous cavity. The blood picture is quite variable. It supplies no absolute indication for a diagnosis or even for a prognosis. Many authors insist on the frequency of monocytosis characterized by sudden and capricious appearance and disappearance. This is particularly true in the forms in which enlargement of the spleen is associated with prurigo. Leukopenia predominates in abdominal forms. The lesions are first seen in the abdominal and later also in the peripheral lymph nodes. An important symptom is the undulating fever with an acme lasting about seven days. The abdominal form of Hodgkin's disease is most rarely recognized during life. The absence of peripheral lymph nodes and the impossibility of a biopsy confuse it with other febrile disturbances. The undulating fever together with the gastro-intestinal symptoms,

notably diarrhea alternating with short periods of constipation, and the number of red corpuscles falling to about 3,000,000, are indications of abdominal lymphogranulomatosis. The spleen is considerably enlarged. The leukocytes are diminished and show a predominance of polymorphonuclear neutrophils and absence or diminution of polymorphonuclear eosinophils. On establishing these symptoms one may resort to the only means of prolonging the life of the patient: roentgen therapy.

**Examination of Reticulocytes of Peripheral Blood for Study of Pulmonary Tuberculosis.**—Szour and Bergenbaum call attention to the clinical value of reticulocytes. The erythroblastic system of the bone marrow reacts to a bacillary infection in a specific manner and is characteristic for the given allergic state of the person. Repeated reticulocyte examinations in the same patient illustrate the play of immunobiologic forces of the patient. The authors used the staining method of Levaditi and Ehrlich. On examining tuberculous patients every fifteenth day they found that whenever the process was stationary there were likewise no changes in the reticulocytes. In subacute cases there is a rise of from 6 to 12 per thousand of erythrocytes. In acute cases they may go up to 60 or 70 per thousand, with younger forms predominating. In florid cases and also in croupous pneumonia there may be as many as 100 per thousand of red blood corpuscles. Briefly, whenever the process is more acute the number of reticulocytes is increased, with younger forms predominating. But in advanced stages their number again falls to about from 2 to 10 per thousand. It follows that the increase of reticulocytes depends largely on the strength of the defense forces of the organism. It manifests the struggle of the organism in the erythroblastic center of the bone marrow. Return to normal is a sign of cure or of considerable remission. When there is an improvement in the general condition but no improvement in the reticulocytes there is only an apparent remission. A rapid fall in reticulocytes without change in the general condition is a grave prognostic omen.

45: 113-136 (Jan. 23) 1937

Studies in Neurovaccine: Affinities of Vaccine Virus. C. Levaditi and Mlle. J. Voet.—p. 113.

Polyarthropathy in Tabes. H. Roger, P. Vigne and A. M. Recordier.—p. 118.

Rapid Diagnosis of Pneumococci: Peritoneal Evidence in Mouse. J. Troisier, M. Bariéty and G. Brouet.—p. 121.

Radiotomic Method: Its Practical, Medicosurgical Applications in Pulmonary Tuberculosis. Pierre-Bourgeois, H. Thiel and M. Lebel.—p. 124.

Surgical Treatment of Nontuberculous Purulent Chronic Pleuritis in Child. P. Dreyfus-Le Foyer and L. Modéc.—p. 127.

\*Benzotherapy in Pulmonary Suppurations and Gangrenes. L. Goldkorn.—p. 131.

Micropolytraumatic Diseases of Elbow Joint: Practical Roentgenology. J. Belot and L. Nahon.—p. 135.

**Benzotherapy in Pulmonary Suppurations.**—In a previous article Goldkorn reported some of his results from intravenous injections of sodium benzoate in pulmonary abscesses. He injected 2 Gm. or 10 cc. of a 20 per cent solution from five to ten times, obtaining drainage and a benign influence on expectoration. In more abundant cases it was necessary to increase the dose to 3 or 4 Gm., and he has injected from 4 to 8 Gm. twice daily when the condition was alarming. Of twenty-two cases of pulmonary abscess there were five of a septic form with rapid destruction of tissue, fifteen had a duration of more than six weeks, and two were fatal. A permanent cure was obtained in eighteen patients who were under observation for three years. In six cases of gangrene the therapeutic effect was remarkable in from five to six days. The antiputrid action of sodium benzoate in doses of from 8 to 16 Gm. made the unpleasant breath disappear completely. In four recent cases the cure was permanent. One case of six months' duration was much improved and one was fatal. In 30 per cent of the patients there were dizziness and flashes before the eyes, which lasted but a minute. For this reason it is good to proceed slowly with the injection. In three cases of pulmonary abscess there was pain in the abdomen, which lasted four minutes after the injection. A few drops of tincture of opium or belladonna relieved the symptoms. Small doses of sodium benzoate were also given in bronchopneumonias. There were no contraindications.

## Current Medical Literature

### AMERICAN

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#### American Journal of Cancer, New York

29: 1-218 (Jan.) 1937

- \*Importance of Statistical Investigations in Campaign Against Cancer. W. Cramer, London, England.—p. 1.  
Clinically Demonstrable Bone Changes in Leukemia. C. L. Connor, San Francisco.—p. 20.  
\*Isolation of Pure Strains of Cells from Human Tumors: II. Growth Characteristics of Sarcoma and Two Brain Tumors in Tissue Culture: Conclusions. H. Pinkus, Ann Arbor, Mich.—p. 25.  
Prognostic Value of Mitosis Count in Biopsies of Lymphosarcoma. A. E. Casey, Charlottesville, Va.—p. 47.  
Tumor Lipids: Comparative Lipid Content of Periphery and Center. Frances L. Haven, Rochester, N. Y.—p. 57.  
Leukocytic Infiltration of Adrenals in Malignancy. A. M. Sala and R. J. Stein, New York.—p. 63.  
Growth Stimulating and Inhibiting Substances in Human Urine. G. L. Rohdenburg and S. M. Nagy, New York.—p. 66.  
Further Observations on Organs of Mice Painted with Carcinogenic Agents. J. M. Twort and C. C. Twort, Manchester, England.—p. 78.  
Spontaneous Mammary Carcinoma in Female Rabbit. J. Heiman, New York.—p. 93.  
Interpretation of Nature of Hodgkin's Disease: III. Report of Neoplasm in Rabbit Which Corresponds Closely to Hodgkin's Disease in Man. E. M. Medlar and K. T. Sasano, Mount McGregor, N. Y.—p. 102.  
Neoplasm Studies: II. Effect of Injecting Starch Grains into Transplanted Tumors. R. Chambers and C. G. Grand, New York.—p. 111.  
Chloroma: Case Report. M. E. Marten and L. M. Meyer, Brooklyn.—p. 116.  
Carcinoma of Cervix with Pelvic Metastases: Case Report. W. M. Millar, Cincinnati.—p. 122.  
Carcinoma of Cervix with Blood Picture Simulating Chronic Aleukemic Eosinophilic Leukemia: Case. A. M. Sala and R. J. Stein, New York.—p. 125.

**Importance of Statistics in Cancer Campaign.**—According to Cramer the experimental investigation of carcinogenesis has revealed two different and largely independent aspects of the etiology of cancer: the proximate cause of cancer—the intimate cellular changes that take place when a normal cell becomes malignant—and the remote causes of cancer—the factors and conditions capable of bringing about this intimate cellular change. Cancer mortality statistics are not likely to give information on the proximate cause of cancer, but they are the most valuable and almost the only material available for the study of the remote causes of cancer in man. Occupational cancer is an example in which remote causes of cancer have been identified from an analysis of statistical data. This form of cancer has thus become preventable. Further analysis of the cancer mortality according to exposed sites and nonexposed sites has shown that in the exposed sites the incidence of cancer rapidly increases as one descends in the social scale. This proves that the bulk of the total cancer mortality can be avoided and is being avoided by the upper social classes and that therefore a large fraction of the total cancer incidence is preventable. There is, in fact, "social cancer" as there is "occupational cancer." A method of obtaining information from statistical data concerning the remote causes of cancer is by a comparison of the cancer mortality statistics from different countries, provided they are comparable. Cancer as a disease is not inherited; only the susceptibility to a development of cancer in response to persistent carcinogenic stimuli can be inherited. In man the etiologic significance of this factor, apart from certain rare conditions, is not sufficiently important to condemn the offspring of a cancerous ancestry to the probability of the development of cancer. But from the point of view of the diagnostician a history of cancer in the family of a patient in which the diagnosis is doubtful, with the possibility of malignant disease, should be considered a factor weighing in favor of a diagnosis of cancer. Cancer mortality statistics, if reliably collected and suitably analyzed

with the necessary statistical corrections, represent a method for identifying some of the remote causes of cancer in man for some of the organs that take the heaviest share in the total cancer mortality; a method, in other words, to make a considerable part of cancer a preventable disease.

**Isolation of Pure Strains of Cells from Human Tumors.**—Pinkus describes pure strains of cells isolated from three human tumors and carried for from three to nine months. During this period, gradual changes of the properties of the strains took place. The working hypotheses and suggestions offered for further investigation are: 1. Those tumors which because of their clinical importance were the most common objects of former students, i. e., the squamous-cell carcinomas, are probably least suitable for tissue culture. 2. Rapidly growing tumors forming dense areas in vitro offer the best chance of success. 3. Spontaneous malignant growths are composed of a genetically inhomogeneous and labile cell material. 4. Inhomogeneity and lability differentiate spontaneous tumors from transplantable malignant growths, the elements of which have been thoroughly stabilized by selection. 5. Inhomogeneity and lability account for a great part of the difficulties encountered in the cultivation of human tumors. 6. Careful selection of specimens and a technic taking into account points 3, 4 and 5 will probably make possible permanent cultivation of pure strains of human malignant cells.

#### American Journal of Diseases of Children, Chicago

53: 1-272 (Jan.) 1937. [Part I]

- Prophylaxis of Rickets in Infants with Irradiated Evaporated Milk. L. T. Davidson and Katharine K. Merritt, New York, and S. S. Chipman, Norwalk, Conn.—p. 1.  
Pneumococcal Pneumonia in Infants and in Children. J. G. M. Bullock and Evelyn Greenbaum, New York.—p. 22.  
\*Thrombocytosis Produced by Hitherto Unknown Substance—The "Fat-Soluble T Factor." E. Schiff and C. Hirschberger, Berlin, Germany.—p. 32.  
II. Ultraviolet Component of Sunlight of Portland, Ore., Measured by Acetone-Methylene Blue Method. I. A. Manville, Portland, Ore.—p. 39.  
\*Changes in Growing Skeleton After Administration of Bismuth. J. Caffey, New York.—p. 56.  
Polioomyelitis Virus and Degeneration of Peripheral Nerves. J. A. Toomey, Cleveland, and H. M. Weaver, Columbus, Ohio.—p. 79.  
Studies of Hypovitaminosis A: II. New Method for Testing Resorption of Vitamin A from Medicaments. C. Friderichsen and C. Edmund, Copenhagen, Denmark.—p. 89.  
Use of Immune Globulin in Prophylaxis of Measles. H. Goldstein, H. M. Eisenoff and S. A. Blauner, New York.—p. 110.

53: 273-428 (Jan.) 1937. [Part II]

- Basal Metabolism of Girls: Physiologic Background and Application of Standards. F. B. Talbot, E. B. Wilson and Jane Worcester, Boston.—p. 273.  
Basal Metabolism of Normal Boys and Girls from Two to Twelve Years Old, Inclusive. R. C. Lewis, Gladys M. Kinsman and Alberta Iliff, Denver.—p. 348.

**Thrombocytosis Produced by the "Fat-Soluble T Factor."**—Schiff and Hirschberger found it possible to produce with regularity an increase in the number of platelets in normal children. The unknown factor responsible for the increase in the platelet count is not vitamin A but is present in sesame oil and absent from cod liver oil and olive oil. Additional proof of this fact is that vitamin A when dissolved in olive oil instead of in sesame oil has absolutely no effect on the thrombocyte count. This platelet-increasing factor is effective even in small doses: from 8 to 10 drops of sesame oil a day was sufficient to bring about a notable increase in the platelet count. It is possible that the reason for this was the existence of a new fat-soluble vitamin. For the time being the authors wish to designate this substance as the "fat-soluble T factor." Ultraviolet irradiation seems to destroy the factor.

**Changes in Growing Skeleton After Administration of Bismuth.**—Caffey has selected four types of lesion to illustrate the bismuth changes that follow syphilitic therapy: (1) the lesion which occurs directly after a single course of treatment, (2) that which occurs many weeks after a single course, (3) that which occurs after multiple courses during several years and (4) that which occurs in the new-born whose mothers received bismuth during pregnancy. Observations have revealed shadows in the skeletal roentgenograms of such patients similar to "lead lines" in lead poisoning. Analogous x-ray changes were produced in growing dogs by the administration of bismuth. The histologic features of the bismuth lesion in the

**Schweizerische medizinische Wochenschrift, Basel**

67: 109-132 (Feb. 6) 1937. Partial Index

- Present Status of Problem of Postoperative Complications. P. Decker.—p. 109.  
Studies on Etiology and Pathogenesis of Meadow Plant Dermatitis. H. Kuske.—p. 117.  
\*Continuous Irrigation in Treatment of Gonorrheal Vulvovaginitis. Lili Häberlin.—p. 119.  
Pseudotumor of Membranous Portion of Urethra. R. Meyer-Wildisen.—p. 120.  
Important Factors in Roentgenotherapy. O. David.—p. 120.

**Irrigation in Gonorrheal Vulvovaginitis.**—Häberlin states that in the dermatologic clinic of Zurich gonorrheal vulvovaginitis in children has been treated during the last two years by continuous irrigations with solution of acriflavine hydrochloride, the concentration of which is gradually increased from 1:6,000 to 1:2,000. A Nélaton catheter, which is connected with an irrigator, is introduced into the vagina. The catheter is fastened to the thigh. The backflow of the irrigation fluid escapes through an opening in the mattress. The treatment does not bother the children, since they can be in a half-sitting position and entertain themselves with toys. The irrigation is given for about three hours in the morning. The drop velocity is 40 per minute. In the morning and evening the rectum and the urethra either are irrigated with a silver preparation or suppositories are introduced. In addition to this, the children are given sitz baths with potassium permanganate in the morning and in the evening. This procedure is continued for four weeks. If at the end of this period the examination for gonococci gives negative results, the treatment is continued for another four weeks under constant bacteriologic control. Then the provocative methods are applied. In case of relapse, the entire cycle is repeated. Of the thirteen children in whom this treatment was employed, twelve remained free from relapse during observation periods of from two to fifteen months. In one child a relapse occurred after four months, and a reinfection by the mother seemed possible in this case. The author emphasizes that this method of treatment not only reduces the time required for the treatment to about half of the length formerly required but is also more effective.

**Archivio Italiano di Chirurgia, Bologna**

44: 293-388 (Sept.) 1936

- Importance of Posthypophyseal Hormones in Pathogenesis of Experimental Peptic Ulcer. L. Imperati.—p. 293.  
\*Alcoholization of Third Branch of Trigeminal Nerve. L. Oppezzi.—p. 306.  
Neuromuscular Chronaxy in Experimental Amyotrophy from Immobilization in Rabbits. C. Colombo and A. Romero.—p. 311.  
Tumors of Kidney: Histologic Study of Sixty Renal Tumors. P. G. Frattini.—p. 321.  
Gangrene of Penis from Actinomyces: Case. D. Pämpari.—p. 357.

**Alcoholization of Third Branch of Trigeminal Nerve.**—Oppezzi describes a technic for alcoholization of the third branch of the trigeminal nerve in the treatment of neuralgia. The injection is made with a long and thin needle having a cork disk running along its shaft. The patient is asked to open the mouth slightly and the needle is introduced just below the midpoint of the zygomatic arch 4 or 5 cm. until the needle point touches the pterygoid process. Without the needle being moved, the disk on its shaft is moved until it touches the skin. The needle is then withdrawn a few millimeters and directed forward so as to form an angle of 30 degrees with an imaginary line perpendicular to the cutaneous plane pierced by the needle and pushed in again until the disk touches the skin. The disk is then pulled away from the skin a few millimeters and the needle is pushed in farther until the disk again touches the skin. At this point the patient complains of pain which irradiates to the teeth and the tongue, indicating that the needle has reached the mandibular nerve near its exit from the foramen ovale. Now 1 cc. of alcohol is injected. In exceptional cases the needle point meets a bone surface which prevents its reaching the foramen ovale, regardless of the different angles at which the needle is directed. The author found by anatomic studies of the region that the obstacle is usually due to calcification of Hyrtl's crotaphic buccinator ligament but may also be due to calcification of Civinini's pterygospinous ligament abnormally placed. De Froe and Vagenaar point out the calcification of Hyrtl's crotaphic ligament. They

denied, however, that Civinini's pterygospinous ligament, abnormally developed and calcified, may be the obstacle. The author states that calcification of either or both ligaments may be the obstacle.

**Folia Medica, Naples**

22: 1099-1140 (Dec. 30) 1936

- Donaggio's Obstruction Phenomenon in Vaccination. L. Bartone.—p. 1099.  
\*Sodium Benzoate in Treatment of Cough in Pulmonary Tuberculosis. L. Quaranta.—p. 1112.  
Chronic Appendicitis: Diagnosis and Treatment. M. Mauro.—p. 1118.

**Sodium Benzoate in Tuberculous Cough.**—Quaranta reports the results obtained by administering sodium benzoate for cough in pulmonary tuberculosis. The treatment consists in a daily intravenous injection of 5 cc. of a 25 per cent sodium benzoate solution for fifteen consecutive days and can be repeated at intervals of ten days. The tolerance of the patient is tested before the treatment by a daily intravenous injection of 1 cc. of the 25 per cent solution of sodium benzoate for two consecutive days. The author's dose is usually well tolerated. During administration of the treatment the patient is on a regular diet and is given the medicinal treatment indicated, such as lecithin, balsams, arsenicals and analeptics. Sodium benzoate changes the nature of the sputum. It has an anti-septic action on bacteria associated with tubercle bacilli in the sputum and inhibits the action of the vagal sympathetic nervous ends that control bronchial secretion. The quantity and quality of the sputum are favorably modified, the attacks of coughing diminish in number and frequency and the general condition of the patient improves. In the majority of cases, satisfactory results are evident after seven or eight injections. The number of failures is about 6 per cent. These results were obtained by the author in a large number of cases.

**Brasil Medico, Rio de Janeiro**

51: 45-204 (Jan. 15) 1937. Partial Index

- Mental Analysis in Psychoneuroses. A. Austregesilo.—p. 45.  
Spondylo-Arthritis and Spondylo-Arthrosis: Case. A. Sampaio Tavares.—p. 54.  
\*Tuberculous Cholesterol Pleurisy: Case. A. De Almeida Prado.—p. 66.  
Hemogenia: Case. A. De Moraes.—p. 86.  
Errors in Diagnosis of Pulmonary Tuberculosis. C. De Araujo.—p. 92.  
Feeding in Tuberculosis. S. Mendonça.—p. 107.  
Partial Thoracoplasty in Pulmonary Tuberculosis. F. Paulino.—p. 135.  
Management of Stump in Appendectomy. A. Coutinho.—p. 156.  
Gold Salts in Pulmonary Tuberculosis. A. Renzo.—p. 189.  
\*Alkali Reserve in Anesthesia with Barbitol Derivatives. O. Unti and L. de Moraes.—p. 201.

**Cholesterol Tuberculous Pleurisy.**—According to De Almeida Prado, cholesterol pleurisy originates in chronic fibrous tuberculosis of long duration (twenty, thirty or forty years). The fluid is formed in the pleural cavity and pushed by adhesions, which form during the course of the disease, until it is encysted between a part of the pleura on one side and the adhesions on the other. Originally the fluid is abundant in leukocytes, lymphocytes and cholesterol. As it becomes encysted it passes through certain changes of the cells and fatty substances and is transformed into a sterile fluid of chyliform nature and milky appearance, which contains formed cholesterol. The fluid may be encysted at any part of the pleura. The most frequent locations are the axillary region and the posterior inferior part of the pleura. The disease evolves slowly without disturbing the patient's general condition. Fever, cough and pain are caused by tuberculosis but not by the effusion. Dyspnea is a frequent symptom. The thorax is retracted on the side of the effusion. The signs given by auscultation and percussion correspond to the condition of the lung. The prognosis depends on the evolution of tuberculosis. Operation on the pleuritic bag should be avoided whenever possible, because of the tendency of the condition to the formation of a fistula after performance of an operation. In the literature, regional thoracoplasty is advised as the operation of choice. A case is reported by the author.

**Alkali Reserve in Barbituric Anesthesia.**—Unti and de Moraes studied the variations of the alkali reserve produced by the sodium salt of *n*-methyl-cyclo-hexenyl-methyl barbituric acid, intramuscularly, amytal and the sodium salt of isopropyl-bromalyl-*n*-methyl-malonylurea anesthesia. In one of the cases in which amytal was administered the anesthesia was completed with tutocain spinal anesthesia, and in the other three cases

skeleton are described, and chemical analyses of the bismuth, calcium and phosphorus content of the bismuth zone are given. The effect of parathyroid extract on the formation of the bismuth lesion and the differences between the skeletal changes following treatment with arsenical preparations and with bismuth compounds are discussed.

### American Journal of Hygiene, Baltimore

25: 1-186 (Jan.) 1937

- Some Effects of Dietary Oxalate on Rat. C. G. Mackenzie and E. V. McCollum, Baltimore.—p. 1.  
Effect of Liver Diet on Susceptibility of Rat to Transplantable Sarcoma. K. K. Rice, Baltimore.—p. 11.  
Complement Fixation in Vaccinia, Virus III of Rabbits, and Herpes. Ruth M. Myers and M. Jeannette Chapman, Baltimore.—p. 16.  
Some Experimental Studies on Strongyloides Ratti. A. J. Sheldon, Baltimore.—p. 39.  
Studies on Active Acquired Resistance, Natural and Artificial, in Rat to Infection with Strongyloides Ratti. A. J. Sheldon, Baltimore.—p. 53.  
Relationship in Equines Between Age of Host and Number of Strongylid Parasites. A. O. Foster, Panama, Republic of Panama.—p. 66.  
Study of Trichinosis in a Maryland Family. G. F. Otto and J. H. Janney Jr., Baltimore.—p. 76.  
Studies on Magnesium Deficiency in Animals: VIII. Effects of Magnesium Deprivation on Total and Ultrafiltrable Calcium and Magnesium of Serum. S. W. Hoobler, H. D. Kruse and E. V. McCollum, Baltimore.—p. 86.  
\*Hydatid (Echinococcus) Disease in Canada and the United States. T. B. Magath, Rochester, Minn.—p. 107.  
\*Blood and Tissue Studies in Experimental Ascariasis. H. E. Biester and D. F. Eveleth, Ames, Iowa.—p. 135.  
White Cell Picture in Hookworm Disease of Dogs. J. W. Landsberg, and A. O. Foster, Panama, Republic of Panama.—p. 141.  
North American Species of Culicoides. F. M. Root and W. A. Hoffman, Baltimore.—p. 150.  
Strain of Plasmodium Praecox (Relictum) with Highly Synchronous Matinal Sporulation. F. Wolfson, Baltimore.—p. 177.

**Hydatid (Echinococcus) Disease in Canada and the United States.**—Magath reviews the past trend of the disease in Canada and the United States and states that at least 482 cases of hydatid disease have been recorded in Canada and the United States since the first case was seen in 1808. Ten new cases diagnosed at the Mayo Clinic are added to the cases already reported. All of 95 per cent of the cases in which the nationality of the patient is known have occurred among immigrants, and four cases have been reported in which the patients were natives born in the United States but who probably acquired the infection in foreign countries. Three persons most likely acquired the infection in Canada and nineteen in the United States. Infection among men is more frequently seen in Canada and the United States than among women, and children (only twelve cases) are but rarely infected. The organs most commonly involved are the same as those in countries in which the disease is endemic. Foreign patients have come chiefly from the countries in which hydatid disease is relatively common and from which relatively many immigrants have come. Iceland, Italy, Germany, Greece, Russia and Great Britain account for 75 per cent of the cases. Evidence points to a falling incidence of the disease, as it affects man, in Canada and the United States, and among human beings the curve of incidence flattened out about 1924. Some evidence indicates that the incidence among hogs is increasing. Apparently the usual life history between dog and sheep is not typical in Canada and the United States and this probably explains the almost complete absence of hydatid disease among native human beings. So rarely does a native citizen of Canada or the United States who has never left his country have hydatid disease that such an event will occur less often than once in about five years; this is stated on the basis of past experience.

### American Journal of Medical Technology, Detroit

3: 1-34 (Jan.) 1937

- New Micro Pipet for Blood Sedimentation Measurements. C. Brooks, New Orleans.—p. 1.  
Plain Facts About Blood Cultures. Annette M. Callan, Philadelphia.—p. 8.  
Hemologic Observations on Anemias and Leukemias: II. Reticulocyte Response in Pernicious Anemia. E. A. Sharp and E. M. Schleicher, Detroit.—p. 16.  
\*Comparison of Kolmer-Wassermann, Kahn and Johns Precipitation Tests on Blood Serology. Hermine Tate and E. M. Robards, Jackson, La.—p. 23.

**Comparison of Tests on Blood Serologic Reaction.**—Tate and Robards tabulated the serologic examinations of 2,159 individuals. This included all patients as they were admitted

to the East Louisiana State Hospital over a period of three years. The blood serologic reaction was tabulated on 110 syphilitic individuals by the Kolmer-Wassermann, Kahn and Johns precipitation tests. These patients had received from two to eight weeks of antisyphilitic therapy, and comparisons of the Kolmer-Wassermann, Kahn and Johns precipitation tests were made on bloods from 130 constitutional syphilitic individuals, after extensive treatment had been given. Tabulations and comparisons of the Kolmer-Wassermann, Kahn and Johns precipitation tests were also made on 160 cerebrospinal syphilitic individuals after extensive antisyphilitic treatment. The authors' conclusion is that the first few antisyphilitic treatments given to a syphilitic individual cause a negative or doubtful reaction sooner by the two precipitation methods than by the Kolmer-Wassermann reaction. But, as the course of treatment is continued, the precipitation tests return to positive and under rigid treatment stay positive longer than the Kolmer-Wassermann reaction. No syphilologist or laboratory technician should rely on a single test for the diagnosis or prognosis of syphilis.

### American J. Obstetrics and Gynecology, St. Louis

33: 1-182 (Jan.) 1937. Partial Index

- Birth Injury in Relation to Labor. E. Holland, London, England.—p. 1.  
Incontinence of Urine in Female: Some Functional Observations of Urethra Illustrated by Roentgenograms. W. T. Kennedy, New York.—p. 19.  
Ovarian Rupture Causing Intraperitoneal Hemorrhage: Report of Ten Cases. S. L. Israel, Philadelphia.—p. 30.  
\*Evaluation of Salpingostomy and Tubal Implantation for Treatment of Sterility. J. P. Greenhill, Chicago.—p. 39.  
Treatment of Dysmenorrhea. Leda J. Stacy and Rosemary Shoemaker, Rochester, Minn.—p. 67.  
Clinical Observations on Effect of 800 Kilovolt Roentgen Rays in Uterine Carcinomas. H. Schmitz, Chicago.—p. 74.  
Obstetric Management of Prematurity. C. H. Ingram Jr., Pittsburgh.—p. 80.  
Postoperative Urinary Tract Sequels in Total Hysterectomy: Cystoscopic Study of 200 Cases. R. W. Eddy, Cincinnati, and F. H. Miller, Dayton, Ohio.—p. 85.  
Effect of Artificial Pseudomenstruation and Menstruation on Increased Elimination of Prolan A in Absence of Ovarian Function. B. Zondek, Jerusalem, Palestine.—p. 96.  
Impetigo Herpetiformis Occurring During Pregnancy. B. Carter and R. L. Pearce, Durham, N. C.—p. 114.  
Consideration of Lumbosacral Spina Bifida Occulta, with Especial Reference to Uterine Prolapse. G. M. Laws, Philadelphia.—p. 126.  
Vascular-Renal Effects of Posterior Pituitary Extracts in Pregnant Women. W. J. Dieckmann and H. L. Michel, Chicago.—p. 131.  
Relation of After-Pains to Uterine Contractions Following Administration of Progestin. S. Lubin, F. J. Clarke and S. R. M. Reynolds, Brooklyn.—p. 143.  
Reactions of Human Uterine Muscle in Vitro to Pituitrin, Adrenalin and Acetylcholine and Their Relations to Menstrual Cycle. E. G. Miller, Jessie Reed Cockrill and R. Kurzrok, New York.—p. 154.  
\*New, Nonirritating Opaque Medium for Uterosalphingography: Preliminary Report. P. Titus, R. E. Tafel, R. H. McClellan and F. C. Messer, Pittsburgh.—p. 164.

**Salpingostomy and Tubal Implantation for Treatment of Sterility.**—Greenhill's review of the literature concerning salpingostomy and tubal implantation for the purpose of overcoming sterility presents an unfavorable attitude toward these operations. The chief reasons for this are the relatively few live babies secured by these measures, the disproportionately high number of ectopic pregnancies that have resulted, and other complications that may follow such operations. Of the 107 replies received to questionnaires sent to members of the American Gynecological Society and the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, sixty were definitely opposed to salpingostomies and tubal implantations for the purpose of overcoming sterility, about one fifth were distinctly in favor of such plastic operations, one seventh felt that the operations were worth while occasionally, and the remainder did not express any opinion concerning the usefulness of these operations. An analysis of about 818 plastic operations reported in the questionnaires revealed that fifty-four pregnancies took place after these operations; however, only thirty-six live babies were delivered. Ten of the fifty-four pregnancies ended in abortion and eight were ectopic pregnancies. Careful selection of cases and improved technic in performing these plastic operations on the tubes will most likely yield a larger incidence of live children for those who feel inclined to perform these operations. There is certainly much more justification for doing them when the abdomen is opened for some specific

amytal was administered alone. The alkali reserve, two hours after administration of the derivative of barbituric acid, diminished in seven cases, increased slightly in two and remained unchanged in one case. Acidosis was not reached in any of the cases. In five cases the determination of the alkali reserve was repeated twenty-four hours after administration of the barbituric acid derivative. In two of three cases with decreased alkali reserve the latter rose in twenty-four hours. In the other cases the alkali reserve decreased still more. In one case in which the alkali reserve did not change in two hours and in one case in which it rose in two hours it decreased in twenty-four. According to the author, vomiting and nervous excitation of the patient after the anesthesia depend on nervous and humoral disturbances rather than on the variations of the alkali reserve. Postoperative acetoneuria does not necessarily coexist with the presence of acidosis. In the five cases in which amytal was given, the alkali reserve was normal before administration of the anesthetic. Two hours later it decreased in four cases and increased in one. Amytal administered alone may produce a decrease in the alkali reserve which is in proportion to the decrease of the pulse and of the movements of respiration. The sodium salt of isopropyl-b-bromalyl-n-methylmalonylurea produced a marked decrease of the alkali reserve in all cases during the first six hours. In one of the cases the alkali reserve increased and in the other decreased still more in twenty-four hours.

### Semana Médica, Buenos Aires

44:161-236 (Jan. 21) 1937. Partial Index

Subtotal Resection of Right Upper Lobe of Lung in Pulmonary Gaseous Cyst: Surgery in Dyspnea. C. V. A. Ugon.—p. 166.

Etiology of Diaphragmatic Eventration: Frequency and Functional Organic Complications. F. González Río Fresco.—p. 176.

\*Periosteal Lipoma. A. Dujovich and M. Shraer.—p. 183.

Heredity of Finger Prints. A. Raitzin.—p. 201.

Concentric Papulous Syphilid: Case. J. M. Spilzinger and L. Azorin.—p. 217.

\*New Maneuver in Pulmonary Diseases. S. J. Catuogno.—p. 224.

**Periosteal Lipoma.**—Dujovich and Shraer say that periosteal lipoma is rare, usually congenital and of uncertain etiology and pathogenesis. The volume and weight of the tumor depend on its age. On palpation the tumor gives a characteristic sensation of softness similar to that of a bag of wool. The shape and number of lobules of the tumor vary. Macroscopically, section of the tumor shows that it is yellow and made up of fat lobules. It contains connective fibrous tissue, which in some cases exists in abundance (fibrolipoma) and then it cuts like fat bacon. In other cases it has a gelatinous appearance. Microscopic examination reveals that it is composed of fat cells and connective fibrous tissue. The tumor may suffer myxomatous degeneration (myxolipoma). Periosteal lipoma does not cause cutaneous ulceration or suppuration. Cases in which the center of the tumor becomes calcified have been reported in the literature. Usually periosteal lipoma originates in the periosteum with one or more pedicles without involving the bone (true periosteal lipoma). In some cases the tumor penetrates the bone and partially infiltrates it (osteoperiosteal lipoma). Intra-osseous lipoma is exceedingly rare. Periosteal lipoma may develop on any bone, the long bones, the cranium and the vertebrae being the most frequent locations. As a rule it does not become adherent to the skin, joints, vessels or nerves. The tumor adheres to the deep tissural layers and forms adhesions with the muscles, which make its removal difficult. The differential diagnosis depends on the location of the tumor. In the cranium it has to be differentiated from encephalocele in children and from dermoid cysts and syphilitic gumma in adults. When it is located in a vertebra it has to be differentiated according to its location from cervical lymph nodes, branchioma, cysts, angioma, diffuse symmetrical lipomatosis of the neck, meningocele and atypical Pott's disease. When the tumor is located at the long bones it has to be differentiated from simple superficial lipoma, hydatid cyst of the muscles, syphilitic gumma and sarcoma. Usually the tumor follows a slow and progressive course of development, except in atypical cases in which it develops rapidly and disturbs the general condition of the patient. The treatment consists in complete removal of the tumor and of the pedicle and in scraping of the bone at the site of origin. If the lipoma originates in an exostosis, the latter has to be resected. The authors report

two cases of periosteal lipoma on a rib and on the humerus, respectively, in patients aged 60 and 50 years. Both patients recovered after removal of the tumor.

**New Maneuver in Pulmonary Diseases.**—The maneuver described by Catuogno is as follows: The patient is placed in a vertical position, either standing upright or sitting in bed. The inferior border of pulmonary resonance is outlined by light percussion. The patient is then bent forward at a right or obtuse angle (if he is standing) or at an acute angle (if he is sitting at the edge of the bed) and percussion is repeated. The border of pulmonary resonance will then be displaced downward 4 or 5 cm. in a normal thorax and 1 or 2 cm. in pulmonary emphysema. There is no displacement if adhesions are present, and displacement upward if there is pleurisy. The downward displacement of pulmonary resonance in the normal thorax is due to a change in position of the lung toward the costodiaphragmatic sinus. Lack of displacement indicates inability of the lung to move because of adhesions. The displacement of resonance upward is caused by displacement of the fluid from the costodiaphragmatic sinus, for that is the point of less resistance to intrapleural pressure induced, during the maneuver, by the postural change of the thorax.

### Deutsches Archiv für klinische Medizin, Berlin

179:569-648 (Dec. 29) 1936. Partial Index

\*Zinc-Vapor Intoxications ("Casting Fever"): Clinical Observations and Therapy of Disorder. F. Chrometzka.—p. 569.

Examination with Unipolar Thoracic Leads in Suspected Isolated Hypertrophy of Right Auricle. R. Schwab and A. Aechter.—p. 577.

Modification of Former Treatment of Peptic Ulcer and Four Cured Cases of Peptic Jejunal Ulcer. L. Brahmé.—p. 581.

Problem of Spontaneous Rupture of Aorta. H. J. Gottwald.—p. 590.

\*Behavior of Insensible Perspiration in Dropsical Disorders. E. Kestermann and T. Schleining.—p. 609.

Clinical Significance of Electrocardiography in Cardiac Infarct. J. Freundlich.—p. 622.

**Zinc Vapor Intoxications.**—Chrometzka observed zinc vapor intoxications in a large number of workers who did zinc welding. Of the general symptoms, emaciation is the most noticeable, but fatigue, headaches and nervous symptoms are also frequent complaints. The most characteristic symptoms are those of the mucous membranes. Not only is the nasal mucous membrane irritated, but there is also tracheitis, laryngitis and bronchitis. The gastric mucosa is also severely affected. The patients complain of gastric pressure, loss of appetite, nausea and vomiting and, in severe cases, cramplike pains in the epigastrium and occasionally sour eructation. Even the mucous membranes of the urinary passages show signs of inflammation. In view of the fact that even the mucous membranes which do not come in contact with the zinc vapors are inflamed, the author suggests that the process is an exudative inflammation. The changes in the blood are not uniform. The increase in reticulocytes observed in many cases is apparently not caused by an impairment of the blood forming organs but rather by way of the gastric changes. The author thinks that in selecting workers for zinc welding attention should be paid to the constitution and particularly the sympathetic nervous system. Moreover, zinc welders should receive adequate amounts of fat and milk; their work period should be comparatively short, and they should be given an opportunity to change their work periodically.

**Insensible Perspiration in Dropsical Disorders.**—Kestermann and Schleining point out that there are contradictions in the literature on insensible perspiration. Some authors assert that there may be a "negative" insensible perspiration, that is, an increase in the body weight, in spite of an excess of the egesta over the ingesta, while others deny such a possibility. In view of the fact that "negative" insensible perspiration was observed by several investigators in patients with cardiac decompensation, the authors decided to study this problem on patients with heart disease. First they made tests on ten patients with chronic congestion of the liver, edemas and continuous increase of the body weight. The tests were made in the morning, while the patients were still fasting, and with a scale that had an exactness of 0.1 Gm. Of a second group of patients who were subjected to the test, the majority had heart disease while one had syphilitic cirrhosis of the liver and another nephrosis and ascites. The authors were never able to detect a "negative" insensible perspiration; that is, an increase



indication than there is for performing the laparotomy solely for the purpose of operating on the tubes to correct sterility.

**Nonirritating Opaque Medium for Uterosalphingography.**—Titus and his co-workers state that the source of chemical salpingitis and parametritis frequently initiated by injections of iodized oil for uterosalphingography seems to lie in the liberation of free iodine from the oil. Skiodan in watery solution is entirely nonirritating and has been used extensively in urologic work, but its lack of viscosity made it unsuitable for uterosalphingography. Several different combinations with viscid mediums were devised in an effort to develop a solution of the same viscosity as iodized oil. A solution containing 40 per cent of skiodan in 20 per cent acacia finally proved suitable. Injections in the tubes of rabbits showed no irritative, histologic changes, and its clinical use has followed thus far with entirely satisfactory results. Moreover, the roentgenograms seem sharper and clearer than with the iodized oil preparations.

### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

37: 1-144. (Jan.) 1937

- Roentgen Study of Mucosa of Colon. R. Sarasin, Geneva, Switzerland.—p. 1.
- Directed Roentgenography of Thorax (the Cardiocairograph). I. S. Hirsch and M. Schwarzschild, New York.—p. 13.
- Congenital or Infantile Dislocation of Hips. E. C. Vogt, Boston.—p. 21.
- \*Elimination of Intestinal Gas Shadows in Roentgenography: Preliminary Report on 1,000 Cases. J. C. Kenning and J. E. Lofstrom, Detroit.—p. 28.
- Pancreatic Lithiasis: Report of Case. S. Hoehstetter, Dwight, Ill.—p. 33.
- \*Giant Cell Tumors of Bone: Experience with Surgical and Roentgen Treatments on Material of Fifteen Cases. E. Freund and C. B. Meffert, Iowa City.—p. 36.
- Melanoma of Lumbar Region Without Apparent Skin Manifestation: Case Report. S. K. Livingston, Hines, Ill.—p. 46.
- Treatment of Prostatic Carcinoma. B. S. Barringer, New York.—p. 49.
- Sarcoma of Soft Tissue. I. I. Kaplan and S. Rubinfeld, New York.—p. 53.
- Dangers of Reducing Fractures Under Roentgenoscope and Methods of Protection Against Them. C. A. Stevenson and E. T. Leddy, Rochester, Minn.—p. 70.
- Dosage System for Radium Therapy: Preliminary Report. B. E. Wright, Philadelphia.—p. 83.
- Lost and Found Radium. R. B. Taft, Charleston, S. C.—p. 87.
- Comparison of Paraffin and Water Phantoms for Roentgen-Ray Depth Dose Measurements. Edith H. Qulmby and A. N. Arneson, New York.—p. 93.
- Variations in Intensity and Quality of Roentgen-Ray Output as Affected by Angle to Central Ray, Roentgen Tube and Roentgen Machine. C. J. Zintheo Jr., Richmond Highlands, Wash.—p. 98.

**Elimination of Intestinal Gas Shadows in Roentgenography.**—Kenning and Lofstrom used pitressin as an aid in eliminating gas shadows, which, on a roentgenogram, cause confusion and error. This work includes observations of more than 1,000 patients. Repeated doses increase the tone of the intestine without ill effect. In their experience no harmful after-effects have been observed. Its use is indicated in any case in which gas shadows obscure observations on the roentgenogram. Some of the uses specifically are in cholecystography, examinations of the kidney, ureter and bladder to reveal the presence of stones, tumors, perinephric abscess, and the like, intravenous urography, retrograde urography and examinations of the lumbar spine and pelvis. Extreme care should be exercised in the use of pitressin in cases of cardiac decompensation associated with marked hypertension, coronary sclerosis and thrombosis, and acute, complete mechanical intestinal obstruction of long standing. Pregnancy has not proved to be a contraindication, at least through the sixth month. The optimal effect in eliminating gas was obtained approximately from thirty to forty-five minutes following injection. It has also been noted that gas shadows reappear in from two to three hours. The night before examination a cleansing enema is given. This is followed in the morning, about one and one-half hours before the time set for roentgenography, by another enema. One hour before, 0.5 cc. of pitressin is given intramuscularly. This is repeated in half an hour. In some few cases of peritonitis and traumatic ileus as many as six ampules (0.5 cc. each) have been given to produce satisfactory roentgenograms. However, in most cases, two injections of 0.5 cc. each were found to give the desired results. The authors do not mean to imply that

there will be no evidence of gas within the intestine; however, it is minimized to such an extent that the roentgenograms are clearer and much more diagnostic than those obtained by any other method. The hepatic flexure of the colon is shortened, being drawn down away from the gallbladder area, thus eliminating shadows due to superimposed intestine. The cost of the medication is amply compensated for by the saving in time, reexamination and the greater ease in diagnosis when better quality films are available.

**Giant Cell Tumors of Bone.**—In summarizing their experience on a material of forty cases (fifteen giant cell tumors, twenty-five osteitis fibrosa), Freund and Meffert state despite several factors which they have in common that localized osteitis fibrosa (solid or cystic form) has to be considered different from giant cell tumor, at least clinically. Giant cell tumors are more prevalent in the second and third decades of life, and localized osteitis fibrosa in the first and early part of the second decades of life. Giant cell tumor localizes mainly in the lower epiphyses of the radius and femur, while osteitis fibrosa localizes in the upper metaphyses and diaphyses of the humerus, femur and tibia. Giant cell tumors are slowly progressive with a tendency to break through the periosteum and to invade the surrounding soft tissue, frequent recurrence following operation. The cause is relatively benign in osteitis fibrosa, especially for the cystic form, with some cases of spontaneous healing and, as a rule, good response to surgery. Therefore age, localization and the clinical course are factors that make it doubtful whether localized osteitis fibrosa and giant cell tumor represent only different manifestations of the same nosologic entity. As far as the treatment is concerned, careful and thorough curettage in localized lesions followed by implantation of a good number of bone chips seems to be the method of choice. Roentgen treatment may be of advantage. In more extensive giant cell tumors with soft tissue involvement, amputation has to be considered as the quickest way to permanent cure if roentgen treatment or less radical surgical means fail to improve the condition.

### Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

21: 1-120. (Jan.) 1937

- \*Sodium Bismuthate Soluble: New Product for Intramuscular and Oral Administration in Treatment for Syphilis: Preliminary Summary Report. P. J. Hanzlik, A. J. Lehman and A. P. Richardson, San Francisco.—p. 1.
- Further Studies in Experimental Syphilis: Efficacy of Natural Curative Factors. F. Jahnel, Munich, Germany; translated by H. Eagle, Baltimore.—p. 18.
- Relationship of Venereal Disease Control Work of the United States Public Health Service to the Physician in Private Practice. R. A. Vonderlehr, Washington, D. C.—p. 32.
- \*Kahn and Kolmer-Wassermann Reactions in Bejel. E. H. Hudson, Deir-ez-Zor, Syria.—p. 45.
- Myelitis and Encephalomyelitis Associated with Gonorrhea. L. A. Gray, Baltimore.—p. 50.
- Gonorrhea in the Female: Report of Series of Cases Treated with Gonococcus Lysate. W. M. Brunet and J. B. Salberg, Chicago.—p. 64.
- Comparison of Standard Kahn and Kline Tests Based on Examination of 9,173 Blood Serums and 1,465 Spinal Fluids. S. E. Gould, Eloise, Mich.—p. 72.
- Effect of Alcohol on Penetration of Bismuth into Central Nervous System. H. W. Newman and A. P. Richardson, San Francisco.—p. 77.
- Mapharsen in Antisyphilitic Therapy: Preliminary Report: Study Based on 3,386 Injections of Mapharsen. G. D. Astrachan, New York.—p. 81.
- Congenital Syphilis of the Eye: Clinical Study. V. E. Lennarson and P. C. Jeans, Iowa City.—p. 90.
- Unusual Case of Arspenamine Resistance. B. J. Hood, Baltimore.—p. 97.

**Sodium Bismuthate Soluble for Administration in Syphilis.**—Hanzlik and his associates have developed a new preparation of sodium bismuthate, sodium bismuthate soluble in solution and in dosage form, for intramuscular and oral administrations in the treatment of syphilis. The essential composition of the solution for injection is 3 per cent sodium bismuthate, 8 per cent triisopropylamine, 50 per cent propylene glycol and the remainder water. The composition for oral administration is essentially the same, except that there is less propylene glycol and no water. The single dose proposed for intramuscular injection is 1 cc. and for oral administration 6.7 cc. of solution or 0.2 Gm. of sodium bismuthate in capsules. Intramuscularly, sodium bismuthate soluble is well tolerated in animals and patients, is promptly, rapidly and completely absorbed, is excreted in the urine and is distributed throughout

in weight. The patients with heart disease lost approximately 0.5 Gm. a minute, that is, 30 Gm. an hour, a value slightly below that of healthy persons. The authors conclude that an insensible gain in weight as the result of autochthonous water formation in the organism, owing to the transformation of oxygen deficient substances into those with a higher oxygen content, has not been demonstrated as yet.

### Zeitschrift f. d. ges. experimentelle Medizin, Berlin

100: 1-144 (Dec. 24) 1936. Partial Index

- Comparative Investigations on Action of Various Analeptics in Poisoning with Carbon Monoxide and with Barbituric Acid Derivatives. K. Thiel.—p. 1.
- Comparative Investigations on Methods for Determination of Creatine and Modification of Jaffé Reaction by Different Substances, Particularly Medicaments. K. Dirr and H. L. Schade.—p. 20.
- \*Studies on Action of Insulin Injected into Portal Vein. F. Steigerwaldt and H. F. Kürten.—p. 38.
- \*Nonsurgical Method for Determination of Pressure in Pulmonary Artery. F. David and H. Siedek.—p. 54.
- Studies on Action Mechanism of Contra-Insular Hormone of Anterior Lobe of Hypophysis: Influence of Hormone on Glycogen Content of Liver and on Lactic Acid Content of Blood. H. Lucke and E. Kröger.—p. 69.
- \*Experimental Contribution to Explanation of Mechanism of Postoperative Hypochloremia. E. Michalowski and I. Vogelfanger.—p. 78.

**Action of Insulin Injected into Portal Vein.**—With the aid of angiotomy, Steigerwaldt and Kürten investigated in rabbits the action of insulin that has been injected into the portal vein. They were able to show that the action of this insulin compared to that of insulin injected into the vein of the ear increased as the glycogen content of the liver decreased. The experiments prove that the counter regulation to the insulin action can be elicited by the humoral way and that the liver passage of insulin is only a regulatory process.

**Determination of Pressure in Pulmonary Artery.**—According to David and Siedek, the pressure in the pulmonary artery is the most important factor in the pulmonary circulation. Since a surgical determination of this pressure as done in animals is not feasible in human subjects, it is understandable that the pressure of this artery was not measured. The observation that, during tracheoscopy or bronchoscopy, heart-synchronous movements can be seen approximately 1 cm. below the bifurcation, induced the authors to register these oscillations because, in view of the topographic relations between the pulmonary artery and the right bronchus, these movements on the bronchial wall could be regarded as transmitted pulsations. They developed a technic that employed a rubber balloon and a differential capsule for the registration of the oscillations. The method was first tried on dogs and its reliability was tested by the surgical determination of the pressure. Then the nonsurgical method was used on human subjects and it proved possible to register pharmacodynamic changes in the pulmonary circulation.

**Mechanism of Postoperative Hypochloremia.**—Michalowski and Vogelfanger maintain that the postoperative humoral-chemical changes have a causal connection with the surgical trauma and, from this point of view, they consider the pathogenesis of postoperative hyperazotemia and hypochloremia. Hyperazotemia and hypochloremia form a syndrome which has been designated as hypochloremic hyperazotemia. The authors point out that the decomposition products of the proteins in the surgical wound which enter the blood stream exert a histamine-like action. They regard these histamine-like substances as the first cause in the pathogenesis of the postoperative disturbances. In order to gain further insight into the action of these histamine-like substances, they made experiments on dogs. First they studied the effect of the intracutaneous injection of histamine and then the action of its intraperitoneal injection. In the summary they say that they regard the hypochloremia in the blood as the result of the intraperitoneal formation of exudate and they think that the same mechanism is responsible for the development of postoperative hypochloremia. Its degree is determined on the one hand by the quantity of the toxic and histamine-like substances and on the other hand by the local vascular conditions. It is the more severe, the greater and more vascularized is the exposed surface. The experiments furnish further support for the assumption that substances with histamine action play a part in postoperative hypochloremia.

### Zeitschrift für klinische Medizin, Berlin

131: 161-434 (Jan. 9) 1937. Partial Index

- Mineral Metabolism in Serous Inflammation. H. Kaunitz.—p. 192.
- Muscle Tonus and Its Relations to Peripheral Circulation. W. Beiglböck and H. Junk.—p. 241.
- \*Gonotoxic Icterus. H. Popper and A. Wiedmann.—p. 258.
- Thrombopenic Purpura in Case of True Hypersensitivity to Quinine. W. Beiglböck.—p. 308.
- Rôle of Histamine in Heteroprotein Therapy. S. Ruzsnyák and S. Karády.—p. 345.
- \*Studies on Secretion of Saliva in Gastric Carcinoma, Pernicious Anemia and Gastric Achylia. G. Fabian.—p. 403.
- Panmyelophthisis and Agranulocytosis. C. H. Behr.—p. 423.

**Gonotoxic Icterus.**—Popper and Wiedmann direct attention to the fact that jaundice is comparatively frequent in the course of gonorrhea. It is the result of a parenchymal impairment of the liver. This report is based on observations in sixty-one cases. The incidence of hepatic impairment in patients with gonorrhea (thirty-seven in 1,000 cases) makes a connection probable. The clinical aspects of this hepatic disorder are like those of catarrhal icterus, moderate or mild cases of long duration being in the majority. The authors also describe cases of acute yellow atrophy of the liver with fatal termination, which developed in the course of gonorrhea. Whether acriflavine hydrochloride plays a part in the development of hepatic impairment could not be determined. The authors think that at the most it is a supporting factor. The treatment with gonococcus vaccine seems to increase the susceptibility for a hepatic impairment. Moreover, the vaccine therapy may elicit the signs of a serous inflammation. The hepatic impairment develops, as a rule, only in prolonged and complicated gonorrhea, presumably caused by gonotoxins, but contributory factors, such as alimentary intoxications, may play a part in the individual cases.

**Secretion of Saliva.**—Fabian reports studies on the salivary secretion of patients with gastric carcinoma, pernicious anemia and histamine refractory gastric achylia. Tabular reports of the results of his studies indicate that the quantity of saliva is reduced in all three forms of achylia. The lowest values were detected in pernicious anemia; that is, in patients in whom the gastric mucosa is most severely impaired. Although these studies indicate a connection between the secretory action of the gastric and salivary glands, the connecting causal factors are not understood as yet, because the salivary glands are also subject to various nervous regulations, such as sympathetic-parasympathetic influences, subcortical mechanisms and central nervous factors. At any rate the observation that a deficient gastric secretion is always accompanied by a reduction in the salivary secretion indicates that the functional condition of the gastric glands is at least a contributing factor. In studies on the rhodan content of the saliva the author found that it is most severely impaired in patients in whom the achylia is caused by carcinoma. In this connection he points out that the literature reports a reduced rhodan content of the saliva in various disorders that lead to cachexia. The chloride content of the saliva is only slightly influenced by the deficient gastric secretion and the ferment content not at all. The author thinks that the latter factor does not contradict a connection between gastric and salivary secretions but only suggests that the salivary secretion is influenced also by other factors.

### Wiener klinische Wochenschrift, Vienna

50: 115-146 (Jan. 29) 1937

- Hepatorenal Disturbance. R. Uebelhör.—p. 115.
- Orientation of Young Physician in Psychiatry. O. Kauders.—p. 121.
- \*Total Roentgen Irradiation in Diseases of Blood. M. Sgalitzer.—p. 125.
- \*Therapeutic Attempts with Cobra Toxin in Neurologic Disturbances. Martha Brünner-Ornstein.—p. 127.
- Familial Occurrence of Defects of Cardiac Valves and of Pulmonary Tuberculosis. H. Schneider.—p. 128.
- Pathology and Therapy of Diseases of Vertebral Column. E. Gold.—p. 130.
- Roentgen Diagnosis of Diseases of Gallbladder. E. Zdansky.—p. 133.

**Roentgen Irradiation in Blood Diseases.**—Sgalitzer points out that in 1927 Teschendorf introduced total irradiation with roentgen rays into the treatment of leukemia and that shortly thereafter he himself decided to try it in polycythemia rubra. In the course of nine years he resorted to total irradiation.

the body, including the central nervous system; it exists in the body in the electronegative state. The characteristic behavior is that of a soluble product of anionic bismuth. Orally or gastrically, sodium bismuthate is definitely absorbed in animals and human subjects, as indicated by fatal and toxic doses in animals, absorption from ligated intestine in animals, urinary excretion in animals and human beings and general bodily distribution in animals. Most of the bismuth is expelled with the feces, but a part may be retained in the body, possibly in the intestinal wall. Intramuscular injections of sodium bismuthate soluble are definitely effective in experimental syphilis and in early and late clinical syphilis. The gastric administration also appears to be effective in early and late clinical syphilis. Both intramuscular and gastric administrations of sodium bismuthate soluble have been free from objectionable side actions. The margins of safety for therapeutic administration are ample. Bismuthate soluble offers possibilities of determining the value of prophylactic oral treatment for syphilis.

**Kahn and Kolmer-Wassermann Reactions in Bejel.**—Hudson states that between Feb. 8 and June 21, 1935, identical serums from 200 individuals having bejel were examined by two laboratories. Neither laboratory was acquainted with the clinical history of the case at the time of reading. Of the 200 cases, 139 (69.5 per cent) had positive reactions in one or more of the three serologic tests. The Deir-ez-Zor laboratory reported the Kahn reaction positive in 61.5 per cent, and the Beirut laboratory in 58.5 per cent; the Kolmer-Wassermann reaction was positive in 42.5 per cent, with 11.5 per cent anti-complementary. The Kahn reactions of the two laboratories agreed relatively and absolutely in 83 per cent of the series of 200 cases. The two Kahn reactions and the Kolmer-Wassermann reaction agreed relatively and absolutely in 68 per cent of the 200 cases. The complement fixation reaction is less sensitive in bejel than the precipitation reaction and has the further disadvantage of giving anticomplementary reactions.

### Archives of Pathology, Chicago

23: 1-158 (Jan.) 1937

- Mechanical Factors in Arteriosclerosis. J. Krafka Jr., Augusta, Ga.—p. 1.  
Effect of Acute Scurvy on Guinea-Pig Heart. Josephine McBroom, D. A. Sunderland, J. R. Mote and T. D. Jones, Boston.—p. 20.  
Size of Spleen and Liver-Spleen Ratio: Statistical Study Based on One Thousand Autopsies. J. H. Abronheim, Ann Arbor, Mich.—p. 33.

### Archives of Surgery, Chicago

34: 201-376 (Feb.) 1937

- Paget's Disease of Female Breast, with Especial Consideration of Biopsy and Preoperative Irradiation. L. C. Cohn, Baltimore.—p. 201.  
Peptic Ulceration: Relative Protective Value of Alkaline Duodenal Juices. M. E. DeBakey, New Orleans.—p. 230.  
\*Histologic Studies on Fate of Deeply Implanted Dermal Grafts: Observations on Sections of Implants Buried from One Week to One Year. L. A. Peer and R. Paddock, Newark, N. J.—p. 268.  
Repair of Induced Bone Defects: Cellular Changes Which Take Place Within the First Forty-Eight Hours. G. Wagoner, Philadelphia.—p. 291.  
Cervical Rib Associated with Aneurysm of Subclavian Artery: Report of Case and Review of Recent Literature. G. E. Lindskog, New Haven, Conn., and E. L. Howes, Washington, D. C.—p. 310.  
Acute Hematogenous Osteomyelitis: Classification of Cases of Acute Hematogenous Osteomyelitis as Determined by Therapeutic Indications; Results of Operative Treatment. A. O. Wilensky, New York.—p. 320.  
Sciatic Pain and Its Relief by Operations on Muscle and Fascia. A. H. Freiberg, Cincinnati.—p. 337.  
Para-Aminobenzenesulfonamide and Its Derivatives: Clinical Observations on Their Use in Treatment of Infections Due to Beta Hemolytic Streptococci. P. H. Long and Eleanor A. Bliss, Baltimore.—p. 351.  
Perthes' Disease. C. J. Sutro and M. M. Pomeranz, New York.—p. 360.

**Fate of Deeply Implanted Dermal Grafts.**—Peer and Paddock found that the dermal graft, when taken from the skin of the abdomen as a free autograft and inserted beneath the skin of the chest, remained in place and fused with the surrounding connective tissue. In the majority of sections, in spite of attempted complete removal of the epidermis, some epidermis remained. This remaining epidermis formed closed cyst cavities of microscopic size, containing horny material and fragments of hairs. In the later sections (seven months and one year) horny material was seen in the cavities of microscopic size surrounded by granulation tissue without epithelial lining. Sebaceous glands were observed only in the implants

of one week's duration. Hair follicles were observed only in the implants buried up to three weeks, inclusive. Sweat glands were seen in all sections, but in later sections they were in the process of degeneration and fibrous replacement. Granulation tissue surrounding the implant was of the chronic inflammatory type containing lymphocytes, macrophages, epithelioid cells and often giant cells, in some cases with the formation of granulomatous nodules. In the granulomatous tissue surrounding the implant, at times within the implant, bodies were observed within the giant cells and nodules. These bodies resembled hairs and fragments of hairs.

### Canadian Public Health Journal, Toronto

28: 1-52 (Jan.) 1937

- Diseases of the Typhus Groups in North America. R. E. Dyer, Washington, D. C.—p. 1.  
Discovery of Cases of Active Tuberculosis Among Ex-Patients in a Rural Province. R. W. Kirkby, Prince Albert, Sask.—p. 10.  
Requirements for Employment in Public Health Nursing. Margaret E. Kerr, Vancouver, B. C.—p. 13.  
Registration of Vital Statistics in British Columbia. H. B. French, Victoria, B. C.—p. 18.  
Study of Fetal Mortality in Ontario. A. H. Sellers, Toronto.—p. 22.

### Delaware State Medical Journal, Wilmington

9: 1-18 (Jan.) 1937

- Diagnostic Features of Some Gastro-Intestinal Conditions. L. J. Rigney, Wilmington.—p. 1.  
Bronchiectasis. W. F. Bonner, Wilmington.—p. 6.

### Endocrinology, Los Angeles

21: 1-168 (Jan.) 1937

- Effects of Chronic Implantation of Rats with Pituitaries of Same Species. P. A. Katzman, N. J. Wade and E. A. Doisy, St. Louis.—p. 1.  
\*Friedman Test and Pituitary Tumor. E. P. McCullagh and W. K. Cuyler, Cleveland.—p. 8.  
Site of Formation of Posterior Lobe Hormones. C. Fisher, Chicago.—p. 19.  
Experimental Studies of Anterior Pituitary: IV. Replacement Capacity and Noncyclic Behavior of Hormoplastic Anterior Pituitary Grafts. M. Schweizer, H. A. Charipper and H. O. Haterius, New York.—p. 30.  
Importance of Cortico-Adrenal Regulation of Potassium Metabolism. R. L. Zwerner and R. Truszkowski, New York.—p. 40.  
Increased Calcium Appetite of Parathyroidectomized Rats. C. P. Richter and J. F. Eckert, Baltimore.—p. 50.  
Further Studies on Action of Parathyroid Extract in Dog Following Total and Partial Ablation of Kidneys. W. R. Tweedy, R. D. Templeton and F. A. McJunkin, Chicago.—p. 55.  
Excretion of Male Hormones 1. C. D. Kochakian, Rochester, N. Y.—p. 60.  
Effects on Spermatogenesis of a Follicle-Stimulating Extract Obtained from Menopausal or Castrate Urines. J. Huberman, H. H. Israeloff and B. Hymowitz, Newark, N. J.—p. 67.  
Effect of Sex Hormones on Blood Calcium and Inorganic Blood Phosphate Levels. H. W. Marlow and F. C. Koch, Chicago.—p. 72.  
Effect on Serum Calcium and Inorganic Phosphate of Fractions Obtained from Crude Ovarian Extracts. S. Louise Huey and H. W. Marlow, Manhattan, Kan.—p. 85.  
Quantitative Determination of Gonadotropic Material of Urine of Women After Castration and the Menopause and of Normal Men. P. A. Katzman, St. Louis.—p. 89.  
Effect of Anterior Pituitary-like Hormone on Blood Picture in Rabbits. D. Wilson, Columbus, Ohio.—p. 96.  
Phospholipids of Brain, Kidneys and Heart of White Rats in Experimental Hyperthyroidism. A. Weil, Chicago.—p. 101.  
Failure of Reid Hunt Acetonitrile Reaction as Clinical Test for Hyperthyroidism. R. F. Escamilla, San Francisco.—p. 109.

**Friedman Test and Pituitary Tumor.**—McCullagh and Cuyler performed the Friedman test in a selected group of 946 nonpregnant individuals and observed 209 positive reactions. Endocrine disease was suspected in each case. In 131 cases in the group, a clinical diagnosis of pituitary disease was made and excessive amounts of urinary gonadotropic substance by means of the test were found in fifty-nine of these cases. Among the cases diagnosed as pituitary disease there were fifteen of pituitary tumor. Of the eight cases of pituitary neoplasm in which positive Friedman test results were found, the diagnosis was verified in four—by necropsy in three and at operation in one. In two cases the clinical evidence of tumor was clear. In two cases in which the evidence indicating the presence of pituitary tumor was less striking there was outspoken clinical acromegaly and enlargement of the sella turcica, although there was no distinct bony erosion of the sellar boundaries and no visual field changes. In the seven cases of pituitary tumor in which negative Friedman reactions were obtained the diagnosis of tumor was verified in four, at

diation in forty-four cases of polycythemia, forty-two of which responded well. He applies the roentgen rays from a distance of 1.5 meters, so that the entire body is exposed to the cone of rays. The tension is from 180 to 200 kilovolts. The individual irradiations last fifteen minutes. They are applied on six successive days, alternately to the ventral and dorsal side of the body. The blood is examined one week after the completion of these first six irradiations. The number of leukocytes and not that of erythrocytes is of chief interest in this blood test. The behavior of the leukocytes varies greatly in the different patients, for, whereas their number is hardly changed in some, it may have dropped in others from 10,000 to 7,000. In all patients with polycythemia in whom the leukocytes prove to be sensitive to roentgen rays, great precaution is necessary in the total irradiations, which must be distributed over a rather long period. The total number of treatments varies between twelve and twenty-two. If in the course of the first six irradiations the leukocytes have shown resistance to the rays, the total number of irradiations can be given in about four weeks. In case of ray sensitivity, however, the treatments have to be distributed over eight or ten weeks. After the treatment of the polycythemia has been completed, that is, after the number of erythrocytes has been normalized, the patients should be subjected to control tests of the blood at intervals of two or three months, in order to detect recurrences. The author observed relapses after eighteen months and even after five years. Total irradiation alone is often effective in the first two years of myeloid leukemia, whereas in the later stages it should be combined with local irradiations of the spleen. In lymphatic leukemia the total irradiation should be combined from the beginning with local irradiations of the spleen and lymph nodes. With this treatment the course of the leukemia is usually somewhat milder, but the final outcome is not influenced by the total roentgen irradiation.

**Cobra Toxin in Neurologic Disturbances.**—In view of the fact that cobra toxin contains neurotoxins, Brümmer-Ornstein decided to investigate the analgesic action of cobra toxin in painful neurologic conditions. She tried it in cases of trigeminal neuralgia that had proved refractory to medicinal and physical therapeutic methods. She uses a preparation standardized in mouse units. The injection is made intracutaneously, near the painful site. Immediately after the injection there may be a slight increase in pain, which after about thirty minutes is followed by a noticeable reduction in pain. In several cases the hypalgesia extended far beyond the painful zone. Injurious effects in the form of hemorrhages, infiltrates or necroses were never observed. In a few cases, in which larger doses had been administered, slight pigmentations were observed, which disappeared again in the course of a few weeks. The author employed the cobra toxin in the treatment of fourteen cases of severe trigeminal neuralgia. Six of them have been free from pain for the last three or four months, four are greatly improved, two are still receiving treatment and, in the two remaining cases there was no noticeable improvement. The author intends to continue the studies and try the cobra toxin in various neuralgias and neuritides.

### Polska Gazeta Lekarska, Lwów

16: 61-80 (Jan. 24) 1937

Respiration and Exchange of Gases in Persons with Increased Metabolism. W. Szreder.—p. 61.

\*Influence of Prolonged Respiration of Large Quantities of Carbon Dioxide on Human Constitution. W. Tomaszewski, J. Oszaeki and E. Dumoulin.—p. 63.

Therapy in Some Forms of Diabetes with Duodecamethylendiguandine. J. Chodowicki.—p. 67.

Typhoid (Large Cities) As Social Disease. A. Ławrynowicz.—p. 72.

**Prolonged Respiration of Carbon Dioxide.**—Tomaszewski and his co-workers have made experiments on three persons with the object of verifying the changes produced in the constitution by daily inhalation for one hour of large quantities of 8 per cent of carbon dioxide. Their results showed decided changes in the blood and respiratory tract as a consequence of the inhalation of 1.5 liters of carbon dioxide in one minute. The changes may be divided into immediate and late effects. The direct changes produced in the blood of veins and in the respiratory tract consist of increase in the level of carbon dioxide, slight increase in the oxygen capacity, decrease

in the saturation of oxyhemoglobin of the respiratory tract, increase in the ventilation of the lungs, increase in the depth and speed of the respiration, increase in the percentage of carbon dioxide in the air vesicles, increase in the percentage of carbon dioxide in the expired air, slight increase in the metabolism, initial quickening and then slowing of the pulse, and tendency to slight increase in the blood pressure. The late changes appearing after several days consist of increase and then decrease of the level of carbon dioxide in the blood of the veins, distinct increase in the oxygen capacity of the blood, better saturation of oxyhemoglobin in the venous blood, increase in the quantity of red blood corpuscles and in the amount of hemoglobin, and marked increase in the capacity of the active lungs.

### Svenska Läkaresällskapet's Handlingar, Stockholm

62: 235-308 (No. 4) 1936

\*Treatment of Ulcers of Leg, Especially with Insulin Ointment. K. Hedén.—p. 235.

\*Contribution to Statistics on Pulmonary Emboli. G. Hultquist.—p. 264.

**Treatment of Ulcers of Leg.**—Hedén says that, while the Schlasberg lead-vinegar plaster does not always give such excellent results as in the twelve cases he reports, the method has perhaps been the best heretofore for treatment of varicose ulcers of the leg. Since 1934 he has more and more extensively used insulin in ointment and he reports the results of this treatment in sixty-six cases. Seventeen of the patients were men and forty-nine were women and their ages ranged from 25 to 80 years. In the first nineteen cases, dextrose tolerance tests were not made; in forty-seven they were given. Complete healing occurred in forty-one (62 per cent), almost complete healing in two (3 per cent), improvement in eleven (17 per cent) and no change in twelve (18 per cent). In the large majority of cases, disturbance in the glycoregulation was found. Although there is no reason to suppose that age itself plays a part in the glycoregulation, still the older the person the greater is the chance that there have been infections or toxic injuries that might affect the glycoregulation. The preponderance of women suggests that an endocrine factor related to sex is present in disposition to ulcers of the leg. Diabetic, hepatic and toxic types of glycoregulatory disorder were found among the cases in which healing followed after use of insulin ointment. Of the seventeen patients under 50, only the three with the toxic type of glycoregulatory disturbance resisted the treatment. The treatment was successful in all the cases of diabetic type. No certain type of glycoregulatory disturbance could be established as pathognomonic for the refractory cases.

**Pulmonary Emboli.**—In a necropsy material of 814 cases from St. Erik's Hospital from 1925 to 1934, with pulmonary embolism assigned as the immediate cause of death in 153 cases and pulmonary embolism together with other disturbances in seventy-nine, Hultquist finds that women are more disposed than men to emboli in the pulmonary artery, the difference being especially marked in fatal embolism. The disposition to embolism increases with age. The danger of fatal embolism is greater in stout persons than in those with average or poor nutrition; adiposity apparently does not favor the occurrence of small emboli or of thrombus formation. Circulatory disturbances promote the appearance of emboli, and the slowing up of the blood stream depends not only on diseases of the heart and of the blood vessels but also on impairment of the circulation due to surgical interventions, particularly in the abdomen. Malignant tumors and pulmonary tuberculosis do not promote embolism. The frequency of pulmonary embolism was almost twice as great in cases from the internal division as from the surgical, explained partly by the greater disposition in the former to embolism (higher age, greater number of circulatory disorders and so on). The frequency of fatal embolism was about the same in the two divisions. The author found no evidence that intravenous injections are in the great majority of cases of significance for the occurrence of embolism and thrombosis. No relation was noted between embolus mobilization and weather conditions. The fluctuations in monthly frequency, with minimums in May and September and maximums in April, August and October, are ascribed to monthly variations in the composition of the patient material, the frequency of other disturbances, and so on.

necropsy in one and by operation in three. In the first two cases there was a questionable excess of gonadotropic substance but, since the reactions were not positive, these are included in the group. In the remaining cases the Friedman tests gave completely negative results. In cases of pituitary tumor in which the Friedman test reaction is positive, roentgen therapy to the pituitary may be followed by marked diminution in the excretion of gonadotropic substance as judged by the test; in two instances this has been accompanied by a diminution in the excretion of testicular hormone.

### Georgia Medical Association Journal, Atlanta

25: 427-470 (Dec.) 1936

Chronic Arthritis and Fibrositis. H. M. Davison, M. I. Lowance and C. F. Barnett, Atlanta.—p. 427.

26: 1-46 (Jan.) 1937

Southern Medicine, Past and Future. J. S. McLester, Birmingham, Ala.—p. 1.

\*New Phase of Intestinal Allergy. M. A. Ehrlich, Bainbridge.—p. 5.  
History of Hysterectomy with Review of Hysterectomies Performed in the John D. Archbold Memorial Hospital. A. D. Little, Thomasville.—p. 8.

Spinal Cord Changes in Pernicious Anemia: Report of Cases. L. M. Gaines, Atlanta.—p. 12.

Fourth and Fifth Venereal Diseases: Study of 100 Consecutive Cases of Granuloma and Lymphogranuloma Inguinale. R. B. Greenblatt, V. P. Sydenstricker and E. R. Pund, Augusta.—p. 16.

Biplane Fluoroscope in Bronchoscopy. M. Eguen, Atlanta.—p. 22.

Treatment of Myasthenia Gravis. W. A. Smith, Atlanta.—p. 26.

**New Phase of Intestinal Allergy.**—While going over his records of rectal prolapse in infants and children, Ehrlich was impressed by the fact that this condition often occurred in allergic families and that the patients had allergic symptoms at the time of the examination or developed them later. He tested allergically some of the patients whose personal or family histories presented symptoms of allergy. The results tend to show that in many cases of intestinal disturbance the real cause may be determined by the allergic method of testing. Tests were made for every article of diet that ten children ate or could receive from their mother's milk. There was rectal prolapse in five cases, rectal relaxation in three and loose bowel movements in two. Purgation was produced in six cases by including in the diet foods giving positive skin reactions. Although allergic treatment is not a panacea in the treatment of rectal prolapse and rectal relaxation, a careful study of each individual case and the application of the knowledge so gained may be rewarded with a success commensurate with the efforts put forth. All cases of rectal prolapse and rectal relaxation may not be allergic, but cases with positive allergic histories are. Rectal prolapse and rectal relaxation are the severest types of allergic enteritis, with the former a more severe degree of the latter condition. Allergic methods of treatment will no doubt decrease infant mortality in intestinal disorders.

### Indiana State Medical Assn. Journal, Indianapolis

30: 59-114 (Feb.) 1937

Treatment of Acute Nasal Sinus Suppuration in Infants and Young Children. L. W. Dean, St. Louis.—p. 59.

Use of Nonpadded Plaster Casts to Lower Extremity. M. D. Wygant and W. L. Spalding, Mishawaka.—p. 60.

Vitreous Opacities: Etiology, Diagnosis and Treatment. E. L. Bulson, Fort Wayne.—p. 64.

Comparative Study of Complications and Deaths in 2,000 Anesthetics. G. M. Rosenheimer, South Bend.—p. 69.

Qualifications of Psychiatric Expert. F. F. Hutchins, Indianapolis.—p. 74.

Transient Familial Pituitary Dysfunction. M. F. Poland, Bloomington.—p. 75.

Radiation Treatment of Uterine Hemorrhage At or Near Menopause. J. N. Collins, Indianapolis.—p. 79.

Management of Bright's Disease. A. B. Richter, Flora.—p. 81.

### Johns Hopkins Hospital Bulletin, Baltimore

60: 1-64 (Jan.) 1937

Snake Venoms: I. Their Constitution and Therapeutic Applications. C. H. Kellaway, Melbourne, Victoria, Australia.—p. 1.

Id.: II. Their Peripheral Action. C. H. Kellaway, Melbourne, Victoria, Australia.—p. 18.

Puzzling Case of Obstruction Apparently Due to Mesenteric Adenitis. I. R. Trimble, Baltimore.—p. 40.

Experimental Study of Congenital Syphilis, Including a Study of Infectiousness of Blood, Uterus and Placenta of Pregnant Rabbits with Early Syphilis. J. E. Kemp and P. D. Rosahn, Baltimore.—p. 45.

### Journal of Immunology, Baltimore

32: 1-82 (Jan.) 1937

Natural Hemolysin from Rat Producing Nuclear Lysis of Chicken Erythrocytes. D. Weinman, Boston.—p. 1.

Immunologic Specificity of Bacterium Aerogenes and Its Antigenic Relation to Pneumococcus Type II and Friedländer's Bacillus, Type B. L. A. Julianelle, St. Louis.—p. 21.

Studies on Barbiturates: XX. Alleged Anticomplementary and Anticoagulant Action of Barbiturates. M. Mollari, W. A. Randall and T. Koppányi, Washington, D. C.—p. 35.

Study of Origin of Naturally Occurring Immune Bodies for Pneumococci in Infants. W. D. Sutliff and J. A. V. Davies, Boston.—p. 43.

Studies on Fate of Living Bacteria Introduced into Upper Respiratory Tract of Normal and Intranasally Vaccinated Rabbits. P. R. Cannon and T. E. Walsh, Chicago.—p. 49.

Agglutination Reactions of Heat Stable Antigens of Clostridium Tetani. J. B. Gunnison, San Francisco.—p. 63.

Reverse Anaphylaxis in Rats with Special Attention to Kidney Damage. J. E. Smadel and H. F. Swift, New York.—p. 75.

### Journal of Lab. and Clinical Medicine, St. Louis

22: 329-438 (Jan.) 1937

\*Physiologic Considerations Regarding Etiology and Nature of Coronary Thrombosis and Angina Pectoris. D. E. Jackson and Helen L. Jackson, Cincinnati.—p. 329.

\*Studies on Physiologic Action of Diethylene Glycol: I. Effect on Irritating and Toxic Properties of Cigarette Smoke. H. B. Haag, Richmond, Va.—p. 341.

Tularemia Diagnosed by "Routine" Blood Culture. N. H. Lufkin and A. E. Evenson, Minneapolis.—p. 346.

Studies on Barbiturates: XVI. Barbiturate Poisoning Treated with Picrotoxin. W. S. Murphy, H. V. Connerty, A. J. Connolly and T. Koppányi, Washington, D. C.—p. 350.

Effects of Copper in Diet of 140 Persons. J. L. McGhee, Atlanta, Ga.—p. 356.

Bacillema in Pulmonary Tuberculosis. R. C. Rosenberger and L. Merves, Philadelphia.—p. 358.

Role of Reticulocytes in Malaria: Studies on Benign and Subtertian Malaria. M. Shushan, O. Blitz and C. C. Adams, New Orleans.—p. 364.

Nature of Antipernicious Anemia Principle I. H. R. Jacobs, Chicago.—p. 371.

Pancreatic Extract (Tissue Extract No. 568) XIV: Its Use in Treatment of Hypertension. J. B. Wolfe and V. A. Digilio, Philadelphia.—p. 374.

Adrenalin Necrosis After Sympathectomy: Study of Some Factors Involved. K. Leora McCloskey, F. W. Co-Tui, J. Mulholland and A. M. Wright, New York.—p. 377.

Effect of Certain Types of Stimuli on Defense Mechanism of Animal Organism. Ruth Westlund Jung, Chicago.—p. 382.

Effect of Gastric Motility on Urinary Urea Concentration Test and Glucose Tolerance Test. F. L. Apperly and M. Katharine Cary, Richmond, Va.—p. 395.

Formation of Indole in Urine. S. L. Vaughan, Buffalo.—p. 399.

**Etiology of Coronary Thrombosis and Angina Pectoris.**—In the opinion of the Jacksons, many acute attacks now diagnosed as coronary thrombosis (which may or may not be present) are really due to pulmonary embolism (or pulmonary thrombosis). They believe that usually juices liberated from tissues injured during anginal attacks, vomiting and straining cause the intravascular clotting resulting in dyspnea, cyanosis and circulatory and blood coagulating disturbances. The lungs serve as a filter for the general circulation and are more liable to collect emboli than are the coronary arteries. The nature of the pain developed in angina pectoris and coronary thrombosis, the nerves involved and the information revealed by surgical, pharmacologic or physiologic investigation of these mechanisms are discussed. There is no clinical or physiologic evidence to indicate that a pain-producing spasm of the coronary arteries ever occurs.

**Physiologic Action of Diethylene Glycol.**—Haag prepared two identical blends of tobaccos with the exception of the hygroscopic agent employed. Sample A contained 2.75 per cent of diethylene glycol, as verified by analysis; sample B, 3 per cent of glycerin. As evidence of the degree of irritation provoked, the objection of the animal and the blepharospasm, as well as the extent and duration of the hyperemia and edema of the conjunctiva, were tabulated at regular intervals of several minutes. There was no significant difference as to either intensity or duration in the irritation produced by the instillation into the rabbit eye of the two smoke solutions studied. For toxicity studies, smoke solutions were prepared from the two types of cigarettes by gravity extraction over water. The finished solutions contained the same amount of nicotine, namely, 0.66 mg. per cubic centimeter, and the toxicity of these solu-



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## RELATION OF AMERICAN MEDICAL ASSOCIATION TO CERTIFICA- TION OF SPECIALISTS

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NEW YORK

Many years ago I was impressed on reading the *Wealth of Nations* by Adam Smith. In chapter I, on the causes of improvement in the productive power of labor, he takes as his example the division of labor in the trade of the pin maker. By repetitive action skill is acquired, technic developed and a tremendous increase in production obtained. Specialism increases productivity, enhances accuracy and skill, economizes time and labor and inherently promotes ingenuity and discovery. In the acquisition of medical knowledge in our country we passed through the preceptor period and then the closing of the inferior medical schools through the labors of the Council on Medical Education and Hospitals of the American Medical Association. A little later a standard premedical education was required and the opportunities for postgraduate instruction were greatly increased.

Specialism in medicine has always existed, modified by environment, superstition, religion and the state of medical knowledge. In ancient times among the peripatetic disciples of Aesculapius there were physicians who confined their practice to a definite category of disease. Special medical societies and special hospitals were established in consonance with the existing level of medical knowledge. The Royal Ophthalmic Hospital was founded in London in 1804, the Royal Hospital for Diseases of the Chest in 1814. In New York City in 1825 a fever hospital was established, and the Lying-In Hospital in Boston was founded in 1830.

With the development of the microscope, clinical thermometer and stethoscope (1819), the vaginal speculum (1849), the ophthalmoscope (1851), the laryngoscope (1855), Lister's antiseptic surgery, Kussmaul's stomach tube (1867), the cystoscope (1879), the roentgen ray (1895), the bronchoscope (1898) and the respiratory calorimeter (1904) the age of discovery enlarged the possibilities of diagnostic precision by instrumentation. This advance in medical knowledge necessitated intensive training and specialized technical aptitude. In short, the advance in the physical sciences supplied medicine with a host of instruments of precision.

Specialism, however, cannot be a thing apart from the field of medicine and must fit into the general

pattern of medical services. Primarily, the growth of specialism both individually and collectively must rest on a broad foundation of general medical training. The assumption of specialistic training by any practitioner of medicine without first being willing to submit his credentials as to his special training is incompatible with his responsibility to society. The technical qualification of the specialist may be determined by examinations, tests of ability, competence of experience and hospital training. These tests can be made and the results appraised and passed on only by men of special training and experience. From its inception the American Medical Association has been concerned with medical education and it could not fail to take cognizance of the rising tide of criticisms against the so-called self-anointed specialists, pseudospecialists and the masquerading specialists.

It has long been evident that the public, as well as the profession, demanded some means of identifying the adequately trained specialist. In New Jersey a bill was introduced into the legislature providing that the state should pass on the qualifications of those claimed to be specialists. New York State was entertaining similar proposals.

It was the opinion of the members of the Council on Medical Education and Hospitals of the American Medical Association that it would be disastrous for the states to assume the function of designating qualified specialists. First, it was apparent that specialistic standards should be uniform throughout the country and that confusion and probable divergent requirements of the various states should be avoided at all costs. Since the national government could not undertake this work, it seemed to be necessary that voluntary agencies be created to function extralegally but with the force of public opinion, as does the Council on Medical Education and Hospitals itself. Secondly, it was realized that while a populous state like New York might conceivably set up some machinery for identifying specialists, it would be wholly impossible in many of the states to find a group of highly trained specialists capable of conducting the necessary examinations. Thirdly, it was realized that if the states should undertake the certification of specialists, the procedure would necessarily be subject to political influence and, since no one of the states has as yet been able to create a satisfactory system of testing the applicants for the general medical license, it seemed to be absurd for them to attempt the far more difficult task of conducting examinations for each of the specialties.

For these reasons the House of Delegates at the Milwaukee session (1933) authorized the Council to approve of such special boards as should meet the standards which the Council itself should formulate. By this means it was hoped that properly organized

tions, after the addition of enough sodium chloride to make them isotonic, was established on white mice by intraperitoneal injection. These smoke solutions were slightly more toxic than their nicotine content indicated but were found to have the same toxicity on white mice by intraperitoneal injection.

### Journal of Nervous and Mental Disease, New York

85: 125-248 (Feb.) 1937

- Pathologic Changes in Hypothalamus in Diabetes Mellitus: Study of Fifteen Cases. L. O. Morgan, A. R. Vonderahe and E. F. Malone, Cincinnati.—p. 125.
- \*Multiple Sclerosis Syndrome in a Child: Report of Clinical Case. D. M. Olkon, Chicago.—p. 139.
- The Psychology of the Hymen. I. S. Wile, New York.—p. 143.
- Peripheral Facial Paralysis: Electric Excitability During Restitution: Case. B. Mittelman, New York.—p. 157.
- Bilateral Chronic Subdural Hydroma. J. G. Love, Rochester, Minn.—p. 161.
- Differential Diagnosis of Surgical and Nonsurgical Lesions of Cerebellum, Pons and Medulla (Posterior Fossa). M. A. Glaser and H. M. Beerman, Los Angeles.—p. 167.

**Multiple Sclerosis Syndrome in a Child.**—Olkon saw the patient first at the age of 14 with the complaint of difficulty in walking, which had existed for the last eight years and was becoming progressively worse. The eight principal signs found in the case (absence of the abdominal reflexes, spastic gait, rigidity, lively knee and achilles reflexes, ankle clonus, Babinski, Oppenheim and Chaddock signs, Rossolimo phenomenon and apparent remissions, without sensory involvement) form a clinical constellation in which the causative factor lies in scattered foci, apparently progressive in scope, degenerative in character and selectively affecting the pyramidal system of the spinal cord.

### Journal of Pediatrics, St. Louis

10: 1-146 (Jan.) 1937

- Dyschondroplasia. H. R. Mahorner, New Orleans.—p. 1.
- \*Differential Diagnosis of Poliomyelitis: Report of Case of Diffuse Sarcomatosis of Meninges Suspected to be Poliomyelitis. F. H. Top and W. L. Brosius, Detroit.—p. 27.
- Adrenal Neuroblastoma in Children: Report of Two Cases. L. J. Rhea, Montreal, and C. I. Mead, Bakersfield, Calif.—p. 37.
- Acute "Primary" Streptococcal Peritonitis. J. S. Leopold and R. E. Kaufman, New York.—p. 45.
- Laurence-Biedl Syndrome: Case Report. J. M. Arena, Durban; N. C.—p. 62.
- Acute Nicotine Poisoning: Report of Case in a Child. H. W. Willis, Louisville, Ky.—p. 65.
- Experimental Vaccination Against Colds in an Infants' Home. M. J. Wallfield, Brooklyn.—p. 69.
- Significance of and Differential Diagnostic Test of Precordial Murmurs in Children. M. M. Maliner, Brooklyn, and I. Okin, Passaic, N. J.—p. 77.
- Trends in Child Psychiatry. E. Wolff, San Francisco.—p. 90.

**Differential Diagnosis of Poliomyelitis.**—From 1927 to 1935 inclusive, 790 patients were admitted to the Herman Kiefer Hospital with the diagnosis of poliomyelitis. The initial diagnosis was confirmed in 445 of these, or 56.3 per cent. In the first or systemic phase, poliomyelitis differs in no important essential from the onset of the average acute general infection. Top and Brosius believe that it is far better to err in this manner than to have omitted consideration of the disease, and physicians are to be commended for being alert to the possibility of poliomyelitis. In general, certain clinical observations discount the importance of the consideration of poliomyelitis as the diagnosis in a suspected case. They are irrationality or coma, marked temperature elevation, convulsions, meningismus, severe pain or swelling of affected extremities, cervical lymphadenitis, abdominal tenderness and a prolonged illness with subsequent paralysis. In spite of careful attempts to avoid pitfalls in the diagnosis of poliomyelitis, an occasional bizarre condition presents itself which is provocative of a diagnosis wide of the mark. Such a case was seen during the month of July, when cases of poliomyelitis normally begin to be reported. The history of onset, the observations on physical examination and the subsequent clinical course of the illness drew the authors' attention sharply to the consideration of poliomyelitis as the diagnosis in this instance. With the exception of the appearance of xanthochromatic spinal fluid, the history of a fall and sensory paralysis the condition did

not appear to give sufficient weight to call into question the credence of a diagnosis of poliomyelitis, but with subsequent paralysis the patient came to necropsy with this clinical diagnosis. One member of the clinical staff disagreed with the diagnosis of poliomyelitis, although entertaining no definite idea with respect to the pathologic picture. At necropsy a diagnosis of diffuse sarcomatosis of the spinal leptomeninges was made.

### Journal of Urology, Baltimore

37: 1-248 (Jan.) 1937. Partial Index

- \*Factors Determining Management of Ureteral Stones: Improved Method of Their Cystoscopic Removal. T. D. Moore, Memphis, Tenn.—p. 1.
- Further Developments in Surgery of Prostate. J. F. McCarthy, New York.—p. 18.
- Relationship of Renal Calculi to Hyperparathyroidism. O. W. Davidson, Kansas City, Kan.—p. 35.
- Best Surgical Approach to Kidney. H. M. Young, Columbia, Mo.—p. 42.
- Allergy in Relation to Diseases of Urogenital Tract. F. A. Goeltz, Salt Lake City.—p. 60.
- New Method of Removing Ureteral Calculi. F. P. Johnson, Portland, Ore.—p. 84.
- Transplantation of Ureters into Rectosigmoid: Experimental and Clinical Consideration. C. C. Higgins, Cleveland.—p. 90.
- Partial or Complete Ureteral Obstruction from Roentgenographic Standpoint. B. H. Nichols, Cleveland.—p. 106.
- Leiomyoma of Urinary Bladder. A. A. Kutzmann, Los Angeles.—p. 117.
- Presacral Neurectomy for Relief of Certain Types of Bladder Dysfunction and Pain. J. G. Cheetham, Portland, Ore.—p. 148.
- Neurogenic Disturbances of Vesical Function. R. E. Van Duzen, Dallas, Texas.—p. 156.
- Congenital Obstruction of Lower Urinary Tract in the Male, with Particular Reference to Valve Formations. D. P. Fagerstrom, San Jose, Calif.—p. 166.
- Genital Tuberculosis: Diagnosis and Treatment. T. E. Gibson, San Francisco.—p. 186.
- Hyperpyrexia as an Adjunct in Treatment of Nonsurgical Urologic Conditions. J. E. Potter, Bremerton, Wash.; F. H. Redewill and E. G. Longley, San Francisco.—p. 214.
- Immune Response in Urogenital Infections. R. E. Cumming and G. E. Chittenden, Detroit.—p. 226.
- Dietary Treatment of Urogenital Diseases. A. L. Clark and F. L. Bigsby Jr., Oklahoma City.—p. 239.

**Management of Ureteral Stones.**—After trying the technique suggested by McKay in a few cases with indifferent success, it occurred to Moore that the filiform bougie might be used to better advantage by passing the filiform and carrying the threads well beyond the stone, even as far as the renal pelvis, and then withdrawing by traction on the filiform only, with no effort to induce bowing. The obstructing stone causes the threads to wad above it, forming a small mass which does not easily permit the point of attachment of the threads to be withdrawn unless the stone is brought along also. If a calculus is engaged in this way and does not slip out easily by steady or intermittent traction, the bougie may be inserted further and the strands of thread may be easily drawn out along with the filiform. The ureter should be dilated before insertion of the dislodger. A direct cystoscope of the Braasch type is preferred, as the catheter guide of this instrument renders unnecessary the passage of the bougie through a length of catheter, as advised by McKay; also there is no deflector to become entangled with the threads. Of thirty-one patients, in whom there were thirty-three ureteral stones to be removed, twenty-four stones were removed on the cystoscopic table; twelve at the first treatment, seven at the second, four at the third and one at the fourth, making a total of forty-two, or an average of 1.75 treatments for each stone. This type of treatment has been limited to stones of less than 1 cm. in diameter in the lower half of the ureter. After removal of a stone, one or two number 5 F. ureteral catheters are left in place for from twenty-four to forty-eight hours, on the assumption that the ureteral orifice might become completely occluded from edema, predisposing to acute infection.

### Kansas Medical Society Journal, Topeka

38: 1-44 (Jan.) 1937

- Bronchial Obstruction: Its Diagnosis and Treatment. H. J. Moersch, Rochester, Minn.—p. 1.
- Vascular Disturbances of Lower Extremities. H. S. Valentine, Kansas City, Mo.—p. 6.
- Cardiac Pain. O. J. Hartig, Downs.—p. 9.

boards should be created in the major medical specialties and that the operation of these various boards would be conducted on a high standard of professional integrity and proficiency. Standards formulated by the Council, in collaboration with the Advisory Board for Medical Specialties, were ratified by the House of Delegates and have since then been accepted by all the boards. In the composition of these boards, representatives were chosen by one or more national societies in each specialty and also by the corresponding section of the Scientific Assembly of the American Medical Association.

We have thus created a system which provides for a thorough technical examination by a group of men selected by the specialists themselves. This examination is national in scope and uniform for all sections of the country. It is free from the domination of partisan politics, which would be unavoidable if certification were under state control. The educational standards and examination procedure of these boards are under the supervision of the Council on Medical Education and Hospitals and therefore also under the control of the House of Delegates of the American Medical Association. In this manner we have safeguarded the rights of all those who are qualified to be known as practitioners in the special fields of medicine.

It is extremely important that the special boards should have some guide as to the quality of the training of the candidates for examination. For each one of the dozen boards to conduct a survey of the opportunities offered in each of the 400 hospitals which offer residencies in the specialties would be manifestly impossible. The Council is therefore planning to undertake a more thorough study of these residency hospitals in order that more adequate information regarding their educational opportunities may be placed at the disposal of the special boards.

Some one has said that a journey always begins with the first step, and the appearance of the American Medical Association in the plan for certification of specialists was inevitable when in 1907 the American Medical Association began classifying medical schools, together with the results of the state board examination of candidates for the license to practice medicine. The Advisory Board for Medical Specialties was organized in 1933-1934 for the certification of medical specialists in the United States and Canada. This board cooperates with the Council on Medical Education and Hospitals of the American Medical Association and is composed of representatives of:

- The American Board of Ophthalmology.
- The American Board of Otolaryngology.
- The American Board of Obstetrics and Gynecology.
- The American Board of Dermatology and Syphilology.
- The American Board of Pediatrics.
- The American Board of Psychiatry and Neurology.
- The American Board of Orthopaedic Surgery.
- The American Board of Urology.
- The American Board of Pathology.
- The American Board of Surgery.
- The American Board of Internal Medicine.
- The American Board of Radiology.
- The Association of American Medical Colleges.
- The American Hospital Association.
- The Federation of State Medical Boards of the United States.
- The National Board of Medical Examiners.

The various boards in their respective and autonomous capacity certify the applicants.

The degree of competence for the removal of an appendix or for an ophthalmologic examination of the

eye should be the same in California or Honolulu as in New York, and progress would have been inhibited, if not canceled, by any legislative action, entailing as it does possibilities of political contamination, favoritism and personal bias.

A broad plan of certification embraces two phases: (a) certification as to the competence of the applicant and (b) searching out and listing of facilities to increase the opportunities for specialistic training. The latter obligation cannot be carried out by the separate boards but must of necessity be performed by the Council on Medical Education and Hospitals. Furthermore, the latter aspect of activity implies an adequate education of the public as to what is essential for certification of a specialist and cooperation with the hospitals, the various boards of regents, and the state and national boards of medical examiners.

State medical societies cannot assume the leadership in this problem. Their function is more special and their geographic influence confined to their boundaries. The American Medical Association represents all the states. It is a federation with all the scientific points of view. It has been intimate with and created that public opinion which has made for changes in medical education, in equipment and building of medical schools, in the classification of medical schools, in the classification and listing of hospitals for interns and residents. Therefore it is most preeminently fitted to enter into the most intimate relationship with the various boards of certification.

A great statesman once defined public office as a public trust, and that thought may be paraphrased by stating that specialism is a public trust and its devotees must and should be certified by men of special training and that this must be within the framework of a nationally constituted society; to wit, the American Medical Association.

In a far larger sense, however, in the background of all certification is a pedagogic fact that knowledge consists in instruction and education. An effective teacher may provide competent instruction, but education depends on the capacity of the individual to utilize that instruction. In the final analysis, specialism will rest on the applicant's character. To that end the qualification of candidates is all important. There shall be general qualifications embracing satisfactory moral and ethical standing in the profession: membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association.

More than 70 per cent of our medical school graduates are looking forward to limiting their practice to a specialty. One half of these will probably limit themselves to a special field of medical endeavor without having had any experience in general practice. To develop scientific effectiveness and clinical knowledge, certain special training is essential. In brief, the Council and the Advisory Board for Medical Specialties consider that an applicant desiring to be certified as a specialist shall have had: (1) a period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same council as competent to provide a satisfactory training in the special field of study; (2) this period of specialized preparation to include intensive graduate training in anatomy, physiology, pathology and other basic medical sciences which are necessary to the proper

**Military Surgeon, Washington, D. C.**

80: 91-170 (Feb.) 1937

- Protective Antibodies in Blood Serum of Individuals After Immunization with Typhoid Vaccine. J. F. Siler, G. C. Dunham, A. P. Hitchens, M. R. Livesay, F. H. K. Reynolds, W. S. Stone, F. E. Council, D. Longfellow, C. P. Canby, J. R. Wood and G. F. Lulipold.—p. 91.
- Active Immunization Against Tetanus with Tetanus Toxoid. W. W. Hall.—p. 104.
- Suggested Plan for Modernization of Transport Service of Medical Regiment. W. G. Darling.—p. 114.
- Study of Diabetes Mellitus Among Ex-Service Men. P. B. Matz.—p. 122.
- Lost on Slopes of Mauna Loa. J. H. Forsee.—p. 131.
- Teratoma Testis. F. J. Yokoun.—p. 134.
- Necrotic Americans in Puerto Rican Troops. C. C. Johnston.—p. 137.
- Veneral Disease Control. I. J. Lubow.—p. 140.
- Recent Research in Local Anesthesia, with Reference to Development of Alkaline Solution. S. W. Clark.—p. 143.

**Veneral Disease Control.**—After a fairly thorough study of the epidemiologic aspect of the problem of veneral disease control, Lubow contends that it must be approached from four major angles: through (1) the practical education of the general public; (2) the establishment of well equipped clinics under jurisdiction of the city department of health and manned by capable and experienced physicians who are specialists in the field, and excellently trained public health nurses and social service workers endowed with the natural gifts of personality and sympathetic understanding of human nature and behavior; (3) the achievement of a proper relationship between the clinic and the private physician; (4) the control of the antagonistic and the uncooperative patient. If home conditions, which at the present time in many cases are deplorable and lend themselves to accessible and uncontrolled sexual contact, were to be remedied by a cleaning up of the slums and the construction of sanitary, clean and wholesome buildings, the incidence of veneral infection would strike a new low.

**Nebraska State Medical Journal, Lincoln**

22: 41-80 (Feb.) 1937

- Treatment of Colles Fracture. R. M. Carter, Green Bay, Wis.—p. 41.
- Some Observations in the Care of Acute Otitis Media. L. P. Coakley, Omaha.—p. 48.
- Endometriosis. M. E. Grier, Omaha.—p. 52.
- Progress of Surgery: Review of Literature for Last Six Months of 1936. H. H. Davis, Omaha.—p. 55.
- Some High Points of Recent Meetings of the Central Association of Obstetricians and Gynecologists at Detroit, and the College of Surgeons at Philadelphia. R. H. Luikart, Omaha.—p. 60.
- Peripheral Vascular Disease: I. General Considerations. C. W. McLaughlin Jr., Omaha.—p. 62.

**New Orleans Medical and Surgical Journal**

89: 403-464 (Feb.) 1937

- Vaccine Treatment of Asthma in Childhood. E. Naef, New Orleans.—p. 404.
- Clinical Story of Nephritis in Childhood. J. Graubarth, New Orleans.—p. 412.
- Comparative Obstetric and Gynecologic Study of White and Colored Races. W. E. Levy and H. Meyer, New Orleans.—p. 418.
- Shrunk Lung. A. Mayoral, New Orleans.—p. 423.
- Cancer in General; the Breast in Particular. E. L. Sanderson, Shreveport, La.—p. 427.
- Study of Gas Bacillus Infection, with Especial Reference to Its Occurrence in the Negro. J. R. Veal, New Orleans.—p. 432.
- The Transfusing of Blood. W. G. Allen and L. H. Murdock, Converse, La.—p. 437.

**Vaccine Treatment of Asthma in Childhood.**—Realizing a lack of completely favorable results in the plan of protein desensitization by injection of specific skin reacting allergens, Naef used a plan of nonspecific bacterial protein desensitization as a therapeutic procedure in sixteen asthmatic children from 14 months to 12 years of age. Intramuscular doses of stock mixed pertussis and mixed catarrhal vaccine were given for nonspecific protein desensitization. The plan of administration of the vaccine entailed the giving of one-third and two-thirds cubic centimeter doses forty-eight hours apart followed by three 1 cc. doses at intervals of forty-eight hours and three 1 cc. doses at weekly intervals. Presence of dyspnea was regarded as the only contraindication to the administration of the vaccine. The results of the treatment showed 68 per cent complete inhibition of allergic spasm and 18 per cent improvement of the condition both in recurrence and in severity of seizures; 14 per cent showed no response. More than 75 per cent of the Mantoux tests were negative, showing a low incidence of tuberculosis in the asthmatic child.

**Ohio State Medical Journal, Columbus**

33: 121-240 (Feb.) 1937

- Studies of the Decorticated Hand. L. J. Karnosh and G. H. Williams Jr., Cleveland.—p. 137.
- Recognition in Ohio of Obstetrics as a Most Important Branch of Preventive Medicine. W. Brand, Toledo.—p. 142.
- Evaluation of Tannic Acid Treatment of Burns: Clinical Study of 556 Burns So Treated Over a Period of Eleven Years. D. M. Glover, Cleveland.—p. 146.
- Hypotension. A. B. Brower, Dayton.—p. 152.
- Pituitary as Probable Factor in Origin of Headaches of Menopause. P. J. Reel and T. F. Lewis, Columbus.—p. 156.
- Regulation of the Diabetic Patient. M. Deitchman, Youngstown.—p. 159.
- Treatment of Whooping Cough. J. A. Toomey, Cleveland.—p. 161.
- Conservative Treatment of Abortion. C. W. Pavey, Columbus.—p. 164.
- Ingestion of Carbon Tetrachloride: Public Health Hazard. J. J. Selman and Z. T. Witschatter, Cleveland.—p. 167.
- Management of the Eye-Conscious Patient as Related to Refraction. J. D. Brumbaugh, Akron.—p. 171.
- Present Status of Allergic Headache. J. A. Rudolph, Cleveland.—p. 173.
- Endometriosis. J. B. Nelson, Youngstown.—p. 178.

**Headaches of Menopause.**—Assuming that the anterior hypophysis undergoes an abnormal physiologic hyperplasia following castration and during the menopause, Reel and Lewis believe that the explanation of the headache so often complained of lies in the fact that the pituitary gland is almost completely surrounded by bone. It lies, so to speak, in a box within a box, thus preventing any marked expansion from taking place except by greatly increasing the tension within the sella. This in all probability produces headache in the same manner as that induced by increased intracranial pressure. Pituitary headaches may be entirely occipital or suboccipital in type. Some patients will complain of occipital pain transmitted bilaterally to the frontal or temporal areas. Quite commonly one entire side of the head is involved. A dull, heavy distress located behind the inner angles of the eyes is frequently encountered. The pain, regardless of type, is usually severe. It may be lancinating or develop as a deep seated, heavy, dull ache. In fourteen of the nineteen patients whose chief symptom of the menopause was that of very severe headache, an abnormal amount of gonadotropic substance was demonstrated in the blood, according to the Fluhmann technic, prior to irradiation. The roentgen treatments were given with 200 kilovolts at 50 cm. distance, with 0.65 mm. of copper and 1 mm. of aluminum as a filter and an 8 cm. mask. A total of 1,000 roentgens was used, divided into two exposures of 500 roentgens each administered a week apart and on opposite sides of the head. Other than a temporary alopecia in two patients and a slight transient parotitis in one, no complications or ill effects were encountered. Following irradiation, fourteen of the nineteen patients showed a marked degree of improvement. Three of the remaining five were improved to some extent, while the remaining two received no benefit. The authors believe that the total dosage has an inhibitory effect on the activity of the hypophysis. If this is true, it would seem safe to assume that the result has been a diminution in the size of the gland and a subsequent lessening of tension within the sella. Since the chief complaint of headache tends to disappear under this type of management without the aid of other forms of therapy, the conclusion may be justified that the pituitary is a highly probable factor in the causation of certain types of headache peculiar to the menopause.

**Public Health Reports, Washington, D. C.**

52: 95-124 (Jan. 22) 1937

- Recent Extension of Venereal Disease Control Work Through Provisions of Social Security Act. R. A. Vonderlehr.—p. 95.
- Sources of Infection and Seasonal Incidence of Tularemia in Man. E. Francis.—p. 103.

**Rhode Island Medical Journal, Providence**

20: 1-16 (Jan.) 1937

- Progress in Private Practice: Is Socialization of Medicine Needed? A. M. Burgess, Providence.—p. 1.
- Physiologic Surgery of the Nervous System. T. J. Putnam, Boston.—p. 4.
- Diagnosis and Medical Management of Diaphragmatic Hernia. S. Morcin, Providence.—p. 5.

20: 17-34 (Feb.) 1937

- Amenities of Operating Room. Dorolba V. Phelps.—p. 18.
- Rôle of House Dust in Bronchial Asthma. W. P. Buffum, Providence.—p. 19.

understanding of the specialty in question; an active experience of not less than eighteen months in hospital clinics, dispensaries and diagnostic laboratories recognized by the Council as competent in the specialty; examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects; (3) an additional period of not less than two years of study and/or practice.

Virchow once said that true science was the power of performance and society has the right to ask of any person purporting to be a specialist. Is your knowledge and training in consonance with the general average of intelligence and knowledge as it pertains to your specialty?

As medical science has progressed there has been a tendency toward fractionalization of specialism in the fields of internal medicine and surgery. To cite a few examples endocrinology, cardiology, allergy, gastroenterology and, in surgery, plastic and traumatic surgery and proctology. If special subdivisions of specialistic training appear to be necessary, it would seem imperative that these specialists must first qualify in the general broad field of the specialty, medical or surgical.

It is apparent that under no circumstances should there be any diminution in the standards set up for the qualification of specialists and in like measure we must be on our guard against any such thing as multiple certification or certification by one or more of the boards of certification.

Perhaps one of the most important developments in connection with the program of the certification of specialists will be the extension of graduate medical education. This would make available all the clinical facilities of the country by adequate mobilization of the medical resources of the various hospitals. It would have a most profound and far reaching effect on the public in that within an incredibly short time the facilities for the adequate teaching of specialism would be so tremendously enhanced that there would be set in motion a public attitude of mind which would make one confident that the inadequately trained, self-assertive specialist would be in the process of extinction.

The question of research with regard to a candidate's application for certification is a difficult problem. It would seem wise that the question of research work should not be part of the examination of a candidate for certification. Discoveries in medicine, as a rule, cannot be formulated nor can their success be purchased either by equipment or by money. If one could be certain that by requiring every candidate to do some work in research we might stimulate or create a Koch, an Ehrlich, a Pasteur, a Lister, a Harvey or a Banting, the results would certainly justify the means. Genius, however, is such an occult, mysterious thing that it springs fully developed from a single room and a microscope, as from a most elaborately and adequately equipped laboratory. Graves and Stokes with eight beds, Harvey with anatomic material, and Jenner with a country cow-stable created and developed that cerebral mechanism which goes with genius and which makes fundamental discoveries in medical science, which could not be purchased either with money or with institutional equipment.

A few months ago the Surgeon General of the Army and the Surgeon General of the Navy indicated in a public address the number of trained, competent physicians and surgeons that would be needed in the event of another war. On that occasion I had the temerity

to make the statement that if unhappily the time ever came that another war descended on the people of this country the American Medical Association was prepared, by means of its facilities, to indicate the qualifications of the medical personnel required. In a short time, with all the twelve certifying boards harmoniously functioning, there will be created such an authoritative roster of medical personnel as to make it possible to mobilize in an incredibly short time any required number of adequately certified physicians for the performance of a war time job.

116 East Fifty-Third Street.

## RESIDENCY IN HOSPITAL ADMINISTRATION

AN EXPERIMENT IN TRAINING GRADUATES IN  
MEDICINE FOR THIS SPECIAL FIELD

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NEW YORK

There are two methods by which a qualified graduate in medicine can be trained as a hospital executive: (1) attending a special training school, which offers prescribed courses, and (2) working and studying in a hospital, under the direction of its executive head.

This does not mean that a person with a sound general, special or nursing education—but without a medical education—would not be qualified for training and ultimately for leadership in hospital administration. That this paper outlines a program only for graduates in medicine is due to the fact that the Hospital for Joint Diseases, after five years of careful consideration, made the experiment of creating the position of Resident in Hospital Administration. The qualifications described elsewhere were met by the successful candidate, and the program of training outlined in this article is being followed.

Hospital administration is complex and diversified, and its interests must extend over much of the domain of man's social and economic life. To the hospital's interest in disease and its treatment, new times have added a way of thinking about the social and economic influences affecting the patient, his home environment and background, his welfare at the hospital, his fate after discharge, and the situation of his family during and after his illness. The social processes of the community as a whole and the growing interest in public health have led the hospital to add to its responsibility a share in the community's efforts to fight off social deterioration.

Under the influence of this expanding concept of hospital aims, the work of hospital administration goes more and more beyond its walls. It now involves the articulation of the hospital with the community, government, central chests, federations, foundations and welfare agencies, and with the medical, dental and nursing professions. It is concerned with and affected by the problems facing the medical and nursing professions. Such questions as costs of medical care, economic burdens of the physician, hospital and outpatient department abuses, open or closed hospital policy, health insurance, periodic health examinations, socialization of medicine, legislation affecting medicine, specialization and the family physician, ethics, cults and the standards of medical education, all of which



## Southern Medical Journal, Birmingham, Ala.

30: 133-242 (Feb.) 1937. Partial Index

- Cancer of Ovary. J. V. Meigs, Boston.—p. 133.  
 Cultivation of *Haemophilus Ducreyi* and Preparation of Antigen for Intracutaneous Diagnosis of Chancroidal Infection. E. S. Sanderson and R. B. Greenblatt, Augusta, Ga.—p. 147.  
 Prophylaxis and Treatment in Control of Syphilis. J. E. Moore, Baltimore.—p. 149.  
 Preoperative Preparation for Children. C. W. Maxson, Baltimore.—p. 158.  
 Surgical Treatment of Hypertension. A. M. Shipley and T. B. Aycock, Baltimore.—p. 160.  
 \*Suppurative Pericarditis: Report of Eight Cases Treated Surgically. I. A. Bigger, Richmond, Va.—p. 164.  
 Acute Osteomyelitis in Childhood: Diagnosis and Treatment. H. E. Conwell and J. D. Sherrill, Birmingham, Ala.—p. 171.  
 Lesions of Fundus Oculi of Special Diagnostic Interest. G. E. Clay and J. M. Baird, Atlanta, Ga.—p. 177.  
 Interstitial Bronchopneumonia in Children. J. S. Wall, Washington, D. C.—p. 201.  
 Clematis Dermatitis. A. H. Lancaster, Knoxville, Tenn.—p. 207.  
 \*Diagnosis and Treatment of Conditions Simulating Sinus Disease. H. R. Slack Jr., Baltimore.—p. 222.  
 Blood Findings and Renal Function Test in Kidney Trauma: Experimental Study. W. C. Stirling and A. M. Lands, Washington, D. C.—p. 225.

**Suppurative Pericarditis.**—Bigger states that suppurative pericarditis is not a rare condition but is infrequently diagnosed because in the absence of characteristic symptoms it is not suspected and is not looked for. It is never primary but is always secondary to infection elsewhere except when it results from direct trauma. The most important antecedent infections are pneumonia with empyema and osteomyelitis with an associated infection of the blood stream. Since recovery is rare without adequate drainage, it is essential that physicians make frequent, careful examinations of the cardiac area in patients with severe infections. This is especially important in intrathoracic infections or in distant infections with associated bacteremia or septicemia. Eight cases of suppurative pericarditis treated by surgical drainage are reported. Four patients recovered and four died, but only two of the deaths could be attributed to the pericardial infection.

**Conditions Simulating Sinus Disease.**—Slack points out that during the last few years the paranasal sinuses have been the subject of much discussion in medical literature. All manner of therapeutic agents from diet to climate have been advocated for their treatment and a great many modifications of the generally accepted operative procedures have been recommended. The widely divergent opinions and varied advice are a fair indication of the importance of this problem. Many times the specialist is consulted about "sinus trouble" by patients coming of their own accord or referred by the family physician, when in reality the symptoms are caused by some general systemic disorder or certain local conditions entirely unrelated to the paranasal sinuses. There are too many mutilated nasal cavities that furnish an added source of irritation and tend to destroy the faith of the poor sufferer in the medical profession. Before any therapeutic measures are instituted or operative procedures advised it is absolutely essential that the patient be given a thorough general medical examination and diagnostic study. A few specific conditions most commonly simulating sinus diseases are neurasthenia, allergic conditions, infected teeth, refractive errors and eyestrain, syphilis, intracranial conditions, disturbances of the endocrine glands, improper diet, undulant fever and encephalitis. The author gives a typical case of each.

## Virginia Medical Monthly, Richmond

63: 653-710 (Feb.) 1937

- Syphilis: A Major Social Problem. R. W. Garnett, Danville.—p. 653.  
 The Common Cold. H. Walker, Richmond.—p. 656.  
 Study of Cases with Psychoneurosis Entering the University Hospital: Jan. 1, 1931 to Jan. 1, 1936. D. C. Wilson, Charlottesville.—p. 659.  
 Occipitoposterior Position. J. P. Hennessy, New York.—p. 663.  
 Rupture of Graafian Follicles and Corpus Luteum Cysts. H. C. Jones, Petersburg.—p. 669.  
 Ludwig's Angina: Report of Case Requiring Tracheotomy: Recovery. E. G. Gill and E. G. Ridall, Roanoke.—p. 677.  
 Progressive Regression: Case. B. R. Tucker, Richmond.—p. 681.  
 Open Reduction of Fractures. M. H. Todd, Norfolk.—p. 684.  
 Hormone Tests for Pregnancy. E. S. Groseclose, Lynchburg.—p. 687.  
 Cerebral Malaria. F. B. Haar, Greenville, N. C.—p. 693.  
 Interesting Case of Acute Nephritis Following Chronic Follicular Tonsillitis. V. E. Lascara, Wilmington, Del.—p. 696.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Archives of Disease in Childhood, London

11: 275-328 (Dec.) 1936

- Congenital Tricuspid Atresia. J. W. Brown.—p. 275.  
 Accessory Nasal Sinusitis in Childhood. J. Crooks, with bacteriologic examinations by A. G. Signy.—p. 281.  
 Creatine Metabolism and the Gonads. P. Kahn and N. Smith.—p. 307.  
 Infantilism with Bony Changes Resembling Rickets and Calcification in Kidneys. Cécile Asher.—p. 311.

## British Journal of Dermatology and Syphilis, London

49: 1-54 (Jan.) 1937

- \*Pathology of Syphilis in a New Light. J. Almkvist.—p. 1.  
 Poikiloderma-like Dermatoses: Report of Case with Unusual Localization and Atypical Features. F. E. Cornia.—p. 13.  
 Further Notes on Tuberculin in Treatment of Cutaneous Tuberculosis. H. S. Burnell-Jones.—p. 21.

**Pathology of Syphilis.**—Since 1911 Almkvist has been studying the microscopic changes in different kinds of syphilis. These investigations have led him to formulate certain general laws or rules, of which the three principal ones are: 1. In each kind of tissue the spirochetes bring about a histologic reaction characteristic of the tissue in question, but different from the reaction in other tissues. 2. The changes induced by the syphilitic process in each kind of tissue are of a distinctly uniform nature through the whole course of the disease. They are the same in recent and in old standing syphilis and cannot be separated into three stages, as in Ricord's grouping. 3. The different clinical manifestations of the syphilitic lesions are not due to differences in the reactions between the spirochetes and the tissues, since the tissues react uniformly throughout the whole course of the disease, but rather to such factors as the varying location of the spirochetes, differences in the degree of immunity, toxin-antitoxin reactions and nutritional disturbances. His investigations have enabled him to distinguish six different types of tissue changes localized in the epidermis, connective tissue, lymphatic vessels, blood capillaries, highly developed organs and blood vessels. The individual tissue alterations remain uniform throughout the entire course of the disease. They do not give any impression of conforming to different stages, or periods, in accordance with the evolution of the disease. This uniformity of the histopathologic changes does not prevent one from distinguishing certain periods in the course of syphilis. The localization of the spirochetes and, in consequence of this, the localization—not the structure—of the syphilitic changes is not the same throughout the whole course of the disease. Further, there are certain changes which can be seen only in the late stages of syphilis. Consequently the author has been able to distinguish, instead of Ricord's three periods of primary, secondary and tertiary changes, four periods on a real pathologic basis: initial or humoral syphilis, hematogenous syphilis, serpiginous, creeping syphilis and old degenerative syphilis.

## British Journal of Ophthalmology, London

21: 1-64 (Jan.) 1937

- Ophthalmology and Research. J. Parsons.—p. 1.  
 Intracapsular Cataract Extraction. O. M. Duthie.—p. 16.  
 Perivasculitis Retinae Associated with Symptoms of Cerebral Disease: Case. A. J. Ballantyne and I. C. Michaelson.—p. 22.  
 \*Katholysis in Treatment of Retinal Detachment: Preliminary Note. H. B. Stallard.—p. 35.

**Katholysis in Treatment of Retinal Detachment.**—Stallard believes that in favor of katholysis is the precision with which its effect on the ocular tissues is circumscribed. There is no extensive spread of the current and on this account no damage is inflicted on other intra-ocular structures remote from the area of operation. After katholysis he has not yet seen such complications as cyclitis, iritis, cataract and optic neuritis, which follow in some cases of retinal detachment treated by other surgical diathermy procedures. As yet he has treated too few cases to give any fair statistics of the results of treatment. His impression is that katholysis is of value in anterior dialysis in the lower half of the retina. The operative reaction is well localized and does not spread to the ciliary body and with the help of the vitreous and gravity the choroidal retinal adhesions seem to be firm enough to hold the retina in

seriously engage the interest of the medical profession, are of vital interest to the hospital. Such questions as nursing education, supply, demand and distribution of nurses, grading of nurses' schools, group nursing, nurses' and students' hours of work, nursing standards and duties, and nurses' earnings, which are of primary interest to the nursing profession, also deeply concern the hospital.

Hospital administration is intramural, since it requires effective and well coordinated internal institutional operation. The work involves medical, sociological and business procedures and technics applied by the usual professional, administrative and technical hospital departments and coordinated by the executive head. For hospital administration to be progressive requires continual exercise of the kind of resourcefulness and

administration and in closely allied fields. The social sciences, architecture, engineering and selected current medical literature are included. During the resident's service he is to receive encouragement to write on hospital subjects and to prepare material for a thesis.

The term of service is three years.

During the first year the resident devotes himself to the study and supervision of administrative policies and procedures (nonclinical) of:

1. *Admitting Department.*—Its organization and policies; routine preadmission examination, with special emphasis on the examination of children to control admission of patients with contagious disease; provisional diagnosis; determination of eligibility from the points of view of admissible conditions, economic status and zone; classification and assignment of patients to suitable services; reservations for private and ward admissions, and condition of waiting list; attention to patient's

The Schedule of Service

		A Three-Year Plan*					
		1937	1938	1939	1940	1941	1942
First Year							
JUNIOR RESIDENT IN HOSPITAL ADMINISTRATION.....		A	B	C	A	B	C
Study and Supervision of Departmental Group A							
1. Admitting department							
2. House staff							
3. Emergency and ambulance service							
4. Deaths and autopsies							
5. Record department and library							
6. Surgical operating rooms, maternity delivery rooms and anesthesia service							
7. Nursing service							
8. Social service department							
Second Year							
INTERMEDIATE RESIDENT IN HOSPITAL ADMINISTRATION.....		—	A	B	C	A	B
Study and Supervision of Departmental Group B							
9. Laboratories							
10. X-ray service							
11. Pharmacy							
12. Other professional services							
13. Outpatient department							
14. Dietary service							
15. Housekeeping and laundry							
16. Engineering and maintenance of plant							
Third Year							
SENIOR RESIDENT IN HOSPITAL ADMINISTRATION.....		—	—	A	B	C	A
Study and Supervision of Departmental Group C							
17. Personnel administration							
18. Accounting and finance							
19. Purchase and issue							
20. Medical staff organization							
21. Board of trustees							
22. Community relationship							
23. Planning and construction							
24. A thesis							

\* A refers to the appointee who will serve as Junior Resident in 1937; as Intermediate Resident in 1938 and as Senior Resident in 1939, graduating at the end of that year. B refers to the appointee who will begin his service in 1938 and who will graduate in 1940. C refers to the appointee who will begin his service in 1939, and so on.

vision that lead it to originate and to employ (not without caution) new methods and new procedures offered by modern science.

A hospital executive must know all these fields. Hospital administration is a specialized career, and training and experience can be offered only to those who have been properly prepared. In considering candidates for the post of Resident in Hospital Administration, the Hospital for Joint Diseases felt constrained to make the following requirements:

1. Graduation from a grade A medical school.
2. Two years' general internship in a hospital with a bed capacity of at least 200.
3. Reliable testimony and observation as to personal qualities, such as aptitude for administration, character, capacity to learn, resourcefulness, vision, social mindedness, ability to work hard and well with others, and poise.
4. A desire to make hospital administration a life work rather than a means of finding temporary employment.

The method of training acceptable candidates consists of the gradual assignment of administrative responsibility, reading and study of literature on hospital

valubles and clothes; notification of visiting and house staffs of new admission; prompt first visit to patient on the part of visiting and house staffs; critically sick list and notification of family; discharges, transfers and ascertainment of causes requiring patients to remain in the hospital over unusually long periods of time, say two months or longer.

2. *House Staff.*—Organization and procedure for the examination of candidates for internship and clinical residency; equitable distribution of work; general deportment and appearance; promptness in answering emergency and other calls; proper use of supplies; consultation with members of patients' families; informing visiting staff of schedule of operations; new admissions and conditions of patients; emergency laboratory and x-ray examinations; attendance at outpatient clinics; attendance at hospital lectures.

3. *Emergency and Ambulance Service.*—Prompt attention to and proper recording of accident cases; notification of police; essential supplies in emergency room, such as antitoxin; policies pertaining to private and public ambulance service.

4. *Deaths and Autopsies.*—The study and supervision of the issuance of death certificates; facts concerning sudden deaths; notification of coroner; obtaining permission for postmortem examinations and their timely performance; condition of bodies and embalming; condition of morgue; dealings with undertakers.

## THE PHYSICIAN AND THE TRAFFIC PROBLEM

LOWELL S. SELLING, M.D.  
DETROIT

The recent literature on surgery has been full of references to the various problems confronting surgeons due to traffic accidents. New types of fractures have appeared and new technics have been devised to handle situations caused by the increased use of the automobile. In spite of the fact that the physician and his allied specialist the psychiatrist should be deeply interested in this subject, it seems that their eyes have scarcely been turned upon it. The manufacturers themselves have recognized the fact that the human element is an extremely important one in causing accidents, and law enforcement officers, judges and traffic administrators, particularly some of those at Harvard University, have emphasized the point that the physical and mental condition of the driver should be studied and that the problem created by physical and mental abnormalities in the driver is deserving of much more attention. Whenever there is a grave increase in the number of accidents in any community, a cry is raised by the newspapers and others for more physical and mental examinations, and in many states some routine physical examination, at least to the extent of rough tests of vision and a medical questionnaire, has been invoked and has been found to be of some use in culling out dangerous drivers. In other states where no formal examination is demanded, simple reading tests have been devised so that the optical capacity of the candidate for a license can be simply tested by a police officer or other untrained person.

Why the physicians have permitted this testing activity to pass beyond their control, as it seems to have done, is a question difficult to answer. Certainly physical examinations, particularly those of the eye (a most difficult organ to test) are in the rightful sphere of the physician and many of the criticisms of the examination for the operator's license as it is now administered could be done away with were these examinations carried out by persons interested in therapy rather than in mere elimination. Most of the resistance to the proper licensing of drivers is based on the fact that whenever possible a car owner or a member of his family who has reached a sufficient age and is grossly physically capable of driving should have the right to drive. Any infringement on this right is considered an infringement on liberty as the American people see it. Naturally, in such criticism the physician should be interested and is very likely to concur. But if a man is found with defective eyesight or defective physical make-up so that he would not be a safe risk on the road, it would be better for that individual to be studied with the view of correcting his difficulties, so he might be remade into a safe driver. Then in such a situation there would be no infringement on his right to operate a motor car.

The chief reason for criticism of the tests proposed in some states and now given to drivers in others, which should be of interest to physicians, is the fact that these tests in themselves do not separate the good from the bad driver. Many of the driving difficulties are due to emotional handicaps or arise from some

temporary physical condition that is correctable or that might not occur again in the same individual during the rest of his life. Under these conditions the mere physical examination, a mere check-up of the eyesight, or a brief psychologic test, such as the Binet or some simpler test, would fail to reveal why the man under consideration had his accident or why he is a chronic law violator. Until physicians themselves give these examinations, compile data and show just where the line must be drawn between adequate and inadequate physical capacities, licensing by means of physical and mental tests will be more or less of a farce. For instance, I know of one man who has two artificial arms which are so constructed that he is able to steer and control an automobile. This man has now been driving for upward of twenty years and because of the care which he uses and the type of highways where he drives he has never been in any trouble with the law or had an accident. A mere physical handicap is no contraindication to driving, and it requires the decision of an experienced and highly trained individual to make a determination.

The features which the physician must consider when mapping out plans for making examinations for driver's license, or examining offenders or persons involved in accidents, from the physical and mental standpoint, are threefold:

## THE GENERAL PHYSICAL CONDITION

First is the general physical condition, which is not extremely important, although at the Recorder's Court Clinic in Detroit there are on record several cases in which a known cardiac patient has suffered a collapse and has run into a safety zone, thus injuring other riders in the car with him, and also cases of persons suffering with debilitating diseases, such as tuberculosis, who when they have driven for long periods of time without a rest have gone into a serious fatigue condition, which impaired their alertness and resulted in an accident. In several recent addresses made to law enforcement officers, I have emphasized to them the fact that a physician's certificate as to the organic soundness of the candidate for a driver's license can easily be requested by licensing officials even though the law does not demand it. Most persons are certain that they have no physical handicap which would disqualify them and are only too anxious to secure evidence that they are well able, at least from the physical point of view, to drive a motor car. The matter of expense is not great, for most family physicians will grant this service for a minimum fee, and in many communities where enough cases can be referred, private physicians have signified their willingness to make special terms for such a service.

It might also be pointed out that such a physical examination would serve as the general health check-up which we as physicians are so anxious to have our patients submit to at reasonable intervals. In the case of the family physician it is an additional service he may render to families which require his services at quite infrequent intervals and which might lose touch with him.

There are one or two special features that should be noted. One, particularly, is the presence of a convulsive state. Most idiopathic epileptic patients are known to their local physicians, particularly to their family doctors, for usually they are using phenobarbital or some other sedative drug to control the rather

unpleasant episodes that they have. The known patient with serious epilepsy should unquestionably be curtailed in his driving capacity. Those whose convulsions can be controlled must realize that they must continue their treatment in a very serious manner if they are to use a motor car, for the motor car is a dangerous apparatus to handle if the driver is apt to become unconscious at intervals. Cases of petit mal frequently pass through a physician's hands without being recognized because no complaint is made by the patient. A check should carefully be made to see whether any of the symptoms of the minor attacks are present. The Psychopathic Clinic of the Recorder's Court has had two cases out of the last hundred in which petit mal was detected even though the individual himself did not know he had this condition.

The neurologic examination must by no means be neglected. The following is a case illustrating its importance:

A youth, aged 19 years, of athletic build, 5 feet 5 inches (165 cm.) in height and weighing 138 pounds (63 Kg.), was physically normal. His chest was symmetrical, his heart normal and his blood pressure slightly low. The neurologic examination revealed that while the cranial nerves were normal there was a slight swaying on the Romberg test, and marked tremors of the facial muscles, tongue and extended hands. The boy was ataxic and clumsy, with poor coordination. The heel to heel test was not as seriously atypical as the finger to nose test. A report was made to the judge that the boy's coordination was so poor that he would be unable to manipulate a car properly, and his license was revoked.

In another case, however, in which the coordination was less seriously impaired, the man was given some of Franz's rehabilitation exercises with the result that there was sufficient improvement so that there was no need to curtail his driving activity.

#### THE EYE EXAMINATION

The second type of examination is the eye examination. For all intents and purposes, the family physician who has some inexpensive equipment should be able to aid immensely in detecting gross eye defects that will obviously impair driving capacity. The proper use of the Snellen eye chart, the Ishahora color vision test, one of the conventional astigmatic charts, and the ophthalmoscope will usually suggest the presence of impaired vision. While it is quite true that some visual impairments, which might interfere with a person's driving capacity, do not always appear when the patient is given these simple tests, nevertheless cases of muscular imbalance, impaired physiologic function and deviated stereoscopic vision usually make themselves manifest on careful tests of visual acuity.

The physician who is really interested in this work might add to these tests of visual acuity the use of a protractor held horizontally before the eye around which a pencil is passed, thereby testing the breadth of the visual field.

In the experience of persons in giving careful tests to drivers, the number of cases of limited visual fields or barrel vision is very small, and these cases are usually accompanied by other symptoms of organic or functional nervous diseases. I would advocate the use, in the examination of accident-prone drivers, of local ophthalmologists to a greater extent than has been done.

There is no reason why the ophthalmologist in private practice cannot devise a simple way of detecting most of the deviations in vision or optical functions that would interfere with driving. It is true that in a clinic directly responsible to court more involved tests

can be given which pertain less to disease than to psychologic function, but even here the use of a Keystone stereoscope, the campimeter and the slit lamp should be entirely adequate to enable traffic law enforcement officers to become aware of the need to call in the ophthalmologic consultant for licensing tests and for expert advice to the courts. In many cases treatment is definitely indicated. A case in point is the following:

A Negro, aged 26, married, Georgia born, was arrested for using and displaying another man's license, and it was the judge's intention to give him a slight sentence and permit him to go on his way. However, it occurred to the judge that it might be an intelligent thing to have the man examined, and he was referred for such examination, which revealed that physically he was in generally good condition except for extremely bad teeth, but the examination of the eyes revealed an extensive pannus over the right eye. The vision was markedly impaired.

This man would have continued to drive a car and on examining his record we found that he had been in much trouble before. It was easy to point out that, for no other reason than the eye condition, his driving activities should be sharply curtailed until he had proper treatment from an eye specialist.

#### MENTAL DEVIATIONS

The third place where the physician can be of aid is in detecting mental deviations. While specialized experience in examining the attitude and psychiatric capacity of the driver is as necessary here as it is in treating mental patients, the family physician's knowledge of the individual's scholastic ability and his home conditions should be of extreme value in advising about successful driving. While at the present time our knowledge of the mental factors behind bad driving is extremely limited so that it would be unwise for the physician to take upon himself too much in the way of advising along these lines, it cannot be gainsaid that the family physician who knows that the individual has done very poorly in school, that he has been considered for commitment to an institution for the feeble-minded or the insane, or who knows that the patient's attitude is extremely antisocial and, perhaps, that he has been a problem in the family for some time, can advise such an individual not to apply for a license and, in addition, keep him under observation so that he will not cause injury and death because of his violation of the physician's instructions.

The examination of the mental make-up is distinctly a sphere in which the intelligent psychiatrist should find his services required. The understanding of the make-up and the attitude of the accident-prone driver or the violation-prone driver is not a simple procedure and too little research has been done along these lines; but, if psychiatrists will examine the work that has been done already and will show an interest in research along these lines, their services will undoubtedly be required in the capacity of advisers to licensing agencies. Certainly the psychiatrist and the physician are in an excellent position to devise treatment and means to put partially incapacitated drivers on the highway and to prevent those who are too sick mentally or physically from driving until such time as they are cured or their condition is substantially under control.

A neurosurgeon in private practice came to me a short time ago very much up in arms because he found that a patient of his, who had just been operated on for brain tumor and who had had a substantial part of

5. *Record Department and Library.*—Prompt and legible recording on charts, abstracting, indexing, filing and nomenclature; study and uses of printed forms; the daily census; medical library.

6. *Surgical Operating Rooms, Maternity Delivery Rooms and Anesthesia Service.*—Thorough preoperative physical examination of patients, with emphasis on precautions, and careful recording; schedule of operations; recovery room; vigilance over postoperative patients, attendance during recovery from anesthesia, temperature of room, drafts; postoperative infections and sequelae; condition of apparatus; proper preparation and sterilization of material, intravenous sets and solutions; bacteriologic examination of sterile material, instruments, water and surgeons' finger nails; blood transfusions and donors; obstetric technic and precautions; labor and delivery rooms, care and identification of new-born; emergency lighting; resuscitation apparatus.

7. *Nursing Service.*—Organization; standards and service to patients; ratio of patients to nurse; standing orders and procedure; floor, emergency and general supplies; group and special nursing; nursing education; registry; general professional and economic problems of nurses.

8. *Social Service Department.*—Aims and organization; relationship to medical staff, clinics, wards, patients and their families; convalescent care; home medical service; religious service and entertainment of patients; direct relief; contacts with other social agencies; occupational therapy; patients' library; volunteer service.

During the second year, the resident studies and supervises the administrative aspects of:

9. *Laboratories.*—Pathology, bacteriology, hematology and chemistry; routine and research activities; training technicians; animal house and animal operating rooms.

10. *X-Ray Department.*—Diagnosis, therapy, radium and photography services; bedside roentgenograms; cystoscopy; x-ray burns.

11. *Pharmacy.*—Service to floor and outpatient department; the formulary; safekeeping of narcotics and alcohol; appropriate labeling and compounding; "patent" medicines; unapproved drugs.

12. *Other Professional Services.*—Physical therapy and hydrotherapy; electrocardiography; basal metabolism; oxygen therapy; brace department; intravenous therapy; their organization and equipment.

13. *Outpatient Department.*—Organization and policies; standards of service; restrictions as to surgery and anesthesia; zoning rules; economic eligibility of patients; admissible conditions; clinic sessions; schedules of service of visiting staff; isolation of contagious disease; hospital admission refers; follow up.

14. *Dietary Service.*—General service; special diets; food clinics; instruction; sanitation; quality of provisions.

15. *Housekeeping and Laundry.*—General cleanliness; furnishings and furniture; linen and laundering.

16. *Engineering and Maintenance of Plant.*—Care of machines, motors and elevators; repairs and painting; care of the grounds; heating; ventilation and air conditioning, plumbing, electricity, refrigeration; fire prevention.

During the third year, the resident is assigned to the study and supervision of:

17. *Personnel Administration.*—Personnel organization, employment and personnel practices; living quarters; recreation; salaries; hours; job analysis; employees' health and prevention of accident.

18. *Accounting and Finance.*—The budget; hospital rates; unpaid accounts; cost analysis; all types of insurance; workmen's compensation.

19. *Purchase and Issue.*—Standardization; quality and testing of equipment and commodities; policies of purchase; bids; storage and issue of supplies; inventory.

20. *Medical Staff Organization and Service.*—Schedules and assignments of visiting staff members; rounds; attendance at meetings of the medical board and its committees; allocation of beds to services; standards of medical care; prevention of accident to patients; ethics; scholarships and fellowships;

clinical departmental and postmortem conferences; the Clinical Society; the Junior Staff Society; the Alumni Association; publications and lectures; teaching; clinical research.

21. *Board of Trustees.*—Opportunities to attend board and committee meetings; policies; charter, constitution and by-laws; cooperation with the ladies' auxiliary and its committees.

22. *Community Relationship.*—Study of the incidence of disease; population movement; community surveys; participation in community's social planning; law pertaining to hospitals and medicine; new legislation; sanitary and building codes; other hospitals; welfare agencies; hospital councils and associations; central chests; federations; foundations; government; medical societies; medical schools; church, fraternal, industrial and labor organizations; publicity; preparation of annual report; fund-raising campaigns.

23. *Planning and Construction.*—General consideration; opportunity to participate in planning of new construction and alterations; building materials; equipment.

24. *A Thesis.*—An original thesis on some phase of hospital service or planning, or in fields related to hospital service.

The plan establishes three grades, Junior, Intermediate and Senior, and calls for the appointment of one resident each year to serve for three years, one year in each grade. Beginning with the third year, all grades will have been filled. At the end of the third year and at the end of each year thereafter one resident will graduate.

The resident will serve in the capacity of Junior Resident in Hospital Administration during his first year, and the period will be probationary. If he proves to have the necessary qualities, he will be promoted to the position of Intermediate Resident in Hospital Administration, and finally to that of Senior Resident in Hospital Administration. Before the end of this residency, i. e., the end of the third year, he will submit a thesis and receive a certificate of completion of this three-year service.

Residents will have complete maintenance and an honorarium of \$50 a month during the first year, \$75 a month during the second year and \$100 a month during the third year. Unlike clinical interns and clinical residents, they will wear no uniforms.

The schedule of service discussed here is organized in twenty-four departmental divisions, divided into three groups of eight departments each. Other hospitals desiring to introduce residencies in hospital administration may find it convenient to change the title of "resident" to that of "fellow" or "scholar" or to change the scheme to two grades of Junior and Senior (or by any other names), giving eighteen months of service to each, or prolong the residency beyond three years. Whatever the scheme, it is also possible to add a six to twelve months exchange service with other hospitals, thus permitting the resident an opportunity of observing the policies and practices in more than one institution.

In a large community where there is a university, several hospitals introducing this or a similar plan of training may affiliate with the university for a course of supplementary lectures on the subject matters discussed here, leading to a degree of Doctor in Hospital Administration.

The plan makes of the resident both a student and a worker, under the direction and guidance of the usual department heads and the executive head. It is hoped that the training will be intensive and that book knowledge will be integrated with direct experience of all phases of hospital management and community relationship.

When opportunities in residencies in hospital administration become generally known and widespread, they



sion, normal and prosperity periods. General occupancy figures, such as those here used, unquestionably conceal many internal fluctuations in the different departments; for example, the uncertainties of pediatric and maternity demand as compared with the relatively stable volume of medical and surgical cases and the effect of hard times on the private patients and elective surgery.

TABLE 4.—Occurrence of Peaks

No. of Hospitals Which Showed Peaks in Month	Aggregate Days When Census Reached or Exceeded	
	120% of Average	125% of Average
January.....	7	8
February.....	4	3
March.....	11	50
April.....	15	21
May.....	13	18
June.....	5	3
July.....	3	13
August.....	4	7
September.....	1	0
October.....	2	2
November.....	5	0
December.....	1	0
Average number of days a year in 23 hospital years.....	333	125
	16.7	5.1

To general hospitals the question is presented Can there be any advantage that justifies the cost of maintaining beds that are used less than 5 per cent of the time?

The most important question is, of course. Can reserve beds equivalent to more than 25 per cent of the average daily census be justified?

## THE COST OF IDLE BEDS

Any answer to the foregoing question should take into consideration the following facts:

1. Hospitalization is probably one of the most stable of all this country's industries. The *Hospital Management* occupancy curve shows the fluctuations given in table 6. Compare these figures showing a maximum variation on the six year period of 21.4 per cent with the 80 per cent decline of production in the motor industry, which sold five cars in 1929 for each one sold in 1932.<sup>2</sup> Compare the major seasonal demands that influence industrial capacity with the minor fluctuations which the study shows in the average hospital's census.

While prosperity or the lack of it may affect hospital income, it apparently has a negligible effect on hospital volume. Under these conditions it should be possible to determine more closely how many beds hospitals really require and reduce the wasteful surplus to a practical minimum. Hospitals are always in need of money. Expenses are on an ascending scale. In one large group<sup>3</sup> the average cost of caring for a patient increased from \$40 in 1912 to \$83 in 1935. The easiest way to raise money is to save it, and the most practical way for a hospital to save is by reducing the overhead incidental to beds for which it has no use.

2. The nation's investment in general hospitals<sup>4</sup> averages \$5,000 a bed, with annual fixed charges at \$700 (\$250 for interest, \$150 for depreciation and \$350 for "readiness to serve" cost). As previously mentioned, the American Hospital Association report found that more than 87,500 beds are being maintained in this country in excess of needs, representing frozen capital of over \$437,000,000 and annual fixed charges of \$61,250,000.

3. The record of general hospital bed occupancy by states for 1935 as shown by the American Medical Association statistics reveals only seven states with an occupancy of 70 per cent or over (Connecticut, Louisiana, Maryland, Massachusetts, Colorado, New York and Rhode Island); seventeen states range from 60 to 70 per cent and twenty-four from 40 to 60 per cent.

4. Over half a million beds are now being maintained in this country in nongovernment hospitals and, notwithstanding about 145,000 idle beds in 1935, new beds are being added at the rate of seventy-seven each day according to statistics for the year 1936 compiled by the Council of Medical Education and Hospitals of the American Medical Association.<sup>5</sup> As Dr. Haven Emerson<sup>6</sup> has said, "It seems preposterous to continue such relative idleness as is represented by an average occupancy of but 60 to 70 per cent of hospital beds."

## CAUSES FOR IDLE BEDS

The chronic malady of overhospitalization appears to be due largely to the following causes:

1. Hospitals have failed to pool their resources. In every community, while hospital care is a common problem financed out of the community purse, it is rarely approached as a common problem. There is seldom more than a semblance of joint action. Many hospitals with many policies promote conflicting activities, each as an individual unit rather than as a unit of common service.

2. The machinery responsible for the existence of too many hospitals and too many beds seems sadly in need of overhauling. The methods long used to estimate the needs of a given district or a given hospital appear faulty and the long accepted yardsticks calling for a specific number of beds for each thousand of population—five or six beds for acute cases per thousand for large cities and three or four in suburban and rural areas—have proved misleading. Perhaps most disastrous has been the lack of any curb on the ambitious hospital which builds without regard to facilities

TABLE 5.—Relation Between Crowding and Reserve Beds

23 hospitals had 83% occupancy on	10 days or less
6 hospitals had 83% occupancy on	11-20 days
7 hospitals had 83% occupancy on	21-30 days
3 hospitals had 83% occupancy on	31-40 days
2 hospitals had 83% occupancy on	41-50 days
2 hospitals had 83% occupancy on	51-60 days
2 hospitals had 83% occupancy on	61-81 days

TABLE 6.—Fluctuation Shown by Occupancy Curve

In 1931 a fluctuation of 8.7%, from 56.8 to 67.5%
1932 a fluctuation of 9.9%, from 51.1 to 61.8%
1933 a fluctuation of 2.8%, from 54.4 to 57.2%
1934 a fluctuation of 4.3%, from 57.7 to 62.0%
1935 a fluctuation of 7.2%, from 58.6 to 65.8%
1936 (incomplete) of 8.6%, from 63.9 to 72.5%

already available or conservative appraisal of the volume of work to be done.

3. The individual hospital is frequently unable to pool its reserve beds because of a lack of elasticity in plan and policy. Each department, medical, surgical, maternity and children's, has its own separate quota of beds and maintains its own reserve. Thus it is difficult for a crowded surgical service to overflow into

5. Hospital Service in the United States for 1936, Council on Medical Education and Hospitals of the American Medical Association.

6. Emerson, Haven: Personal communication to the author.

2. Garret, Garret: The Detroit Principle, Saturday Evening Post, Jan. 2, 1937.

3. Statistical sheets of the United Hospital Fund of New York City.

4. Rorem, R. H.: Capital Investment in Hospitals.

cannot fail to attract properly qualified persons. With this, the problem will arise of finding suitable places for them. It is not likely that even the most able would be ready to assume the responsibilities of executive work as heads of large hospitals, but they would be prepared to head small hospitals or to become assistants to executive heads of large hospitals, or heads of dispensaries or diagnostic clinics, and to be advanced on their records to greater responsibilities and higher positions.

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## PHILOSOPHICAL COMMENTS ON EXAMINATIONS

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### APOLOGIUM

Many of the facts about examinations are well known to teachers, but it is difficult to analyze those facts or to synthesize them in a manner that can be designated as truly scientific. Furthermore, some of the facts are observed through a tinted glass, the jaundiced yellow of prejudice or the rose of gentle kindness, and some are seen through the clear lens of objective detachment. Thus, at the present time it seems necessary and wise to employ the philosophical rather than the strictly scientific line of approach. To paraphrase Lippmann, the views expressed represent an attitude toward examinations "which, when it becomes articulate and explicit, may be dignified as a philosophy." The purpose of this paper is not so much to discuss details of methods as to emphasize anew some aspects of the matter that appear to be of broad interest. The examination has a valuable place in the program of education and training. The teaching staff often looks on examinations as a routine and unpleasant duty rather than as a major function. There are topics related to types of questions, forms of examination, origins and qualifications of the examiner, preparation and attitudes of the candidate, grades and honors, and responsibility of the professional schools to the public, all of which deserve consideration.

### ART AND SCIENCE

There is much talk about the personality of the physician and other related qualities that play a part in the practice of medicine. It is suggested by implication at least that these qualities and even those elements which go to make up character can be taught in the medical schools. Indeed, the statement has been made that character and power of expression may be worth more than medical knowledge. It must be agreed, however, that character and personality are inborn and inherent parts of the psyche. They may possibly be modified by environment, cultivated by precept and improved by maturity, but it is doubtful that they can be instilled by teaching. Even though they are intangible and not subject to exact measurement, they should be given appropriate weight in the selection of students of medicine, for they are essential to happiness and usefulness in the practice of the profession. With no underestimate of the significance of character and personality and all that they imply, and with a full appreciation of the wisdom of fostering them during the

courses in medicine, it may be said in no uncertain terms that the chief function of the schools of medicine is to teach medicine. This is not the place to discuss methods of teaching, the emphasis on learning rather than teaching, or other technical aspects of the subject, but it is the place to emphasize the opinion that schools of medicine have an inescapable duty to provide adequate education for a career of real service. Any suggestion that the art of practice is distinct from the science of medicine is false. Fundamental to that art and essential to it is science. The art without science is form without substance. The schools must safeguard the public. They must maintain ideals and protect principles. They must be able to point with reasonable pride to their product. There are certain ways by which these accomplishments can be determined, but the most conclusive is through the medium of examinations.

### AUXILIARIES TO EXAMINATIONS

Certainly, while the student is in the medical school and in more or less close contact with the teaching staff, observations of his work may be helpful in the final evaluation of his merit. The periodic tests, however, are of at least as much, if not more, value to the student in the determination of his own progress as to the instructor in estimating the acquisition of knowledge and its uses. The fact that a student can remember and utilize information for a week or two is no real guide to his mental equipment or to that permanence of its content which is essential to professional training. In general, those who do well in periodic tests also do well in final examinations and the converse is often true. There are, however, many exceptions, and the evaluation of progress on the basis of periodic tests alone is inadequate and unjust.<sup>1</sup> These dogmatic assertions do not exhaust the subject. It is reasonable that all sources should be drawn on for information as to the students' merits. Even in the schools of moderate and small size it is impossible for the department head to know all the students well. The junior members of the staff have an intimacy of contact that is not available to the most genial of professors. In spite of their presumed immaturity and supposedly pitiful lack of experience, the opinion of these junior staff members should be given a considerable weight in the final judgment of the students' ability, even although the wise professor may do so with his tongue in his cheek. Subsequent events may force the professor to place his tongue abruptly in its normal position. All this means that a staff judgment is more to be relied on than an individual judgment.

### EXAMINATIONS AS A PART OF INSTRUCTION

A platitude states that we learn by mistakes. It is unfortunate, however, that most human beings must suffer from several mistakes before the lesson is well learned. Another platitude says that anatomy must be forgotten several times (the number seems to vary from generation to generation) before it is learned. If this were true of anatomy, it should be equally true of all other subjects in the curriculum; but as a matter of fact it is true of none. Nevertheless, and perhaps equally platitudinous, it is recognized that there must be many repetitions and the most valuable of these repetitions is that necessary in preparation for a final

From the Institute of Pathology, Western Reserve University School of Medicine.

Read before the Thirty-Third Annual Congress on Medical Education and Licensure, Chicago, Feb. 16, 1937.

1. The problem of the unannounced quiz obtrudes itself here. This is a pedagogic method that may be of value in lower schools but is unworthy of the ideals of a university form of education. It is not in harmony with that academic freedom which should apply to students of university grade as well as to professors.

vacant beds on the medical floor or for a waiting list of women to be admitted to the men's wing.

4. Empty beds are deliberately maintained for causes or possibilities that should be disregarded or given their proper place of minor importance under existing conditions.

5. Too much attention is given to the tradition that when a hospital has reached an average occupancy of 80 per cent it has reached the saturation point and a new wing should be started.

6. The modern trend is toward less rather than more care of patients in general nongovernment hospitals.

In considering these points, much might be said. Certain it is that the occupancy statistics of nongovernment general hospitals during recent years prove that a more accurate method of computing the need for hospital beds should be found than those heretofore used. Again, the cost of maintaining idle beds should receive more consideration. Hospital authorities are so accustomed to carrying a large proportion of their beds empty that the ten, fifteen or twenty which are never used cause little concern, yet ten superfluous beds and what they represent in space and equipment involve an investment of from \$50,000 to \$75,000 and cost from \$7,000 to \$10,000 in fixed charges. Consider what such a sum, saved each year, would mean to any hospital and what similar savings made in all its hospitals would mean in any community, and its possibilities as a source of funds to compensate the doctors for their work in charity wards and clinics.

The failure of hospitals to pool their resources and to cooperate for community welfare has long been a subject of discussion. The 1935 Report of the Committee on Income and Bed Occupancy of the American Hospital Association says "Extraordinary effort should be made to promote closer cooperation between administrators of hospitals and their respective hospital associations and to drop such unnecessary practices and unwarranted traditional ideas in structural design and operation as may interfere with the economic security of these institutions."

If one were to ask a trustee, superintendent or surgeon why his hospital has to have 150 beds when the average census is but 100 patients, he would probably say, after reflection, "we must be prepared for peak loads, for epidemics, for catastrophes; rooms have to be closed for decorating and wards must be vacated on occasion for renovation and disinfection."

All true but, if experience is any criterion, all of minor significance with the exception of the problematic peak load. Epidemics and catastrophes can be ignored. There is certainly no justification for holding extra beds for major epidemics and catastrophes that happen once in a lifetime.

In 1918, as Red Cross field director, I spent many trying weeks in an embarkation hospital in the port of New York, when the influenza epidemic was at its height. Troop trains, transport ambulances and trucks brought a steady stream of stricken men, and for days on end 700 patients were housed in a 300 bed hospital. The problem was not beds but personnel. Conditions were not ideal, but every patient had a bed. It is significant that no scourge of like proportions has occurred in the intervening eighteen years.

Catastrophes caused by floods and other unexpected disasters occur so seldom in any section of the country as to be unpredictable and are often of such magnitude as to swamp any possible reserve hospital accommodations. No hospital is warranted in maintaining idle

beds for such a reason. When a disaster does occur, emergency hospitals are inevitably set up in other buildings.

Redecoration should never keep needed beds out of service, as the work should be done in slack months; the occasional general renovation or disinfection of a ward, if it does come at a busy time, is only a temporary inconvenience.

#### THE PROBLEM AND THE REMEDY

The evil of unnecessary hospital beds is obvious; unfortunately, the remedy is obscure. One might assume that from the hospital statistics of the last twenty years it should be relatively simple to project a curve of indicated demand for the future. The invaluable national occupancy indexes of the American Medical Association published for the past fifteen years give the number of beds and the number of patients in each hospital, and each hospital has its own detailed figures. But past averages are not safe criteria. Many trends are constant, but new conditions are constantly arising which affect average occupancy. Take the stay of the general hospital patient, which has decreased from 19 to 12.6 days between 1912 and 1936. Again, as more chronic and convalescent beds are provided and as visiting nursing service in the home is extended and tied in with the hospital, fewer days of hospital care will be required.

Moreover, it has not yet been demonstrated that the economic cycle has been overcome. If the economic swings from prosperity to depression are to be of increasing severity and duration, hospital construction should be on a more and more conservative basis.

Three steps are suggested as valuable aids in remedying a situation that cries aloud for correction:

1. There must be an estimate of the future average census and then a factor of safety set up to take care of the overloads. It is this safety factor which in the past has itself been heavily overloaded. There has apparently never been any careful appraisal of the frequency and extent of the periods of heavy demand. If the Pike's Peaks can be measured the Grand Canyons and the plains will take care of themselves.

2. The necessity for additional hospital beds in any locality should be proved from the standpoint of the community as a whole, taking into consideration such factors as general population trends, the average utilization of existing beds over at least five preceding years, and the general tendency for reduced rather than increased hospitalization; on the basis of the individual hospital's record during the same period, with particular reference to the ability of the staff to fill any proposed new beds, and on the basis of a detailed careful analysis of the hospital's occupancy statistics, department by department, for a considerable period. Probable occupancy curves on each basis, conservatively forecast, should be plotted and then harmonized. The final curve will more accurately indicate the number of required beds than any previously accepted formula.

3. The third method, of breaking down statistics into graphs showing the work of the major clinical departments, is particularly valuable. Any growth should harmonize with departmental needs. Why plan for fifty additional beds to be arbitrarily assigned to medicine, surgery, pediatrics, obstetrics? Rather plan on the basis of demonstrated need, department by department, following the principle that five beds to every four patients is sufficient for normal needs, and any construction beyond that is extravagant.

examination. This applies to factual content in particular, but it is self evident that, as subject matter becomes more firmly implanted in the conscious or even in the subconscious, the capacity to utilize knowledge in logical rational process of thought becomes more ready. Medical education and training are well served by anything that can correlate and coordinate information, integrate it in the student's mind and permit of its proper and appropriate utilization. There is a theory of education, a principle of pedagogy and a science of training, and the final examination belongs to all of these.

This line of reasoning establishes, at least in my mind, the fact that examinations constitute a part of the program of instruction, in addition to the place they must occupy in the determination of the students' capabilities. In their provision for review, repetition and recapitulation by the student, they are like the roof on the house or the capstone on the chimney. (Clichés as to the chimney and the escape of heated air are sedulously repressed.) The house is not complete without the roof, the chimney is not complete without the capstone and the course is not complete without the examination, even although the house is well designed, the chimney well constructed and the course well planned. Roofs and capstones vary in type and so do examinations. It makes no difference to the principle involved whether the examination is oral, written or both. It should, however, be a course examination to be supplemented but not replaced by the comprehensive examination.

#### COMPREHENSIVE EXAMINATIONS

Comprehensive examinations have now been in operation for a sufficient length of time to permit the conclusion that, as in the colleges, they have a valuable place in the medical schools. The instructor, in his natural enthusiasms for his own subject, is justified in regarding the comprehensive as an auxiliary to the course examination and not a substitute for it. The medical school administrator can safely look on the comprehensive as an examination of great weight in determination of the students' fitness to pass from one stage of his medical education to another, or to graduate. The educator sees that it can correlate knowledge, cover marginal fields, break down bulkheads and test relational thinking and capacity to use information in new situations with a thoroughness far beyond the scope of the course examination. Moore states that, on experimental analysis, the student who works for an examination in the distant future "learns 12 per cent better" than if he works for one in the early future, and that if knowledge rests for a year and then by review is restored to its earlier level "it will become 70 per cent more permanent than if such restoration had never taken place." Whether these figures are accurate or not, the principle cannot be successfully challenged. Its bearing on comprehensive examinations is obvious. Whether the comprehensive examination is called an admitting examination to subsequent courses or a passing examination is of little consequence in this connection. The matter of outside examiners has some bearing but will be referred to subsequently. The members of state boards of medical examiners might well give thought to their function as external examiners as well as to their obligations as protectors of the public. Many state board examinations savor of this comprehensive quality, but some fail utterly in this respect. Parts I and II of the National Board examinations

serve the educational purposes of the comprehensive review and are satisfactory for the determination of the student's accomplishment. Part III, as now conducted, illustrates the best type of correlative test. The same may be said of the qualifying boards of Great Britain and Ireland.

#### FORMS OF EXAMINATIONS

The phraseology of writers on the subject of examinations includes the terms "essay type" of question and "objective examinations." For the purposes of the medical school the essay type of question includes description, explanation, definition and discussion. Dissatisfaction with these conventional forms of questioning has at times become vociferous. The statistical evidence which the opponents bring forth is based on the wide variation in the grading of papers from a group of high schools by a number of high school teachers. With no disrespect for a fine group of teachers, these results should not be directly applied to graduate professional schools. More to the point, however, is the thought that the blame has been placed on the questions and not on the examiners, on whom it more properly belongs. In the development of education in this country, emphasis has been placed on the teaching function while the examining function has been neglected. When the time comes that the conduct of examinations becomes a major function at least coequal with the teaching function, and this is especially true in professional schools, the value of the "essay" type of question can be more adequately appraised. The objective form of question includes the yes-no, true-false, plus-zero, correct alternative, multiple choice and sentence completion types of short answer. This type of examination has the advantage of an objective grading, uniform and fair, and it can cover a wide scope of knowledge sampling. Jones points out that although questions requiring thought and problem solving may be presented, this is seldom done, that certain types of ability are not measured well if at all, and that students naturally study for this type of question without development of the capacity for expression of ideas, organization and selection of topic, avoidance of duplication and other features required for the essay type of question. What Jones says of college examinations in this respect is applicable to medical school examinations. In a limited experience with the short-answer question, it is found that often a certain amount of subjective grading is necessary. In some of the forms there is danger that a good answer might be the wrong answer.<sup>2</sup> Certain modifications are supposed to give opportunity for reasoning and judgment, but with these and the original forms the questions may readily become riddles to test wit rather than problems to test wisdom.

This part of the discussion may be considered to be too vigorous a defense of the conventional type of examination. It is meant to be a defense but is not to be interpreted to mean that tradition should be the only guide. Novelties in type may well lead the thoughtful examiner to modify his methods in important fashion, without of necessity adopting the new simply because it is new or is believed to be. Fads should not control methods of examination any more than they should be dominant in other activities of

2. The matter suggests the story, almost certainly apocryphal, of the army officer who took an examination for promotion. He was given a tactical problem and after months of study he offered a solution. This solution was not in accord with that worked out previously by the general staff and the officer failed even although his solution in this particular instance was admittedly superior to that of the staff.

The recent experience of one hospital is interesting. During the latter part of 1936 it experienced a gratifying increase in occupancy and agitation was started for "a new wing." There was a general feeling that the hospital was about ready to "burst its walls." Architects were called in to make a preliminary study and in conference with the staff and others interested were informed that there was a definite need of expansion in every direction; practically all facilities appeared to be inadequate. Fortunately, before further steps were taken, one member of the executive committee called for definite facts and statistical analyses for the past ten years. Figures on a truly comparative basis were available for a six year period. These showed occupancy percentages as given in table 7.

Further analyses showed that only the fifty-three adult ward beds had been occupied to 97 per cent capacity during 1936. The conclusion was inevitable: any general expansion was uncalled for; rather, there was merely a shortage of adult medical and surgical beds. A building program providing twenty-four such beds with a few other changes at a cost of \$75,000 took care of all needs instead of the original plan of constructing a new wing at a cost of about a quarter of a million dollars. The community was saved an unnecessary

TABLE 7.—Occupancy Percentages

Beds	1931	1932	1933	1934	1935	1936
82 Adult.....	67	69	67	72	76	87
37 Children.....	38	37	30	30	36	37
23 Maternity.....	59	55	56	56	62	66
23 Maternity, new-born.....	60	51	53	53	58	61
165 Total.....	55	57	55	58	63	70

expenditure of \$175,000 plus interest on that sum for a period of at least five years, a total saving of say \$215,000.

The outstanding experience of a 100 bed general hospital in New York City illustrates what can be done. It was perhaps the first institution in the country to be deliberately designed to take care of peak loads through a flexible plan with single rooms, small wards and solariums on all floors arranged to accommodate twenty additional beds when needed. During five consecutive years prior to the depression, its annual census averaged from ninety-one to ninety-nine patients a day, and this without material inconvenience or overcrowding. The financial results were particularly significant; the revenue from patients in those years approximated operating expenses. With overhead costs spread over capacity occupancy, a greater proportion of earnings could be spent for the refinements of service. The benign circle for successful business was set in motion. Quality promoted volume and volume reduced costs.

The fundamental problem before each hospital of the country is How many beds are needed and how shall new buildings be planned? Such figures as are here offered tend to support the theory that a general hospital should be able to handle its work if it has one reserve bed for every four patients in its average daily census.

It would appear from this limited study that the hospital's Pike's Peak is either a mole hill or a mirage, although beyond the present limited horizon there may be more and higher mountains. As to the thesis, one would appear justified in appending a tentative Q. E. D. 512 Fifth Avenue.

## Council on Pharmacy and Chemistry

### PRELIMINARY REPORT OF THE COUNCIL MANDELIC ACID

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT, WHICH HAS KINDLY BEEN PREPARED FOR THE COUNCIL BY DR. WILLIAM F. BRAASCH. THE COUNCIL POSTPONED CONSIDERATION OF MANDELIC ACID TO AWAIT FURTHER EVIDENCE CONCERNING ITS USEFULNESS AND HARMLESSNESS.

PAUL NICHOLAS LEECH, Secretary.

### REPORT ON MANDELIC ACID

WILLIAM F. BRAASCH, M.D.

ROCHESTER, MINN.

The discovery by Clark and Helmholtz that ketonurine had bactericidal qualities paved the way for a number of therapeutic developments. The difficulties of administering the ketogenic diet, unless it was carefully supervised, were so great however that it was not generally employed. The desirability of a simpler method of establishing bacteriostatic urine was self evident. Fuller found that the bactericidal element in ketonurine was beta-hydroxybutyric acid. It was found impossible to employ beta-hydroxybutyric acid by oral administration because it is largely oxidized into carbon dioxide and water before reaching the kidney.

In the search for an organic acid of a similar nature that could be administered by mouth and excreted intact in the urine, Rosenheim discovered that mandelic acid possessed these qualities. He reported that it had no deleterious effect and that it was excreted in the urine in practically an unchanged form and in a concentration sufficient to be bactericidal. He administered mandelic acid in the form of sodium mandelate and reported that it was efficacious in most cases of bacillary infections. Since his report the drug has been further employed and is being put out by a number of manufacturers of pharmaceutical products. It has been common experience that the drug will eliminate bacillary infection in a high percentage of uncomplicated cases. Considerable experience has brought out the following data:

1. Mandelic therapy will be found bactericidal in fully 80 per cent of cases of uncomplicated urinary infection.
2. Organisms which have responded to the treatment include *Escherichia coli*, *Aerobacter aerogenes* and, in addition, members of the genera *Proteus*, *Pseudomonas*, *Alcaligenes*, *Salmonella* and *Shigella*. Helmholtz and Osterberg found that *Aerobacter aerogenes* and *Pseudomonas* were more resistant than the other bacilli. Cocci are usually affected to a lesser degree by the administration of mandelic acid to adults. Helmholtz, however, reported that it is efficacious when administered to some children. *Streptococcus faecalis* will, however, respond almost as well as bacilli. In some cases elimination of cocci has been accomplished by mandelic therapy following several intravenous injections of neoarsphenamine, or vice versa.
3. Cases frequently are observed in which mandelic therapy will produce considerable reduction in the degree of infection and improvement in symptoms, even though the bacteria are not completely eliminated from the urine.
4. As a preliminary to instrumentation or surgical treatment of the urinary tract, the drug is frequently of value even though the elimination of the infection is not accomplished.

The following principles are essential to its successful administration: 1. The amount of fluid ingested



sensible people. All credit to those who have proposed different methods, for they prevent the examination from being a time honored changeless form. The suggestions may well alter details of the conventional form, but the evidence does not as yet justify the displacement of its principles. Jones suggests that "perhaps the best type of examination contains such varied questions that students cannot easily predict from year to year the relative importance of different types of questions" and that "enough discussion questions and problems should be presented so that every student is stimulated to prepare broadly."

#### THE ORAL EXAMINATION

Although a doctor examines his patients, or at least is supposed to, he is constantly under examination by his patients, their relatives and their friends. Thus, as a medical student, he is when examined subjected to an ordeal no more severe than what will be his lot in later life. He must be ready to meet situations that confront him in school and in practice. It might be contended that since, in practice, his examination by patients is principally oral, so in school his examinations should be oral. That proposition, however, is obviously superficial, for his diagnosis and management of patients depend on prolonged and thorough study of patient and disease. Thus, his problems in school should permit of careful and painstaking analysis. In this sense the written examination gives opportunity for thoughtful consideration of problems not ordinarily afforded by the oral examination. This is in defense of the written rather than in condemnation of the oral examination. The oral examination most certainly has its place, but it is in no sense superior to the written nor should it be substituted as the only form of examination. If fatigue on the part of the examiner is of significance in the grading of written answers, it must be more so with the grading in the orals. In the former the examiner can so arrange his work that he is not subject to fatigue, but in the latter a fixed schedule over several days, as is usually the case, may give those whose names are low in the alphabetical list a rougher time than those whose names, like that of Abou ben Adhem, are at the top. Anxiety is an accompaniment of any examination, but the oral is all too likely to add embarrassment as a factor. It is true that the physician must be ready to think and act in the face of anxiety, embarrassment and other emotions, but the way he takes examinations is not always, or of necessity, a guide as to how he will meet the emergencies of a medical career.

In the actual operation of a medical school, it is likely that many of the practical examinations must be oral, but this is not true of all, especially in the so-called preclinical fields. The examiner must exercise his option, but it should be only after the most careful consideration of how best to grade the candidates.

Lest this discussion be thought to be evasive, the opinion is expressed that the written examination is of far more significance than the oral. It is unnecessary to give detailed reasons for the utility of the latter, but none or any would justify the conclusion that it should be the only form of examination.

#### GRADES AND GRADING

Capacity for organization of an answer and facility in expression undoubtedly play a part in the evaluation of the students' ability. It is claimed that those who lack these powers suffer in comparison with those who

have them. That this is unjust in medical examinations is open to question. The practitioner of modern medicine must collect his data, organize them, assign appropriate weight to each observation and arrive at a logical conclusion. The student who organizes his answers well in a professional examination is worthy of a grading superior to that of one who does not. With only rare exceptions, facility of expression is a corollary of precision of thought. The doctor must often act as a teacher in explaining the disease to the patient and in directing treatment. Facility of expression may therefore be regarded as a part of his professional equipment as well as an index of his grasp of information. The examiner must be on his guard not to be deceived by "the well turned phrase" used in shrewdness to conceal ignorance. These comments naturally apply to both oral and written examinations.

The use of grading in examinations deserves especial consideration. A mere distinction between passing and failing<sup>3</sup> may satisfy the poor student, but even the mediocre student is entitled to know how far he escaped the noose. Life is complex and, in our capitalistic system, gives free rein to competition. Survival requires meeting competition and winning. The greater the success, the greater the reward and, more important, the greater the stimulus. Even before his graduation, the medical student is confronted with the problem of securing an internship. Then or later he is also in competition for other professional posts. In the bestowal of these appointments, various factors are considered by the authorities in power; but usually academic grades weigh heavily among the items of merit. In justice to their students and to the institutions which accept them, it would seem that, willy-nilly, the faculties of schools of medicine are obliged to assign grades. This being so, the grades must be built up on as careful and precise appraisal of the student's capabilities as is possible. In some schools the students are "passed" or "passed with honors." In others those who are passed may have grades of A, B, C and D with further subdivisions. In practically all schools these distinctions are based on a decimal system of primary grading. The advantage to professional schools of translating numerical grades to other symbols is obscure to me.

As Link puts it, "the marking system is one of the few definite points at which education resembles the actual world with its systems of incentives and rewards, its mixture of justice and human fallibility." No claim is made that examinations of any type can give an exact evaluation, but they can approximate closely the relative abilities of a group or class. It may well be, as suggested by Blake, that grading should show the actual spread of qualifications rather than be made on the basis of success or failure. This is successful in the hands of the British qualifying boards. Experienced examiners attain the same objective by either method. The differential score of improvement does not meet the purposes of a professional examination and has no place in the final examinations of the medical schools, whether they are course or comprehensive.

#### CONSTRUCTION OF EXAMINATIONS

The examination must be so constructed in a professional school as to give assurance that the student has acquired the contents and facts of his courses. With

3. The temptation to insert a footnote is irresistible, for in reading "Round the Fountain" (St. Bartholomew's Hospital, London, 1927) it is observed that, although the British medical student does not use the term "bunk," he has adopted variety of expression in that "plough," "pluck," "spin," "biff" and "bump" are synonyms.

in twenty-four hours must be limited to 1,200 cc. or less. 2. The  $p_H$  of the urine must be observed daily and maintained at a level of 5.5 or less. Helmholtz and Osterberg demonstrated that the degree of concentration of mandelic acid in the urine necessary for bactericidal effect decreases with the reduction of the  $p_H$ . In other words, mandelic acid when the  $p_H$  of the urine is 5 will be more bactericidal than when the  $p_H$  is 5.5. If sodium mandelate is employed, it is usually necessary to administer some drug, such as ammonium chloride, in order to obtain the desired degree of acidification. Many of the forms of mandelic acid now employed consist of an ammonium salt of mandelic acid. If, following administration of such products, the  $p_H$  is not below the level of 5.5, the addition of ammonium chloride or nitrohydrochloric acid may be necessary. When it is impossible to get the desired  $p_H$  by these methods, the administration of a ketogenic or high acid-ash diet will often bring about the desired result.

When these precautions are observed, the urine usually becomes bactericidal in the course of two or three days, and bacterial elimination usually occurs within six or seven days. It is seldom necessary to continue the therapy longer than from twelve to fourteen days. In fact, it is inadvisable to continue administration of the drug longer than this because of the possibility of renal irritation. It has been claimed that the infection very frequently recurs following a temporary elimination of bacilli. In such cases it would be advisable to repeat the mandelic therapy at intervals of a week or two.

The dosage for adults is 12 Gm. of mandelic acid administered daily. It is usually given in four divided doses during the day, before or after meals and at bedtime.

#### COMPLICATIONS

Failure of bacillary elimination may be attributable to any of the following complications: (1) chronic pyelonephritis of long standing, with advanced cicatricial changes in the renal pelvis, calices and ureter; (2) residual urine in any portion of the urinary tract; in many of these cases, however, the reduction in the degree of infection is frequently remarkable; (3) chronic prostatitis which reinfects the prostatic urethra and bladder; (4) lithiasis or tumor in any portion of the urinary tract; (5) foreign bodies, such as tubes, catheters, drains, incrustations or remnants of tissue, in the urinary tract, and (6) the occasional impossibility of lowering the  $p_H$  to 5.5 by any known means.

The following clinical symptoms are sometimes noted as the result of mandelic therapy:

1. *Nausea*.—This occurs in a small number of cases with administration of all preparations of mandelic acid, and, if present, it is advisable to reduce the dosage and then gradually increase it as the patient becomes accustomed to the drug. In some cases it is advisable to change to other preparations. The nausea is not nearly as great, however, as is that noted with the ketogenic diet, and in the former case the nausea is much more easily controlled.

2. *Diarrhea*.—Diarrhea is occasionally observed but is seldom of any consequence.

3. *Renal Irritation*.—It has been claimed that mandelic acid acts as a renal irritant, although this has not been definitely proved. Casts are often observed in the urine, but they are usually hyaline casts and are moderate in number. Helmholtz and Osterberg found a

temporary increase in the value for blood urea following intravenous injection of mandelic acid in dogs, but the value returned to normal after a few days. However, no clinical evidence of renal insufficiency resulting from administration of the drug has been observed in cases with primary normal renal function. In the presence of primary renal insufficiency the drug will not, as a rule, be efficacious because of inability on the part of the kidneys to excrete mandelic acid in sufficient concentration to be bactericidal. It may, however, cause a definite increase in the value for the blood urea in such cases.

4. *Hematuria*.—In a large series of cases of bacilluria in which mandelic acid therapy was instituted, microscopic hematuria which might have been the result of the therapy was observed in very few cases, and gross hematuria was observed in only one case. The use of mandelic acid, as in the case of any acid which is not metabolized, requires care so far as acidic substances are renal irritants.<sup>1</sup>

#### CONCLUSION

It would appear that the oral administration of mandelic acid is followed by elimination of bacillary infection in the urinary tract in a large percentage of uncomplicated cases. There is no clinical evidence to indicate that it is a severe renal irritant in the presence of a normal renal function, provided it is not continued longer than two weeks. Its use is contraindicated when there is evidence of renal insufficiency because of the possibility of causing renal irritation and since it is usually not excreted in sufficient concentration to be bactericidal.

#### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS FORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**CHAPPEL LIVER EXTRACT CONCENTRATED (INTRAMUSCULAR).**—A sterile aqueous solution, containing the nitrogenous, nonprotein fraction G of Cohn et al. obtained from fresh mammalian liver, preserved with phenol 0.5 per cent. The daily parenteral administration of 1.25 cc. has been found to produce the standard reticulocyte response as defined by the Council when assayed in cases of pernicious anemia.

*Actions and Uses.*—Chappel liver extract concentrated (intramuscular) is proposed for intramuscular injection in the treatment of pernicious anemia. See liver and Stomach Preparations, N. N. R., 1936, p. 271.

*Dosage.*—During relapse, the usual dosage is 3.3 cc., the contents of one vial, injected intramuscularly at seven to ten day intervals; the maintenance dose is 3.3 cc. at intervals of from three to six weeks.

Manufactured by Chappel Bros., Inc., Rockford, Ill. No U. S. patent or trademark.

*Vials Chappel Liver Extract Concentrated (Intramuscular), 3.3 cc.*

To prepare Chappel liver extract concentrated (intramuscular), finely ground equine livers are extracted several times with water. After precipitation of the proteins by heat, the liquid is concentrated in vacuo at low temperature, alcohol added to bring the alcoholic strength to 40 per cent, the precipitate filtered out, and the filtrate again evaporated. Sufficient absolute alcohol is then added to bring the alcoholic strength of the liquid up to 90 per cent. The precipitate is then dissolved in water and the reaction of the solution adjusted to pH 6.4. Phenol 0.5 per cent is added as preservative and the solution is then filtered, filled into vials and sterilized by heat.

1. Helmholtz, H. F., and Osterberg, A. E.: Rate of Excretion and Bactericidal Power of Mandelic Acid in the Urine, J. A. M. A. 107: 1794 (Nov. 28) 1936. Carroll, Grayson; Lewis, Bransford, and Kappel, Louis: Mandelic Acid as a Urinary Antiseptic, *ibid.*, p. 1796. Cook, E. N., and Buchtel, H. A.: Mandelic Acid in the Treatment of Infections of the Urinary Tract, *ibid.*, p. 1799. Dolan, L. P.: Experiences with Ammonium Mandelate in Urinary Infections, *ibid.*, p. 1800.

a full appreciation of the relativity of truth, especially in the biologic sciences, it is essential that the student have a comprehensive grasp of those facts which at the moment are as true as current methods permit. They constitute the background of his professional activities. The examination should decide whether or not the student has the facts sufficiently in hand to use them logically and with discrimination. This is to be emphasized particularly in the laboratory fields, where there is some danger that mental habit grooves may be established which will interfere with that capacity for the utilization of facts and ability to meet new situations necessary to success in the clinical fields. The wrong "mental set" may be encouraged by these earlier examinations. They should stimulate the right mental attitude toward facts, their appraisal, weighting, discriminating use and in every possible way encourage relational thinking. The examination should be so set that the candidate of superior attainment can be distinguished from his less talented fellows. This point of view has already been discussed in the consideration of incentives and rewards. The natural conclusion is that if a student is worthy of honors he should have them, and that his opportunity for earning them should be provided by the examiner. In a word, the examination, of whatever form, should determine factual knowledge, ability to use it, and the bestowal of honors.

#### OUTSIDE EXAMINERS

The employment of "outside" examiners, as practiced in other countries and to a limited extent in this country, is worthy of extension. Jones observes that it broadens the horizon of both teachers and students, promotes the point of view of the outer world, stimulates the students' breadth and independence of thinking, develops intellectual cooperation between instructors and pupils, and tends to raise standards in the colleges. There is little doubt that the National Board of Medical Examiners has exercised these influences and it is probable that certain of the state boards have also been effective. To paraphrase MacNider, it should be recognized that the examination may so reflect the ideals of the thoughtful examiner as to have a beneficial influence on the teaching of his subject in his own and other schools. It would be well if course examinations and the periodic comprehensive examinations in the medical schools were conducted in this manner and it is to be hoped that it may become economically and academically feasible. The Yale plan of having the laboratory comprehensive examination conducted by the clinical staff is valuable, but it is not really an outside examination because of the close association of the staffs of the two groups in a medical school. It does not meet the need for outside examiners at the end of the clinical years. Other substitutes for outside examiners are less satisfactory. It has been suggested that, when several schools are in proximity, an exchange of examiners, who would be truly external examiners, might prove to be practicable. This function is being capably performed by the National Board in several schools.

#### THE QUESTIONS

The good question, whether posed by inside or by outside examiners, should collectively cover information, skills and technics, and capacity for thought and expression. Referring to Jones again, it should be of the right degree of difficulty, should be pertinent to important phases of the subject, should challenge and stimulate the candidate, and should invite original

thought. It should consider adequate sampling of knowledge and should permit ample time for thought and expression, whether oral or written.

The examiner must set his questions with the most scrupulous care as to both the nature and the phrasing of the questions. Clarity is essential. Fairness is imperative. "Trick" questions are inexcusable. Hobbies must be avoided. Questions not germane to the field covered serve to confuse the candidate. The purpose of the examination is to determine professional qualifications, and any departure from that principle avoids the main issue. It is suggested in passing that, while questions on the history of the subject may give a clue to the cultural attainment of the student, they are of no value in estimating his scientific equipment. The examiner must be especially precise in his use of the words discuss, explain, outline, name and define. They all are explicit directions to the candidate and should be considered as such in grading the answers. Technical terms are employed for the sake of brevity, but they should be limited to what might properly be considered as within the student's province at the particular period of his career. The protest against the use of proper names in technical terms is a fetish that can be much overworked. Judgment must be exercised as to what terms may properly be employed, based on the student's presumed familiarity with them. It is ridiculous to direct a student to "read all questions carefully" unless they are written carefully.

#### THE EXAMINEE

The candidate has his own part to play in the success of the examination. He must not regard the examiner "as a deadly foe, whose very worst is to be expected," but rather as a more or less abstract figure whose sole interest is to determine without prejudice the student's fitness to pass. As is usual and proper, the examination has a time limit. The written examination should have a spatial limit. Proper familiarity with the subject or subjects should enable the student to give his answers within the prescribed limits of time and space. If the student is given the liberty of a selection of the questions he is to answer, he should choose those to which he can give the best answers as distinguished from those about which he thinks he knows most. In other words, he should study the nature of the directions, because, for example, he may be able to explain something better than he can discuss something else, even though he is more familiar with the topic covered by the latter. After the selection, the student would do well to allocate the time available into appropriate periods for each question. This allocation is to be determined by the time required for thinking over, organizing and writing each answer rather than by allotment of the same amount of time for each. He must do the same for space if that also is limited. He is forced to assume that the questions are carefully worded, even although at times this may strain his credulity. If he is directed to discuss a subject, the discussion should follow a clear plan of definition, nature, causes, effects, manifestations, treatment or prevention such as the problem may require. If he is directed to define, he is not required to, and indeed should not, discuss. If directed to give a brief answer, it should not be a diffuse answer. He should expect the examiner to grade him on the exact requirements of the question, and the examiner who does not do so is derelict in his duty. All too often the student interprets such directions as discuss, outline or define to

# HOSPITAL SERVICE IN THE UNITED STATES

SIXTEENTH ANNUAL PRESENTATION OF HOSPITAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

1. Report on Annual Census of Hospitals. 2. Comment on Internship. 3. Approved Schools for Technicians. 4. Hospital Medical Library Suggestions. 5. List of Registered Hospitals.

The largest number of beds in hospitals, and the largest number of patients admitted—as well as the greatest average census in hospitals—were among the all-time records established by the Annual Census of Hospitals just completed by the Council on Medical Education and Hospitals of the American Medical Association.

The admissions numbered 8,646,885, being 929,731 more than the preceding year.

The number of babies born in hospitals reached 831,500, an excess of 69,152 over the preceding year.

The number of beds, not including bassinets, has mounted to 1,096,721, as compared with the previous year's 1,075,139.

1936, a drop of 11,424. General hospitals had 144,880 empty beds in 1935 and 130,947 in 1936.

The facts cited are significant evidence of the increasing use of hospitals as centers of medical practice.

## A RECORD RESPONSE

Credit for the completeness of the census, making such a mass of useful facts available in so short a time, is due, in a large part, to the persons in charge of hospitals who, by their understanding and cooperation, rendered such prompt and carefully prepared returns.

The total number of registered hospitals now is 6,189, and the Council's special census questionnaire was answered by 5,989 of these, a record of 97 per cent. In this also the hospitals exceeded their own fine records of previous years.

## OVERCROWDING IN STATE MENTAL HOSPITALS

AS SHOWN BY EXCESS OF AVERAGE DAILY CENSUS OVER RATED CAPACITY

Number of institutions with no excess of daily census over rated capacity.....	93
Number of institutions with less than 15% excess.....	61
Number of institutions with 15-30% excess.....	46
Number of institutions with 30-50% excess.....	24
Number of institutions over 50% excess.....	4
Number of institutions not reporting both rated capacity and daily average census	19
Total.....	247

In some of the better institutions a daily census which does not exceed the rated capacity by more than 15 per cent may not be serious, but there are evidently 74 institutions (4 + 24 + 46) in which the patients exceed the capacity by more than 15 per cent. Conditions with reference to overcrowding are shown by states and by individual hospitals in later parts of this article.

There are 4,384 hospitals that have their own laboratories, and x-ray departments were reported by 4,733 hospitals.

There was a net increase of 21,582 beds over last year's census, this being the twenty-seventh year in which a similar increase has taken place.

Using the population estimated as of July 1, 1936, by the United States Bureau of the Census, one person in fifteen became a hospital bed patient during the year.

The 4,207 general hospitals admitted 7,755,848 patients, or 89.69 per cent of the 8,646,885 patients admitted to all hospitals. The total patient days in general hospitals was 99,426,828, or 29.9 per cent of 332,516,856 patient days in all hospitals.

The average length of stay per patient in general hospitals was 13 days.

In the foregoing paragraphs and throughout this article the figures for "patients admitted" and "average daily census of patients" are exclusive of new-born infants and do not include outpatients.

The average number of empty beds in 1935 was 199,629 for all hospitals, as compared with 188,205 in

All but two of the 939 hospitals that are approved for internships and residencies answered the questionnaire. The figures that they supplied were for the calendar year 1936. All other hospitals supplied figures for a period ended Sept. 30, 1936, or their latest fiscal year. Present conditions do not permit of exactly the same fiscal year for all hospitals. The present census, however, covers very nearly the calendar year 1936.

The 200 hospitals that did not respond to this census are nearly all small institutions, so that the response based on number of beds would amount to better than 99.5 per cent. Even those that did not respond in this census had for the most part submitted data within a few months previously. The first complete census was taken in 1909, twenty-seven years ago. The census has been made annually by the Council since 1920.

## GROWTH OF HOSPITALS

For indication of trends in the hospital field, special reference is made to tables 1 and 2, which present a summary of the entire census for the year 1936, classifying hospitals first as to ownership or control and

mean "tell all you know about." This is a degradation of the examination and should be so interpreted by the examiner. It is an imposition on the time and good nature of an examiner to expect him to peruse a large volume of material, more or less illegible, in order to glean a few statements directed to the point under consideration. The just examiner grades on the basis of specific answers to specific questions rather than on the basis of the number of words employed. He cannot be blamed if he becomes impatient at diffusion and indirection. He is often possessed of a sense of humor, but it is likely to be sadly warped by attempts to evade an issue. The student also may boast of his humor, but an examination paper is a poor place for its exhibition.<sup>4</sup> The examination of medical students is deeply serious, for it is one of the critical items in the preparation of students for graduation, for the maintenance of the good name of a school and for the protection of the public.

As Murrell puts it, "to the discerning eye nothing is more fascinating than the way in which the mind advances from weakness to power, from vagueness to precision, from halting clumsiness to refined accuracy, from the limited to the embracing point of view." To the teacher in the medical school there is the added pleasure of witnessing advancing earnestness of work, improving deftness of technic, growing objectivity in the study of disease, increasing gentleness at the bedside, expanding sympathy with human frailty and enlarging appreciation of the nobility of a career of service. One of the teacher's great joys is to be found when, during and at the end of the medical school apprenticeship, the student passes an examination with credit to his instruction and satisfaction to himself.

#### EPICRISIS

A thoughtful consideration of examinations has led to the formulation of an opinion that they should constitute an integral part of a well planned program of instruction; that the comprehensive examination offers the advantages of deferred review, the covering of marginal fields and the determination of relational thinking; that the decision as to types of examination shall be reached only after careful survey of all the forms; that the examiner has serious duties in posing questions, in grading and in determination of the relative weight of written and oral examinations, and that the examinee must appreciate the importance and significance of the examination in his professional career. Education is favored by acceptance of examinations as a major function of the teaching staff.

4. Stephen Leacock intimates that the candidate can take it for granted that the examiner is a conceited, pedantic person, and that "much can be done by sheer illegibility of handwriting, by smearing ink all over the paper and then crumpling it up into a ball." Examiners in the medical schools have it within their power to annihilate this attractive (or, in the mode of the day, intriguing) hypothesis.

**An Attribute One Cannot Estimate.**—Devotion is an attribute one cannot estimate and record by ordinary standards. How much the practicing doctor cares about his patients as individuals apart from their being the source of his livelihood; how much the medical scientist may be interested in promoting science rather than in securing his own promotion; how much the teacher influences his pupils to their best efforts, unmindful of what the curriculum briefly requires of him; how much the student engages in his work for the work's sake, regardless of his marks and rating—all these things depend on a devotion which places spiritual above material rewards.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

## THE MEDICAL SCHOOL SURVEY

HERMAN G. WEISKOTTEN, M.D.  
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SYRACUSE, N. Y.

My first public utterance in connection with the survey of the medical colleges of this country cannot be other than a tribute to the thousands of practitioners of medicine who, without any financial remuneration, are contributing so unselfishly of their time and effort to the cause of medical education. Even in instances in which the facilities and end results leave much to be desired, the spirit and the contributions of this group are none the less commendable. I know of no group, professional or otherwise, which is making a similar contribution in the field of education. At the same time I wish to express to the deans and faculty members of the medical colleges of the country my sincere appreciation of their cordial cooperation in the conduct of the survey.

I have been asked to present at this time some of my observations and immediate reactions to the survey. At the same time an opportunity is afforded to present some of the problems in the development of medical education which our study has thrown into relief.

#### PROCEDURE

In order that the basis for these observations and reactions may be better appreciated, I intend to outline briefly the technic followed in the conduct of the survey.

This enterprise was initiated and conducted by the Council on Medical Education and Hospitals of the American Medical Association with the cooperation of the Association of American Medical Colleges and the Federation of State Boards of Medical Examiners. It involved a study of all the medical colleges in the United States on the Council's list of approved medical colleges or in membership in the Association of American Medical Colleges and such others as would consent to being included. On their invitation, all the medical schools of Canada were included in the survey.

Some time before each college was visited, a set of questionnaires was sent to the dean with a request that they be filled out and returned to the office of the Council before the time of the visit. The set of questionnaires included the following:

A questionnaire on the organization and administration of the school, to be filled out by the dean.

A questionnaire requesting information with regard to clinical facilities and hospital relationships.

A questionnaire for each department in the school, including the library. These questionnaires called for information on departmental organization, staff, facilities, hours in the curriculum, methods of conducting courses, research, relationships with other departments, and budget. They also sought suggestions with respect to course content, teaching methods, and the place of the subject in the curriculum.

There was also provided a separate personal questionnaire for every member of the faculty of the rank of assistant professor and above. This called for an outline of training and experience, scientific society memberships, participation in scientific society programs, publications, proportion of time devoted to teaching and research, and participation in community programs related to the field of medicine.

Read before the Thirty-Third Annual Congress on Medical Education and Licensure, Chicago, Feb. 15, 1937.



second as to the type of service rendered. Summaries for each preceding year back to 1927 are given at the bottom of the tables, affording ready comparison.

A glance at the foot of table 2 shows that the number of hospitals decreased the past year from 6,246 to 6,189. Bassinets increased from 53,310 to 54,225. The average census increased in the same time from 875,510 to 908,516.

There was a decline in the number of general, nervous and mental, industrial, eye, ear, nose and throat, isolation and convalescent and rest hospitals. The only types of hospitals that increased in number were those for tuberculosis, maternity, children, orthopedic, and the hospital departments of institutions.

All groups of hospitals, as to type of service, have increased in patients admitted and average census, with the exception of industrial and convalescent and rest which have decreased in average census, and isolation hospitals which have decreased in the number of patients admitted as well as the average daily census. Maternity hospitals, children's and hospital departments of institutions increased in beds, bassinets, number of patients and average census.

The total patient days in all hospitals was 332,516,856. This is obtained by multiplying the average census of hospitals by 366, the number of days in the year.

This means that patients came to hospitals at the rate of sixteen for every minute in the year, including Sundays, holidays, day and night.

Growth of hospital facilities for the last twenty-seven years has been at an average of 25,024 beds a year. This is the equivalent of a net increase of 68 beds for every day in the twenty-seven years.

Summary of Growth of Hospitals, 1909 to 1936

	Federal Hospitals		State Hospitals		All other Hospitals		Total	
	Num-ber	Capa-city	Num-ber	Capa-city	Num-ber	Capa-city	Num-ber	Capa-city
1909...	71	8,827	232	189,040	4,056	223,180	4,359	421,063
1914...	93	12,602	201	232,834	4,650	287,045	5,037	532,481
1918...	110	18,815	303	262,254	4,910	331,182	5,323	612,251
1923...	220	53,869	601	302,208	6,009	369,645	6,830	755,722
1928...	294	61,765	695	360,730	5,963	461,410	6,852	892,934
1931...	301	60,170	576	410,252	5,746	485,663	6,613	974,115
1932...	301	74,151	568	442,601	5,693	497,602	6,562	1,014,354
1933...	295	75,635	537	459,646	5,585	491,765	6,437	1,027,046
1934...	313	77,865	544	473,035	5,477	497,201	6,334	1,048,101
1935...	316	83,353	526	483,994	5,404	507,792	6,216	1,075,139
1936...	323	84,234	524	509,306	5,342	509,181	6,189	1,096,721

The 6,189 registered hospitals may be thought of in two main groups: first, the registered hospitals and sanatoriums that are approved for the training of interns and resident physicians, and the second, hospitals, sanatoriums and related institutions registered but not so approved. The following table explains this grouping and gives the basic figures as to capacity and patients admitted in each group:

	Number	Beds	Bassinets	Patients Admitted in 1936
1. Registered hospitals and sanatoriums approved for training interns and residents .....	939	369,478	24,112	4,596,453
2. Other hospitals, sanatoriums and related institutions, registered .....	5,250	727,243	30,113	4,050,432
Total registered .....	6,189	1,096,721	54,225	8,646,885
3. Refused registration after investigation .....	581	17,193	1,873	

The hospitals approved for internships and residents cared for more than half of the patients admitted to all hospitals in the year 1936. Thus for the first time more than half the patients in the hospitals of the country were in hospitals approved for the formal education of physicians.

Of the 5,250 hospitals, sanatoriums and related institutions registered but not approved, approximately 1,638 are approved as meeting the minimum standards of the American College of Surgeons. The College, of course, approves practically all those that the Council approves.

Births in Hospitals

	1929	1935	1936
According to Ownership or Control:			
Federal.....	2,396	6,027	6,520
State.....	9,125	17,492	19,360
County.....	17,527	41,011	42,632
City.....	45,787	69,514	74,149
City-County.....	8,806	11,644	9,520
Total governmental.....	83,541	145,688	151,561
Church.....	209,736	236,637	265,901
Fraternal.....	1,730	1,636	1,422
Associations and restricted corporations .....	.....	286,805	324,894
Industrial.....	4,327	.....	.....
Independent associations.....	283,136	.....	.....
Total nonprofit.....	.....	525,078	592,217
Individual and partnership.....	39,436	36,777	39,897
Corporations (unrestricted as to profit) .....	.....	54,805	47,805
Total proprietary.....	.....	91,582	87,702
Total nongovernmental.....	535,855	616,660	679,919
According to type of Service:			
General.....	566,177	725,153	783,853
Maternity.....	53,019	35,784	41,510
Children's.....	862	724	1,161
Hospital departments of institutions.....	277	501	1,300
All other hospitals.....	1,361	386	616
Total births in all hospitals.....	621,896	762,348	831,500

for intern training and residencies. Standards used by the College and the Council are similar in many respects, one essential difference being the Council's emphasis on the educational program for the internship, or fifth year in medicine, and for residencies in specialties. There still remain 3,612 registered hospitals that, so far as we can learn, meet the requirements for registration but which have not as yet been brought up to the standards either for the training of interns or resident physicians or for meeting the minimum requirements of the College.

There is, therefore, much work to be done in the further improvement of hospitals that are registered.

In addition to the foregoing there are 581 hospitals that, after investigation, have been refused registration.

Further still, there are certain types of small institutions, first aid and emergency stations, makeshift places of small capacity, nondescript and emergency services, to the number of 1,989, which, of course, have not been considered for registration as hospitals.

#### HOSPITALS ACCORDING TO CONTROL OR OWNERSHIP

Hospitals may be classified according to control or ownership into three major groups corresponding with the sections of table 1:

- A. Governmental
- B. Nonprofit Organizations
- C. Proprietary

Government hospitals include those run by the federal, state, county, and city governments. The total number of governmental hospitals is exactly the same as one year ago, 1,724, but there has been a rather large increase both in the capacity and in the occupancy of the governmental group. The federal hospitals, for example, increased from 316 to 323 and show a considerable growth in the number of beds, bassinets, patients admitted and average census.

The questionnaires were usually not examined before the school was visited. This was thought to be the more reasonable procedure, enabling those visiting the school to get a more objective picture of it, uninfluenced by any statements included in the questionnaires. However, all the questionnaires were carefully studied before an evaluation of the school was made and before a report on the visit was made to the school.

In visiting the school I was in each instance accompanied by a representative of the Association of American Medical Colleges, of the Federation of State Boards of Medical Examiners or of the Council on Medical Education and Hospitals of the American Medical Association.

Three days was spent at each school. The procedure was as follows: From one to three hours was devoted to an interview with the dean of the school. During this time the visitors endeavored to reach a fair understanding of the organization and conduct of the school, its policies of admission and promotion, its affiliations and relationships to other schools and departments of the university, its clinical facilities, and its programs for development. The dean was also requested to furnish a financial statement on a form provided by the Council.

Following the interview with the dean, approximately one hour was devoted to an interview with the head of each of the major departments of the school. An attempt was made to get a clear picture of the departmental organization, the curriculum as related to the department, the course content, methods of teaching, relationships to other departments, and additional responsibilities of the department and its staff. The department quarters and equipment were seen at the completion of the interview.

Wherever possible, the departments were visited in the order of their sequence in the curriculum so that the visitors during the three days might "take the curriculum" by progressively building up a picture of the courses as offered with all their correlations and implications.

Although questionnaires were filled out by the heads of all departments, as a rule the activities of the specialty departments were not covered in any detail at the time the schools were visited except so far as phases of the specialties were included in the teaching of the major subjects. There were several reasons for this. In the first place, the program called for covering all the schools within a period of two years. There is also a question in the minds of many medical educators as to how much of the specialties should be included in the undergraduate curriculum. Further, several of the national specialty groups have made rather comprehensive studies of the teaching of their specialties in the medical schools of the country.

During all the interviews I made careful and detailed memoranda. Based on these memoranda, rather full detailed notes of the day's visits were dictated every evening.

At the end of the third day my covisitor and I conferred and dictated a summary and impressions. These became a part of the detailed notes on the visit and were signed by both.

Sometime during the visit the president of the university and, in certain instances, members of the board of trustees were interviewed. These interviews dealt with the attitude of the university toward the medical school and medical education, the possibilities of continued or more adequate support, programs for develop-

ments, and any situations that might affect the present or future status of the school.

All data dealing with the survey, including the questionnaires, the notes on the visits and, in many instances, laboratory outlines and other literature dealing with the conduct of courses were filed in the office of the Council on Medical Education and Hospitals.

Subsequent to the visits to the schools, there were prepared abstract reports on some of the schools. These were based on a study of the questionnaires, the notes dictated at the time the schools were visited, the official publications of the schools, and the financial statements submitted by the deans. These abstract reports were submitted to the members of the Council on Medical Education and Hospitals, after which they were sent to the respective schools. Up to the present time about forty such reports have been prepared and sent out.

#### PERSONAL REACTIONS

Comprehensive as our procedure in the conduct of the survey may appear, it was recognized from the very beginning that it left much to be desired. Certainly three days is inadequate time in which to learn all about any school. However, certain fundamental facts could be definitely determined.

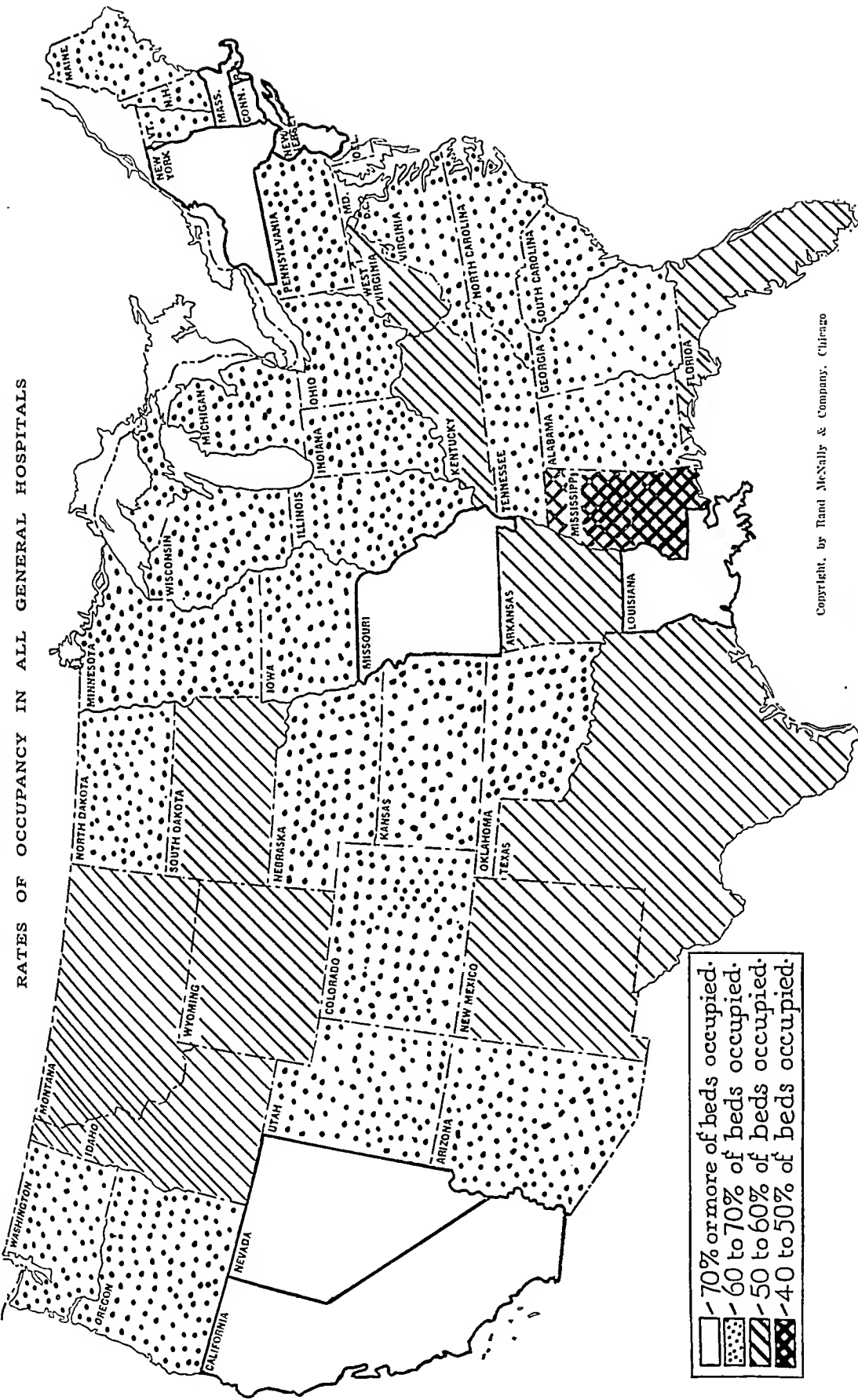
In the brief time available, I can hope to do no more than give a sketchy outline of my personal reactions to the survey.

My first reaction was, I am sure, a perfectly normal one. The more experience I had in studying the details of medical education, the less I knew about them. During the early part of the survey a mass of complicated, apparently uncorrelated details seemed to present a rather confusing picture. However, as the survey progressed there began to evolve certain fundamental principles which were recognized as essential to a satisfactory undergraduate course in medicine. In fact, I believe that these fundamental principles are in no way peculiar to medical education.

It is some of these fundamentals which I wish to discuss briefly. At one of these meetings a few years ago, Dr. Alan Gregg made the statement that a university is an aggregation of scholars. This suggests the dominant importance of the faculty in organized education. The recognition of scholars and the evaluation of faculty members is not always easy. However, realizing all the difficulties involved, it would appear that in many instances far too little attention has been given to the selection of the faculty. It is safe to assume that a teacher should have some special preparation and that an individual who has had no such training or experience in a subject is not competent to teach it.

The use of student assistants as responsible teachers presents many problems. In certain instances such student assistants who have only just completed a course are assuming major teaching responsibilities in connection with it. Some of these student assistants are carrying a full schedule of school work. Others are on a part-time basis, and others have discontinued their medical college course for a year to become student assistants and earn a master's degree. Regardless of the value of such student assistantships to the student assistants, one may well question the justification of using these students to supplement entirely inadequate department staffs. Under such circumstances it usually develops that both students and student assistants receive inadequate supervision and guidance in their work.

RATES OF OCCUPANCY IN ALL GENERAL HOSPITALS



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Occupancy in General Hospitals

The percentages of beds occupied in general hospitals during the year 1936, by states, were as follows:

Alabama.....	64.6	Delaware.....	66.9
Arizona.....	65.3	District of Columbia.....	80.1
Arkansas.....	72.5	Florida.....	58.0
California.....	70.4	Georgia.....	61.6
Colorado.....	61.3	Idaho.....	59.7
Connecticut.....	71.3	Illinois.....	63.9
Delaware.....	66.9	Indiana.....	63.5
		Iowa.....	61.3
		Kansas.....	60.0
		Kentucky.....	55.3
		Louisiana.....	91.3
		Maine.....	66.9
		Maryland.....	71.7
		Massachusetts.....	73.1
		Michigan.....	69.4
		Minnesota.....	68.3
		Mississippi.....	45.4
		Missouri.....	70.9
		Montana.....	63.7
		Nebraska.....	63.6
		Nevada.....	73.1
		New Hampshire.....	62.5
		New Jersey.....	71.4
		New Mexico.....	59.3
		New York.....	75.0
		North Carolina.....	64.3
		North Dakota.....	66.5
		Ohio.....	67.0
		Oklahoma.....	62.3
		Oregon.....	69.7
		Pennsylvania.....	68.0
		Rhode Island.....	74.8
		South Carolina.....	66.9
		South Dakota.....	68.4
		Tennessee.....	64.1
		Texas.....	65.7
		Utah.....	64.6
		Vermont.....	64.2
		Virginia.....	61.7
		Washington.....	65.5
		West Virginia.....	62.1
		Wisconsin.....	65.9
		Wyoming.....	59.0

Degrees are frequently used in the evaluation of university faculties. However, one finds, for example, a faculty member who has earned, or at least received, an A.B., a Ph.D. and an M.D. degree within a period of four years and has served as an instructor during three of these years. At the same time the medical school granting the M.D. degree is one requiring the fifth or intern year. Such situations make one place little weight on degrees alone. The mere fact that a man has acquired an advanced degree in anatomy, physiology or any other subject by no means makes him an acceptable or competent teacher in a medical school.

It is apparently true that at the present time there is a shortage of well trained, competent teachers, especially in the preclinical departments. The opportunities offered in connection with full-time positions in the clinical departments have apparently proved to be more attractive to medical graduates trained in chemistry, physiology, bacteriology or pathology than have similar positions in the preclinical departments. It is of the greatest importance to see to it that satisfactory and attractive opportunities are offered for careers in all departments of the medical schools if this situation is to be improved.

Another fundamental principle involves a clear recognition of the objectives to be attained in connection with the undergraduate course. Certainly the published statement of objectives in a catalogue is no guaranty of a school's excellence or of the attainment of the objectives published.

The objectives of different schools may, and perhaps should, vary in certain respects, but all should include such basic training as is essential to all fields of medicine. This basic training is usually recognized to include the acquiring of a knowledge of the fundamentals of the medical sciences, the acquiring and understanding of certain fundamental technics, the development of initiative and the development of a scientific point of view and of proper methods of work. Only with such a foundation is a student prepared to continue his education after graduation as is essential to a successful career in medicine.

Each department in the school must appreciate the part it must play in the attainment of these objectives, and the entire undergraduate curriculum should be a coordinated whole directed toward these ends.

The continued visualization of objectives and the conduct of a well coordinated program directed toward their attainment requires frequent departmental, inter-departmental and faculty meetings. It is my impression that the schools which have the greatest need for such meetings are those in which the fewest are held. Through lack of such meetings a school frequently fails to profit by the presence on its faculty of one or more outstanding educators who are never given an opportunity to influence the curriculum as a whole or even to become familiar with the work of departments other than their own.

As a result of lack of serious consideration of objectives, the curriculum is frequently set up to provide for so many hours of this or that subject to meet either stated requirements or recognized trends. The "willy-nilly" inclusion of a stated number of hours of psychiatry or so many hours of public health and preventive medicine contributes little, if any, to the training of the student.

Too many of the courses in some of our medical schools are still merely stereotyped textbook and

laboratory courses attempting to cover an impossible amount of material and contributing little or nothing to the intellectual development of the student. Kaleidoscopic superficial impressions are a detriment rather than a help in the development of a mind.

It would also appear to be important that there be a clearer understanding as to what should be involved in connection with certain recognized features of the undergraduate program. The mere designation of an element of the curriculum by a new and perhaps popular name means no advancement in development. There certainly is no magic in words. For example, every type of examination imaginable may masquerade under the popular designation "comprehensive examination." Similarly so-called clinical clerkships may involve merely ward walks and clinics or actual responsibility for the complete work-up of cases and the close following of their progress.

Too many of the preclinical courses are merely a mimicry of nonmedical university courses inflicted on the medical students by teachers whose sole experience has been a graduate course in a single subject which has been almost devoid of any of its medical implications. I do not for one moment wish to minimize the importance of pure science, but our undergraduate program calls primarily for the development of practitioners of medicine and involves the preparation of the student for his introduction to clinical medicine in his second or third year. Then, too, many of the fundamental principles of the medical sciences can be as well, if not better, taught in connection with human phenomena. Furthermore, the early appreciation of the medical implications of these principles as well as the early application of the various technics as applied to clinical medicine detract in no way from the scientific value of these courses. On the other hand they tend to emphasize a purposefulness which is stimulating to the student.

A few years ago we heard much of university departments in the field of medical education. Today it would appear that, at least in many instances, medical education is in conflict with efforts to diffuse the services of a department throughout a university. When such a university department staff is at one time responsible for teaching from seven hundred to more than a thousand students from several different divisions of the university, one wonders whether it is possible for the staff to give the desired amount of interest and attention to the developing of its medical students. Especially is this true when the medical students are taught in the same sections with students from other colleges of the university.

The undergraduate curriculum should be adapted to the fundamental and specific objectives of the particular school and will vary more or less according to these objectives. Unwarranted attempts at mimicry in curriculum layout have served as a definite handicap to the development of certain schools. The details of the curriculum programs must vary, depending on available faculty, physical and clinical facilities, and other local factors.

Further, it is important that in every school the curriculum should be planned for its average student. At the same time it should offer additional opportunities for the better students. This is a principle which is fortunately becoming rather generally recognized in the field of higher education.

At this point I would stress the importance of the curriculum providing opportunity for an intimate

State hospitals lost two as to number but increased in bed capacity, number of patients admitted and the average census.

County hospitals dropped from 490 to 484. There was a decrease in the number of beds and in the aver-

*Totals According to Type of Service, 1936*  
Condensed from Table 2

	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Patient Days
General.....	4,207	402,605	49,604	7,755,848	271,658	99,426,828
Nervous and mental...	584	548,932	109	184,936	524,998	193,147,438
Tuberculosis.....	506	73,692	36	99,234	63,266	23,155,856
Maternity.....	125	6,402	3,846	67,025	4,065	1,487,790
Industrial.....	44	3,159	10	41,862	1,536	562,176
Eye, ear, nose and throat.....	43	2,118	32	99,273	1,113	407,358
Children's.....	52	5,279	150	89,916	3,422	1,252,452
Orthopedic.....	71	6,333	10	30,499	5,127	1,876,482
Isolation.....	61	6,896	84	37,053	2,886	1,056,276
Convalescent and rest.....	130	6,059	33	32,504	4,191	1,333,906
Hospital departments of institutions.....	282	25,213	299	167,227	17,831	6,526,146
All other hospitals.....	84	10,033	17	30,608	8,428	3,084,648
<b>Totals.....</b>	<b>6,189</b>	<b>1,096,721</b>	<b>54,225</b>	<b>8,646,885</b>	<b>908,516</b>	<b>322,516,856</b>

age census of patients in county hospitals, but a slight increase in the number of patients admitted, indicating a shorter average length of stay.

City hospitals show an increase over last year as to number, beds, bassinets, patients admitted and average occupancy.

Hospitals run jointly by city and county continued their decrease in number of beds, bassinets, patients admitted and average census.

*Unoccupied Beds in Hospitals*

	1929	1935	1936
<b>According to Ownership or Control:</b>			
Federal.....	13,868	18,558	15,482
State.....	21,664	21,824	24,528
County.....	12,625	11,624	11,264
City.....	14,688	12,571	13,442
City-county.....	2,507	2,114	2,289
<b>Total governmental.....</b>	<b>65,652</b>	<b>66,791</b>	<b>67,005</b>
Church.....	37,785	43,676	39,251
	1,056	1,740	1,593
		55,472	53,461
Industrial.....	3,107		
Independent associations.....	54,794		
<b>Total nonprofit.....</b>	<b>.....</b>	<b>100,888</b>	<b>94,327</b>
Individual and partnership.....	17,373	15,701	14,824
Corporations (unrestricted as to profit).....	.....	16,249	12,049
<b>Total proprietary.....</b>	<b>.....</b>	<b>31,950</b>	<b>26,873</b>
<b>Total nongovernmental.....</b>	<b>114,715</b>	<b>132,838</b>	<b>121,200</b>
<b>According to Type of Service:</b>			
General.....	123,025	144,880	130,047
Nervous and mental.....	18,979	22,042	23,039
	10,603	9,635	10,426
	2,022	2,559	2,337
	3,180	1,845	1,623
	1,883	1,174	1,005
Children's.....	1,857	1,759	1,857
Orthopedic.....	1,175	1,354	1,206
Isolation.....	4,745	4,083	4,010
Convalescent and rest.....	1,686	1,796	1,848
Hospital departments of institutions.....	9,148	6,934	7,352
All other hospitals.....	2,364	1,558	1,605
<b>Total unoccupied beds—all hospitals....</b>	<b>180,367</b>	<b>199,629</b>	<b>188,205</b>

#### NONPROFIT ORGANIZATIONS

This large and important group, responsible for a majority of the general hospitals, now numbers 2,711 hospitals as compared with 2,640 a year ago. The number of beds has increased from 268,568 to 275,874. Bassinets have also increased. The number of patients admitted has come up from 4,477,515 to 5,258,772. The average census has increased from 167,680 to 181,547.

The number of church hospitals, and their capacity in beds and bassinets, has remained practically stationary for the year, but they have enjoyed an increase in patients admitted from 1,950,308 to 2,286,064. The average census of church hospitals has increased from 69,592 to 74,037.

Fraternal hospitals have continued their downward slide from 69 to 64 in number and a corresponding marked decrease in all other figures relating to capacity and occupancy.

The independent nonprofit corporations and associations are those concerns that have been organized for the express purpose of operating hospitals. They have to their credit a very substantial increase in capacity and occupancy during the past year, having grown in number from 1,601 to 1,678. The capacity has increased from 149,940 beds to 157,650 beds and from 19,978 bassinets to 21,122, and the number of patients admitted from 2,493,281 to 2,939,651. The average census of their patients has increased from 94,468 to 104,169.

*Percentage of Beds Occupied*

	1929	1935	1936
<b>According to Ownership or Control:</b>			
Federal.....	76.8	75.0	77.7
State.....	94.6	94.5	95.4
County.....	80.7	85.8	87.2
City.....	74.3	83.0	82.6
City-county.....	80.2	75.5	79.1
<b>Total governmental.....</b>	<b>88.9</b>	<b>90.1</b>	<b>91.0</b>
Church.....	66.7	54.9	61.4
Fraternal.....	68.7	64.5	67.5
Associations and restricted corporations.....	.....	.....	63.0
Industrial.....	54.4	44.4	.....
Independent associations.....	65.9	53.5	.....
<b>Total nonprofit.....</b>	<b>.....</b>	<b>.....</b>	<b>62.0</b>
Individual and partnership.....	54.2	41.1	47.4
Corporations (unrestricted as to profit).....	.....	.....	53.5
<b>Total proprietary.....</b>	<b>.....</b>	<b>.....</b>	<b>50.7</b>
<b>Total nongovernmental.....</b>	<b>64.0</b>	<b>65.3</b>	<b>63.6</b>
<b>According to Type of Service:</b>			
General.....	65.5	59.9	64.3
Nervous and mental.....	95.7	93.1	95.8
Tuberculosis.....	82.7	85.3	85.4
Maternity.....	62.8	60.8	58.3
Industrial.....	54.6	44.2	40.0
Eye, ear, nose and throat.....	47.7	45.6	48.1
	65.9	65.9	63.9
	80.2	76.9	78.3
	36.1	41.2	44.7
	70.9	69.2	71.1
	63.0	60.1	66.6
All other hospitals.....	74.6	79.3	86.9
<b>Total all hospitals.....</b>	<b>80.1</b>	<b>78.8</b>	<b>81.4</b>

#### PROPRIETARY ORGANIZATIONS

The third group of nongovernmental hospitals, the proprietary institutions, exhibited a rather slight decrease in all figures relating to capacity and occupancy. Shrinking in number from 1,882 to 1,754, they declined likewise in capacity from 64,859 to 57,007. Bassinets were reduced from 8,741 to 7,985; patients admitted from 946,587 to 935,254, and the average census from 32,909 to 30,134.

The individual and partnership hospitals numbered 1,255 a year ago as compared with 1,204 at the present time. There has been a similar decline in the number of beds, bassinets and average census, although a slight increase in the number of patients admitted.

The corporations unrestricted as to profit are the ones most frequently referred to as "incorporated for profit." In this group the decline in all of the capacity and occupancy figures is rather spectacular. There was a slide in the number from 627 to 550; in bed capacity



teacher-student relationship. It is only in connection with such intimate relationships that the student will acquire the stimulus, the scientific point of view and the methods of work that are essential to his successful development. Most of the outstanding men in the field of medicine with whom I have talked definitely attribute their success to such intimate association with some one or more of their teachers.

This suggests a word with regard to the most important factor in the whole field of medical education—the student. The importance of careful selection is receiving much attention and cannot be overemphasized. Too many schools are still admitting obviously unpromising and poorly prepared students. Some of these are being admitted on the basis of graduation from junior colleges. The formal and rigid premedical college course has also, I believe, been a definite handicap in the development of medical education. Unfortunate indeed is the medical school which feels compelled to accept all applicants from within its district who meet the minimum credit hour requirements for admission.

I believe that it should be more generally recognized that no educational institution can make a good mind out of a poor one. It may in certain instances give it an artificial veneer, which may mislead both the student and the public. At the same time it is fortunate that no educational institution can ruin a good mind. It may handicap it in its development but ruin it, it cannot.

It not infrequently happens that a school points with pride to the achievements of some one or more of its graduates when as a matter of fact these graduates achieved success in spite of rather than because of their experiences in the school.

There are a considerable number of other problems in medical education which deserve thoughtful consideration. I can do no more than mention some of these at this time, hoping that in connection with a further study of the survey data they may receive the attention which they deserve.

The essential elements of sound organization and a control that will guarantee the independence of the school from political or other undesirable influences is a subject that requires study and frank discussion.

Provision for an effective educational administration is also essential to the satisfactory conduct and development of a school.

The problem of the size of the student body as related to educational standards, physical facilities, departmental staffs, kind and amount of clinical facilities and the public need deserve careful consideration.

The complete availability of an adequate number of clinical cases, sufficiently diverse as to disease type and available, moreover, under conditions which permit a high standard of training and experience for the student is one of the greatest problems facing most of the schools of the country.

The responsibility of the college in connection with internships is a problem of fundamental importance regardless of the requirement of the intern year for the M.D. degree.

Beyond this is the relatively enormous problem of graduate work in medicine. There are today programs leading to graduate degrees based solely on an internship with perhaps, in addition, a thesis requirement. The increasing standards demanded in the training of specialists forces us to a serious study of available opportunities and standards in this field.

Closely related to this is the question of simultaneous registration in the medical school and graduate school and the application of medical school credits toward a graduate degree.

One gets the impression that the whole field of graduate study must be given early and thorough attention.

The presentation and discussion of such problems as I have mentioned should not be misinterpreted and should be in no way discouraging.

Probably no group of educators have within recent years effected advances comparable to those in the field of medical education.

As has been pointed out by our chairman, Dr. Ray Lyman Wilbur, one of the reasons that many of us have not made the progress we would desire is that financial support has been entirely inadequate.

The universities and the public must realize that medical education is expensive. However, the development of a competent personnel to assume the responsibilities incident to the prevention and treatment of disease and the advancement of medical science fully justifies much more adequate support than is now being given to the medical colleges of this country.

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## HOW MANY HOSPITAL BEDS ARE ENOUGH?

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It has long been obvious to those who take time to view the hospital field in perspective that there are too many hospital beds for acute cases. It is rather a startling fact when one stops to think of it that on the average day the general hospitals of the country are carrying fifty or more empty beds for every hundred occupied. This has not been generally realized in medical and hospital circles; its significance in terms of money has not been understood.

This study is an attempt to discover what bed capacity is actually needed to accommodate the daily toll of acutely sick and injured, and to determine "how much is enough" for reserve.

A report published by the American Hospital Association<sup>1</sup> dealing with overhospitalization advanced the theory that three beds for every two patients was too many and that it should be possible for the general hospital, given a flexible building and less rigid policies in the grouping of patients, to handle its work effectively with five beds for every four patients, or a reserve of 25 per cent instead of 50 per cent. It found that 4,000 general hospitals reporting in 1934 to the American Medical Association had 87,500 beds in excess of such 25 per cent reserve and estimated that this surplus had cost the public in fixed charges \$61,250,000—a sum sufficient to have paid for the care of nearly a fifth of all the patients whom the hospitals had treated that year.

Surely the most wasteful thing in a hospital is a bed that is never needed.

Idle beds are a heavy charge on institutions already suffering from a crushing load of charity work. This is of particular importance in view of the clear indications that hospital construction is being resumed on an increasing scale. The *Modern Hospital* reports 578 building projects last year aggregating nearly

1. Report of the Committee on Hospital Planning and Equipment of the American Hospital Association, 1935.

Table 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL. A. GOVERNMENT HOSPITALS

Marginal No.		Federal			State			County			City			City and County			Total Governmental			Marginal No.			
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census		
1	Alabama.....	6	1,803	4	8,134	1,503	7	5,745	4,901	5,796	4	334	3	212	36	5,305	166	22	8,469	88	31,610	8,082	
2	Arizona.....	22	2,046	75	13,502	1,546	2	1,000	4	463	332	7	316	4	215	30	4,062	31	3,262	105	31,610	8,082	
3	Arkansas.....	4	1,783	6	7,832	1,473	16	2,178	4	407	4,620	6	270	4	215	30	4,062	31	3,262	105	31,610	8,082	
4	California.....	20	6,769	33	35,750	3,197	16	2,178	20	20,801	22,088	60	15,689	60	15,689	12,894	1,546	100	48,500	686	230,334	6,441	
5	Colorado.....	3	1,863	14	7,516	1,460	8	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
6	Connecticut.....	1	265	1	1,705	214	14	9,966	80	7,083	9,920	4	790	4	790	27	11,590	18	11,021	107	20,723	10,430	
7	Delaware.....	1	265	1	1,705	214	14	9,966	80	7,083	9,920	4	790	4	790	27	11,590	18	11,021	107	20,723	10,430	
8	Dist. of Columbia.....	8	8,158	81	22,839	7,811	5	5,745	4	463	332	8	532	8	532	48	8,318	14	10,733	193	40,343	9,901	
9	Florida.....	5	754	3	6,423	380	4	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
10	Georgia.....	8	2,513	13	16,890	2,039	4	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
11	Idaho.....	3	448	4	1,790	315	4	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
12	Illinois.....	11	5,845	7	20,944	1,846	21	14,907	6	29,954	34,803	22	5,852	22	5,852	171	17,063	61	17,063	272	120,216	16,226	
13	Indiana.....	18	4,422	16	16,266	12,133	34	2,531	168	21,457	1,913	4	604	4	604	61	11,441	43	43	43	43	43	
14	Iowa.....	4	1,907	6	7,574	1,846	18	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
15	Kansas.....	4	1,907	6	7,574	1,846	18	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
16	Kentucky.....	6	1,907	6	7,574	1,846	18	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
17	Louisiana.....	4	1,907	6	7,574	1,846	18	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
18	Maine.....	4	448	4	1,790	315	4	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
19	Maryland.....	8	1,907	6	7,574	1,846	18	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
20	Massachusetts.....	8	2,976	6	8,273	2,363	20	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
21	Michigan.....	6	1,302	1	6,320	1,218	20	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
22	Minnesota.....	8	1,803	27	8,885	1,547	16	2,178	34	13,845	13,611	17	1,697	22	5,182	1,802	11	1,083	115	16,495	764		
23	Mississippi.....	3	863	7	3,111	781	10	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
24	Missouri.....	6	1,435	5	7,310	1,218	10	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
25	Montana.....	8	1,435	5	7,310	1,218	10	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
26	Nebraska.....	4	880	7	3,111	781	10	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
27	Nevada.....	1	100	1	1,238	21	4	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
28	New Hampshire.....	1	100	1	1,238	21	4	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441	
29	New Jersey.....	16	1,400	4	10,807	1,076	15	4	4,422	20	7,159	4,169	3	185	1	60	4	1	2	7,142	83	23,611	6,441
30	New Mexico.....	23	6,972	26	32,888	5,403	47	7	3,494	9,048	13	7	575	18	3,136	488	3	229	27	5,706	13,140	1,103	
31	New York.....	3	933	0	3,092	864	7	4	1,056	2,803	22	3,109	50	9,811	2,765	15	141	23	4,270	295	30,326	3,256	
32	North Carolina.....	6	2,022	25	4,027	217	4	4	1,056	2,803	22	3,109	50	9,811	2,765	15	141	23	4,270	295	30,326	3,256	
33	North Dakota.....	13	1,311	58	13,223	1,113	11	3	20	12,618	9,066	2	105	16	1,566	35	3	7	251	27	3,729	343	
34	Ohio.....	13	1,311	58	13,223	1,113	11	3	20	12,618	9,066	2	105	16	1,566	35	3	7	251	27	3,729	343	
35	Oklahoma.....	0	2,585	2	4,297	732	9	4	5,034	5,169	17	8,839	17	8,839	17	8,839	8,010	13	14,477	78	29,381	12,603	
36	Oregon.....	2	2,585	2	4,297	732	9	4	5,034	5,169	17	8,839	17	8,839	17	8,839	8,010	13	14,477	78	29,381	12,603	
37	Pennsylvania.....	2	2,585	2	4,297	732	9	4	5,034	5,169	17	8,839	17	8,839	17	8,839	8,010	13	14,477	78	29,381	12,603	
38	Rhode Island.....	3	535	8	3,683	395	3	7	1	64	2,693	4,432	7	809	20	12,068	548	2	200	15	5,063	128	
39	South Carolina.....	8	932	82	6,787	666	4	2	758	2,437	13	3	35	17	912	13	3	35	17	912	13		
40	South Dakota.....	3	1,120	21	7,058	820	8	7	4,040	5,537	16	740	81	13,251	475	9	923	87	30,440	624			
41	Tennessee.....	14	2,664	34	22,067	2,039	14	2	10,363	14,701	16	740	81	13,251	475	9	923	87	30,440	624			
42	Texas.....	3	176	4	1,907	138	2	3	418	1,373	3	299	41	4,061	267	1	52	9	629	24			
43	Utah.....	1	157	1	1,104	104	6	3	688	1,489	2	73	11	1,265	41	1,012	24	3,963	822				
44	Vermont.....	8	2,060	11	10,905	1,686	13	6	13,437	10,215	13	1,695	94	17,772	1,542	3	380	1	717	238			
45	Virginia.....	14	2,366	17	15,927	2,084	6	3	13	8,104	4,416	2	110	14	2,210	72	2	110	14	2,210	72		
46	Washington.....	1	210	11	7,51	938	12	4	25	14,162	5,161	60	12,884	93	24,106	12,636	10	641	78	13,630	457		
47	West Virginia.....	3	1,907	11	5,634	938	12	4	25	14,162	5,161	60	12,884	93	24,106	12,636	10	641	78	13,630	457		
48	Wisconsin.....	3	1,907	11	5,634	938	12	4	25	14,162	5,161	60	12,884	93	24,106	12,636	10	641	78	13,630	457		
49	Wyoming.....	4	904	12	5,405	816	4	8	3,283	927	484	87,541	2,888	497,706	76,277	328	78,550	3,947	885,035	63,505			
50	Totals (1936).....	323	84,234	675	496,570	68,752	594	503,306	1,136	534,022	478,778	484	87,541	2,888	497,706	76,277	328	78,550	3,947	885,035	63,505		
51	Arizona.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
52	California.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
53	Colorado.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
54	Connecticut.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
55	Delaware.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
56	Florida.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
57	Georgia.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
58	Idaho.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
59	Illinois.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
60	Indiana.....	316	82,353	601	382,080	64,705	596	483,094	1,186	513,343	462,070	496	90,904	2,375	476,275	79,250	328	78,550	3,947	885,035	63,505		
61	Iowa.....	316	82,353	601	382,080	64,705	596	483,094															

\$100,000,000. From coast to coast medical staffs are urging the need for new hospitals or the expansion and modernization of old ones. Before the hospital field embarks on a new era of construction or reconstruction based on hazy or incomplete knowledge, an effort should be made to determine some method of appraisal that will indicate in any given situation or

TABLE 1.—Occupancy Statistics from Twenty-Four Hospitals for the Years 1934-1936\*

Hospital No.	Location	Year	Bed Capacity	Annual Use of Beds, %	Average Daily Census	Number of Days in the Year When the Average Census Was Exceeded by	
						20%	25%
1	New York City.....	1934	200'	72.5	145	12	1
		1935	200	67.5	135	25	7
2	New York City.....	1934	563	56.5	318	5	0
		1935	601	38	352	5	0
3	New York City.....	1934	380	55	210	4	0
		1935	380	59	226	58	19
4	New York City.....	1935	300	76.6	276	1	0
5	New York City.....	1934	411	59	244	11	1
		1935	411	62	255	6	0
6	New York City.....	1934	791	73.5	581	0	0
		1935	791	80	636	0	0
7	New York City.....	1934	100	68	68	7	0
		1935	100	65	65	21	15
8	New York City.....	1934	480	63	302	12	3
		1935	480	65	314	0	0
9	Connecticut.....	1934	124	66	82	22	15
		1935	124	64.5	80	26	18
10	Connecticut.....	1934	165	37.5	95	27	1
		1935	165	62.4	103	41	20
11	Westchester County, N. Y.	1934	140	46.5	65	52	10
		1935	140	46.5	65	24	2
12	Westchester County, N. Y.	1934	200	68	136	20	6
		1935	200	66.6	133	4	1
13	Maryland.....	1936	135	80	109	1	0
14	Bangor, Me.....	1934	159	100	158	19	10
		1935	159	100	158	21	15
15	Grand Rapids, Mich.....	1934	150	45.6	68	40	0
		1935	150	48.3	72	36	0
16	California.....	1934	3,044	71	2,176	46	10
		1935	3,044	81	2,959	0	0
17	Massachusetts.....	1934	400	94	376	0	0
		1935	400	94	376	0	0
18	New York.....	1934	143	56.0	80	75	62
		1935	143	52.5	75	81	71
19	New York.....	1934	422	52.1	220	2	0
		1935	422	55.7	235	0	0
20	New York.....	1935	105	54.3	60	38	22
21	.....	1934	640	61.5	332	10	0
		1935	640	58.5	316	0	0
22	.....	1934	347	50.4	175	9	0
		1935	350	48.6	170	12	3
23	.....	1934	275	65.8	181	0	0
		1935	275	68.4	188	0	0
24	.....	1934	226	73	165	4	3
		1935	226	74	167	6	0

\* This study was made possible by the courtesy of the twenty-four hospital superintendents who opened their census records to the author.

locality how many beds are actually needed to cover a reasonable reserve for peak loads. Construction programs beyond that point are wasteful and unsound, a handicap to management and an inexcusable drain on the all too limited funds available for health and philanthropic purposes.

This study has been made with a view of throwing some light on the peak load.

I have sought to prove a theory: that a general hospital should be able to handle its work if it has one reserve bed for every four patients in its average daily census. The accompanying tables indicate the days of overcrowding that would have occurred in forty-five hospital years if these hospitals had carried only a 25 per cent reserve. The study is based on the number of patients which they treated irrespective of the number of beds which they had. The days of peak load are figured at 120 per cent of the average census for the year (when 98 per cent of the beds, given a 25 per cent reserve, would have been occupied) and the maximum at 125 per cent when every bed would have been filled and perhaps a few extra beds set up in solariums.

The outstanding facts which these tables disclose are that in the forty-five years of hospital experience there was an average of but 17.4 days a year of peak loads, of which but seven days found the hospital full to overflowing.

The daily census records of twenty-four hospitals for the years 1934-1936 were reviewed in detail. While this is but a minute fraction of the total field, the hospitals in question, mainly voluntary general, have a total capacity of nearly 10,000 beds and are scattered from Maine to California in cities, towns and suburban districts and are a fair cross-section of the whole. While the sampling is too small to warrant definite conclusions, many interesting and significant facts emerge. It is hoped that the picture presented will stimulate some organized research of broader scope from which may come the more precise formulas so sorely needed for determining hospital requirements.

#### SIGNIFICANT FACTS SHOWN BY ANALYSIS OF TABLE 1

1. Hospitals that operate at relatively high average capacity have fewer days of high census (table 2).

2. The hospitals of smaller capacity experience wider fluctuation than the larger (table 3).

3. Peaks occur in every month of the year but are most prevalent in March, April and May. The work sheets for twelve hospitals, in which the census was taken off in detail by months for twenty-three hospital years, show the results given in table 4.

4. The number of days on which hospitals are crowded are relatively few in comparison with the large portion of reserve beds carried, as evidenced by the figures given in table 5.

These figures bring us back to the surprising disclosure that the occupancy statistics show peak loads on an average of 17.4 days, or less than 5 per cent of the year. Even more worthy of note is the fact that in

TABLE 2.—Census in Hospitals Operating at Relatively High Average Capacity

No. of Years	Occupancy of Beds	Number of Days When the Average Patients' Census Was Exceeded			
		By 20%	Average	By 25%	Average
13 in hospitals ranging from 71 to 100%	68%	110	8.5	39	3
23 in hospitals ranging from 55 to 68%	68%	379	16.5	168	7.3
9 in hospitals ranging from 46 to 54%	54%	294	31.6	103	12
45 Total.....		783	17.4	315	7

TABLE 3.—Fluctuations in Hospitals of Smaller Capacity

No. of Years	Average Daily Census	Average Number of Days per Year When Census Reached or Exceeded	
		120%	125%
12	300 to 3,000	6.5	1.1
7	200 to 299	11.7	2.9
14	100 to 199	12.4	4.7
12	Up to 99	37.4	18
45			

twenty-three hospitals, or half of the total, the peak loads occurred on ten days or less. This would indicate that for at least 355 out of 365 days the excess or reserve beds are rarely if ever used.

I am conscious that there are many factors which might qualify these conclusions and that any observations to be conclusive should be based on far more comprehensive data and subject to a much more detailed analysis. These statistics are confined to postdepression years and further study should extend to depres-

from 34,946 to 28,511; bassinets from 4,357 to 3,629, and the patients admitted from 532,590 to 497,457; the average census declined from 18,697 to 16,462.

The total nongovernmental hospitals declined in number from 4,522 to 4,465, and in capacity from 333,427 beds to 332,881 beds. These hospitals, however, did increase in the number of bassinets, from 44,893 to 45,583. They increased also in the number of patients admitted, from 5,424,102 to 6,194,026, and the average census from 200,589 to 211,681.

given in the list of hospitals on following pages. The results are summarized in the first table on page 1044.

It would appear that the difference between the rated capacity and the average census of patients would, in a general way, tell whether or not there is overcrowding. The percentages on which the table was based were determined by taking the excess of the census over the rated capacity and dividing it by the rated capacity.

A tendency to overcrowd seems to be general, if not chronic, in state mental institutions. This is the reason

Table 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL  
B. NONPROFIT ORGANIZATIONS

Marginal No.	Church					Fraternal					Nonprofit Corporations and Associations					Total Nonprofit					Marginal No.
	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	
1	Alabama.....	7	630	79	17,597	363	...	...	...	...	18	1,271	119	24,742	616	25	1,901	198	42,339	970	1
2	Arizona.....	9	702	75	16,997	501	1	24	...	23	10	359	28	3,246	142	20	1,145	103	20,206	638	2
3	Arkansas.....	9	964	79	19,310	514	1	100	6	1,417	9	557	45	7,047	203	20	1,621	130	28,374	789	3
4	California.....	40	4,558	819	110,559	5,003	12	346	10	4,209	66	5,362	656	110,070	3,761	109	10,467	1,455	224,878	7,031	4
5	Colorado.....	28	2,538	310	42,787	1,549	12	236	...	175	23	2,171	100	12,106	1,197	53	4,965	410	55,128	2,861	5
6	Connecticut.....	5	1,116	192	27,294	818	...	...	...	...	36	5,136	724	84,311	3,801	41	6,232	916	121,608	4,619	6
7	Delaware.....	1	75	12	1,063	50	...	...	...	...	7	622	94	14,000	431	8	697	106	15,721	481	7
8	Dist. Columbia.....	4	721	145	25,235	619	...	...	...	...	10	1,533	310	36,439	1,245	14	2,274	455	61,677	1,867	8
9	Florida.....	7	727	107	12,532	333	3	145	7	1,219	24	1,141	142	17,382	550	34	2,013	236	31,533	968	9
10	Georgia.....	5	475	71	12,983	336	1	64	...	321	20	1,192	129	25,243	710	26	1,731	200	38,547	1,105	10
11	Idaho.....	11	681	114	17,159	418	...	...	...	...	2	32	4	293	10	13	716	118	17,452	434	11
12	Illinois.....	85	11,247	1,802	230,788	6,632	5	449	25	5,390	86	8,948	1,466	184,738	5,172	176	20,644	3,293	420,916	12,074	12
13	Indiana.....	29	3,787	639	86,680	2,359	1	100	...	321	22	1,222	219	24,794	715	52	5,109	838	111,795	3,139	13
14	Iowa.....	42	4,018	587	76,571	2,376	1	65	...	17	26	1,197	244	20,710	595	69	5,250	831	97,298	3,013	14
15	Kansas.....	36	2,891	457	54,870	1,721	1	230	...	1,338	25	893	138	17,150	446	62	4,034	595	73,353	2,261	15
16	Kentucky.....	14	1,722	182	32,324	1,032	2	38	...	102	26	1,366	159	24,418	737	42	3,126	341	56,839	1,807	16
17	Louisiana.....	9	1,305	131	34,358	881	12	122	13	1,056	16	1,115	86	25,130	630	27	2,542	200	60,344	1,582	17
18	Maine.....	5	363	41	7,346	230	...	...	...	...	22	1,430	217	25,536	976	27	1,793	238	39,682	1,266	18
19	Maryland.....	9	1,947	170	29,564	1,566	...	...	...	...	27	3,641	346	52,436	2,700	36	5,588	516	82,000	4,269	19
20	Massachusetts.....	18	2,699	439	51,733	1,822	1	60	...	407	117	11,168	1,063	209,892	7,414	136	13,827	2,402	262,052	8,296	20
21	Michigan.....	32	3,787	639	89,889	2,620	2	170	...	381	60	7,042	819	124,802	4,163	95	10,099	1,496	215,072	6,930	21
22	Minnesota.....	35	3,419	509	77,832	2,320	1	60	...	205	42	2,563	427	57,323	1,601	78	6,042	636	153,361	3,981	22
23	Mississippi.....	3	285	29	6,408	110	...	...	...	...	19	841	95	14,453	348	22	1,076	126	20,891	453	23
24	Missouri.....	39	5,649	696	100,899	3,895	4	338	...	1,992	27	2,506	314	37,528	1,450	70	8,493	1,010	140,419	5,612	24
25	Montana.....	22	1,699	294	33,922	1,060	...	...	...	...	7	311	39	5,656	154	20	2,010	333	39,578	1,214	25
26	Nebraska.....	26	2,422	318	47,108	1,510	...	...	...	...	7	218	41	5,703	136	33	2,640	339	52,811	1,653	26
27	Nevada.....	1	52	12	1,506	45	...	...	...	...	3	100	16	1,011	53	4	152	28	3,177	88	27
28	New Hampshire.....	5	324	63	7,802	239	...	...	...	...	21	1,175	234	24,300	716	28	1,499	297	32,192	985	28
29	New Jersey.....	18	3,371	460	61,765	2,313	2	160	...	446	65	8,592	1,256	158,347	6,118	85	12,123	1,716	220,558	8,500	29
30	New Mexico.....	14	978	84	11,835	342	...	...	...	...	10	399	35	3,725	180	24	1,377	110	15,500	722	30
31	New York.....	79	11,604	1,823	182,505	8,515	4	406	...	488	216	29,497	3,716	562,013	21,372	299	41,507	5,239	745,006	30,443	31
32	North Carolina.....	17	1,014	150	22,924	733	2	92	...	380	69	5,838	487	88,099	2,377	88	4,944	637	112,303	3,139	32
33	North Dakota.....	20	1,572	232	34,475	1,062	...	...	...	...	9	324	102	6,402	208	29	1,896	334	40,877	1,270	33
34	Ohio.....	45	6,990	999	149,870	4,735	4	407	...	2,276	85	7,396	1,039	147,177	4,571	134	14,703	2,058	299,292	10,017	34
35	Oklahoma.....	9	837	170	19,585	514	3	143	16	2,605	9	287	37	4,999	153	21	1,267	232	27,189	735	35
36	Oregon.....	16	1,804	251	48,135	1,420	1	50	...	256	10	481	80	5,720	282	27	2,335	331	54,111	1,552	36
37	Pennsylvania.....	40	6,256	811	101,436	4,070	5	415	...	1,430	189	24,815	3,075	440,204	17,757	234	31,486	3,886	543,070	22,178	37
38	Rhode Island.....	3	415	43	4,630	277	...	...	...	...	13	1,875	317	30,830	1,309	10	2,260	360	55,400	1,586	38
39	South Carolina.....	6	378	44	8,170	233	3	144	7	1,119	23	1,409	161	32,057	948	32	1,931	212	41,332	1,253	39
40	South Dakota.....	13	949	118	19,407	537	...	...	...	...	10	465	87	7,945	210	23	1,414	235	27,332	747	40
41	Tennessee.....	6	1,008	137	14,050	786	...	...	...	...	27	1,739	154	26,494	1,016	33	2,837	291	60,574	1,892	41
42	Texas.....	43	4,071	510	103,864	2,335	4	337	20	3,482	31	1,691	143	33,811	817	78	6,099	673	141,157	3,322	42
43	Utah.....	6	934	174	17,924	643	1	20	...	65	4	180	42	2,741	98	11	1,134	216	20,730	761	43
44	Vermont.....	3	217	25	4,434	150	...	...	...	...	19	1,631	152	20,857	1,275	22	1,848	177	25,291	1,425	44
45	Virginia.....	3	322	38	5,311	149	1	135	12	1,800	37	2,710	287	61,792	1,725	41	3,107	337	68,903	1,911	45
46	Washington.....	21	2,303	401	47,051	1,373	1	20	...	109	23	1,767	324	38,836	1,128	45	4,260	725	85,096	2,321	46
47	West Virginia.....	9	928	108	15,724	441	...	...	...	...	17	1,189	104	23,217	731	26	2,117	212	38,941	1,172	47
48	Wisconsin.....	59	6,256	993	117,693	3,918	1	20	...	28	28	1,947	310	39,809	1,137	88	8,213	1,303	157,539	5,055	48
49	Wyoming.....	2	45	10	931	20	...	...	...	...	4	95	20	1,809	44	8	140	30	2,740	61	49
50	Totals (1936).....	969	113,258	16,360	2,286,064	74,037	64	4,938	116	33,037	1,678	157,650	21,122	2,939,631	104,169	2,711	275,874	37,598	5,258,772	181,547	50
51	(1935).....	970	113,268	16,033	1,950,308	69,592	69	5,360	141	33,926	1,601	149,940	19,978	2,403,281	94,463	2,640	268,508	36,152	4,477,515	167,680	51
52	(1934).....	970	113,263	16,067	1,786,522	63,851	72	5,411	150	34,700	1,604	149,038	20,034	2,342,513	89,615	2,646	267,712	36,251	4,169,735	157,007	52
53	(1933).....	984	113,840	16,190	1,753,565	63,621	72	5,399	132	36,817	3,487	...	...	...	...	...	...	...	...	...	...
54	(1932).....	1,001	117,555	16,125	1,918,214	70,119	74	5,550	152	41,390	3,706	...	...	...	...	...	...	...	...	...	...
55	(1931).....	1,011	116,935	15,861	2,013,352	75,911	76	5,528	161	44,790	3,820	...	...	...	...	...	...	...	...	...	...
56	(1930).....	1,017	116,846	15,615	...	75,162	77	5,606	149	...	3,779	...	...	...	...	...	...	...	...	...	...
57	(1929).....	1,024	113,555	15,077	...	75,770	70	5,283	158	...	3,627	...	...	...	...	...	...	...	...	...	...
58	(1928).....	1,056	114,613	13,150	...	...	87	5,298	196	...	...	...	...	...	...	...	...	...	...	...	...
59	(1927).....	1,060	108,782	...	...	72,813	85	4,935	...	3,193	...	...	...	...	...	...	...	...	...	...	...

Tables 1 and 2 record conditions as of Dec. 31, 1936. Discrepancies between these figures and those found in the list beginning on page 1060 are due to the fact that the list was revised to March 15, 1937.

## OVERCROWDING IN STATE NERVOUS AND MENTAL HOSPITALS

During the past year there were repeated and persistent requests for information as to the rated capacity, or the capacity for which the hospitals were built, no census of hospitals having made that information available. Accordingly, the Council, in this census, asked for the rated capacity, explaining this to mean the number of beds for which the hospital was intended.

This definition of rated capacity is the simplest that could be obtained. The answer of each hospital is

why one table was devoted to that type of institution. The table shows that out of a total of

the cortex removed, was still driving a car. He wondered how this situation could be controlled and he was advised to tell the patient that he would get in touch with the police if he continued to drive. The patient had not realized how serious his offense was until it was brought to his attention by his physician, and it is my understanding that the patient immediately passed over the handling of his car to his wife and withdrew from active participation in it.

#### CONCLUSION

The public health field and the medical field of traffic accident prevention, through the intelligent use of medical diagnostic and treatment facilities in general, is relatively unexplored but already presents itself as a legitimate and sensible field for medical interest.

330 Recorder's Court.

### A PHARMACOLOGIC STUDY OF THE TOXEMIA THEORY OF SUR- GICAL SHOCK

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CHICAGO

We<sup>1</sup> have elsewhere reported evidence indicating that, in the dog at least, the vasomotor symptoms and death occurring in anaphylactic shock are brought about by the sudden discharge into the circulating blood of a vasodepressor, smooth muscle stimulating substance which is apparently histamine. We have been able to detect this substance in the blood and thoracic duct lymph for brief periods of time after the assaulting or shocking dose of serum and have been able to correlate its appearance with the varying grades of severity of the shock in such a way as to indicate that it has a causal relationship to the shock symptoms.

Since the vasomotor phenomena of surgical shock have likewise been attributed to the absorption from the traumatized area of a vasodepressor substance such as histamine, the question arose as to whether a similar investigation would yield positive or negative evidence for such a toxemia theory. We are not here concerned with reviewing the extensive literature on the toxemia theory of surgical shock. Suffice it to say that both the proponents and the opponents of this theory have been chiefly concerned with detailed comparisons between the phenomena of surgical shock and those of a toxemia shock such as produced by histamine, with circumstantial evidence bearing on the question of a toxemia pathogenesis of surgical shock or with evidences that other than toxemia mechanisms are or are not adequate explanations of the shock phenomena. So far as we are aware, the only report in the literature concerned with a somewhat direct search for the hypo-

thetical toxin is the one by Phemister,<sup>2</sup> in which negative results were obtained when blood from the traumatized leg of one dog was collected in a viviparous flask and introduced into the circulation of a second animal without vasodilator effects.

#### METHODS

Dogs were used. They were anesthetized with ether and sodium barbital. Blood pressure records were made from the carotid, and the thoracic duct was cannulated for collection of lymph. Surgical shock was produced by sustained trauma with a padded hammer to one or both hind legs, by traumatizing the extruded intestine, or by a combination of these procedures. During the course of the ensuing shock, as gaged by the blood pressure record, samples of blood and of thoracic duct lymph were collected. These were kept from clotting by means of heparin in saline solution (freshly prepared) and were examined for the presence of physiologically active substances by testing on the isolated intestinal strip of the guinea-pig in the usual way, or by intravenous injection into an etherized, atropinized cat and noting the effect on the blood pressure. The bloods were centrifugated prior to testing and the respective plasma samples employed, while the lymph specimens were employed directly. Either of these test methods will readily detect histamine if it is present in the lymph or plasma in concentrations around 1:250,000.

#### RESULTS

Nine experiments have been done and the corresponding blood and lymph specimens tested as indicated. In no instance was there any indication of a physiologically active substance being present. These negative results, in addition to indicating the absence of a physiologically active substance such as histamine in the shock specimens of blood and lymph, also show that the methods we have employed are free from certain complicating factors. For example, Ponder<sup>3</sup> and others have shown that substances having vascular effects are apt to appear in serums separating from specimens of clotted blood, and Phemister and Handy<sup>4</sup> have shown that blood which has been "traumatized" by shaking or hemolysis and the like also acquires vasodilator and constrictor properties.

When these negative results in the case of surgical shock are contrasted with our positive results in anaphylactic shock, it is at once apparent that there is a distinct difference between the course of events in the two instances. In a typical anaphylactic shock there is an abrupt precipitous fall of blood pressure to shock levels from which the animal may or may not gradually recover. In surgical shock, however, there is a slow, gradual, progressive fall of blood pressure to shock levels from which, as a rule, there is no spontaneous recovery. Depending on the technic used for producing shock, this may take up to an hour or more. Anaphylactic shock, so far as the vascular effects are concerned, can be duplicated by the rapid intravenous injection of a large dose of histamine. It is perhaps not surprising, therefore, that an active agent can be found in the one case and not in the other. Various workers<sup>5</sup>

From the Department of Physiology and Pharmacology, Northwestern University Medical School.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Dragstedt, C. A., and Gebauer-Fuelnegg, Erich: Studies in Anaphylaxis: I. The Appearance of a Physiologically Active Substance During Anaphylactic Shock, *Am. J. Physiol.* **102**:512 (Nov.) 1932. Gebauer-Fuelnegg, Erich, and Dragstedt, C. A.: Studies in Anaphylaxis: II. The Nature of a Physiologically Active Substance Appearing During Anaphylactic Shock, *ibid.* **102**:520 (Nov.) 1932. Dragstedt, C. A., and Mead, F. B.: Further Observations on the Nature of the Active Substance ("Anaphylatoxin") in Canine Anaphylactic Shock, *J. Immunol.* **30**:319 (April) 1936.

2. Phemister, D. B.: The Vascular Properties of Traumatized and Laked Bloods and of Blood from Traumatized Limbs, *Ann. Surg.* **87**:806 (June) 1928.

3. Ponder, Eric: The Effect of the Injection of Serum on the Heart and Vessels of the Cat, *Quart. J. Exper. Physiol.* **18**:133, 1928.

4. Phemister, D. B., and Handy, J.: Vascular Properties of Traumatized and Laked Bloods, *J. Physiol.* **64**:155 (Nov.) 1927.

5. Best, C. H., and McHenry, E. W.: The Inactivation of Histamine, *J. Physiol.* **70**:349 (Dec.) 1930.



have noted the inactivation of histamine in intact animals, organ perfusions and the like. We have recently confirmed and extended these observations with respect to the dog and have shown (by the testing methods previously mentioned) that intravenously injected histamine can be detected for only a limited period of time in the blood and lymph.<sup>6</sup> The question therefore arises as to whether surgical shock might not be analogous to the slow, sustained administration of histamine in concentrations and amounts that might ultimately produce a shock level of blood pressure, without attaining detectable levels of concentration in the blood or lymph. The problem thus became one of imitating experimental surgical shock by means of the administration of histamine and determining whether or not histamine activity could be detected in the blood or lymph under these conditions.

We did a great many experiments in which we injected histamine intravenously over periods of time with a modified Woodyatt pump, using varying concentrations of solution. In none were we successful in closely duplicating a corresponding surgical shock experiment. When reasonably strong concentrations were used, the blood pressure would fall rather promptly to a shock level. When weaker concentrations were used, the blood pressure would fall promptly for 10, 20, 30 mm. of mercury or more and then remain at this lowered plateau for rather long periods. There was not the slowly progressive fall characteristic of surgical shock. It is very probable that a suitably adjusted intravenous technic would succeed in duplicating this, but since another method was successful we discontinued our efforts in this direction.

As being more analogous to the theoretical assumption of an absorption of a toxin from a traumatized limb, we then tried subcutaneous and intramuscular injections of histamine into a hind leg. By this technic it is possible to duplicate almost exactly the blood pressure record of a dog during experimental surgical shock. In order to make the duplication as close as possible, a histamine experiment was run simultaneously with a surgical shock experiment. Blood samples could then be taken at corresponding phases of the two types of shock and tested simultaneously. Four such double or twin experiments have been conducted. In each instance the blood samples from the surgical shock animals have been negative throughout, while in each instance of the histamine shock experiments the blood samples taken during the development of the shock have been positive.

These results indicate, it seems to us, that, if surgical shock was the result of a toxemia secondary to the absorption from the traumatized area of a vasodepressor substance such as histamine, it should be possible at some stage of the process to detect the toxin in the blood plasma by the methods employed. Our results, however, have been consistently negative.

#### CONCLUSIONS

1. We failed to find any vasodepressor "toxin" in the blood and lymph of dogs during experimental surgical shock.

2. Experiments indicate that if the vasodepression of surgical shock was due to a toxemia such as that of histamine, the methods employed would have been adequate to detect it.

303 East Chicago Avenue.

#### ABSTRACT OF DISCUSSION

DR. CHAUNCEY D. LEAKE, San Francisco: May the disappearance of the vasodepressor substance from the blood or from the plasma on standing be taken in any way as evidence of an enzymatic hydrolysis or destruction of the agent?

DR. CARL A. DRAGSTEDT, Chicago: With regard to that question, the rapid disappearance of histamine from the blood is from the circulating blood. If one draws a specimen and keeps it in the icebox or at room temperature, the histamine activity of that blood will last for hours although it will be measurably deteriorated within a day or so, but it is an entirely different affair from that which occurs while the blood is circulating.

DR. LEAKE: That argues more for an absorption of the material while circulation is occurring.

DR. DRAGSTEDT: Undoubtedly there is a process of inactivation, possibly by histaminase enzymes and possibly by absorption.

#### THE DIAGNOSIS AND CLASSIFICATION OF MENSTRUAL DISORDERS.

JOHN C. BURCH, M.D.; G. S. McCLELLAN, M.D.;  
CLAUDE D. JOHNSON, M.D.

AND

EUGENE T. ELLISON, M.D.

NASHVILLE, TENN.

The confusion that surrounds the subject of menstrual disorders is largely due to the fact that there has never been any adequate correlation of the symptoms, the endometrium and the underlying glandular disturbance. It is our purpose in this paper to attempt such a correlation. While dysmenorrhea has many points in common with the disorders of interval and flow, it has certain characteristics which set it apart from them, and we reserve it for a separate and later discussion. This paper is limited to the disorders of flow and interval.

In 1929 we began a series of studies on glandular cystic hyperplasia of the endometrium, and, as the results of these studies have been largely responsible for the opinions enumerated in this paper, it seems well to begin with a brief review of them. In our first experiments<sup>1</sup> an analysis was made of the histologic changes produced in the endometrium by the action of estrogen and progestin. The normal human endometrium and the abnormal human hyperplastic endometrium were considered in the light of these studies, and it was concluded that the characteristic picture of glandular cystic hyperplasia of the endometrium was the result of a prolonged, continuous action of estrogen. This was an experimental confirmation of Schröder's concept<sup>2</sup> of the condition. The histologic picture of glandular cystic hyperplasia was next experimentally reproduced in the castrate animal by the prolonged and continuous administration of estrogen (fig. 1). The histologic changes were wholly comparable to changes found in the human being<sup>3</sup> (fig. 2). On account of the importance of this concept of the disease, others have seen fit to repeat and have confirmed these experi-

From the Department of Obstetrics and Gynecology, Vanderbilt University School of Medicine.

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Burch, J. C.; Williams, W. L., and Cunningham, R. S.: The Etiology of Endometrial Hyperplasia, *Surg., Gynec. & Obst.* 53: 311 (Sept.) 1931.

2. Schröder, R.: Beiträge zur normalen und pathologischen Anatomie des Endometriums, *Arch. f. Gynäk.* 98: 81, 1912.

3. Wolfe, J. M.; Campbell, M., and Burch, J. C.: Production of Experimental Endometrial Hyperplasia, *Proc. Soc. Exper. Biol. & Med.* 29: 1263 (June) 1932.

6. Dragstedt, C. A., and Mead, F. B.: Inactivation of Histamine in Vivo, *Proc. Soc. Exper. Biol. & Med.* 32: 1435 (June) 1935.

to the support of these institutions, and those who are responsible for the housing, care, treatment and comfort of persons to be hospitalized.

The determination as to what is the proper space for different types of patients under given circumstances is beyond the range of this article. A few of the facts that have been gathered may be of help in understanding the situation.

the addition of new buildings, giving proper separation and segregation and added equipment facilities. It is generally conceded that the rate at which patients may be discharged is unfavorably affected by a condition of overcrowding.

There is some difference of opinion on the question of rated capacity. The differences, however, are based mainly on estimates of allowances for day spaces, such

Table 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL  
C. PROPRIETARY

Marginal No.	Individual and Partnership					Corporations (Unrestricted as to Profit)					Total Proprietary					Totals of Tables 1B and 1C					Marginal No.	
	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census		
1	Alabama.....	28	880	101	12,687	351	10	511	74	12,265	281	38	1,400	178	24,952	635	63	3,301	376	67,291	1,614	1
2	Arizona.....	10	101	4	411	72	3	87	12	1,181	33	13	278	16	1,622	105	33	1,423	119	21,828	763	2
3	Arkansas.....	20	403	47	7,582	152	4	136	16	1,136	37	24	539	63	8,718	189	44	2,160	193	37,092	978	3
4	California.....	110	3,043	397	41,821	1,810	46	3,035	159	60,502	1,838	156	6,078	856	104,823	3,648	265	16,545	2,341	329,661	10,670	4
5	Colorado.....	129	574	85	9,063	310	3	105	3	1,200	121	32	769	88	10,262	431	85	5,734	498	65,390	3,292	5
6	Connecticut.....	8	163	4	968	96	12	674	4	1,257	434	20	517	8	2,225	530	61	7,069	924	123,833	5,140	6
7	Delaware.....	1	60	4	.....	38	1	15	6	247	7	1	15	6	247	7	9	712	112	13,970	488	7
8	Dist. of Columbia.....	3	60	4	.....	38	5	181	40	5,456	97	30	778	127	13,806	299	17	2,334	450	62,036	1,905	8
9	Florida.....	25	590	87	8,370	202	15	619	84	14,077	281	54	1,629	103	31,356	791	80	3,360	393	69,003	1,896	9
10	Georgia.....	39	1,010	109	17,279	507	15	619	84	14,077	281	54	1,629	103	31,356	791	80	3,360	393	69,003	1,896	10
11	Idaho.....	16	339	50	5,303	157	5	105	24	2,359	45	21	444	83	7,752	202	34	1,160	201	25,204	636	11
12	Illinois.....	40	850	118	9,646	286	26	1,788	284	28,587	1,010	68	2,078	402	38,233	1,396	242	24,322	3,605	450,140	13,470	12
13	Indiana.....	16	264	33	4,304	108	8	501	22	7,381	235	24	765	75	11,775	343	76	5,874	933	123,507	3,482	13
14	Iowa.....	40	599	125	10,607	267	7	204	24	2,732	114	47	803	149	12,730	381	116	6,083	980	110,057	3,394	14
15	Kansas.....	16	272	41	4,682	125	4	147	17	2,396	201	20	119	58	7,078	224	82	4,453	651	80,436	2,475	15
16	Kentucky.....	15	409	35	4,973	171	15	471	41	9,355	291	30	880	76	14,230	402	72	4,006	417	71,060	2,209	16
17	Louisiana.....	15	344	51	7,918	133	10	523	57	15,836	300	25	867	108	23,754	433	52	3,400	338	84,298	2,015	17
18	Maine.....	17	438	85	6,210	237	10	310	66	6,164	188	27	737	151	12,374	425	54	2,550	409	45,436	1,631	18
19	Maryland.....	7	240	48	4,82	167	5	377	50	5,260	218	12	617	50	5,751	385	48	6,205	566	87,751	4,051	19
20	Massachusetts.....	21	505	108	4,646	214	21	1,020	151	15,183	615	44	1,525	259	19,829	889	180	15,332	2,661	281,881	10,185	20
21	Michigan.....	38	707	129	19,669	465	11	499	45	4,114	358	49	1,266	174	20,783	818	144	12,265	1,670	235,855	7,748	21
22	Minnesota.....	70	1,072	263	17,811	573	15	977	64	22,024	527	85	2,040	327	40,735	1,100	163	8,001	1,263	176,096	5,081	22
23	Mississippi.....	26	843	116	18,310	305	6	235	29	5,120	107	32	1,078	145	23,730	408	54	2,154	269	44,501	866	23
24	Missouri.....	31	718	167	8,397	325	10	390	68	5,602	247	41	1,108	235	14,569	572	111	9,601	1,245	155,018	6,154	24
25	Montana.....	9	158	48	3,109	78	3	172	20	2,403	54	12	330	68	5,512	182	41	2,340	401	45,090	1,846	25
26	Nebraska.....	40	619	158	8,416	231	3	144	14	1,427	120	43	763	172	10,843	351	76	3,403	531	63,654	2,006	26
27	Nevada.....	4	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	152	28	3,177	98	27
28	New Hampshire.....	.....	.....	.....	.....	.....	4	193	21	1,473	128	4	193	21	1,473	128	32	1,682	318	33,665	1,113	28
29	New Jersey.....	11	215	24	1,121	144	15	730	79	6,313	308	26	945	103	7,434	632	111	13,068	1,819	227,602	9,158	29
30	New Mexico.....	4	62	10	1,086	18	3	190	7	373	12	7	162	17	1,459	30	31	1,530	136	17,019	732	30
31	New York.....	73	2,404	523	25,981	1,321	48	3,810	701	63,816	2,358	121	6,214	1,254	89,797	3,670	420	47,721	6,523	834,803	34,122	31
32	North Carolina.....	27	893	46	10,471	402	16	827	61	13,120	437	43	1,722	107	23,591	839	131	6,666	744	135,894	3,998	32
33	North Dakota.....	7	101	31	1,648	41	2	42	8	799	16	9	143	30	2,638	57	58	2,039	373	43,513	1,327	33
34	Ohio.....	23	460	53	6,532	214	22	1,363	54	5,566	879	45	1,243	107	12,118	1,093	179	16,016	2,165	311,410	10,710	34
35	Oklahoma.....	48	1,406	188	25,582	590	17	713	83	16,191	414	65	2,119	271	41,781	1,003	86	3,385	404	68,040	1,738	35
36	Oregon.....	10	210	36	2,082	88	14	623	65	14,373	391	24	842	131	17,335	419	51	1,377	462	11,406	2,171	36
37	Pennsylvania.....	39	1,085	165	9,070	607	16	762	119	10,000	475	55	1,847	281	20,879	1,082	289	33,333	4,170	563,040	23,260	37
38	Rhode Island.....	3	30	.....	.....	22	1	.....	.....	.....	.....	3	59	.....	35	22	10	2,340	360	35,403	1,608	38
39	South Carolina.....	8	181	21	2,349	90	1	35	.....	345	29	9	216	21	2,694	119	41	2,147	238	44,046	1,404	39
40	South Dakota.....	13	234	54	3,795	104	5	172	28	3,809	105	18	406	82	7,604	209	41	1,820	317	34,056	956	40
41	Tennessee.....	32	745	57	11,742	292	10	356	48	6,185	151	12	1,101	105	17,877	443	75	3,938	396	78,451	2,245	41
42	Texas.....	106	2,418	334	40,675	972	47	1,783	185	41,302	870	153	4,201	519	90,697	1,842	231	10,300	1,192	211,824	5,234	42
43	Utah.....	11	144	56	2,639	60	2	52	11	758	15	13	106	67	3,417	75	24	1,330	283	24,147	836	43
44	Vermont.....	2	22	.....	173	12	1	20	.....	51	12	3	42	.....	224	24	25	1,890	177	25,515	1,440	44
45	Virginia.....	18	602	47	7,390	315	22	1,101	106	24,617	657	40	1,705	383	32,013	972	81	4,902	520	100,016	2,913	45
46	Washington.....	23	457	94	7,609	199	11	418	67	6,316	208	34	905	161	13,995	407	79	5,105	886	99,921	2,928	46
47	West Virginia.....	15	609	62	22,688	356	18	1,388	119	37,653	852	33	2,057	181	60,373	1,208	59	4,174	303	99,314	2,380	47
48	Wisconsin.....	31	529	128	8,773	247	19	683	67	8,473	378	47	1,212	105	17,246	625	135	9,425	1,498	174,776	5,710	48
49	Wyoming.....	9	155	30	2,198	65	2	50	6	451	7	11	185	36	2,540	72	17	325	66	5,289	136	49
50	Totals (1936).....	1,204	28,406	4,356	437,797	13,672	550	28,511	3,620	497,457	16,462	1,754	57,007	7,985	935,254	30,134	4,465	332,881	45,583	6,104,026	211,681	50
51	(1935).....	1,255	29,013	4,384	413,097	14,212	627	34,946	4,357	532,390	18,497	1,882	64,859	8,741	946,587	32,009	4,522	333,427	44,893	5,424,102	200,589	51
52	(1934).....	1,310	29,429	4,391	366,813	12,046	629	33,072	4,038	438,303	15,985	1,939	62,301	8,429	824,616	28,031	4,585	330,213	44,680	4,988,351	185,098	52
53	(1933).....	1,435	33,385	4,962	381,861	13,746	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,661	332,573	44,649	4,882,444	184,197	53
54	(1932).....	1,522	35,759	5,094	428,256	16,300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,758	334,987	44,572	5,178,598	198,277	54
55	(1931).....	1,560	36,764	5,352	450,184	17,012	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,797	332,591	44,232	5,322,898	206,695	55
56	(1930).....	1,620	38,557	5,233	.....	19,948	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,907	336,143	43,251	.....	212,645	56
57	(1929).....	1,611	37,677	5,212	.....	20,604	.....	.....	.....	.....	.....	.....										

the superintendent, who should take pains to see that copies of the rules and regulations are accessible and well understood. In case of infraction of rules, various forms of discipline have been attempted, such as loss of privileges, public reprimand, withholding of intern

diploma or discharge. Drastic action is seldom necessary whenever a real interest is taken in the welfare of the interns, and regular means are taken to meet with them so that problems may be discussed and solved before serious difficulties arise.

## APPROVED SCHOOLS FOR TECHNICIANS

Preliminary to the formulation and adoption of standards for clinical laboratory schools by the American Medical Association, the staff of the Council on Medical Education and Hospitals inspected and furnished complete reports on 196 schools located in all parts of the country. They included college and university courses, hospital laboratory departments conducting apprenticeship training, and some commercial schools.

With these comprehensive data a true picture of the kind and quality of this type of training was available on which to base standards for acceptable schools.

The "Essentials of an Acceptable School for Clinical Laboratory Technicians," prepared by the Council on Medical Education and Hospitals and concurred in by the Board of Registry of the American Society of Clinical Pathologists, were adopted by the Council on May 10, 1936, and were approved by the House of Delegates of the American Medical Association at the Kansas City session on May 13, 1936.

Since the publication of the first approved list in the Educational Number of THE JOURNAL, Aug. 29, 1936, fifteen schools have been added and one removed.

## SCHOOLS FOR CLINICAL LABORATORY TECHNICIANS

### CALIFORNIA

Children's Hospital, Los Angeles.  
Los Angeles County Hospital,  
Los Angeles.  
Mount St. Mary's College, Los  
Angeles.<sup>1</sup>  
Huntington Memorial Hospital,  
Pasadena.  
Mary's Help Hospital, San  
Francisco.  
University of California Hos-  
pital, San Francisco.

### COLORADO

Children's Hospital, Denver.  
University of Denver, Denver.<sup>2</sup>

### GEORGIA

Emory University, Emory Uni-  
versity.<sup>3</sup>

### ILLINOIS

Michael Reese Hospital, Chicago.  
Mount Sinai Hospital, Chicago.  
Northwestern University,  
Chicago.<sup>4</sup>  
Evanston Hospital, Evanston.  
St. John's Hospital, Springfield.  
St. Therese's Hospital, Waukegan.

### INDIANA

Indianapolis City Hospital, In-  
dianapolis.  
Methodist Episcopal Hospital, In-  
dianapolis.  
South Bend Medical Laboratory,  
South Bend.<sup>5</sup>

### KANSAS

University of Kansas Hospitals,  
Kansas City.  
St. Francis Hospital, Wichita.

### KENTUCKY

St. Joseph's Hospital, Lexington.  
University of Kentucky, Lexing-  
ton.<sup>6</sup>  
St. Joseph Infirmary, Louisville.  
State Board of Health, Louisville.<sup>7</sup>

### LOUISIANA

Loyola University, New Orleans.<sup>8</sup>

### MAINE

Central Maine General Hospital,  
Lewiston.

### MARYLAND

Mercy Hospital, Baltimore.

### MASSACHUSETTS

Simmons College, Boston.<sup>9</sup>  
Mercy Hospital, Springfield.  
The Worcester City Hospital,  
Worcester.  
The Worcester State Hospital,  
Worcester.

### MICHIGAN

Leila Y. Post Montgomery Hos-  
pital, Battle Creek.  
Mercy Hospital, Bay City.  
Grace Hospital, Detroit.  
Providence Hospital, Detroit.  
Wayne University, Detroit.<sup>10</sup>

### MINNESOTA

College of St. Scholastica,  
Duluth.<sup>11</sup>  
St. Luke's Hospital, Duluth.  
Fairview Hospital, Minneapolis.  
Minneapolis General Hospital,  
Minneapolis.  
Northwestern Hospital, Minne-  
apolis.  
Swedish Hospital, Minneapolis.  
University of Minnesota, Minne-  
apolis.<sup>12</sup>  
Charles T. Miller Hospital, St.  
Paul.

### MISSISSIPPI

Vicksburg Sanitarium and Crow-  
ford Street Hospital, Vicks-  
burg.<sup>13</sup>

### MISSOURI

University of Missouri, Colum-  
bia.<sup>14</sup>  
Kansas City Health Department  
Laboratory, Kansas City.<sup>15</sup>  
Menorah Hospital, Kansas City.  
Research Hospital, Kansas City.  
St. Joseph Hospital, Kansas City.  
St. Luke's Hospital, Kansas City.  
St. Mary's Hospital, Kansas City.  
St. Louis University School of  
Nursing, St. Louis.<sup>16</sup>

### NEBRASKA

Bryan Memorial Hospital, Lin-  
coln.  
Lincoln General Hospital, Lin-  
coln.  
University of Nebraska Hospital,  
Omaha.

### NEW YORK

Kilmer Pathological Laboratory,  
Binghamton.<sup>17</sup>  
Jewish Hospital, Brooklyn.  
St. John's Hospital, Brooklyn.  
Buffalo City Hospital, Buffalo.<sup>18</sup>  
Buffalo General Hospital, Buffalo.  
St. Joseph's Hospital, Elmira.  
Ellis Hospital, Schenectady.

### NORTH CAROLINA

Duke Hospital, Durham.

### OHIO

City Hospital, Akron.  
Institute of Pathology, Western  
Reserve University, Cleveland.<sup>19</sup>  
Mount Sinai Hospital, Cleveland.  
Starling-Loving University Hos-  
pital, Columbus.  
White Cross Hospital, Columbus.  
College of Mount St. Joseph-on-  
the-Ohio, Mount St. Joseph.<sup>20</sup>  
Youngstown Hospital, Youngs-  
town.

### OKLAHOMA

University Hospital, Oklahoma  
City.  
Morningside Hospital, Tulsa.

### OREGON

Emanuel Hospital, Portland.  
Good Samaritan Hospital, Port-  
land.  
St. Vincent's Hospital, Portland.  
University of Oregon, Portland.<sup>21</sup>

### PENNSYLVANIA

Abington Memorial Hospital,  
Abington.  
St. Luke's Hospital, Bethlehem.  
Fitzgerald-Mercy Hospital, Darby.  
Harrisburg Hospital, Harrisburg.  
Bucknell University, Lewisburg.<sup>22</sup>  
Jefferson Medical College Hospi-  
tal, Philadelphia.  
Lankenau Hospital, Philadelphia.  
Mount Sinai Hospital, Philadel-  
phia.  
St. Agnes Hospital, Philadelphia.  
St. Joseph's Hospital, Philadel-  
phia.  
Temple University, Philadelphia.<sup>23</sup>  
Moses Taylor Hospital, Scranton.  
Scranton State Hospital, Scranton.

### SOUTH CAROLINA

Spartanburg General Hospital,  
Spartanburg.

### TENNESSEE

Knoxville General Hospital,  
Knoxville.  
John Gaston Hospital, Memphis.

### TEXAS

Baylor University Hospital,  
Dallas.  
St. Paul's Hospital, Dallas.  
John Sealy Hospital, Galveston.  
Robert B. Green Memorial Hos-  
pital, San Antonio.

### VIRGINIA

U. S. Marine Hospital, Norfolk.  
College of William and Mary,  
Richmond.<sup>24</sup>  
Medical College of Virginia Hos-  
pital Division, Richmond.

### WASHINGTON

V. Cefalu Laboratory of Clinical  
Medicine, Seattle.<sup>25</sup>  
Sacred Heart Hospital, Spokane.  
St. Luke's Hospital, Spokane.  
St. Joseph Hospital, Tacoma.

### WISCONSIN

Madison General Hospital, Madi-  
son.  
St. Mary's Hospital, Madison.  
State of Wisconsin General Hos-  
pital, Madison.  
Milwaukee Hospital, "The Passa-  
vant," Milwaukee.  
St. Joseph's Hospital, Milwaukee.  
Milwaukee County General Hos-  
pital, Wauwatosa.

### AFFILIATIONS

1. St. Vincent's Hospital, Los Angeles.
2. Mercy Hospital and St. Anthony's Hospital, Denver; Greeley Hos-  
pital, Greeley; Sanatorium of the Jewish Consumptives' Relief Society,  
Spirak.
3. Emory University Hospital, Emory University.
4. Passavant Hospital, Chicago.
5. Epworth Hospital and St. Joseph Hospital, South Bend.

TABLE 2.—HOSPITAL FACILITIES BY STATES AND BY TYPE OF SERVICE

Marginal No.		General				Nervous and Mental				Tuberculosis				Maternity				Industrial				Eye, Ear, Nose and Throat				Marginal No.					
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census						
1	Alabama.....	65	430	90,837	3,594	4	5,583	2,243	5,719	6	330	401	226	1	45	25	107	31	34	315	8	1	100	6,461	74	8	1				
2	Alaska.....	40	213	37,714	1,338	1	583	304	831	19	1,744	6	330	1	1	1	1	1	18	18	3	1	10	300	4	3	2				
3	Arizona.....	47	215	41,955	1,297	2	4,789	2,618	4,750	2	382	886	583	1	21	12	30	15	25	3,133	83	1	10	300	4	3	3				
4	California.....	226	2,786	490,575	19,056	37	28,120	16,292	25,005	43	5,310	6,781	4,722	8	365	15	1,080	272	2	530	6,497	270	2	51	3,091	25	4	4			
5	Colorado.....	68	536	87,770	3,071	8	5,021	2,853	4,715	18	1,923	1,580	1,112	1	42	19	104	27	1	36	400	23	1	10	300	4	5	5			
6	Connecticut.....	38	941	187,127	4,405	15	9,442	9,584	9,096	3	1,679	2,846	1,581	1	11	8	69	3	1	36	400	23	1	10	300	4	6	6			
7	Delaware.....	10	112	16,397	1,480	2	1,605	284	1,385	2	182	131	161	1	177	133	3,737	174	1	100	6,461	74	8	1	100	6,461	74	7	7		
8	District of Columbia.....	8	524	89,000	4,215	3	5,723	1,058	5,980	2	340	322	331	1	1	1	1	1	1	1	1	1	100	6,461	74	8	8	8			
9	Florida.....	72	542	81,024	2,653	6	4,639	2,893	4,925	6	777	952	678	1	23	23	64	8	2	137	3,294	93	1	100	6,461	74	9	9	9		
10	Georgia.....	85	536	121,199	3,752	6	8,404	2,803	8,067	3	1,342	922	610	1	33	23	64	8	2	137	3,294	93	1	100	6,461	74	10	10	10		
11	Idaho.....	40	111	32,114	973	3	1,542	264	1,430	23	3,941	4,008	3,342	7	380	344	7,199	262	2	100	1,271	62	2	251	6,520	170	12	11	11		
12	Illinois.....	93	3,685	531,391	18,962	27	36,923	12,600	33,731	29	3,941	4,008	3,342	7	380	344	7,199	262	2	100	1,271	62	2	251	6,520	170	12	12	12		
13	Indiana.....	218	1,192	162,398	4,877	15	13,461	3,082	13,903	9	1,463	1,923	1,206	1	22	13	58	17	2	170	783	53	1	7	350	1	13	13	13		
14	Iowa.....	118	1,026	189,845	4,281	14	11,210	4,151	11,411	3	394	408	352	4	122	51	248	34	1	45	469	18	1	7	350	1	14	14	14		
15	Kansas.....	79	719	101,152	3,556	9	9,507	1,411	1,411	3	394	408	352	4	122	51	248	34	1	45	469	18	1	7	350	1	15	15	15		
16	Kentucky.....	73	538	93,612	2,764	10	7,334	3,480	3,480	3	1,067	1,604	949	4	149	6	99	43	3	250	4,234	135	1	7	350	1	16	16	16		
17	Louisiana.....	46	447	160,378	5,818	6	6,589	2,444	2,444	0	318	373	210	1	49	6	99	43	3	250	4,234	135	1	7	350	1	17	17	17		
18	Maine.....	40	421	60,399	1,978	5	3,361	805	1,078	4	485	527	447	1	14	12	338	9	2	95	2	993	31	1	70	9,771	31	17	17	17	
19	Maryland.....	40	686	111,210	5,213	16	6,404	2,300	2,300	4	1,223	1,398	1,188	1	14	12	338	9	2	95	2	993	31	1	70	9,771	31	17	17	17	
20	Massachusetts.....	143	2,622	330,781	14,169	26	29,360	8	9,506	30	4,891	8,289	4,047	10	584	438	8,061	328	1	50	1,064	32	1	75	1	4,608	34	19	18	18	
21	Michigan.....	163	2,038	333,254	11,731	18	11,007	7	5,601	26	3,665	3,407	3,069	8	123	81	670	75	2	50	1,064	32	1	75	1	4,608	34	19	20	20	
22	Minnesota.....	163	1,400	208,510	9,989	14	7	3,469	3	3	17	2,139	1,614	1,920	3	123	81	670	75	2	50	1,064	32	1	75	1	4,608	34	21	21	21
23	Mississippi.....	93	323	61,238	1,312	4	4	2,611	1,611	6	2	525	422	330	2	7	1,627	1,637	1,494	4	3	450	5,555	197	23	23	23	23	23	23	
24	Missouri.....	64	1,185	193,570	7,068	18	11,007	7	5,601	26	3,665	3,407	3,069	8	123	81	670	75	2	50	1,064	32	1	75	1	4,608	34	24	24	24	
25	Montana.....	49	470	49,750	1,719	1	1	539	1,421	2	1	169	133	10	1	40	6	81	10	2	101	4	2	101	4	2	25	25	25	25	
26	Nebraska.....	15	529	78,104	2,736	5	5	849	1,421	2	1	160	124	155	1	21	26	140	43	2	101	4	2	101	4	2	26	26	26	26	
27	Nevada.....	15	60	7,846	1,114	1	1	849	1,421	2	1	160	124	155	1	21	26	140	43	2	101	4	2	101	4	2	27	27	27	27	
28	New Hampshire.....	33	337	96,586	1,221	2	1	1	1	6	2	209	147	183	1	22	10	311	10	1	1	1	1	1	1	1	28	28	28	28	
29	New Jersey.....	13	337	96,586	1,221	2	1	1	1	6	2	209	147	183	1	22	10	311	10	1	1	1	1	1	1	1	29	29	29	29	
30	New Mexico.....	80	1,889	277,024	9,179	25	2	2	1	18	2,972	5	4,333	2,765	3	360	306	6,174	213	3	139	815	62	1	69	2,563	42	30	30	30	
31	New York.....	37	174	20,518	1,248	2	2	1	1	0	18	2,972	5	4,333	2,765	3	360	306	6,174	213	3	139	815	62	1	69	2,563	42	31	31	31
32	North Carolina.....	107	760	140,884	3,765	9	9	46	1	62	11,332	7	18,427	9,810	17	1,277	774	20,466	939	3	139	815	62	1	69	2,563	42	32	32	32	
33	North Dakota.....	43	338	47,294	1,517	2	2	1	1	20	2,332	3,886	1,923	1	2	50	45	140	39	1	50	844	31	1	12	1	33	33	33	33	
34	Oklahoma.....	152	2,202	359,674	12,049	28	7	1	1	8	2	305	1	133	255	2	70	45	140	39	1	50	844	31	1	12	1	34	34	34	
35	Oregon.....	90	585	96,144	2,231	7	7	1	1	0	6	880	1,982	807	1	25	30	215	10	2	45	516	13	3	27	2	35	35	35	35	
36	Pennsylvania.....	228	4,137	604,761	21,474	46	6	11	1	18	4,290	5,164	3,960	10	542	195	5,347	367	1	1	1	1	1	1	1	1	36	36	36	36	
37	Rhode Island.....	14	176	34,885	2,264	3	3	1	1	1	6	532	333	448	1	135	155	8,189	99	1	1	1	1	1	1	1	37	37	37	37	
38	South Carolina.....	43	276	62,718	2,162	3	3	1	1	1	6	532	333	448	1	135	155	8,189	99	1	1	1	1	1	1	1	38	38	38	38	
39	South Dakota.....	51	284	371	42,896	1,619	1	1	1	3	1	1,192	1,271	989	1	30	12	13	4	1	15	217	3	39	39	39	39	39	39	39	
40	Tennessee.....	235	12,015	1,441	291,069	7,023	16	16	1	7	1,147	1,271	989	1	30	12	13	4	1	15	217	3	39	39	39	39	40	40	40	40	
41	Texas.....	42	1,764	290	29,968	1,139	2	2	1	3	21	2,556	5,549	2,096	3	91	29	219	46	5	535	2	8,050	225	1	41	3,977	31	41	41	41
42	Utah.....	27	1,283	178	37,238	824	4	4	1	3	171	277	156	1	30	4	42	3	3	1	18	107	10	2	36	839	9	43	43	43	
43	V																														

6. Good Samaritan Hospital, Lexington.
7. Louisville City Hospital, Louisville.
8. Hotel Dieu Hospital and Mercy Hospital, New Orleans.
9. Boston Dispensary, Faulkner Hospital and State Laboratory, Boston.
10. City of Detroit Receiving Hospital and Henry Ford Hospital, Detroit.
11. St. Mary's Hospital, Duluth.
12. Minneapolis General Hospital and University Hospitals, Minneapolis.
13. Mississippi State Charity Hospital, Vicksburg.
14. University Hospitals, Columbia.

15. Kansas City General Hospital, Kansas City.
16. Firmin Desloge Hospital, St. Louis.
17. Binghamton City Hospital, Binghamton.
18. University of Buffalo, Buffalo.
19. University Hospitals, Cleveland.
20. Good Samaritan Hospital, Cincinnati.
21. Doernbecher Memorial Hospital for Children and Multnomah Hospital, Portland.
22. George F. Geisinger Memorial Hospital, Danville.
23. Temple University Hospital, Philadelphia.
24. Stuart Circle Hospital, Richmond.
25. Columbus Hospital and Maynard Hospital, Seattle.

## APPROVED SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS

Following the resolution passed by the House of Delegates at the Cleveland session in 1934 requesting that "some plan for the establishment of standards, ratings and inspections of training schools for physical therapy technicians be effected," the Board of Trustees designated the Council on Medical Education and Hospitals as the proper body to proceed with such a study. The cooperation of the Council on Physical Therapy, the American Congress of Physical Therapy and the American Physiotherapy Association was secured in determining minimum educational requirements for physical therapy technicians.

The "Essentials of an Acceptable School for Physical Therapy Technicians" were adopted by the Council on Medical Education and Hospitals and passed by the House of Delegates at the annual session of the American Medical Association in Kansas City on May 13, 1936. The first list of approved schools was published in the Educational Number of THE JOURNAL under "Survey of Schools for Physical Therapy Technicians," Aug. 29, 1936.

Up to the present time fourteen schools have been approved. Others are in the process of making changes to conform to the standard requirements in order that they may be considered for approval later.

### SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS

- Children's Hospital, Los Angeles.<sup>1</sup>  
 Stanford University Hospitals, San Francisco.  
 Walter Reed General Hospital, Washington, D. C.<sup>2</sup>  
 Northwestern University Medical School, Chicago.<sup>3</sup>  
 Bouvé-Boston School of Physical Education, Boston.<sup>4</sup>  
 Harvard Medical School, Course 445, Boston.<sup>5</sup>  
 Boston University, Sargent College of Physical Education, Cambridge, Mass.<sup>6</sup>  
 Battle Creek College, Battle Creek, Mich.<sup>7</sup>

- St. Louis University School of Nursing, St. Louis.<sup>8</sup>  
 University of Buffalo, Buffalo.<sup>9</sup>  
 Hospital for Ruptured and Crippled, New York City.<sup>10</sup>  
 D. T. Watson School of Physiotherapy, Leetsdale, Pa.<sup>11</sup> (affiliated with the University of Pittsburgh).  
 College of William and Mary, Richmond, Va.<sup>12</sup>  
 University of Wisconsin, Madison, Wis.<sup>13</sup>

### AFFILIATIONS

1. Cedars of Lebanon Hospital, Good Hope Clinic and Los Angeles County Hospital, Los Angeles; Glendale Sanitarium and Hospital, Glendale.
2. Weightmann School for Crippled Children, Washington, D. C.
3. Illinois Central Hospital, Michael Reese Hospital, Montgomery Ward Medical Clinics, Passavant Memorial Hospital and St. Luke's Hospital, Chicago.
4. Boston City Hospital, Children's Hospital, Massachusetts General Hospital and Robert Breck Brigham Hospital, Boston; Cambridge Hospital, Cambridge; New England Peabody Home for Crippled Children and Newton Hospital, Newton.
5. Boston Home for Incurables, Convalescent Home of the Children's Hospital, Children's Hospital, Harvard Infantile Paralysis Commission, Industrial School for Crippled and Deformed Children, Massachusetts General Hospital, Perkins Institute for the Blind and Robert Breck Brigham Hospital, Boston; Cambridge Hospital, Cambridge.
6. Massachusetts General Hospital, Massachusetts Memorial Hospitals and Industrial School for Crippled and Deformed Children, Boston; Cambridge Hospital, Cambridge.
7. Ann J. Kellogg School and Battle Creek Sanitarium, Battle Creek.
8. Firmin Desloge Hospital, St. Louis.
9. Buffalo City Hospital, Buffalo.
10. Cornell Clinic, French Hospital, New York Hospital, New York Polyclinic Medical School and Hospital and New York Post-Graduate Medical School and Hospital, New York City.
11. Allegheny General Hospital, Children's Hospital, Falk Clinic, Industrial Home for Crippled Children and St. Francis Hospital, Pittsburgh.
12. Sheltering Arms Hospital and Stuart Circle Hospital, Richmond.
13. State of Wisconsin General Hospital, Madison.

There is abundant evidence that the Council's program in the regulation of schools for medical technicians is already having the desired effect. The Council is in position to supply reliable information and to guide aspirants in these important fields for the training of medical technicians. Essentials in acceptable schools and lists containing more complete data than those furnished above may be secured on request to the office of the Council.

## HOSPITAL MEDICAL LIBRARY SUGGESTIONS

Prepared by the Council on Medical Education and Hospitals of the American Medical Association

The "Essentials in a Hospital Approved for Training Interns" contains the following provision:

"There must be a working medical library, in charge of a librarian, which should contain a useful selection of late editions of standard text and reference books and current files of not less than ten of the better medical journals. The library should be inside the hospital building and be located where it is readily accessible to the interns and staff members. Collections of choice reference books in pathology and clinical diagnosis and in roentgen-ray work should be found respectively in the pathologic and roentgenologic departments."

Included in the "Essentials in a Hospital Approved for Residencies in Specialties" is the following medical library requirement:

"The hospital shall maintain, or provide ready access to, an adequate medical library containing modern texts and current journals covering the fields in which residencies are offered."

Since the internship must now be considered as the fifth year in medicine and approved residencies in specialties as postgraduate work, hospitals on such educational bases should provide adequate medical libraries.

While it is impossible for all hospitals to be possessed of an ideal library such as may be found in a medical school and in some of the large teaching hospitals, there are few hospitals that cannot maintain a library of a few choice medical periodicals, standard texts and reference books.

The important function of a medical library in a hospital is to provide attending physicians and interns with material for immediate reference and consultation, intensive study of the patients in the hospital, and the preparation of papers, discourses and special reports to be used in staff meetings, medical gatherings and for publication.

### Organization

The medical library should be under the supervision of a committee consisting of several members of the staff. Many library committees are such in name only. Care should be exercised in order to assure the inclusion of such doctors as would take an active interest in developing the library. The funds for regular additions to the library should be placed at the disposal of this committee.

The hospital that has no library may establish one by various means: (a) by an annual appropriation (as little as \$300 annu-



TABLE 2.—HOSPITAL FACILITIES BY STATES AND BY TYPE OF SERVICE—Continued

Marginal No.		Children's				Orthopedic				Isolation				Convalescent and Rest				Hospital Departments of Institutions				All Other Hospitals				Totals				Marginal No.			
		Hospitals	Beds	Patients Admitted	Average	Hospitals	Beds	Patients Admitted	Average	Hospitals	Beds	Patients Admitted	Average	Hospitals	Beds	Patients Admitted	Average	Hospitals	Beds	Patients Admitted	Average	Hospitals	Beds	Patients Admitted	Average	Hospitals	Beds	Patients Admitted	Average				
1	Alabama.....	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1			
2	Alaska.....	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1			
3	Arizona.....	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1			
4	Arkansas.....	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1	50	855	28	1			
5	California.....	4	419	10,769	262	2	145	9,294	127	2	76	1,144	6	14	450	1,989	386	22	2,695	43	10,290	2,177	31	101	1,626	77	265	3,027	53,953	22,475	2		
6	Colorado.....	1	250	28,304	114	1	200	198	202	2	186	2	725	78	7	129	259	80	7	392	89	2,687	130	17	776	17	103	583	99,001	9,449	5		
7	Connecticut.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
8	Delaware.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
9	District of Columbia.....	1	40	2,103	31	2	164	557	116	1	25	115	9	1	187	2	3,361	78	1	187	2	3,361	78	1	187	2	3,361	78	1				
10	Florida.....	1	389	6,652	227	2	180	382	133	3	483	4,170	246	10	568	3,213	332	12	685	15	10,068	479	317	1,516	6	1,816	1,207	4,657	69,653	60,503	12		
11	Georgia.....	1	40	2,103	31	2	164	557	116	1	25	115	9	1	187	2	3,361	78	1	187	2	3,361	78	1	187	2	3,361	78	1				
12	Idaho.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
13	Illinois.....	3	389	6,652	227	2	180	382	133	3	483	4,170	246	10	568	3,213	332	12	685	15	10,068	479	317	1,516	6	1,816	1,207	4,657	69,653	60,503	12		
14	Indiana.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
15	Iowa.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
16	Kansas.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
17	Kentucky.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
18	Louisiana.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
19	Maine.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
20	Maryland.....	1	182	6,650	123	1	103	470	83	1	21	22	725	78	1	86	4	618	56	1	86	4	618	56	1	86	4	618	56	1			
21	Massachusetts.....	0	534	7,872	407	5	610	922	520	5	210	570	41	12	438	1,840	327	10	447	6	3,987	331	8	672	4,308	322	256	3,110	350,308	49,449	20		
22	Michigan.....	2	280	6,618	193	1	50	143	32	3	278	4	1,687	114	4	320	2	738	211	9	946	0	4,068	526	2	39	700	19	226	2,168	350,100	26,889	21
23	Minnesota.....	1	65	1,225	29	2	310	738	277	3	8	533	4,045	320	3	121	883	54	3	121	883	54	3	121	883	54	3	121	883	54	3		
24	Mississippi.....	2	346	12,548	264	2	160	623	126	2	260	6	2,211	158	2	110	472	62	7	450	2,619	31	4	181	2,270	102	148	1,318	292,617	23,812	24		
25	Missouri.....	1	110	147	03	1	110	147	03	1	110	147	03	1	110	147	03	1	110	147	03	1	110	147	03	1	110	147	03	1			
26	Montana.....	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1			
27	Nebraska.....	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1			
28	Nevada.....	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1	40	730	17	1			
29	New Hampshire.....	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1			
30	New Jersey.....	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1			
31	New Mexico.....	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1	60	583	20	1			
32	New York.....	5	751	39,024	568	13	1,667	11,067	1,449	7	894	5,874	396	24	1,298	8,175	897	33	6,876	32	17,853	5,849	18	347	14,300	3,175	587	1	7,793	126,069	18,663	32	
33	North Carolina.....	5	203	12,122	83	1	100	439	138	2	20	8	83	4	325	1,429	207	20	1,740	5	14,637	1,123	4	380	576	488	232	2,553	399,500	44,927	34		
34	North Dakota.....	3	409	17,952	276	2	48	53	34	2	48	53	34	2	48	53	34	2	48	53	34	2	48	53	34	2	48	53	34	2			
35	Ohio.....	1	75	2,385	48	1	50	280	50	1	70	0	370	24	1	15	154	9	3	61	2,819	67	1	25	143	10	70	9,963	513	87,493	8,441	36	
36	Oklahoma.....	1	75	2,385	48	1	50	280	50	1	70	0	370	24	1	15	154	9	3	61	2,819	67	1	25	143	10	70	9,963	513	87,493	8,441	36	
37	Oregon.....	1	75	2,385	48	1	50	280	50	1	70	0	370	24	1	15	154	9	3	61	2,819	67	1	25	143	10	70	9,963	513	87,493	8,441	36	
38	Pennsylvania.....	6	469	8,249	280	7	637	1,022	503	0	1,341	10	5,118	353	11	423	34	3,296	335	16	1,524	24	4,490	1,080	10	890	5,564	633	359	399,500	44,927	34	
39	Rhode Island.....	1	50	73	46	1	60	332	61	1	60	332	61	1	60	332	61	1	60	332	61	1	60	332	61	1	60	332	61	1			
40	South Carolina.....	1	73	11,168	50	4	179	1,403	130	1	46	42	5	1	35	212	22	1	35	212	22	1	35	212	22	1	35	212	22	1			
41	South Dakota.....	1	73	11,168	50	4	179	1,403	130	1	46	42	5	1	35	212	22	1	35	212	22	1	35	212	22	1	35	212	22	1			
42	Tennessee.....	2	97	6,128	52	2	75	1,211	53	1	46	42	5	1	35	212	22	1	35	212	22	1	35	212	22	1	35	212	22	1			
43	Texas.....	2	97	6,128	52	2	75	1,211	53	1																							

ally would be sufficient for establishment and expansion); (b) by annual subscription from staff members; or (c) through gift or endowment in the manner that other equipment and furnishings are given a hospital. A good nucleus, no matter how small, and an assured annual income are the essential requisites of the hospital just beginning its medical library. By the gradual addition of material from year to year a library would be evolved that could be considered an asset to the institution and the community.

The cost of maintaining the library already established is not prohibitive and could be made a legitimate item in the operating budget. When this cannot be done, an excellent plan is for each member of the medical staff to contribute at least a small sum annually toward maintaining and improving the library and this amount could be made a part of the staff dues.

It is desirable that the library should be immediately in charge of a librarian who has had training and experience in library work. In the absence of an experienced librarian, some competent person, frequently the superintendent or record clerk or some other person selected from among the regular administrative personnel, should be placed in charge.

A code of library regulations should be drawn up by the library committee and should be carefully adhered to by the staff members. In general, books or periodicals should not be removed from the library; if this is unavoidable, record should be made of the removal and return.

### Location and Furnishings

The hospital medical library should occupy a prominent location, preferably in the hospital building. The actual location of the room will affect directly the amount of usage. If it is placed in an obscure corner of a floor that is used very little as compared with other floors, it will naturally not be visited often.

The location should be chosen with a view to attractiveness, convenience and comfort to those who will use the library. It is often preferable to have it on the administrative floor or in close proximity to the doctors' room.

The room should be sufficiently large to house the books along with the necessary furnishings, and to permit its comfortable use for reading, discussion and conversation. The very atmosphere of the room will have much to do with the extent to which the library will be used.

It would be worth while for those interested in developing such a library to visit similar libraries and study the elements that seem to make them a success. Any well ordered and well used library, whether medical or not, would furnish good suggestions. The best type of shelf or rack is whatever enables the book or journal to be quickly found, easily removed, and easily replaced. There should be a complete card index. Binding journals into volumes adds to their life and usefulness.

### Reading Matter

In establishing the library, it is well to purchase only one or two comprehensive textbooks on each subject. Only recent books should be chosen, with the exception of such standard works as are recognized as classics in their respective lines, and which do not grow obsolete with age. The literature on therapy and diagnosis, for example, is changing so rapidly as to warrant the use of the most recent books. In the field of the more fully developed sciences, such as anatomy and histology, literature is more stabilized and longer lived. More recent editions of the standard textbooks should be added from time to time, thus keeping the library up to date with regard to new methods of diagnosis and treatment that have been digested and tested. After a good foundation has been formed, the balance of the apportioned funds may be expended in purchasing varied references that are known to be of particular value. The library should not be allowed to become a depository for antiques, and out of date books should be removed or discarded.

The usefulness and efficiency of the hospital medical library depend not only on a good selection of medical books but also on a well chosen group of periodicals. Limited library funds are often more usefully expended for periodicals than for texts and references. When ample funds are provided there is no great difficulty experienced in the matter of choice.

The hospital medical library may supplement its service by the use of state medical school libraries, county society libraries (in some cases), and the package library of the American Medical Association. The package library consists of collections of reprints and other material on various subjects, prepared for lending to members of the Association and to individual subscribers to publications of the American Medical Association. Information on the loan systems of state medical school libraries or society libraries can readily be obtained on inquiry.

Dr. Vincent<sup>1</sup> at the fiftieth anniversary of the Boston Medical Library in 1926, spoke of the library as being part of the social memory:

"A medical group which works with little or no reference to books and journals suffers serious limitations. Without knowledge of what others have discovered, daily experience cannot be resourcefully interpreted. Avoidable mistakes, waste, and duplication of effort are inevitable. Doctors become victims of empiricism and routine; imagination and initiative lack stimulus; enthusiasm and energy decline; minds grow sterile that under the quickening influence of the recorded experience of others might have been fruitful."

Harvey Cushing,<sup>2</sup> in his address at the opening of the new building of the Cleveland Medical Library in 1926, aptly states: "The soul of an institution that has any pretense to learning comes to reside in its library; . . . and no less well may one gauge the quality of a medical school, of a hospital, of a laboratory, of the individual doctor himself, than by the condition of its library."

### SUGGESTED PERIODICALS

A selection of a few leading medical journals is indispensable. Obviously, the average hospital library will contain only a portion of the following list. It is desirable that the library of a general hospital should select its periodicals from those included under "Medicine" and "Surgery" before journals from the special lists are made available. The specialties receive a certain amount of attention in the general medical and surgical publications listed below.

#### ANATOMY

American Journal of Anatomy. Wistar Institute, 36th St. and Woodland Ave., Philadelphia. Bi-M. \$7.50 per volume.

#### DERMATOLOGY AND SYPHILIGOLOGY

American Journal of Syphilis, Gonorrhea and Venereal Diseases. C. V. Mosby Co., 3523 Pine Blvd., St. Louis. Bi-M. \$7.50.  
Archives of Dermatology and Syphilology. American Medical Association, 535 N. Dearborn St., Chicago. M. \$8.  
British Journal of Dermatology and Syphilis. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1. M. 2g.  
British Journal of Venereal Diseases. Constable & Co., Ltd., 10 Orange St., Leicester Sq., London, W. C. 2. Q. 20s.

#### HOSPITAL ADMINISTRATION

Hospitals, The Journal of the American Hospital Association, 18 E. Division St., Chicago. M. \$2. Non-members, \$3.  
Hospital Management, 612 N. Michigan Ave., Chicago. M. \$2.  
Hospital Progress. 1402 S. Grand Blvd., St. Louis. M. \$3.  
Modern Hospital. 919 N. Michigan Ave., Chicago. M. \$3.

#### INDEX AND DIRECTORY

American Medical Directory. American Medical Association, 535 N. Dearborn St., Chicago. Bi-A. \$15. (A register of legally qualified physicians of the United States, Alaska, Canal Zone, Hawaii, Philippine Islands, Puerto Rico, Guam, Samoa and Virgin Islands, Canada, Newfoundland and Yukon. Contains a list of hospitals in the same countries.)  
Quarterly Cumulative Index Medicus. American Medical Association, 535 N. Dearborn St., Chicago. Q. \$12. (An index and guide to the medical literature of the world.)

#### INFECTIOUS DISEASES, HYGIENE AND PREVENTIVE MEDICINE

American Journal of Hygiene. 615 N. Wolfe St., Baltimore. Bi-M. \$12.  
American Journal of Public Health and the Nation's Health. 50 W. 50th St., New York. M. \$5.  
American Journal of Tropical Medicine. Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. Bi-M. \$5.  
Journal of Immunology. Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. M. \$9.  
Journal of Industrial Hygiene and Toxicology with Abstract of Literature. Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. M. \$5.  
Journal of Infectious Diseases. 629 S. Wood St., Chicago. Bi-M. \$5.

1. Boston Medical Library. Celebration of the fiftieth anniversary, Jan. 19, 1926. Boston, 1926.  
2. Cushing, Harvey: The Doctor and His Books. Cleveland, 1926.

amount of floor space per patient. After the basic floor space has been established, allowances for much variation may be made for location of rooms, suitability for purposes used, fire protection, height of stories, methods of ventilation, heating and lighting, and char-

#### Overcrowding in State Mental Hospitals

State	Total Mental Hospitals in State	Number of Hospitals Reporting Rated Capacity and Average Census	Number of Hospitals Showing No Excess	Number of Hospitals Showing Less Than 15% Overcrowding	15-30% Overcrowding	30-50% Overcrowding	Over 50% Overcrowding	Number of Hospitals Not Reporting Both Rated Capacity and Average Census
Alabama.....	3	3	1	1	1	1	..	..
Arizona.....	1	1	1	..	..	..	..	..
Arkansas.....	1	1	1	..	..	..	..	..
California.....	9	9	1	1	3	12	2	2
Colorado.....	4	4	1	1	1	1	1	1
Connecticut.....	4	4	1	..	1	1	1	1
Delaware.....	2	2	1	..	..	1	..	..
District of Columbia..	..	..	..	..	..	..	..	..
Florida.....	2	1	1	1	..	..	1	1
Georgia.....	12	12	1	1	1	..	..	..
Idaho.....	3	3	1	..	1	1	..	..
Illinois.....	12	11	4	3	..	..	1	1
Indiana.....	8	7	4	1	2	..	1	1
Iowa.....	7	7	1	1	2	3	..	..
Kansas.....	6	6	3	3	..	..	..	..
Kentucky.....	4	4	1	1	..	1	2	2
Louisiana.....	4	4	1	1	..	..	1	1
Maine.....	4	4	1	1	1	1	..	..
Maryland.....	4	4	1	1	..	..	1	1
Massachusetts.....	17	17	3	4	9	1	..	..
Michigan.....	10	10	3	3	2	..	..	..
Minnesota.....	8	8	5	3	..	..	1	1
Mississippi.....	3	3	3	..	..	..	..	..
Missouri.....	5	5	2	..	2	1	1	1
Montana.....	1	1	1	..	..	..	1	1
Nebraska.....	4	4	1	2	1	..	..	..
Nevada.....	1	1	1	..	..	..	..	..
New Hampshire.....	2	2	1	1	..	..	..	..
New Jersey.....	2	2	1	1	..	1	..	..
New Mexico.....	2	2	2	..	..	..	..	..
New York.....	31	30	11	10	9	..	1	1
North Carolina.....	4	4	3	..	..	..	1	1
North Dakota.....	2	2	1	1	..	..	..	..
Ohio.....	12	12	3	3	2	4	..	..
Oklahoma.....	3	3	1	2	1	..	..	..
Oregon.....	3	3	2	1	..	..	..	..
Pennsylvania.....	10	10	3	5	1	1	..	..
Rhode Island.....	2	2	1	..	1	..	1	1
South Carolina.....	3	3	1	..	1	..	..	..
South Dakota.....	4	4	1	1	..	..	..	..
Tennessee.....	4	4	3	1	..	..	..	..
Texas.....	8	7	4	..	2	..	1	1
Utah.....	2	2	1	1	..	..	..	..
Vermont.....	2	2	1	..	..	1	..	..
Virginia.....	4	4	3	2	..	..	1	1
Washington.....	4	4	3	1	..	..	..	..
West Virginia.....	4	4	3	1	1	..	..	..
Wisconsin.....	6	5	1	1	1	1	1	1
Wyoming.....	2	2	1	1	..	..	..	..
Totals.....	247	228	93	61	46	24	4	19

acter of the patients, whether newly admitted, acutely sick, tuberculous, disturbed, noisy, untidy, and the constancy of their presence.

In calculating these allowances it is customary to eliminate toilet, bath and clothes rooms, which are usually a constant quantity, and other spaces, such as narrow corridors, which are not suitable for living purposes.

In populous states like Massachusetts, New York and New Jersey, there is a general tendency to approximate an allowance of 50 square feet floor area per patient in dormitories and day space capacities, around 80 square feet for floor area per patient in single rooms, and around 15 square feet floor area per patient for normal dining room space.

In reporting for the New York State Department of Mental Hygiene, the commissioner said:

As our square foot ratio is fairly generous, we estimate that a general overcrowding of 15 per cent is not apparent.

In the older institutions there was no general standard of certified capacity. The institutions were surveyed from time to time and a reasonable capacity was established for each ward,

and factors of floor space, ventilation, ceiling height, etc., were taken into consideration at that time. With all the new structures, however, we have calculated the certified capacity on the basis of 45 square feet per patient applied to dormitory space only. This does not take into account space in day rooms or in dining rooms. It is on that liberal square foot basis that numbers in excess of the certified capacity easily can be accommodated.

The present satisfactory situation in New York State in respect to lack of overcrowding will not continue unless the state from time to time provides additional accommodations. The normal annual state hospital increase is approximately 2,500. If no provision were made for that increase, the overcrowding would increase at the rate of 5 per cent each year. Fortunately, each year additional funds have been made available and the overcrowding remains about stationary.

#### DENTAL SERVICES IN HOSPITALS

Hospitals were asked whether they had dental services, and if so, the number of dentists classified as attending, associate, consulting, and the number of dental interns and number of dentists on salary.

#### Dental Services in Hospitals

State	Hospitals Reporting Dental Service	Number of Dentists Reported			Total Dentists	Hospitals Reporting Dental Interns	Number of Dental Interns	Dentists on Salary in Hospitals
		Attending	Associate	Consulting				
Alabama.....	35	65	8	35	108	12	2	10
Arizona.....	27	37	8	7	52	..	..	13
Arkansas.....	30	60	38	7	105	..	..	12
California.....	157	101	90	96	287	6	10	59
Colorado.....	56	68	19	77	164	..	..	23
Connecticut.....	59	103	53	71	229	3	4	27
Delaware.....	9	10	5	3	18	1	1	5
District of Columbia..	20	38	18	17	73	4	4	20
Florida.....	36	74	30	12	116	8	3	12
Georgia.....	61	115	41	43	199	5	7	17
Idaho.....	20	47	..	11	58	..	..	2
Illinois.....	70	374	112	65	551	4	35	86
Indiana.....	66	100	51	18	230	12	12	21
Iowa.....	60	117	18	31	166	2	6	15
Kansas.....	59	99	18	30	147	2	3	29
Kentucky.....	38	59	7	34	100	2	4	12
Louisiana.....	36	79	33	34	146	2	3	11
Maine.....	28	33	16	10	59	1	1	6
Maryland.....	45	86	37	57	180	4	6	21
Massachusetts.....	164	236	70	147	453	11	17	56
Michigan.....	116	108	43	55	296	10	16	42
Minnesota.....	84	117	16	41	174	3	7	3
Mississippi.....	32	50	16	26	102	..	..	..
Missouri.....	85	190	47	54	291	7	13	24
Montana.....	20	30	12	25	67	..	..	8
Nebraska.....	58	66	40	17	123	1	1	1
Nevada.....	5	3	3	1	7	..	..	1
New Hampshire.....	25	30	8	14	52	..	..	45
New Jersey.....	114	180	76	66	322	15	27	10
New Mexico.....	29	33	2	9	44	..	..	184
New York.....	358	456	314	204	974	60	103	9
North Carolina.....	68	94	19	61	174	..	..	4
North Dakota.....	24	40	3	10	53	..	..	37
Ohio.....	126	250	59	44	353	10	16	18
Oklahoma.....	59	91	8	49	151	2	2	17
Oregon.....	30	66	19	25	110	..	..	67
Pennsylvania.....	240	354	139	122	615	23	41	7
Rhode Island.....	19	57	14	5	76	3	5	5
South Carolina.....	31	32	18	18	68	..	..	8
South Dakota.....	33	62	9	15	76	..	..	14
Tennessee.....	61	102	12	69	183	5	5	26
Texas.....	146	218	35	115	368	5	7	6
Utah.....	17	24	12	3	39	..	..	1
Vermont.....	16	25	7	4	36	1	1	21
Virginia.....	51	80	24	34	134	3	7	2
Washington.....	61	83	33	47	163	2	2	5
West Virginia.....	44	101	30	21	142	..	..	2
Wisconsin.....	102	168	43	59	270	2	8	7
Wyoming.....	12	10	1	7	18	..	..	..
Totals.....	3,142	5,191	1,726	2,025	8,945	211	369	1,176

The tabulation by states published here shows that 3,142 hospitals reported a total of 8,945 dentists. These are divided into attending, 5,194; associate, 1,726 and consulting, 2,025. One thousand one hundred and seventy six of these dentists are on salary. In addition, there are 369 dental interns in 211 hospitals.

## MEDICINE

- American Heart Journal. C. V. Mosby Co., 3523 Pine Blvd., St. Louis. M. \$8.50.
- American Journal of the Medical Sciences. Lea & Febiger, 600 S. Washington Sq., Philadelphia. M. \$6.
- Annals of Internal Medicine. American College of Physicians, Prince and Lemon St., Lancaster, Pa. M. \$7.
- Archives of Internal Medicine. American Medical Association, 535 N. Dearborn St., Chicago. M. \$5.
- British Medical Journal. British Medical Association House, 19 Tavistock Sq., London, W. C. 1. W. 1s. 3d. per issue.
- Canadian Medical Association Journal, 3640 University St., Montreal. M. \$6.
- Clinical Science Incorporating Heart. Shaw & Sons, Ltd., 7, 8 & 9, Fetter Lane, Fleet St., London, E. C. 4. Irreg. £1 17s. 6d.
- Hygeia. 535 N. Dearborn St., Chicago. M. \$2.50.
- Industrial Medicine. 844 Rush St., Chicago. M. \$5.
- International Clinics. J. B. Lippincott Co., 227 E. Washington Sq., Philadelphia. Q. \$12.
- Journal of Allergy. C. V. Mosby Co., 3523 Pine Blvd., St. Louis. Bi-M. \$7.50.
- Journal of the American Medical Association. 535 N. Dearborn St., Chicago. W. \$7.
- Journal of Clinical Investigation. 654 Madison Ave., New York. Bi-M. \$10.
- Journal of Experimental Medicine. Rockefeller Institute for Medical Research, York Ave. and 66th St., New York. M. \$10.
- Lancet. 7 Adam St., Adelphi, London, W. C. 2; Oxford University Press (American Branch), 114 5th Ave., New York. W. £2 10s.
- Medical Clinics of North America. W. B. Saunders Co., W. Washington Sq., Philadelphia. Bi-M. Cloth, \$16; paper, \$12.
- Medicine, Analytical Reviews of General Medicine, Neurology and Pediatrics. Williams and Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. Q. \$5.
- New England Journal of Medicine. 8 The Fenway, Boston. W. \$6.
- Quarterly Journal of Medicine. Dr. A. G. Gibson, Sec., 27 Banbury Rd., Oxford. Q. 35s.
- Review of Gastroenterology. 148 Lafayette St., New York. Q. \$2.

## NEUROLOGY AND PSYCHIATRY

- American Journal of Psychiatry. American Psychiatric Association, 2 E. 103d St., New York. Bi-M. \$6.
- Archives of Neurology and Psychiatry. American Medical Association, 535 N. Dearborn St., Chicago. M. \$8.
- Brain. A Journal of Neurology. Macmillan & Co., Ltd., St. Martin's St., London, W. C. 2. (American office—60 5th Ave., New York.) Q. 24s.
- Journal of Mental Science. J. & A. Churchill, 40, Gloucester Place, Portman Square, London, W. 1. Bi-M. 6s. per issue.
- Journal of Nervous and Mental Disease. Dr. Smith Ely Jelliffe, 64 W. 56th St., New York. M. \$10.
- Journal of Neurology and Psychopathology. British Medical Association, Tavistock Square, London, W. C. 1. Q. 30s.
- Psychoanalytic Quarterly. 372-374 Broadway, Albany, N. Y. Q. \$6.

## NUTRITION

- American Journal of Digestive Diseases and Nutrition. 435-455 Lincoln Bank Tower, Fort Wayne, Ind. M. \$5.50.
- Journal of Nutrition. Wistar Institute of Anatomy and Biology, 36th St. and Woodland Ave., Philadelphia. M. \$10.
- Nutrition; Abstracts and Reviews. Imperial Bureau of Animal Nutrition, Reid Library. Rowett Institute, Aberdeen, Scotland. Q. 21s.

## OBSTETRICS AND GYNECOLOGY

- American Journal of Obstetrics and Gynecology. C. V. Mosby Co., 3523 Pine Blvd., St. Louis. M. \$10.
- Journal of Obstetrics and Gynecology of the British Empire. Sherratt & Hughes, 34 Cross St., Manchester. Bi-M. £2 12s.
- Surgery, Gynecology and Obstetrics. (Listed under Surgery.)

## OPHTHALMOLOGY

- American Journal of Ophthalmology. Ophthalmic Publishing Co., 640 S. Kingshighway, St. Louis. M. \$10.
- Archives of Ophthalmology. American Medical Association, 535 N. Dearborn St., Chicago. M. \$8.
- British Journal of Ophthalmology. Geo. E. Pulman & Sons, Ltd., 24 Thayer St., Marylebone, London, W. 1. M. 2g.

## ORTHOPEDIC SURGERY

- Journal of Bone and Joint Surgery. Boston Medical Library Bldg., 8 The Fenway, Boston. Q. \$5.

## OTORHINOLARYNGOLOGY

- Annals of Otolaryngology, Rhinology and Laryngology. Annals Publishing Co., 7200 Wydown Blvd., St. Louis. Q. \$6.
- Archives of Otolaryngology. American Medical Association, 535 N. Dearborn St., Chicago. M. \$6.
- Journal of Laryngology and Otolaryngology. Headley Brothers, 109 Kingsway, London, W. C. 2. (American agent—G. E. Stechert & Co., 31-33 E. 10th St., New York.) M. 40s.
- Laryngoscope. 4574 W. Papin St., St. Louis. M. \$6.

## PATHOLOGY AND CLINICAL LABORATORY WORK

- American Journal of Clinical Pathology. Williams and Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. Bi-M. \$5.
- American Journal of Pathology. Dr. F. B. Mallory, 818 Harrison Ave., Boston. Bi-M. \$8.
- Archives of Pathology. American Medical Association, 535 N. Dearborn St., Chicago. M. \$6.
- British Journal of Experimental Pathology. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1. Bi-M. £2.
- Journal of Laboratory and Clinical Medicine. C. V. Mosby Co., 3523 Pine Blvd., St. Louis. M. \$8.50.
- Journal of Pathology and Bacteriology. Oliver & Boyd, Tweeddale Court, High St., Edinburgh. Bi-M. 60s.

## PEDIATRICS

- American Journal of Diseases of Children. American Medical Association, 535 N. Dearborn St., Chicago. M. \$8.
- Archives of Disease in Childhood. British Medical Association, Tavistock Square, London, W. C. 1. Bi-M. 25s.

- Archives of Pediatrics. E. B. Treat & Co., 45 E. 17th St., New York. M. \$5.
- British Journal of Children's Diseases. Adlard & Son, 21 Hart St., Bloomsbury Sq., London, W. C. 1. Q. 25s.
- Journal of Pediatrics. C. V. Mosby Co., 3523 Pine Blvd., St. Louis. M. \$8.50.

## PHARMACOLOGY AND THERAPEUTICS

- Journal of Pharmacology and Experimental Therapeutics. Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. M. \$15.

## PHYSICAL THERAPY

- Archives of Physical Therapy, X-Ray, Radium, with International Abstract. American Congress of Physical Therapy, Suite 716, 30 N. Michigan Ave., Chicago. M. \$5.
- British Journal of Physical Medicine. 17, Featherstone Bldg., London, W. C. 1. M. 21s.

## PHYSIOLOGY AND BIOCHEMISTRY

- American Journal of Physiology. American Physiological Society, Managing Editor, Dr. D. R. Hooker, 19 W. Chase St., Baltimore. M. \$30.
- Journal of Biological Chemistry. Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. M. \$5 per vol. (About 4 vols. yearly.)
- Journal of Physiology. Cambridge University Press, Fetter Lane, London, E. C. 4. M. 30s. per vol. (About 4 vols. yearly.)
- Physiological Reviews. American Physiological Society, D. R. Hooker, Managing Editor, 19 W. Chase St., Baltimore. Q. \$6.

## RADIOLOGY

- American Journal of Roentgenology and Radium Therapy. Charles C. Thomas, 220 E. Monroe St., Springfield, Ill. M. \$10.
- British Journal of Radiology. British Institute of Radiology, 32 Welbeck St., London, W. 1. M. £2 2s.
- Radiology. Radiological Society of North America, 607 Medical Arts Bldg., Syracuse, N. Y. M. \$6.

## SURGERY

- American Journal of Cancer. Institute of Cancer Research of Columbia University, 654 Madison Ave., New York. M. \$9.
- American Journal of Surgery. 49 W. 45th St., New York. M. \$10.
- Annals of Surgery. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia. M. \$10.
- Archives of Surgery. American Medical Association, 535 N. Dearborn St., Chicago. M. \$8.
- British Journal of Surgery. John Wright & Sons, Ltd., Bristol. (American agents—William Wood & Co., Mt. Royal and Guilford Aves., Baltimore.) Q. 42s.
- Journal of Thoracic Surgery. C. V. Mosby Company, 3523 Pine Blvd., St. Louis. Bi-M. \$7.50.
- Southern Surgeon. Southern Surgeon Pub. Co., 478 Peachtree St., N. E., Atlanta. Bi-M. \$4.
- Surgery. C. V. Mosby Co., 3523 Pine Blvd., St. Louis. M. \$10.
- Surgery, Gynecology and Obstetrics with International Abstract of Surgery. Surgical Publishing Co., 54 E. Erie St., Chicago. M. \$12.
- Surgical Clinics of North America. W. B. Saunders Co., W. Washington Sq., Philadelphia. Bi-M. Cloth, \$16; paper, \$12.

## TUBERCULOSIS

- American Review of Tuberculosis. National Tuberculosis Association, 50 W. 50th St., New York. M. \$8.
- British Journal of Tuberculosis. Baillière, Tindall & Cox, 8 Henrietta St., Covent Garden, London, W. C. 2. (American agent—G. E. Stechert & Co., 31-33 E. 10th St., New York.) Q. 10s. 6d.

## UROLOGY

- Journal of Urology. Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore. M. \$10.
- Review of Urologic Surgery in "Archives of Surgery." (See Surgery.)

## SUGGESTED BOOKS

The accompanying list is not intended to be complete, but it contains the suggestions of physicians outstanding in their respective fields. (The complete names and addresses of the publishers appear at the end of the list of books.)

## ANATOMY

- Arey, Leslie B.: Developmental Anatomy. Ed. 3. \$6.50. Saunders, 1934.
- Bailey, Frederick R.: Text-Book of Histology. Ed. 9. \$6. Wood, 1936.
- Bailey, Frederick R., and Miller, A. M.: Textbook of Embryology. Ed. 5. \$7. Wood, 1929.
- Bremer, J. Lewis: Text-Book of Histology. Fifth edition of "Lewis and Stöhr." \$6.50. Blakiston, 1936.
- Callander, C. Latimer: Surgical Anatomy. \$12.50. Saunders, 1933.
- Cowdry, Edmund V.: Text-Book of Histology. \$5.50. Lea, 1934.
- Cunningham, Daniel J.: Text-Book of Anatomy. Ed. 6, ed. by Arthur Robinson. \$11. Wood, 1931.
- Davis, Gwilym G.: Applied Anatomy. Ed. 9. \$9. Lippincott, 1934.
- Dodds, Gideon S.: Essentials of Human Embryology. \$4. Wiley, 1929.
- Gray, Henry: Anatomy of the Human Body. Ed. 23, rev. and re-ed. by Warren H. Lewis. \$10. Lea, 1936.
- Massie, Grant: Surgical Anatomy. Ed. 2. \$6. Lea, 1933.
- Maximow, A. A., and Bloom, W.: Text-Book of Histology. Ed. 2. \$7. Saunders, 1934.
- Morris, Sir Henry: Human Anatomy. Ed. 9, ed. by C. M. Jackson. \$10. Blakiston, 1933.
- Piersol, George A.: Normal Histology. Ed. 15, ed. by William H. F. Addison. \$5. Lippincott, 1932.
- Piersol, George A. (ed.): Human Anatomy. Ed. 9, rev. under the supervision of G. Carl Huber. \$10. Lippincott, 1930.

## CLINICAL LABORATORY TECHNICIANS

In that part of this Annual Census concerned with technical personnel, all hospitals were asked to report the number of clinical laboratory and other technicians. The response on the question was quite satisfactory. The question gave no definition regarding the qualifications, or standards, as to what should constitute a technician. A total of 3,414 hospitals reported that they employ 6,705 clinical laboratory technicians. Hospitals that said they have no technicians, and those that gave no answer comprised mainly small hospitals and related institutions, such as convalescent and nurs-

All authorities, of course, regard technicians as entirely responsible to the physician-pathologist for the technical procedures carried out.

The Council's investigation and classification of schools for clinical laboratory technicians, as directed by the House of Delegates, resulted in the inspection of 200 schools and the approval of 110 of them, a list of which is found elsewhere in this issue.

## RADIOLOGIC TECHNICIANS

A total of 3,358 hospitals reported that they employ 4,708 radiologic technicians.

## COMPARISON OF HOSPITAL DATA FOR 1935 AND 1936

Mar. No.	State	Hospitals		Beds		Bassinets		Births		Patients Admitted		Average Census		Mar. No.
		1935	1936	1935	1936	1935	1936	1935	1936	1935	1936	1935	1936	
1	Alabama.....	86	85	12,030	11,800	466	464	6,232	6,651	96,105	98,901	9,247	9,696	1
2	Arizona.....	62	61	4,601	4,785	218	224	2,353	2,667	35,999	41,883	3,312	3,502	2
3	Arkansas.....	65	61	8,913	9,118	236	240	2,240	2,451	46,291	53,955	7,015	7,419	3
4	California.....	368	365	64,315	65,375	3,062	3,027	44,701	49,148	487,433	539,995	53,895	52,475	4
5	Colorado.....	105	101	13,010	12,876	577	583	6,727	7,371	92,734	99,001	10,450	9,440	5
6	Connecticut.....	82	80	17,884	18,090	1,014	1,031	16,347	17,010	126,516	144,556	15,013	15,579	6
7	Delaware.....	14	15	2,342	2,591	111	116	1,898	2,005	15,722	17,340	1,960	2,082	7
8	District of Columbia.....	32	31	13,268	12,872	526	637	9,296	10,577	91,898	102,379	11,004	11,506	8
9	Florida.....	80	90	9,482	9,921	539	552	6,490	7,629	77,517	85,723	7,202	7,455	9
10	Georgia.....	108	108	14,681	15,433	537	612	9,961	10,175	116,457	132,446	11,876	12,582	10
11	Idaho.....	49	46	3,351	3,358	248	247	3,050	3,717	28,595	33,638	2,415	2,541	11
12	Illinois.....	321	317	75,919	73,828	4,050	4,037	60,590	64,602	543,141	609,365	60,553	60,573	12
13	Indiana.....	133	137	22,004	23,507	1,154	1,210	14,661	17,178	149,723	178,632	18,806	19,808	13
14	Iowa.....	158	156	19,726	19,663	1,097	1,147	13,635	15,399	137,340	152,265	16,030	16,431	14
15	Kansas.....	124	117	14,258	14,229	746	770	8,861	9,548	103,754	115,544	10,712	11,116	15
16	Kentucky.....	160	97	15,050	15,056	503	544	6,485	6,767	93,822	104,001	11,620	12,218	16
17	Louisiana.....	63	64	13,957	14,146	471	449	10,261	11,280	138,632	153,032	12,381	13,063	17
18	Maine.....	68	66	6,945	6,966	435	435	4,064	4,490	48,139	52,543	5,621	5,761	18
19	Maryland.....	81	76	18,021	18,695	660	688	9,670	11,083	111,488	124,507	15,864	16,056	19
20	Massachusetts.....	266	256	56,869	57,718	3,087	3,110	41,402	41,736	331,791	359,598	38,267	40,440	20
21	Michigan.....	242	236	43,074	43,757	2,080	2,168	30,811	37,385	306,960	339,160	35,300	36,889	21
22	Minnesota.....	210	220	27,520	27,727	1,529	1,531	20,867	23,173	207,002	234,172	22,545	23,418	22
23	Mississippi.....	77	73	8,040	8,512	306	323	3,007	3,437	55,530	65,079	5,789	6,102	23
24	Missouri.....	150	148	28,525	27,812	1,506	1,518	18,432	19,694	205,459	232,617	22,547	23,812	24
25	Montana.....	57	58	5,200	5,342	448	450	4,698	5,324	47,002	53,407	3,787	3,889	25
26	Nebraska.....	103	97	10,319	10,219	614	625	7,003	7,599	72,996	80,060	8,074	8,321	26
27	Nevada.....	48	17	1,096	971	64	66	602	793	8,091	8,686	792	787	27
28	New Hampshire.....	45	41	5,010	4,912	358	353	4,091	4,245	37,016	38,496	3,065	3,991	28
29	New Jersey.....	167	164	41,034	42,926	2,301	2,242	33,820	36,739	269,057	296,381	34,055	35,560	29
30	New Mexico.....	50	51	3,654	3,983	182	185	1,537	1,780	25,407	28,702	2,498	2,661	30
31	New York.....	588	587	169,843	174,115	7,625	7,793	128,321	131,256	1,123,333	1,226,099	141,277	148,063	31
32	North Carolina.....	148	155	15,345	15,394	790	818	8,716	10,296	134,619	156,995	11,681	12,244	32
33	North Dakota.....	53	52	5,358	5,515	396	408	4,354	4,839	50,804	49,083	4,373	4,429	33
34	Ohio.....	253	252	52,554	53,361	2,587	2,553	36,990	43,964	331,785	399,980	43,427	44,927	34
35	Oklahoma.....	114	119	13,928	14,751	586	615	8,107	9,308	91,311	105,096	11,201	12,195	35
36	Oregon.....	73	70	6,790	9,083	472	513	5,913	7,015	71,708	87,493	7,819	8,441	36
37	Pennsylvania.....	360	359	80,969	85,429	4,385	4,417	66,762	73,162	595,904	658,288	66,223	71,278	37
38	Rhode Island.....	30	29	7,269	7,356	412	424	5,768	6,385	37,190	42,541	6,123	6,371	38
39	South Carolina.....	60	57	7,390	8,403	293	276	3,630	4,271	63,342	66,407	6,472	6,935	39
40	South Dakota.....	59	56	5,271	5,327	379	371	3,469	3,932	41,550	43,732	4,000	4,057	40
41	Tennessee.....	99	101	14,454	14,913	511	533	8,886	9,853	110,250	131,231	11,406	11,873	41
42	Texas.....	288	296	30,339	31,470	1,418	1,480	23,579	26,075	270,427	319,240	23,072	24,294	42
43	Utah.....	35	33	3,303	3,290	306	327	4,875	5,917	29,050	31,162	2,300	2,578	43
44	Vermont.....	32	32	3,463	3,590	168	178	2,178	2,519	24,553	28,397	2,820	2,992	44
45	Virginia.....	110	109	18,770	18,677	572	612	7,545	8,000	116,683	130,616	14,710	15,677	45
46	Washington.....	119	115	16,624	17,249	992	998	12,633	12,880	129,069	136,946	13,472	13,824	46
47	West Virginia.....	78	77	9,441	9,399	440	431	4,013	4,639	104,968	113,575	6,788	7,152	47
48	Wisconsin.....	225	221	30,246	29,985	1,716	1,713	21,738	23,810	211,872	233,692	23,879	24,349	48
49	Wyoming.....	28	28	2,521	2,606	117	131	1,309	1,507	16,999	19,188	1,870	2,032	49
50	Totals.....	6,246	6,189	1,075,139	1,096,721	53,310	54,225	762,348	831,500	7,717,154	8,646,885	875,510	908,516	50

ing homes, most of which have their laboratory work done outside.

In California, 183 hospitals employ 418 technicians; in Illinois, 212 hospitals 458 technicians; in Massachusetts, 164 hospitals 375 technicians; in Michigan, 132 hospitals 300 technicians; in New Jersey, 101 hospitals 204 technicians; in New York, 346 hospitals 1,025 technicians; in Ohio, 144 hospitals 317 technicians; in Pennsylvania, 249 hospitals 536 technicians; in Texas, 170 hospitals 288 technicians; in Wisconsin, 111 hospitals 141 technicians.

Only a few states have made statutory provisions for state registration of clinical laboratory technicians. The American Society of Clinical Pathologists has its registry, known as the Board of Registry, in the Metropolitan Building, Denver. Its certificate, based on examination and other requirements, is used to a growing extent by hospitals in the considering of applicants.

Here again the question asked simply how many radiologic technicians are employed. It is generally understood that all procedures undertaken by technicians are under the supervision of the staff. A registry known as the American Registry of X-Ray Technicians is under the auspices of the Radiological Society of North America. The office of the registry is at Oak Terrace, Minn.

There are schools for the training of radiologic technicians, but no program of requirements and approval has been put into operation.

## DIETITIANS

The number of hospitals reporting that they employ dietitians was 2,878, and these hospitals have a total of 4,331 employees serving in that capacity. The term "dietitian" was used without definition, leaving the interpretation to the person answering the questionnaire.



- Ranson, Stephen W.: *Anatomy of the Nervous System*. Ed. 5. \$6.50. Saunders, 1935.
- Rasmussen, Andrew T.: *Principal Nervous Pathways*. \$2.50. Macmillan, 1932.
- Spaltholtz, Werner: *Atlas of Human Anatomy*. In 3 volumes. Trans. by Lewellys F. Barker. Ed. 4. \$18. Lippincott [1924].
- Treves, Sir Frederick: *Surgical Applied Anatomy*. Rev. by C. C. Choyce. Ed. 9. 148. Cassel, 1934.
- Toldt, Carl, and Rosa, A. dalla: *Atlas of Human Anatomy*. Ed. 2. \$8. Macmillan, 1928.

**ANESTHESIA**

- Braun, Heinrich: *Local Anesthesia*. Trans. and ed. by Malcolm L. Harris. Ed. 2. \$5. Lea, 1924.
- De Takáts, Géza: *Local Anesthesia*. \$4. Saunders, 1928.
- Flagg, Paul J.: *Art of Anesthesia*. Ed. 5. \$5. Lippincott, 1932.
- Grathney, James T.: *Textbook of Anesthesia*. Ed. 2. \$5. Macmillan, 1924.
- Hertler, Arthur E.: *Technic of Local Anesthesia*. Ed. 5. \$5. Mosby, 1933.
- Labat, Gaston: *Regional Anaesthesia*. Ed. 2. \$7.50. Saunders, 1928.
- Nesworthy, M. D.: *Theory and Practice of Anaesthesia*. 12s. 6d. Hutchinson (Scientific), 1935.
- Rood, Felix S., and Webster, H. N.: *Anaesthesia and Anaesthetics*. \$4.50. Wood, 1930.

**CARDIOLOGY**

- Cabot, Richard C.: *Facts on the Heart*. \$7.50. Saunders, 1926.
- Cowan, John M., and Ritchie, W. T.: *Diseases of the Heart*. Ed. 3. \$9. Wood, 1935.
- East, C. F., and Bain, C. W.: *Recent Advances in Cardiology*. Ed. 3. \$5. Blakiston, 1936.
- Harrison, Tinsley R.: *Failure of the Circulation*. \$4.50. Williams & Wilkins Co., 1935.
- Herrmann, George R.: *Synopsis of Diseases of the Heart and Arteries*. \$4. Mosby, 1936.
- Levine, Samuel A.: *Clinical Heart Disease*. \$5.50. Saunders, 1936.
- Lewis, Sir Thomas: *Clinical Disorders of the Heart Beat*. Ed. 7. \$2.50. Chicago Med. Bk. Co., 1933.
- Lewis, Sir Thomas: *Clinical Electrocardiography*. Ed. 5. \$3. Chicago Med. Bk. Co., 1931.
- Mackenzie, Sir James, and Orr, James: *Principles of Diagnosis and Treatment in Heart Affections*. Ed. 3. \$3.50. Oxford, 1926.
- Moon, Robert O.: *Growth of Our Knowledge of Heart Disease*. \$1.40. Longmans, 1927.
- Pardee, Harold E. B.: *Clinical Aspects of the Electrocardiogram*. Ed. 3. \$5.50. Hoeber, 1933.
- Quain, Jones: *Elements of Anatomy: Vol. IV, Pt. 3, The Heart by Thomas Walmsley*. Ed. 11. \$6. Longmans, 1929.
- Reid, William D.: *Heart in Modern Practice*. Ed. 2. \$6. Lippincott, 1928.
- Roth, Irving R.: *Cardiac Arrhythmias*. \$7.50. Hoeber, 1928.
- White, Paul D.: *Heart Disease*. \$7.50. Macmillan, reissue, 1932.

**DERMATOLOGY AND SYPHILOLOGY**

- Andrews, George C.: *Diseases of the Skin*. \$12. Saunders, 1930.
- Burke, Edmund T.: *Treatment of Venereal Diseases in General Practice*. \$1.75. Oxford, 1927.
- Davies, Thomas A.: *Primary Syphilis in the Female*. \$4. Oxford, 1931.
- Goldsmith, William N.: *Recent Advances in Dermatology*. \$5. Blakiston, 1936.
- Harrison, Laurence W.: *Diagnosis and Treatment of Venereal Diseases in General Practice*. Ed. 4. \$8.25. Oxford, 1931.
- Hazen, Henry H.: *Diseases of the Skin*. Ed. 3. \$10. Mosby, 1927.
- Hazen, Henry H.: *Syphilis*. Ed. 2. \$10. Mosby, 1928.
- Mackee, George M.: *X-Rays and Radium in the Treatment of Diseases of the Skin*. Ed. 2. \$10. Lea, 1927.
- MacKenna, Robert W.: *Diseases of the Skin*. Ed. 3, rev. by R. M. B. MacKenna. \$7. Wood, 1932.
- MacLeod, John M. H.: *Diseases of the Skin*. 40s. Lewis, 1933.
- Moore, Joseph E.: *Modern Treatment of Syphilis*. \$5. Thomas, 1933.
- Ormsby, Oliver S.: *Diseases of the Skin*. Ed. 4. \$11.50. Lea, 1934.
- Pardo Castelló, V.: *Diseases of the Nails*. \$3.50. Thomas, 1936.
- Pusey, William A.: *Principles and Practice of Dermatology*. Ed. 4. \$10. Appleton, 1924.
- Riehl, Gustav, and Zumbusch, L. von: *Atlas of Diseases of the Skin*. In 3 volumes. \$25. Blakiston, 1925.
- Schamberg, Jay F., and Wright, C. S.: *Treatment of Syphilis*. \$8. Appleton, 1932.
- Sequeira, James H.: *Diseases of the Skin*. Ed. 4. \$10. Macmillan, 1927.
- Stokes, John H., and others: *Modern Clinical Syphilology*. Ed. 2. \$12. Saunders, 1934.
- Sutton, Richard L.: *Diseases of Skin*. Ed. 9. \$12.50. Mosby, 1935.

**DIAGNOSIS**

- Barton, Wilfred M., and Yater, W. M.: *Symptom Diagnosis, Regional and General*. Ed. 3. \$10. Appleton-Century, 1936.
- Blumer, George: *Beaside Diagnosis*. In 3 volumes. \$30. Saunders, 1928.
- Boyd, William: *Pathology of Internal Diseases*. Ed. 2. \$10. Lea, 1935.
- Cabot, Richard C.: *Physical Diagnosis*. Ed. 11. \$5. Wood, 1934.
- Cernach, Alexander I.: *Surgical Diagnosis in Tabular Outline*. Trans. by Edward L. Bortz. \$12. Davis, 1928.
- Elmer, Warren P., and Rose, W. D.: *Physical Diagnosis*. Ed. 7. \$8. Mosby, 1935.
- Emerson, Charles P.: *Physical Diagnosis*. Ed. 2. \$7. Lippincott, 1929.
- French, Herbert (ed.): *Index of Differential Diagnosis of Main Symptoms (Medical and Surgical)*. Ed. 5. \$16. Wood, 1936.
- Gibson, Alexander G., and Collier, W. T.: *Methods of Clinical Diagnosis*. \$5. Longmans, 1927.
- Graham, Everts A. (ed.): *Surgical Diagnosis*. In 4 volumes. \$35. Saunders, 1930.
- Greene, Charles L.: *Medical Diagnosis*. In 2 volumes. Ed. 6. \$16. Blakiston, 1926.
- Hare, Hobart A.: *Use of Symptoms in the Diagnosis of Disease*. Ed. 9. \$5.50. Lea, 1928.
- Joslin, Elliott P., et al.: *Treatment of Diabetes Mellitus*. Ed. 5. \$6. Lea, 1935.

- Norris, George W., and Landis, H. R. M.: *Diseases of the Chest and the Principles of Physical Diagnosis*. Ed. 5. \$10. Saunders, 1933.
- Osgood, Edwin E.: *Textbook of Laboratory Diagnosis*. Ed. 2. \$6. Blakiston, 1935.
- Quervain, Fritz de: *Clinical Surgical Diagnosis*. Ed. 4. \$14. Wood, 1926.
- Sherman, Henry C.: *Chemistry of Food and Nutrition*. Ed. 4, enl. \$3. Macmillan, 1932.
- Sollmann, Torald H.: *Manual of Pharmacology*. Ed. 5. \$7.50. Saunders, 1936.
- Stern, Newton S.: *Clinical Diagnosis, Physical and Differential*. \$3.50. Macmillan, 1933.
- Todd, James C., and Sanford, Arthur H.: *Clinical Diagnosis by Laboratory Methods*. Ed. 8. \$6. Saunders, 1935.
- Wright, Samson: *Applied Physiology*. Ed. 6. \$6. Oxford, 1936.

**DIETETICS AND NUTRITION**

- Harborka, Clifford J.: *Treatment by Diet*. Ed. 2. \$5. Lippincott, 1935.
- Hogert, Lotta J.: *Nutrition and Physical Fitness*. Ed. 2. \$3. Saunders, 1935.
- Hedges, Milton A.: *Dietetics for the Clinician*. Ed. 2. \$10. Lea, 1935.
- Hedges, Milton A.: *Food and Beverage Analyses*. \$3.50. Lea, 1935.
- League of Nations, Health Organization: *Report on the Physiological Bases of Nutrition*. World Peace Found., Geneva, 1935.
- League of Nations: *Nutrition Considered in Relation to Public Health and to Economic Conditions*. World Peace Found., Geneva, 1935.
- Lusk, Graham: *Elements of the Science of Nutrition*. Ed. 4. \$7. Saunders, 1928.
- McCollum, Elmer V., and Becker, J. E.: *Food, Nutrition and Health*. Ed. 3. \$1.50. E. V. McCollum, 2301 Monticello Rd., Baltimore, 1933.
- McLester, James S.: *Nutrition and Diet in Health and Disease*. Ed. 2. \$8.50. Saunders, 1931.
- Pattee, Alida F.: *Practical Dietetics*. Ed. 20. \$3. A. F. Pattee, 1935.
- Rose, Mary D.: *Foundations of Nutrition*. \$3. Macmillan, 1933.
- Sherman, Henry C.: *Chemistry of Food and Nutrition*. Ed. 4. \$3. Macmillan, 1932.
- Sherman, Henry C.: *Food Products*. Ed. 3. \$3. Macmillan, 1933.

**ENDOCRINOLOGY**

- Allen, Edgar (ed.): *Sex and Internal Secretions*. \$10. Williams and Wilkins, 1932.
- Berkeley, William N.: *Principles and Practice of Endocrine Medicine*. \$4.50. Lea, 1926.
- Bram, Israel: *Exophthalmic Goiter and Its Medical Treatment*. Ed. 2. \$6. Mosby, 1936.
- Cameron, Alexander T.: *Recent Advances in Endocrinology*. Ed. 2. \$5. Blakiston, 1935.
- Cramer, William: *Fever, Heat Regulation, Climate and the Thyroid-Adrenal Apparatus*. \$6. Longmans, 1928.
- Crile, George W., and others: *Diagnosis and Treatment of Diseases of the Thyroid Gland*. \$6.50. Saunders, 1932.
- DuBois, Eugene F.: *Basal Metabolism in Health and Disease*. Ed. 3. \$5. Lea, 1936.
- Engelbach, William: *Endocrine Medicine*. In 4 volumes. \$35. Thomas, 1932.
- Fieser, Louis F.: *Chemistry of Natural Products Related to Phenanthrene*. \$6.50. Reinhold, 1936.
- Frank, Robert T.: *Female Sex Hormone*. \$5.50. Thomas, 1929.
- Glandular Physiology and Therapy. A symposium prepared under the auspices of the Council on Pharmacy and Chemistry of the A. M. A. \$2.50. A. M. A., 1936.
- Gregory, Jennie: *A. B. C. of the Endocrines*. \$3. Wood, 1935.
- Hartman, Carl G.: *Time of Ovulation in Women*. \$3. Wood, 1936.
- Hertler, Arthur E.: *Diseases of the Thyroid Gland*. Ed. 3. \$7.50. Mosby, 1935.
- Hertler, Arthur E.: *Surgical Pathology of the Thyroid*. \$5. Lippincott, 1936.
- Jackson, Arnold S.: *Goiter and Other Diseases of the Thyroid Gland*. \$10. Hoeber, 1926.
- Mazer, Charles, and Goldstein, Leopold: *Clinical Endocrinology of the Female*. \$6. Saunders, 1932.
- Robson, John M.: *Recent Advances in Sex and Reproductive Physiology*. \$4. Blakiston, 1934.
- Rolleston, Sir Humphrey D.: *Endocrine Organs in Health and Disease*. \$13. Oxford, 1936.
- Rowe, Allan Winter: *Differential Diagnosis of Endocrine Disorders*. \$4. Wood, 1932.
- Shelling, David H.: *Parathyroids in Health and Disease*. \$5. Mosby, 1935.
- Van Dyke, H. B.: *Physiology and Pharmacology of the Pituitary Body*. \$4.50. Univ. of Chicago Press, 1936.
- Werner, August A.: *Endocrinology, Clinical Application and Treatment*. \$8.50. Lea, 1937.
- Zondek, Hermann: *Diseases of the Endocrine Glands*. Ed. 3. \$11. Wood, 1935.

**FRACTURES AND DISLOCATIONS**

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There appears to be no statutory requirement in any state regulating the practice of dietetics. Each hospital and each department of the government sets its own standards for employment. Many hospitals, some state governments and some departments of the federal government specify membership in the American Dietetic Association. The association, with offices at 185 North Wabash Avenue, Chicago, has approximately 3,500 members, 70 per cent of whom are serving in hospitals. It upholds the standards of admission to, and curricu-

tional procedures in hospitals, as directed and supervised by the medical staff. Standards have been put into effective operation by the Council on Medical Education and Hospitals with the cooperation of the American Occupational Therapy Association. Hospitals play an important part in the training of students in occupational therapy. It is not uncommon to find ten or more graduate occupational therapists employed in a single state mental institution, and one of these employs twenty.

### Technical Personnel Employed in Hospitals

State	Clinical Laboratory Technicians*		Radiological Technicians		Dietitians		Occupational Therapists*		Physical Therapists*		Pharmacists		Dental Hygienists	
	Hospitals Employing	Number of Technicians	Hospitals Employing	Number of Technicians	Hospitals Employing	Number of Dietitians	Hospitals Employing	Number of Therapists	Hospitals Employing	Number of Therapists	Hospitals Employing	Number of Pharmacists	Hospitals Employing	Number of Hygienists
Alabama.....	42	65	42	52	40	47	4	10	7	10	14	16	5	5
Arizona.....	17	28	18	23	19	28	2	5	5	8	6	6	2	2
Arkansas.....	30	39	25	27	24	30	4	7	11	9	10	3	3	3
California.....	183	418	182	292	145	222	42	69	99	199	104	144	23	33
Colorado.....	45	89	43	68	34	51	15	23	13	17	24	31	4	4
Connecticut.....	41	93	41	74	44	74	20	76	24	43	20	30	8	9
Delaware.....	5	7	5	7	7	8	3	2	2	2	3	3	4	4
District of Columbia..	20	75	18	33	21	60	9	17	13	35	17	26	5	7
Florida.....	43	64	41	50	36	41	5	5	20	47	12	16	2	4
Georgia.....	58	96	59	79	52	68	6	11	13	34	24	26	6	9
Idaho.....	16	23	18	21	14	18	2	2	3	4	3	3	..	..
Illinois.....	212	458	206	350	190	297	52	97	93	148	110	144	17	19
Indiana.....	78	120	80	104	52	72	16	43	22	33	37	40	2	2
Iowa.....	77	113	83	111	52	63	15	21	20	35	32	35	7	7
Kansas.....	59	102	59	72	47	62	7	12	24	34	22	30	2	3
Kentucky.....	44	56	39	50	35	46	12	24	9	10	11	12	1	1
Louisiana.....	40	78	40	52	31	39	7	13	9	24	18	23	2	2
Maine.....	32	44	36	43	29	37	5	7	12	16	7	8	2	2
Maryland.....	48	95	45	65	44	70	18	48	16	38	24	35	8	8
Massachusetts.....	164	375	150	215	149	273	53	101	71	111	72	102	32	37
Michigan.....	132	300	144	206	99	164	38	80	49	144	54	76	15	18
Minnesota.....	96	158	98	121	62	84	19	58	25	36	26	32	7	12
Mississippi.....	44	58	41	46	35	40	4	21	7	10	7	7	1	1
Missouri.....	94	218	87	131	82	103	25	44	38	56	49	73	5	6
Montana.....	25	32	23	24	21	24	1	1	8	5	5	5	1	1
Nebraska.....	50	72	51	66	37	46	8	9	10	11	21	22	3	3
Nevada.....	2	4	4	6	3	3	1	1	1	1	..	..	..	..
New Hampshire.....	23	29	24	31	18	22	3	4	5	7	4	5	..	..
New Jersey.....	101	204	94	119	102	139	27	107	59	100	50	59	6	6
New Mexico.....	20	25	21	26	21	24	4	5	2	4	7	8	1	1
New York.....	346	1,025	302	596	336	723	128	354	204	462	202	313	80	108
North Carolina.....	88	129	82	93	82	92	5	18	13	47	8	11	3	7
North Dakota.....	22	29	23	30	18	20	2	4	6	0	5	5	3	0
Ohio.....	144	317	135	203	126	189	31	51	64	103	57	76	8	15
Oklahoma.....	67	85	72	85	46	51	11	14	17	23	12	13	5	2
Oregon.....	34	66	37	51	20	25	1	1	11	13	12	13	1	2
Pennsylvania.....	249	536	225	311	233	362	67	149	109	190	137	191	54	70
Rhode Island.....	15	38	15	27	11	19	3	12	10	15	7	10	1	3
South Carolina.....	30	45	30	34	20	23	4	8	5	6	6	8	2	2
South Dakota.....	30	38	29	35	22	34	4	4	11	14	6	6	6	6
Tennessee.....	60	93	59	76	57	76	12	15	17	22	20	29	6	8
Texas.....	170	288	161	269	121	145	23	37	44	71	49	64	13	14
Utah.....	14	19	14	17	11	21	3	9	4	8	5	6	1	1
Vermont.....	12	14	12	16	10	10	1	1	8	11	1	1	1	1
Virginia.....	66	116	54	73	51	63	18	28	28	39	37	48	8	11
Washington.....	62	103	65	85	51	63	8	19	10	11	3	7	2	4
West Virginia.....	39	66	41	51	33	38	33	58	39	81	42	57	7	8
Wisconsin.....	111	141	110	156	77	98	2	10	4	5	6	6	3	3
Wyoming.....	14	17	16	18	12	13								
Totals.....	3,414	6,705	3,358	4,708	2,878	4,331	792	1,809	1,302	2,382	1,419	1,001	594	481

\* Data concerning the Council's lists of approved schools for clinical laboratory technicians, occupational therapy technicians and physical therapy technicians are presented in a later section of this article.

lum in, its approved training courses. These courses number about fifty, and they may be taken in a single hospital, but more commonly there is an affiliation to supply a balanced training, including infant feeding.

### OCCUPATIONAL THERAPY TECHNICIANS

In response to the question asking how many occupational therapists are employed, 792 hospitals gave a total of 1,809 therapists. The greatest number of these are employed in mental hospitals, which claim a total of 1,062; tuberculosis hospitals employ 153 therapists; orthopedic hospitals, 36; general hospitals, 456, and all other institutions, 102.

In the absence of statutory requirements, a national registry is maintained by the American Occupational Therapy Association, the office of which is at 175 Fifth Avenue, New York City. That association fosters high standards for the application of therapeutic occupa-

### PHYSICAL THERAPY TECHNICIANS

Thirteen hundred and two hospitals reported 2,382 physical therapists. The greatest number of physical therapists, 1,648, appears to be serving in general hospitals. Other types of hospitals reported as follows: mental, 350; orthopedic, 167; tuberculosis, 62; children's, 41, and all other institutions, 114.

Under the heading of physical therapy there is a variety of technical help, some of whom are skilled in general procedures while others specialize in massage, hydrotherapy, electrical or other forms of therapeutics. Their registry, which is likewise on a voluntary basis, is known as the American Registry of Physical Therapy Technicians, located at 30 North Michigan Avenue, Chicago. The registry is comparatively new. As of March 1, 1937, it had received 183 applications and had issued certificates to fifty-nine persons.

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A program of standardization and classification has been successfully carried out by the cooperative effort of the Council on Physical Therapy and the Council on Medical Education and Hospitals. After inspection by the latter council a list of acceptable schools was recommended and was adopted by the House of Delegates at the Kansas City session. The list appears in a later part of this article.

#### PHARMACISTS

A total of 1,419 hospitals reported that they employ 1,901 pharmacists. Most, or all, of the states of the Union have laws regulating the practice of pharmacy, the handling of drugs in hospitals, as well as elsewhere, and provisions for registry under the state government.

The "Essentials of a Registered Hospital" require that "the handling of drugs should be adequately supervised and should comply with state laws."

#### DENTAL HYGIENISTS

Three hundred and ninety-four hospitals require 484 dental hygienists. The greatest number of hospitals employing this class of help was New York, in which

fifteen hospitals and eighteen hygienists, and Texas, thirteen hospitals and fourteen hygienists. Several well regulated schools form a source of supply.

#### SCHOOLS OF NURSING

The accompanying table on schools of nursing and students enrolled gives data that are of special interest inasmuch as they compare the census for 1936 with those of 1926 and 1932.

*Schools of Nursing*

	1926	1936
In general hospitals.....	1,925	1,364
In mental hospitals.....	91	51
In tuberculosis hospitals.....	25	16
All other hospitals.....	52	47
Not reporting.....	62	
Totals.....	2,155	1,478

*State Accredited Schools of Nursing in Unregistered Hospitals*

	1926	1936
Arkansas.....	1	..
California.....	2	..
Colorado.....	1	..
Georgia.....	1	..
Illinois.....	8	3
Indiana.....	2	1
Iowa.....	3	..
Kansas.....	3	2
Kentucky.....	1	..
Massachusetts.....	8	..
Mississippi.....	..	1
Missouri.....	3	1
Nebraska.....	1	..
North Carolina.....	1	..
Ohio.....	..	1
Oklahoma.....	1	1
Oregon.....	1	..
Pennsylvania.....	1	1
South Carolina.....	1	..
South Dakota.....	..	1
Tennessee.....	1	2
Texas.....	1	1
Washington.....	1	..
Wyoming.....	1	..
Totals.....	38	15

*Schools of Nursing—Students Enrolled*

State	Reported Schools of Nursing			Students Enrolled		
	1926	1932	1936	1926	1932	1936
Alabama.....	52	42	27	1,017	874	860
Arizona.....	3	5	4	78	152	160
Arkansas.....	28	20	8	457	417	260
California.....	55	58	45	3,277	3,718	2,694
Colorado.....	24	22	17	873	1,166	814
Connecticut.....	20	20	20	1,569	1,795	1,471
Delaware.....	6	7	7	148	232	266
District of Columbia...	13	12	11	889	1,136	779
Florida.....	24	10	14	478	575	690
Georgia.....	56	39	17	1,159	983	977
Idaho.....	10	10	8	180	228	261
Illinois.....	147	136	112	5,016	6,223	5,132
Indiana.....	37	31	27	1,561	1,711	1,661
Iowa.....	64	44	30	2,083	1,914	1,471
Kansas.....	61	46	36	1,169	1,237	1,223
Kentucky.....	33	26	19	713	833	667
Louisiana.....	21	17	14	966	979	1,037
Maine.....	34	32	23	607	863	649
Maryland.....	31	32	29	1,248	1,785	1,580
Massachusetts.....	112	114	83	4,553	6,163	4,673
Michigan.....	53	49	37	2,630	2,836	2,444
Minnesota.....	67	57	36	3,403	3,297	2,681
Mississippi.....	43	41	34	682	544	555
Missouri.....	48	44	31	2,038	2,204	1,672
Montana.....	18	16	11	493	487	422
Nebraska.....	28	18	14	1,036	900	782
Nevada.....	..	..	..	..	..	..
New Hampshire.....	23	22	16	486	618	547
New Jersey.....	60	59	52	2,061	3,381	3,035
New Mexico.....	2	2	2	34	50	65
New York.....	161	170	133	8,515	9,743	7,837
North Carolina.....	77	61	44	1,461	1,334	1,194
North Dakota.....	18	16	16	617	391	630
Ohio.....	85	90	76	3,383	4,897	4,171
Oklahoma.....	42	20	15	649	614	568
Oregon.....	17	12	9	564	678	583
Pennsylvania.....	195	179	137	8,002	9,391	7,642
Rhode Island.....	11	11	9	525	743	507
South Carolina.....	34	27	21	662	622	620
South Dakota.....	20	19	17	467	459	520
Tennessee.....	44	33	29	1,018	1,220	1,318
Texas.....	81	67	49	2,172	2,419	2,145
Utah.....	6	6	6	396	377	409
Vermont.....	13	12	13	332	378	405
Virginia.....	48	41	26	1,295	1,385	1,174
Washington.....	28	29	29	1,177	1,280	1,019
West Virginia.....	45	43	31	795	847	737
Wisconsin.....	41	44	32	1,837	2,022	1,776
Wyoming.....	7	5	2	112	133	41
	2,155	1,931	1,478	76,527	86,619	72,174
Average number of students per school.....				36	45	48

eighty-nine hospitals employ 108 dental hygienists. Next in order are Pennsylvania, with fifty-four hospitals and seventy hygienists; Massachusetts, thirty-two hospitals and thirty-seven hygienists; California, twenty-three hospitals and thirty-three hygienists; Illinois, seventeen hospitals and nineteen hygienists; Michigan,

The table gives for each state the number of schools of nursing and the number of students enrolled in each of the three years. All schools of nursing that reported—both approved by state boards of nurse examiners and unapproved, are included.

The total number of schools of nursing reported in hospitals in 1926 was 2,155; those reported in 1936, 1,478, a shrinkage of 677 in number of schools. At the same time, however, the reduction in the number of students enrolled was less marked, the figures being 76,527 in 1926 and 72,174 in 1936. The percentage of decrease in schools, using the number existing in 1926 as a basis, is 31 per cent. The decrease in students, using the number enrolled in 1926 as a basis, is 5.7 per cent.

The average number of students per school increased from 36 in 1926 to 48 in 1936. Prior to 1930 the Hospital Information Blank (Annual Census questionnaire), used the term "nurse training school." Since 1930, however, the term "school of nursing" has been used. This was fostered by the Committee on Grading, which was actively engaged in its survey during the late twenties and the early thirties, and which gave the country volumes of data and comments concerning its findings in the field of nursing education. The impression is widespread that the closing of many schools was caused by information supplied by that committee that there were too many nurses. The raising of standards

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for the training of nurses also is given as a cause for the reduction in the number of schools.

Among the states in which there has been a marked decrease in the number of schools of nursing, and likewise fewer students enrolled, are Alabama, Arkansas, Georgia, Iowa, Kentucky, Minnesota, Nebraska, Oklahoma and Wyoming. On the other hand, a decided decrease in the number of schools has been accompanied with a marked upturn in the number of students enrolled; for example, Florida, Indiana, Kansas, Mary-

Hospitals, Sanatoriums and Related Institutions

	Hospitals	Beds	Bassinets	Births	Patients Admitted	Average Census
Hospitals and sanatoriums	4,583	923,737	51,206	814,098	8,286,625	758,945
Related institutions.....	1,306	172,934	3,019	17,402	360,360	149,571
Total registered hospitals	6,189	1,096,721	54,225	831,500	8,646,985	908,516

Hospitals in Alaska, Canal Zone, Guam, Hawaii, Philippine Islands, Puerto Rico and Virgin Islands

	Hospitals	Beds	Bassinets
Alaska.....	19	530	
Canal Zone.....	10	1,615	52
Guam.....	2	90	25
Hawaii.....	46	5,025	274
Philippine Islands.....	102	9,163	584
Puerto Rico.....	46	3,061	263
Virgin Islands.....	5	330	29
Totals (1936).....	230	20,719	1,239
(1935).....	233	19,416	1,150
(1934).....	221	18,430	1,020
(1933).....	215	18,794	1,036

land, Massachusetts, New Jersey, Ohio, Tennessee and Vermont. Nebraska reports exactly one half as many schools as formerly, a drop of 28 to 14. Virginia has reduced its number from 48 to 26, the number of students enrolled dropped from 1,295 to 1,174.

Other striking contrasts are readily observed in the table.

Deaths in Hospitals

State	Hospitals	Report- ing	Number of Deaths	State	Hospitals	Report- ing	Number of Deaths
Alabama.....	58		4,054	Nebraska.....	82		3,400
Arizona.....	50		1,905	Nevada.....	11		390
Arkansas.....	46		2,217	New Hampshire.....	36		1,477
California.....	261		23,814	New Jersey.....	131		18,759
Colorado.....	81		4,965	New Mexico.....	44		1,315
Connecticut.....	70		6,368	New York.....	476		68,697
Delaware.....	11		583	North Carolina.....	113		5,422
Dist. of Columbia..	26		5,235	North Dakota.....	45		1,654
Florida.....	61		3,028	Ohio.....	191		21,204
Georgia.....	75		5,475	Oklahoma.....	90		3,849
Idaho.....	32		1,342	Oregon.....	47		3,202
Illinois.....	256		33,593	Pennsylvania.....	295		33,922
Indiana.....	108		8,933	Rhode Island.....	20		2,568
Iowa.....	118		6,270	South Carolina.....	38		2,484
Kansas.....	94		4,837	South Dakota.....	45		1,632
Kentucky.....	60		3,538	Tennessee.....	70		6,960
Louisiana.....	51		7,551	Texas.....	216		11,881
Maine.....	48		1,769	Utah.....	21		924
Maryland.....	61		5,013	Vermont.....	27		1,128
Massachusetts.....	207		18,906	Virginia.....	81		5,851
Michigan.....	195		18,905	Washington.....	10		6,866
Minnesota.....	179		10,320	West Virginia.....	51		2,936
Mississippi.....	61		2,394	Wisconsin.....	187		10,417
Missouri.....	118		13,393	Wyoming.....	22		661
Montana.....	42		1,935	Totals.....	4,785		413,202

The types of hospitals having schools of nursing in 1926 and 1936 are shown in a table on page 1047.

Of the 1,478 schools of nursing reported in the 1936 census, 1,420 are accredited by the board of nurse examiners of the state in which the school is located.

HOSPITALS REFUSED REGISTRATION

There are 581 institutions which, because of alleged unethical or questionable practices, admission to their staffs of members who are seriously unqualified, either morally or professionally, flagrant methods of advertising, or for other valid reasons, are deemed unworthy of being included in any published list of reputable hospitals.

Only a little over 1 per cent of the total capacity of all hospitals is included in the 581 institutions that are refused registration. From the standpoint of hospitalization, therefore, they are as a rule not needed. Not only are they left out of the Register and American Medical Directory but their names are consistently

Hospitals Refused Registration

State	No. of Hospitals	Beds	Bassinets
Alabama.....	3	120	19
Arizona.....	3	61	13
Arkansas.....	11	266	19
California.....	73	2,301	247
Colorado.....	23	471	87
Connecticut.....	1	35	10
Delaware.....	..	..	..
Dist. of Columbia.....	..	..	..
Florida.....	13	503	20
Georgia.....	2	30	3
Idaho.....	2	54	6
Illinois.....	44	1,530	136
Indiana.....	16	728	55
Iowa.....	23	554	49
Kansas.....	30	710	85
Kentucky.....	12	196	8
Louisiana.....	2	20	4
Maine.....	6	115	18
Maryland.....	4	71	..
Massachusetts.....	18	460	108
Michigan.....	23	562	95
Minnesota.....	9	181	6
Mississippi.....	2	72	1
Missouri.....	27	1,206	26
Montana.....	6	106	16
Nebraska.....	18	380	48
Nevada.....	2	320	..
New Hampshire.....	..	..	..
New Jersey.....	9	175	30
New Mexico.....	2	41	6
New York.....	29	1,092	159
North Carolina.....	5	181	15
North Dakota.....	3	53	5
Ohio.....	30	855	123
Oklahoma.....	18	304	42
Oregon.....	13	334	58
Pennsylvania.....	22	489	46
Rhode Island.....	1	65	3
South Carolina.....	3	67	8
South Dakota.....	4	124	12
Tennessee.....	8	180	1
Texas.....	23	534	43
Utah.....	..	..	..
Vermont.....	1	13	3
Virginia.....	2	33	3
Washington.....	21	477	78
West Virginia.....	2	42	..
Wisconsin.....	11	757	17
Wyoming.....	4	111	10
Totals.....	581	17,193	1,873

omitted from all the publications of the Association and they are refused admission to the advertising columns.

This helps to distinguish between the good and the bad in hospitals. As a result, it is considered a disgrace among hospitals and physicians to be refused registration, and institutions that are rejected are frequently aroused and correct the objectionable practices in order that they may be recognized. Public and professional opinion forces many such institutions to sell their buildings to more reputable owners or to close up.

The Register is used as a basic list of hospitals. Industrial and governmental agencies use it in selecting hospitalization for their dependents and beneficiaries. Physicians almost universally observe the Register in referring their patients.

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## INTERNSHIPS AND RESIDENCIES

Statistical data presented in the accompanying tables represent a close estimate of the present status of internship and residency approvals. It is of considerable interest to note that the selected group of hospitals included in the tables have a bed capacity of 369,478. Admissions amounted to 4,596,453, or over half the total annual admissions in the entire group of 6,189 registered hospitals.

The importance of the totals expressed in the two tables becomes clear when it is demonstrated that approved hospitals require the services of two complete graduating classes from the medical schools, an indication that present day graduates find it desirable to extend the period of training at least two years beyond the date of graduation. The first six columns in the table offer figures on intern supply and demand. According to these statistics, there were 6,923 appointments in approved internship hospitals Jan. 1, 1937. Interns employed in these institutions served a total of 107,999 months or an average length of service of 15.6 months. The total number of appointments available annually therefore is reduced to 5,510. This compares

who are accepted for appointment in approved hospitals. It would appear, however, that the 711 approved internship hospitals provide a sufficient number of annual appointments to place the group of well qualified candidates.

The increasing number of residencies represents a counterbalancing tendency to the increasing length of

*Internship and Residency Statistics—March 15, 1937*

Hospitals approved for interns and residents.....	939
Bed capacity.....	369,478
Admissions during 1936.....	4,596,453
Number of approved internship hospitals.....	711
Number of interns serving in approved hospitals.....	6,873
Number of unapproved hospitals employing interns.....	262
Number of interns in unapproved hospitals.....	554
Total interns.....	7,427
Number of hospitals approved for residencies.....	430
Number of residents in approved positions.....	3,067
Number of residents in unapproved positions.....	1,321
Total residents.....	4,384
Total interns and residents.....	11,811

the internship period, since it permits further hospital training without directly reducing the number of first year appointments. There is a definite preference on the part of hospitals training both interns and residents to promote their own house officers to higher appointments. In consequence, considerable difficulty is experienced by a great many qualified applicants who attempt to break into the ordinary hospital residency system.

The calculations on salaries in the same tabulation include all regular allowances and bonuses as reported for Jan. 1, 1937. The list of average salaries granted refers to the paid group only and does not represent a figure for the entire intern population. However, on the basis of these statistics, it would appear that the total annual amount paid out in salaries to all interns is \$1,316,153.28, or \$17.44 per intern monthly. No accurate figures are available on the cost of maintenance, which in practically all instances includes at least lodging, board and laundry.

WHAT SHOULD THE HOSPITAL EXPECT  
OF AN INTERN?

Increasing attention in recent years has been paid to the internship. Reviews of present requirements, current status and advancing standards have regularly appeared in the Hospital and Educational numbers of THE JOURNAL. The demands made on hospitals are, as a result, well known both to the institutions themselves and to the candidates who elect to serve in them. The rate of acceptance of suggested changes has been variable but steady, depending largely on economic feasibility. For the most part, approved hospitals understand that any contribution they make in the form of an educational service yields a return in self improvement beyond any immediate result obtained by the individual apprentice. The campaign of the Council on Medical Education and Hospitals to elevate the character of intern training has provided the stimulus for adoption of many improved methods of patient care. At present a dwindling minority of hospitals exists in which there is little appreciation of educational values and which still in a number of ways exploit their house officers.

In the face of this widespread concern for the welfare of interns, a hospital may ask whether or not house officers take full advantage of opportunities and whether the expense and the effort are fully justified.

*Intern Supply and Demand and Salaries Paid—Jan. 1, 1937*

	Number of Hos- pitals Approved	Number of Internships Offered, 1935	Number of Internships Offered, 1936	Total Months Served	Average Length of Internship	Positions Avail- able Annually	Number of Interns Paid	Average Monthly Salary	Number of Interns Unpaid
Alabama.....	4	28	35	660	18.8	22	15	18.66	20
Arizona.....	1	4	5	60	12.0	5	5	25.00	..
Arkansas.....	3	13	11	132	12.0	11	11	25.00	..
California.....	34	432	435	6,660	15.3	311	389	29.19	46
Colorado.....	11	55	57	764	13.4	51	57	25.03	..
Connecticut.....	17	138	136	2,232	17.1	95	100	24.82	36
Delaware.....	3	16	17	204	12.0	17	17	25.00	..
Dist. Columbia.....	11	103	108	1,392	12.9	106	108	34.54	..
Florida.....	6	34	45	876	19.5	28	45	23.33	..
Georgia.....	7	68	72	864	12.0	72	72	21.40	..
Illinois.....	55	425	414	6,132	14.0	375	153	23.70	201
Indiana.....	13	123	127	1,524	12.0	127	127	26.29	..
Iowa.....	10	49	54	648	12.0	54	54	25.41	..
Kansas.....	6	41	42	504	12.0	42	42	28.33	..
Kentucky.....	9	55	52	624	12.0	52	52	25.47	..
Louisiana.....	9	127	133	1,566	12.0	133	133	24.50	..
Maine.....	4	15	17	258	15.2	14	5	22.50	12
Maryland.....	17	214	232	3,084	13.2	211	61	21.40	172
Massachusetts.....	37	342	380	6,837	17.9	255	60	24.27	311
Michigan.....	25	252	265	3,180	12.0	265	190	28.55	75
Minnesota.....	16	140	150	2,028	13.5	141	53	23.43	97
Missouri.....	25	295	287	3,450	12.1	284	247	24.39	40
Montana.....	2	4	4	48	12.0	4	4	50.00	..
Nebraska.....	10	45	48	576	12.0	48	48	26.50	..
New Hampshire.....	1	4	4	72	18.0	3	4	8.33	..
New Jersey.....	40	327	343	5,244	15.3	270	266	24.46	77
New York.....	94	1,179	1,501	30,402	20.2	892	791	24.45	710
North Carolina.....	10	68	68	816	12.0	68	35	20.18	33
North Dakota.....	2	6	7	84	12.0	7	7	22.50	..
Ohio.....	39	366	375	4,872	12.9	348	270	22.33	105
Oklahoma.....	6	46	49	588	16.8	35	49	23.08	..
Oregon.....	5	45	47	561	12.0	47	47	21.25	..
Pennsylvania.....	77	721	727	11,784	16.2	538	183	17.12	341
Rhode Island.....	4	44	45	540	20.8	26	4	50.00	41
South Carolina.....	3	23	25	300	12.0	25	25	23.44	..
Tennessee.....	10	90	100	1,182	14.8	81	100	27.87	..
Texas.....	20	131	137	2,076	15.1	109	123	27.77	14
Utah.....	5	26	28	456	16.3	21	28	23.27	..
Vermont.....	2	8	8	96	12.0	8	8	25.00	..
Virginia.....	8	68	61	732	12.0	61	26	32.92	35
Washington.....	13	78	83	996	16.6	60	83	33.65	..
West Virginia.....	5	22	26	312	12.0	26	26	33.50	..
Wisconsin.....	22	126	132	1,584	12.0	132	106	25.38	26
Totals.....	701	6,726	6,923	107,999	15.6	5,510	4,238	25.88	2,685

with 5,247 fourth year medical students during the period 1935 to 1936, or an excess of appointments over applicants of 263. The fact that 554 interns are employed in unapproved hospitals is of some importance in this general balance although many so serving are graduates of foreign schools or low grade schools in this country. An additional factor not considered in these tables concerns graduates of Canadian schools

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- Year Book Publishers, Inc., 304 S. Dearborn St., Chicago.

Since the internship system persists and improves, it would appear that most interns respond sufficiently well to warrant continued maintenance of the required facilities. There are enough of the other variety, however, to constitute a constant problem.

Although the average age of medical graduates approximates 26 years, experience has taught hospital authorities that interns cannot uniformly be treated as mature professional men and women. It is difficult for an attending physician to understand how a mature person can ignore obvious means for improving his clinical knowledge by failing to appear at rounds, outpatient clinics, necropsies and conferences, ignoring the

Granted that a hospital can supply an educational service in keeping with standard regulations, what ought it to expect of its interns and what adjustments can readily be made to reduce the main sources of friction? Obviously it should be expected that interns observe provisions stipulated in the internship contract and that they faithfully observe hospital rules and regulations.

#### INTERNSHIP CONTRACTS

Hospitals have difficulty with two main types of men who break internship contracts: (1) those who accept several appointments at the same time and (2) those who leave the hospital before the stipulated term of service is completed.

There will be no real solution of the first type until there is general adoption of uniform methods and time of intern appointment, possibly as suggested in the Hospital Number, March 30, 1935. Until such time, several helpful methods can be adopted; for example, the contract form should be kept entirely separate from the application blank and in every instance should clearly stipulate the beginning and terminating dates of the appointment. Hospitals should carefully avoid any possible misrepresentation of the character of the teaching service. A number of the better hospitals supply a prospectus to applicants outlining the principal attributes of the service, covering available clinical material, schedules of assignment, and important teaching exercises. An abstract of the last inspection report on the internship program prepared by the Council's staff would serve satisfactorily. With such information at hand, little excuse could be advanced by an intern for departure from the hospital in advance of the regular termination date on the basis of provision of an inadequate educational service alone. Finally, if each approved hospital would assure itself, by means of a suitable question on its application form, that the candidate under consideration is not under contract to any other hospital, the problem would be largely solved. The Council has means of determining the names of interns who fail to serve for the full appointed time and makes its own inquiries. Records of all broken internship contracts are maintained in the biographic files of the Association, details of which are available to those who may inquire.

The desire to terminate a service may rise from sound reasons. Most often this step is a misguided one and represents disregard of any obligation to the hospital or to the other interns. In any case, the request to leave should be made in writing, stating reasons, at least two weeks in advance to allow for proper investigation of the validity of the petition. The hospital may expect that a satisfactory substitute be provided in all cases in which the departure of one means disruption of the services of the remaining interns.

#### RULES AND REGULATIONS FOR INTERNS

A rule of conduct for interns could be most simply expressed by saying that the hospital and its staff expect that house officers behave like professional gentlemen, to which, by way of elaboration, might be added that interns be acquainted with their duties, perform them cheerfully and promptly, and in their performance respect hospital property and economize in the use of supplies. Most hospitals have found it necessary to expand these simple regulations considerably.

Enforcement of the house staff regulations should be a combined function of the staff intern committee and

#### Pathology Departments

State	Number of Clinical Laboratories		Directors			
			M.D.		Other*	
	1935	1936	1935	1936	1935	1936
Alabama.....	58	57	30	41	19	16
Arizona.....	29	27	18	16	11	11
Arkansas.....	47	44	37	41	10	3
California.....	236	225	175	181	61	47
Colorado.....	73	70	52	50	21	20
Connecticut.....	40	52	42	43	7	9
Delaware.....	11	12	9	9	2	3
District of Columbia..	24	25	22	25	2	1
Florida.....	62	62	30	43	23	19
Georgia.....	84	83	51	58	33	25
Idaho.....	28	26	15	15	13	11
Illinois.....	250	246	189	179	70	67
Indiana.....	90	97	63	70	27	27
Iowa.....	113	115	78	82	35	33
Kansas.....	81	79	56	58	25	25
Kentucky.....	70	70	37	39	33	31
Louisiana.....	54	55	38	42	16	13
Maine.....	43	46	27	28	16	18
Maryland.....	60	57	48	48	12	9
Massachusetts.....	191	189	156	153	35	36
Michigan.....	159	162	113	128	46	34
Minnesota.....	131	132	81	84	50	48
Mississippi.....	65	64	30	29	35	35
Missouri.....	108	107	84	87	24	20
Montana.....	27	30	20	15	7	15
Nebraska.....	64	65	44	48	20	17
Nevada.....	7	5	6	3	1	2
New Hampshire.....	28	30	22	24	6	6
New Jersey.....	115	118	95	106	20	12
New Mexico.....	23	28	17	20	6	8
New York.....	469	412	341	309	68	43
North Carolina.....	119	124	66	84	53	40
North Dakota.....	52	54	16	23	16	11
Ohio.....	189	177	125	128	64	49
Oklahoma.....	90	94	50	50	40	44
Oregon.....	41	38	28	29	13	9
Pennsylvania.....	285	282	243	245	42	37
Rhode Island.....	19	20	14	14	5	6
South Carolina.....	44	42	29	31	15	11
South Dakota.....	38	43	26	21	12	22
Tennessee.....	70	76	47	56	23	20
Texas.....	211	210	137	137	74	82
Utah.....	19	21	18	18	1	3
Vermont.....	21	21	16	16	5	5
Virginia.....	88	90	64	67	24	23
Washington.....	78	89	54	59	24	30
West Virginia.....	63	64	41	44	22	20
Wisconsin.....	141	136	83	81	58	55
Wyoming.....	18	17	14	11	4	6
Totals.....	4,364	4,384	3,115	3,248	1,249	1,136

\* Includes all laboratories reporting directors other than M.D. and all hospitals reporting a laboratory without specifying type of director.

medical library, spending as much time as the rules permit outside the hospital and exhibiting such a general lack of concern about his patients as to cause wonder why he finds it necessary to mark time for an entire year or longer unprofitably. The answer is twofold: such interns have no real appreciation of demands made on practitioners and they lack the ability to adjust themselves to personal responsibility. Both of these deficiencies are attributable in part to the failure in some of the medical schools to develop the student's sense of responsibility through an adequate clerkship and in part to the fact that a certain proportion of medical students are temperamentally unsuited to practice and consequently never acquire that personal interest in patients which is characteristic of the real physician.



HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

The following list contains the names of 6,189 hospitals, sanatoriums and related institutions that are located in the United States and 230 in Alaska, Canal Zone, Guam, Hawaii, Philippine Islands, Puerto Rico and Virgin Islands. It omits the names of 581 hospitals which, after investigation, were not accepted. The inclusion of the name of any institution may be taken as an indication that evidence concerning irregular or unsafe practices in that institution has not come to the attention of the Council on Medical Education and Hospitals. The list in each state is given in two sections: (1) hospitals and sanatoriums, and (2) related institutions. The related institutions include some general hospitals lacking certain essentials, nursing homes, school infirmaries, prison infirmaries, custodial and other institutions designed to give some medical, nursing or convalescent care in an ethical and acceptable manner, but not strictly hospitals. In the statistics the two classifications are consolidated. The words "No data supplied" following the name of a hospital mean that no report was received although at least three requests were sent.

KEY TO SYMBOLS AND ABBREVIATIONS

- \* Approved for general internship, the fifth year in medicine, by the Council on Medical Education and Hospitals.

+ Approved for certain residencies to specialties for graduates in medicine who have already had a general internship or its equivalent in private practice.
- ◊ School of nursing accredited by state board of nurse examiners.

◌ Affiliated for nurse training on state accredited basis.

The column headed "Type of Service" tells what diseases or conditions are treated in each institution, as follows:

Ca	Cancer	ENT	Eye, ear, nose and throat	Inst	Institutional	Orth	Orthopedic
Card	Cardiac	Gen	General	Mat	Maternity	SkCa	Skin and cancer
Chil	Children	G&TB	General and tuberculosis	MatCh	Maternity and children	TB	Tuberculosis
Chr	Chronic	Inc	Incurable	McDe	Mentally deficient	TbIso	Tuberculosis and isolation
Conv	Convalescence and rest	Indus	Industrial	Ment	Mental	TbOr	Tuberculosis and orthopedic
Drug	Drug and alcoholic	Iso	Isolation	N&M	Nervous and mental	Ven	Veneral
Epi	Epileptic						

The column headed "Control" indicates for each institution the ownership, control, or auspices under which it is conducted, as follows:

GOVERNMENTAL			NONPROFIT ORGANIZATIONS			PROPRIETARY		
Federal	Indian Affairs	State	Church			Individual		
	United States Army	City	Fraternal			Partnership		
	United States Navy	County	Nonprofit association			Corporation		
	United States Public Health Service	City-County				(unrestricted as to profit)		
	Veterans Administration Facility							
ABBREVIATIONS								
CyCo	City and county	Frat	Fraternal	NPAssn	Nonprofit association			
Corp	Corporation unrestricted as to profit	IA	Office of Indian Affairs, Department of the Interior	Part	Partnership			
Fed	Federal	Indiv	Individual	USPHS	United States Public Health Service			
				Vet	Veterans Administration Facility			

Population of cities is based on the 1930 census of the United States Bureau of the Census. Consultation with the Bureau led to this decision.

The accompanying list was subject to additions and removals of hospitals until going to press; totals of the list, therefore, may vary from tables 1 and 2, which were compiled slightly in advance at list.

ALABAMA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
...		Iodiv	24	24	2	12	5	207
...		Iodiv	54	54	4	20	10	300
Anniston, 22,345—Calhoun	Gen	City	76	76	12	131	40	1,501
Garner Hospital	Gen	Army	87	121	..	..	73	1,700
Stattoo Hospital	Gen	NPAssn	23	24	2	14	7	362
Atmore, 3,035—Ecclesia	Gen	Indiv	18	16	2	4	2	143
Atmore General Hospital	Gen	Corp	72	50	4	43	17	896
Bellamy, 317—Sumter	Gen	Church	..	140	12	277	73	3,434
...	Chil	NPAssn	50	50	..	..	31	396
...	N&M	Indiv	50	50	..	..	26	367
Hill Crest Sanatorium	Gen	County	434	434	40	1,933	371	11,612
Hillman Hospital	Gen	County	100	100	..	..	67	192
...	Gen	NPAssn	210	210	16	239	93	5,102
...	Gen	Church	113	113	12	183	90	3,485
...	Gen	Corp	140	122	18	502	75	3,903
...	Gen	NPAssn	..	28	2	5	12	321
...	Geo	NPAssn	60	50	4	71	30	985
...	Gen	Corp	75	60	6	50	54	1,687
...	Gen	Iodiv	100	94	6	65	60	2,180
...	Gen	Indiv	30	30	2	19	4	322
...	Gen	Iodiv	50	50	6	19	25	...
...	Gen	Indiv	50	50	4	7	12	445
Employees' Hosp. of the Tennessee Coal, Iron & Railroad Company	Geo	NPAssn	287	287	23	412	162	6,473
Flint (Deatur P. O.), 134—Morgan	Gen	County	60	25	..	..	20	82
Morgan County Tuberculosis Sanatorium	TB							

ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Florence, 11,720—Lauderdale	Gen	City	..	40	6	54	16	833
Eliza Coffey Mem. Hosp.	Gen	Indiv	100	85	12	38	25	750
Gadsden, 24,042—Etowah	Geo	Church	125	75	6	94	40	2,000
Forrest General Hosp.	Geo	Indiv	50	30	6	14	5	224
Holy Name of Jesus Hospital	Geo	Indiv	21	..	..	..	4	104
Greenville, 3,985—Butler	Geo	FedNPAssn	72	60	6	86	27	1,310
Speir Hospital	Geo	Corp	..	50	4	..	30	...
Gautersville Dam, Infirm.	Indus	NPAssn	165	126	18	346	110	2,971
Guntersville Dam, Infirm.	Indus	Corp	..	50	4	..	30	...
Huntsville, 11,554—Madison	Gen	City	165	126	18	346	110	2,971
Huntsville Hospital	Gen	Corp	..	50	4	..	30	...
Jasper, 5,313—Walker	Gen	Corp	..	50	4	..	30	...
Walker County Hospital	Gen	Corp	..	50	4	..	30	...
Mobile, 68,202—Mobile	Gen	City	165	126	18	346	110	2,971
City Hospital	Gen	City	165	126	18	346	110	2,971
Mobile County Tuberculosis Sanatorium	TB	CyCo	58	58	..	..	43	21
Mobile Infirmary	Gen	NPAssn	100	90	10	141	51	2,112
Providence Infirmary	Gen	Church	100	100	12	159	52	1,878
U. S. Marine Hospital	Gen	USPHS	175	159	..	..	141	1,823
Montgomery, 66,079—Montgomery	Gen	Indiv	32	32	6	72	16	799
Fitts Hill Hospital	Gen	Indiv	40	40	12	168	24	1,413
Hubbard Hospital	Gen	Indiv	40	40	12	168	24	1,413
Montgomery Tuberculosis Sanatorium	TB	NPAssn	57	57	..	..	39	29
St. Margaret's Hospital	Gen	Church	125	132	12	268	83	5,113
Station Hospital	Gen	Army	21	21	4	14	25	473
Mt. Vernon, 810—Mobile	Ment	State	1,500	1,650	..	..	1,625	570
Searcy Hospital (col.)	Gen	State	1,500	1,650	..	..	1,625	570
Opelika, 6,156—Lee	Gen	NPAssn	..	25	4	13	3	267
East Alabama Hospital	Gen	NPAssn	..	25	4	13	3	267
Roanoke, 4,373—Randolph	Gen	Indiv	60	30	2	8	20	250
Knight Sanatorium	Gen	Indiv	60	30	2	8	20	250
Russellville, 3,146—Franklin	Gen	Part	18	18	1	14	5	271
Russellville Hospital	Gen	Part	18	18	1	14	5	271
Scottsboro, 2,504—Jackson	Gen	Indiv	20	20	4	17	6	215
Hodges Hospital	Gen	Indiv	20	20	4	17	6	215
Selma, 18,012—Dallas	Gen	Part	25	25	3	8	13	225
Burwell Infirmary (col.)	Gen	Part	25	25	3	8	13	225
Goldsky King Memorial Hospital	Gen	Corp	52	52	10	36	27	1,255

Key to symbols and abbreviations is at top of this page

ments. Among them are Parkes,<sup>4</sup> Tietze,<sup>5</sup> Kaufmann<sup>6</sup> and Zuckerman and Morse.<sup>7</sup>

Since glandular cystic hyperplasia of the endometrium is the result of the prolonged continuous secretion of estrogen, it cannot occur in patients whose ovaries contain active corpora lutea. In other words, in these cases the corpus luteum has failed, and estrogen alone continues to exert its influence on the endometrium. Such an ovarian state is clearly the result of a partial failure of ovarian function, and it seemed wise to try to produce such a condition of partial ovarian failure in our animals. We therefore partially castrated a series of animals and observed the sexual cycle<sup>8</sup> (fig. 3). In one group there was but little or no disturbance in the duration of the cycle and the extent of the estrous periods. In another group there was an irregularity of the interval and a prolongation of the estrous periods. In the remainder there was a greatly prolonged interval or an entire absence of the cycle. In the first group of animals the endometrium showed slight deviations from the normal; in the second

Further it seemed eminently desirable to compare the endometrium of animals with deficient hypophyseal function with the endometrium of animals with deficient ovarian function. Accordingly a group of animals were partially hypophysectomized and the cycles and

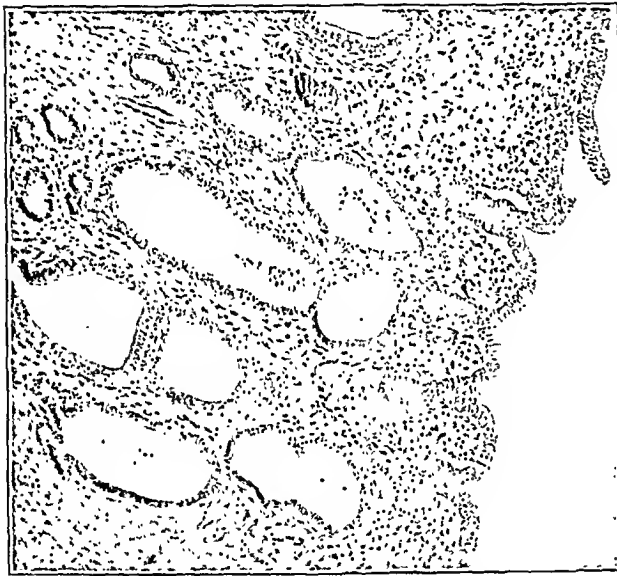


Fig. 1.—Endometrium of guinea-pig showing glandular cystic hyperplasia produced by long continued injection of estrogen.

they were frankly hyperplastic (fig. 4), and in the third they were partially atrophic and tended toward the castrate type. The endometrium of the animals in the second group, showing glandular cystic hyperplasia, was just as comparable to the human condition as that seen in the previous experiments, in which estrogen was given over a considerable period of time.<sup>3</sup>

Having shown that the condition of glandular cystic hyperplasia of the endometrium can be produced by surgically reducing the functional capacity of the ovary, it seemed wise to consider the effects of reducing ovarian function by other means. It was only natural that we should turn to the hypophysis on account of its well known rôle in directing ovarian function.

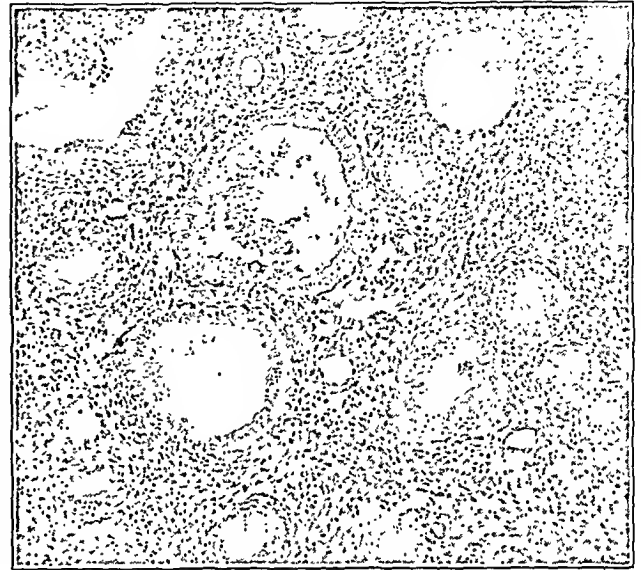


Fig. 2.—Human endometrium showing glandular cystic hyperplasia.

endometrium studied. The cycles fell into the same groups (fig. 5), and the endometrium was identical with that in the hypo-ovarian series (fig. 6).

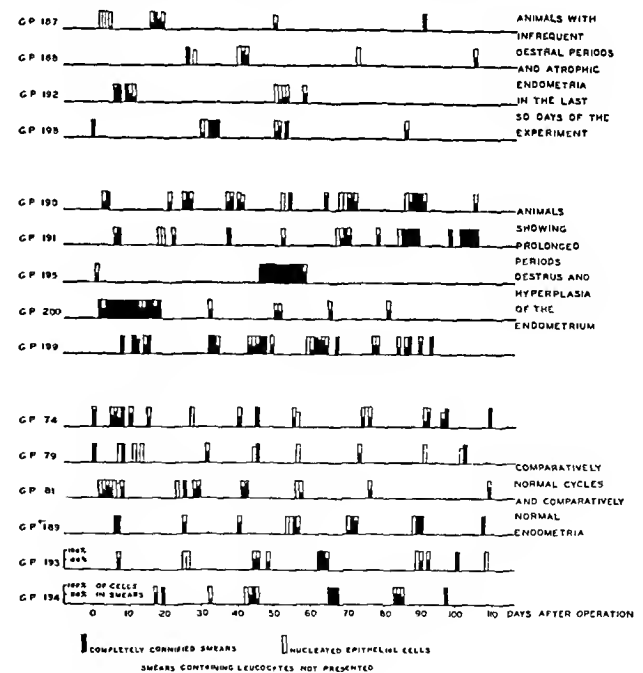


Fig. 3.—Vaginal smears of guinea-pigs for 110 days following extreme partial castration.

We have interpreted these experiments as indicating that ovarian function can be reduced by lesions affecting the ovary or by lesions affecting the hypophysis or other endocrine glands. We have designated the two types as primary ovarian failure and secondary ovarian failure. Both primary ovarian failure and secondary ovarian failure produce the same changes in the endo-

4. Parkes, A. S.: Experimental Endometrial Hyperplasia, *Lancet* 1: 485 (March 2) 1935.

5. Tietze, K.: Die Follikelpersistenz mit glandulärer Hyperplasie des Endometriums in vergleichend pathologischer, experimenteller und genetischer Beziehung, *Ztschr. f. Geburtsh. u. Gynak.* 108: 79, 1934.

6. Kaufmann, C.: Die Behandlung der Amenorrhöe mit hohen Dosen der Ovarialhormone, *Klin. Wchnschr.* 12: 1557 (Oct. 7) 1933.

7. Zuckerman, S., and Morse, A. H.: Experimental Production of Excessive Endometrial Hyperplasia, *Surg., Gynec. & Obst.* 61: 15 (July) 1935.

8. Burch, J. C.; Wolfe, J. M., and Cunningham, R. S.: Experiments on Endometrial Hyperplasia, *Endocrinology* 16: 541 (Sept.-Oct.) 1932.

metrium. These changes indicate the degree of ovarian failure and have been designated as first degree, second degree and third degree. It is of course obvious that the complete detailed presentation of all the experiments is impossible here.



Fig. 4.—Endometrium of guinea-pig showing glandular cystic hyperplasia produced by partial castration.

In our clinical studies on the human endometrium our biopsy technic has given us an unusual opportunity to study the endometrium of the same patient over a

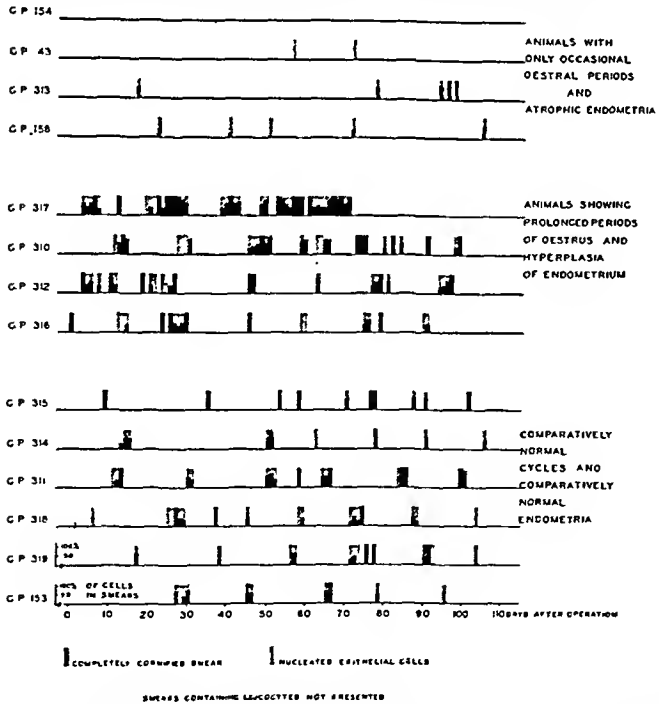


Fig. 5.—Vaginal smears of guinea-pig for 110 days following partial hypophysectomy.

long period of time.<sup>9</sup> Numerous instances of the progression of one type of endometrium into another have been noted. The primary trend of the progression is

toward an endometrium indicating lower degrees of ovarian function, although the progression is frequently interrupted by remissions and reversions to a more normal endometrium. Hyperplasia frequently reverts toward the normal. In a general way we have classified those syndromes described as luteal menorrhagia, irregular shredding of the endometrium, and corpus luteum persistans as first degree ovarian failure, glandular cystic hyperplasia and aluteal menorrhagia as second degree ovarian failure, and those syndromes associated with the atrophic aluteal endometrium as third degree ovarian failure.

In correlating the symptoms with the endometrium it has been noted that there is no single set of symptoms specifically characteristic of any grade of ovarian failure. There is, however, a tendency for the minor disturbances of flow and interval to fall into the first group, for the severe bleeding to occur in the second, and for the amenorrheas to fall into the third.

With the preceding clinical and experimental background it seemed wise to study a group of patients



Fig. 6.—Endometrium of guinea-pig showing glandular cystic hyperplasia produced by partial hypophysectomy.

with menstrual disorders in regard to the degree and type of ovarian failure. The degree of ovarian failure was determined from the endometrium taken on the first day of bleeding. The type of ovarian failure, whether primary or secondary, was determined from a study of the endocrine status of the individual carried out along the lines advocated by Rowe<sup>10</sup> and Lawrence and summarized by Rowe in Meaker's book, with the addition of Goldzieher's test for the specific dynamic action.<sup>11</sup> This matter was fully discussed before this section in two papers at the last session.<sup>12</sup> In addition to a careful general history, physical examination and the usual laboratory studies, the determination of the basal metabolic rate, the specific dynamic action of protein according to Goldzieher's method and of the sugar

9. Klingler, H. H., and Burch, J. C.: Suction in Obtaining Endometrial Biopsies, *J. A. M. A.* 99: 559 (Aug. 13) 1932. Burch, J. C.; Phelps, Doris, and Wolfe, J. M.: Endometrial Hyperplasia, *Arch. Path.* 17: 799 (June) 1934. McClellan, G. S.; Phelps, Doris, and Burch, J. C.: Endometrial Studies, *Endocrinology* 19: 321 (May-June) 1935.

10. Rowe, A. W.: Studies of the Endocrine Glands: I. A General Method for the Diagnosis of Abnormal Function, *Endocrinology* 12: 1 (Jan.-Feb.) 1928.  
11. Goldzieher, M. A., and Gordon, M. B.: Determination of the Specific Dynamic Action of Protein and Its Value in the Diagnosis of Pituitary Disease, *Endocrinology* 17: 569 (Sept.-Oct.) 1933.  
12. Bland, P. B.; First, Arthur, and Goldstein, Leopold: The Clinical Investigation of Functional Sterility in the Female, *J. A. M. A.* 102: 1231 (Oct. 19) 1935. Titus, Paul: Sterility: Analysis of Cause and Treatment, *ibid.* 105: 1237 (Oct. 19) 1935.

## ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Good Samaritan Hospital (col.)	Unit of Selma Baptist Hospital	Gen	107	90	12	129	25	2,006
Selma Baptist Hospital, Gen	NPA'ssn	Corp	60	30	6	49	18	1,044
Vaughan Memorial Hosp. Gen	Gen	CyCo	75	75	8	117	18	1,345
Troy, 6,514—Pike	Gen	Corp	42	8	128	14	665	
Heard Memorial Hospital Gen	Indiv	Corp	50	18	4	30	7	352
Edgo Hospital	Gen	NPA'ssn	50	50	8	61	13	899
Beard Memorial Hospital Gen	Indiv	Indiv	35	25	3	26	12	862
Edgo Hospital	Gen	Indiv	40	35	4	19	12	659
Tuskegee, 3,214—Macon	State	NPA'ssn	2,600	3,201	..	..	475	1,272
Veterans Admin. Facility	Gen	Vet	311	346	..	..	41	2,335
T	Gen	Vet	1,156	1,156	..	..	312	2,611
Wetumpka, 2,357—Elmore	Gen	NPA'ssn	75	96	6	20	51	..
Wetumpka General Hosp. Gen	Part	Part	..	24	2	..	..	Estab. 1936
York, 1,796—Sumter	Gen	Indiv	10	10	2	13	3	216

## Related Institutions

Alabama City, 8,544—Etowah	County	County	25	25	..	..	25	16
Etowah County Tuberc. Sanatorium	County	County	25	25	..	..	25	16
Altoona, 1,098—Etowah	Gen	Indiv	12	12	3	24	6	173
Edna Hospital	Gen	Indiv	12	12	3	24	6	173
Birmingham, 259,678—Jefferson	State	State	30	30	..	..	2	802
Alabama Boys' Industrial School	Inst	Inst	12	17	3	6	7	322
Children's Home Hospital (col.)	Gen	NPA'ssn	10	10	..	..	9	350
Miss Quinn's Nursing Home	Conv	Part	10	10	..	..	9	350
Salvation Army Home and Hospital	Mat	Church	50	45	25	78	34	107
Brewton, 2,818—Escambia	Gen	Indiv	..	17	1	No data supplied	..	..
Brewton Memorial Hosp. Gen	Indiv	Indiv	..	17	1	No data supplied	..	..
Demopolis, 4,637—Maricao	Gen	Indiv	..	10	4	20	1	52
Head-Bailey Hospital	Gen	Indiv	..	10	4	20	1	52
Dothan, 16,046—Houston	Gen	Indiv	..	10	4	20	1	52
Dr. M. S. Davis' Private Hospital	Gen	Indiv	..	10	4	20	1	52
East Tallahassee, 2,108—Tallahassee	Community	Community	..	21	1	14	6	450
Florida, 2,559—Covington	Gen	NPA'ssn	..	21	1	14	6	450
Young Infirmary and Lakeview Hospital	Gen	Indiv	..	40	4	20	12	400
Greenville, 3,685—Butler	Gen	Indiv	..	40	4	20	12	400
Stabler Infirmary	Gen	Indiv	..	20	20	3	36	10
Jackson, 1,525—Clarke	Gen	Indiv	..	20	20	3	36	10
South Alabama Infirmary	Gen	Corp	..	12	2	No data supplied	..	..
Joe Wheeler Dam, Lawrence	Indus	Indus	..	12	2	No data supplied	..	..
Joe Wheeler Dam Infirmary	Indus	Indus	..	12	2	No data supplied	..	..
Monterello, 1,345—Shelby	Inst	State	36	36	..	..	10	1,685
Peterson Hall	Inst	State	36	36	..	..	10	1,685
Montgomery, 68,079—Montgomery	Gen	Indiv	45	45	10	85	23	900
Fraternal Hospital (col.)	Gen	State	60	54	..	..	29	497
Kilby Prison Hospital	Inst	Church	..	25	..	..	0	723
Midland Jackson Home	Inst	Church	..	25	..	..	0	723
Pell City, 835—St. Clair	Gen	Indiv	16	12	1	15	4	132
Pell City Infirmary	Gen	Indiv	16	12	1	15	4	132
Tallapoosa, 1,345—Shelby	Gen	NPA'ssn	20	20	1	..	1	80
Tus	Gen	NPA'ssn	20	20	1	..	1	80
Wetumpka, 2,357—Elmore	State	State	624	624	..	..	593	34
State Convict Tuberculosis Hospital	TB	State	..	90	..	..	62	41

## Summary for Alabama:

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums...	67	10,572	8,832	80,674
Related institutions...	22	1,228	864	8,227
Totals...	89	11,800	9,696	88,901
Refused registration...	3	120	..	..

## ARIZONA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Ajo, 1,100—Pima	Gen	NPA'ssn	27	27	5	64	5	331
Phelps Dodge Hospital...	Gen	NPA'ssn	27	27	5	64	5	331
Bieber, 8,625—Cochise	Gen	NPA'ssn	..	35	6	139	16	801
Copper Queen Hospital...	Gen	NPA'ssn	..	35	6	139	16	801
Douglas, 9,825—Cochise	Gen	NPA'ssn	..	35	6	139	16	801
Cochise County Hospital Gen	County	County	45	45	4	47	45	836
Flagstaff, 3,691—Coconino	Gen	NPA'ssn	25	25	5	..	..	Estab. 1936
Flagstaff Hospital	Gen	NPA'ssn	25	25	5	..	..	Estab. 1936
Florence, 1,316—Pinal	Gen	NPA'ssn	25	25	5	..	..	Estab. 1936
Pinal County Hospital...	Gen	County	..	27	5	..	20	..

## ARIZONA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Ft. Defiance, 30—Apache	Gen	IA	26	26	..	..	26	167
Ft. Defiance Sanatorium TB	Gen	IA	26	26	..	..	26	167
Southern Navajo General Hospital	Gen	IA	88	88	4	75	83	2,118
Ft. Huachuca, 1,500—Cochise	Gen	Army	40	65	2	28	16	415
Station Hospital	Gen	Army	40	65	2	28	16	415
Gunnado, 150—Apache	Gen	Church	80	90	15	63	86	1,582
Sago Memorial Hosp. Gen	Gen	Church	80	90	15	63	86	1,582
Globe, 7,157—Gila	Gen	County	50	50	4	44	30	513
Gila County Hospital...	Gen	County	50	50	4	44	30	513
Jerome, 4,932—Yavapai	Gen	Corp	52	52	4	75	27	1,029
United Verde Hospital...	Gen	Corp	52	52	4	75	27	1,029
Kenns Canyon, 150—Navajo	Gen	IA	36	36	4	27	36	1,050
Hopi General Hospital...	Gen	IA	36	36	4	27	36	1,050
Khigman, 2,200—Mohave	Gen	County	30	25	5	56	20	500
Mohave General Hospital Gen	Gen	County	30	25	5	56	20	500
Leupp, 200—Coconino	Gen	IA	28	28	2	..	22	737
Leupp Indian Hospital...	Gen	IA	28	28	2	..	22	737
Mesa, 3,711—Maricopa	Gen	NPA'ssn	40	40	8	95	19	948
South Side District Hosp. Gen	Gen	NPA'ssn	40	40	8	95	19	948
Miami, 7,693—Gila	Gen	NPA'ssn	40	40	3	33	12	332
Miami Inspiration Hosp. Gen	Gen	NPA'ssn	40	40	3	33	12	332
Moreland, 2,200—Greenlee	Gen	NPA'ssn	20	20	1	10	3	198
Phelps Dodge Hospital	Gen	NPA'ssn	20	20	1	10	3	198
Phoenix, 48,118—Maricopa	State	State	925	888	..	..	831	304
Arizona State Hospital...	State	State	925	888	..	..	831	304
Booker T. Washington Memorial Hosp. (col.)	Gen	Church	25	20	3	15	7	187
Good Samaritan Hosp. Gen	Gen	Church	25	20	3	15	7	187
Phoenix Indian Hospital Gen	Gen	Church	25	20	3	15	7	187
Phoenix Indian Sanat. TB	Gen	Church	25	20	3	15	7	187
Phoenix Sanatorium	Gen	Church	25	20	3	15	7	187
St. Joseph's Hospital	Gen	Church	25	20	3	15	7	187
St. Luke's Home	Gen	Church	25	20	3	15	7	187
Prescott, 5,517—Yavapai	Gen	Church	33	31	7	59	20	711
Merced Hospital	Gen	Church	33	31	7	59	20	711
Pamsetraat Sanatorium TB	Gen	Church	33	31	7	59	20	711
St. Luke's in the Mountains	Gen	Church	33	31	7	59	20	711
Ray, 2,450—Pinal	Gen	Corp	20	20	4	11	5	189
Ray Hospital	Gen	Corp	20	20	4	11	5	189
Saenon, 315—Pinal	Gen	IA	38	38	6	63	35	865
Pinal Indian Hospital...	Gen	IA	38	38	6	63	35	865
Safford, 1,706—Graham	Gen	NPA'ssn	..	20	3	12	5	230
Morris-Squibb Hospital	Gen	NPA'ssn	..	20	3	12	5	230
San Carlos, 100—Gila	Gen	IA	28	28	5	28	19	583
San Carlos Indian Hosp. Gen	Gen	IA	28	28	5	28	19	583
Sells, 200—Pima	Gen	IA	50	50	10	68	20	786
Indian Oasis Hospital	Gen	IA	50	50	10	68	20	786
Superior, 4,000—Pinal	Gen	Corp	..	15	4	..	3	..
Magran Hospital	Gen	Corp	..	15	4	..	3	..
Tempe, 2,493—Maricopa	Gen	State	112	112	..	..	101	150
Welfaro Sanatorium	Gen	State	112	112	..	..	101	150
Tuba City, 150—Coconino	Gen	IA	29	40	6	20	25	944
Western Navajo Hospital Gen	Gen	IA	29	40	6	20	25	944
Tucson, 32,506—Pima	Gen	Part	35	30	..	..	15	35
Anson Rest Home	Gen	Part	35	30	..	..	15	35
Barfield Sanatorium	Gen	Part	35	30	..	..	15	35
Dr	Gen	Part	35	30	..	..	15	35
St	Gen	Part	35	30	..	..	15	35
Sanitarium	Gen	Part	35	30	..	..	15	35
St. Mary's Hospital and Sanatorium	Gen	Church	135	140	15	220	101	3,222
San Xavier Indian Sanatorium	Gen	Church	135	140	15	220	101	3,222
Southern Methodist Hospital and Sanatorium	Gen	Church	80	80	12	61	41	1,367
Southern Pacific Sanat. TB	Gen	Church	80	80	12	61	41	1,367
Veterans Admin. Facility	Gen	Church	80	80	12	61	41	1,367
Whipple, Yavapai	Gen	Church	80	80	12	61	41	1,367
Veterans Admin. Facility	Gen	Church	80	80	12	61	41	1,367
Whiteriver, 300—Navajo	Gen	IA	39	33	6	47	37	1,486
Ft. Apache Agency Hosp. Gen	Gen	IA	39	33	6	47	37	1,486
Winslow, 3,917—Navajo	Gen	IA	45	45	6	1	43	113
Winslow Sanatorium	Gen	IA	45	45	6	1	43	113
Yuma, 4,892—Yuma	Gen	IA	25	25	8	21	11	288
Ft. Yuma Indian Hosp. Gen	Gen	IA	25	25	8	21	11	288
Yuma County Gen. Hosp. Gen	Gen	County	50	48	6	108	50	1,223

## Related Institutions

Chin Lee, 65—Apache	Gen	IA	15	20	2	14	15	489
Chin Lee General Hosp. Gen	Gen	IA	15	20	2	14	15	489
Kayenta, 40—Navajo	Gen	IA	52	52	3	2	41	439
Kayenta Sanatorium	Gen	IA	52	52	3	2	41	439
McNary, 55—Apache	Gen	IA	..	8	..	1	1	59
McNary Hospital	Gen	IA	..	8	..	1	1	59
Nogales, 6,006—Santa Cruz	Gen	IA	..	215	..	..	144	739
Nogales Work Camp Hosp. G&TB	Gen	IA	..	215	..	..	144	739
St. Joseph's Hospital	Gen	Church	..	16	3	No data supplied	..	..
Oracle, 200—Pinal	Gen	Conv	6	6	..	..	3	12
La Casa del Encanto	Gen	Conv	6	6	..	..	3	12
Parker, 200—Yuma	Gen	IA	36	36	4	36	15	341
Colorado River Indian Agency Hospital	Gen	IA	36	36	4	36	15	341
Phoenix, 48,118—Maricopa	Gen	IA	9	9	..	..	4	9
Helen Lee Sanatorium	Gen	IA	9	9	..	..	4	9
Prescott, 5,517—Yavapai	Gen	IA	9	9	..	..	4	9
Yavapai County Hosp. Inst	Gen	County	85	80	5	40	..	..
Tucson, 32,506—Pima	Gen	County	85	80	5	40	..	..
Arizona State Elks Association Hospital	Gen	County	24	24	..	..	15	23
Comstock Children's Hosp. TB	Gen	County	30	22	..	..	16	36
Pima County Hospital	Gen	County	36	36	..	..	36	34
Reardon Sanatorium	Gen	County	15	15	..	..	8	22

Key to symbols and abbreviations is on page 1060

## ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
Hospital of St. Anthony de Padua*o.....	Gen	Church	250	200	40	776	166	4,472
Illinois Central Hospital*o.....	Gen	NPAssn	200	247	28	507	135	4,194
Illinois Eye and Ear Infirmary*o.....	ENT	State	200	200	..	..	164	5,325
Illinois Masonic Hosp.*o.....	Gen	Frat	159	159	25	300	60	2,505
Jackson Park Hospital*o.....	Gen	Corp	225	100	40	530	68	4,218
John B. Murphy Hospital Gen	Gen	Church	..	100	29	319	50	1,566
Kenner Hospital.....	Gen	NPAssn	35	35	6	..	Estab.	19,936
Lake View Hospital*o.....	Gen	Corp	110	100	30	205	40	1,895
La Rubell Jackson Park Sanitarium.....	CardCh	NPAssn	156	52	..	..	30	138
Lewis Memorial Maternity Hospital.....	Mat	Church	215	114	114	2,201	67	2,511
Lutheran Deaconess Home and Hospital*o.....	Gen	Church	200	176	42	707	98	4,734
Lutheran Memorial Hospital*o.....	Gen	Church	175	175	26	272	53	2,384
Martha Washington Hosp. Gen	Gen	NPAssn	..	53	13	150	18	732
Mersey Hospital*o.....	Gen	Church	360	300	24	405	209	5,902
Michael Reese Hosp.*o.....	Gen	NPAssn	628	557	71	1,644	417	17,052
Mercileordia Hospital and Home for Infants*o.....	Mat	Church	..	17	26	281	8	279
Mother Child Memorial Hospital*o.....	Gen	Church	..	120	20	336	75	3,046
Mt. Sinai Hospital*o.....	Gen	NPAssn	160	163	44	805	113	6,030
Municipal Contagious Disease Hospital*o.....	Iso	City	428	428	..	..	237	3,938
Nancy Adela McElvee Memorial and Gertrude Dunn Hicks Mem. Hosp. Orthopedic Unit of University of Chicago	Orthopedic	Unit of University of Chicago	..	..	..	..	..	..
Norwegian-American Hospital*o.....	Gen	NPAssn	350	184	35	628	68	3,874
Parkway Sanitarium.....	N&M	Corp	..	50	..	..	37	299
Passavant Mem. Hosp.*o.....	Gen	NPAssn	177	177	35	415	108	4,230
Pineal Sanitarium.....	N&M	NPAssn	50	50	..	..	24	180
Post Graduate Hospital and Medical School.....	Gen	NPAssn	85	45	3	15	12	630
Presbyterian Hospital*o.....	Gen	Church	423	384	41	831	300	11,503
Provident Hosp. (col.)*o.....	Gen	NPAssn	133	133	22	338	84	2,701
Ravenswood Hospital*o.....	Gen	NPAssn	160	144	44	1,054	106	5,943
Research and Educational Hospital*o.....	Gen	State	400	365	28	672	329	5,348
Roseland Community Hospital*o.....	Gen	Corp	..	101	35	538	70	3,202
St. Anne's Hospital*o.....	Gen	Church	230	230	60	1,244	148	5,394
St. Anthony de Padua Hospital.....	See	Hospital of St. Anthony de Padua	..	..	..	..	..	..
St. Bernard's Hospital*o.....	Gen	Church	200	185	30	536	98	6,033
St. Elizabeth Hospital*o.....	Gen	Church	275	283	40	1,001	213	5,040
St. Joseph Hospital*o.....	Gen	Church	250	210	40	304	100	3,324
St. Luke's Hospital*o.....	Gen	NPAssn	663	614	49	933	239	11,661
St. Mary of Nazareth Hospital*o.....	Gen	Church	250	212	38	839	120	5,216
St. Vincent's Infant and Maternity Hospital.....	Mat	Church	40	30	12	175	17	186
Sarah Morris Hospital for Children.....	Unit of	Michael Reese Hospital	..	..	..	..	..	..
Shriners Hospital for Crippled Children.....	Orth	Frat	60	60	..	..	60	226
South Chicago Community Hospital*o.....	Gen	NPAssn	75	69	17	280	34	2,173
South Shore Hospital*o.....	Gen	Corp	100	100	25	359	57	2,099
Surgical Institute for Crippled Children.....	Unit of	Research and Educational Hospital	..	..	..	..	..	..
Swedish Covenant Hospital*o.....	Gen	Church	185	167	42	832	100	3,861
U. S. Marine Hospital*o.....	Gen	USPHS	277	277	..	..	185	1,875
University Hospital*o.....	Gen	Corp	100	100	21	149	53	2,544
University of Chicago Clinics*o.....	Gen	NPAssn	411	349	2	..	294	7,640
Washington Boulevard Hospital*o.....	Gen	NPAssn	..	100	10	92	61	1,979
Wesley Memorial Hosp.*o.....	Gen	Church	268	247	21	..	89	3,034
West Side Hospital*o.....	Gen	Corp	150	125	22	225	60	2,139
Women and Children's Hospital*o.....	Gen	NPAssn	125	101	24	500	59	2,423
.. .. .		NPAssn	179	70	32	366	49	2,092
Clinton, 5,920—DeWitt		Church	150	130	20	223	32	1,506
Dr. John Warner Hospital Compton, 277—Lee	Gen	City	21	23	4	65	17	450
Compton Hospital.....	Gen	Indiv	..	10	2	7	3	243
DeWitt, 36,765—Vermilion								
Lake View Hospital*o.....	Gen	NPAssn	..	155	15	184	74	2,493
St. Elizabeth Hospital*o.....	Gen	Church	150	150	21	370	81	3,109
Veterans Admin. Facility	Gen	Vet	1,639	1,650	..	..	1,287	1,510
Decatur, 57,510—Macon								
Decatur and Macon County Hospital.....	Gen	NPAssn	135	135	25	469	81	3,455
Macon County Tuberculosis Sanatorium*o.....	TB	County	80	80	..	..	64	84
St. Mary's Hospital.....	Gen	Church	150	155	23	516	121	3,962
Wabash Employees' Hosp. De Kalb, 8,545—De Kalb	Indus	NPAssn	..	80	..	..	48	1,132
De Kalb County Tuberculosis Sanatorium.....	TB	County	30	43	..	..	40	19
De Kalb Public Hospital. Gen	Gen	City	39	25	10	105	13	669
St. Mary's Hospital.....	Gen	Church	75	50	9	70	10	694
Des Plaines, 8,798—Cook								
Northwestern Hospital....	Gen	Corp	16	16	5	60	8	315
Dixon, 9,903—Lee								
Dixon Public Hospital*o....	Gen	NPAssn	60	60	11	172	24	1,153



## ARIZONA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Valentine, 168—Mohave								
Truxton Canon Indian Hospital	Gen	IA	11	15	1	13	7	...
Williams, 2,166—Cocoonino								
Williams Hospital	Gen	Indiv	9	9	1	14	2	60
Yuma, 4,892—Yuma								
Contractors Hospital	Indus	Indiv	..	10	..	..	..	Estab. 1936
Summary for Arizona:								
Hospitals and sanatoriums...		Number	Beds	Average Patients	Patients Admitted			
Related institutions.....		48	4,212	3,121	38,802			
		16	573	381	3,081			
Totals.....		64	4,785	3,502	41,883			
Refused registration.....		3	61	..	..			

## ARKANSAS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Alexander, 141—Pulaski								
McRae Memorial Sanatorium (col.)	TB	State	..	32	..	..	32	47
Arkadelphia, 3,380—Clark								
Townsend Hospital	Gen	Indiv	16	16	4	10	4	164
Batesville, 4,484—Independence								
Dr. Gray's Infirmary	Gen	Indiv	20	20	..	5	6	305
Johnston and Craig Hosp.	Gen	Part	..	12	1	5	4	562
Benton, 3,415—Saline								
Blakely Hospital	Gen	Indiv	16	16	2	36	5	214
Blytheville, 10,098—Mississippi								
Blytheville Hospital	Gen	City	..	50	6	27	0	960
Camden, 7,273—Ouachita								
Camden Hospital	Gen	NPAAssn	25	30	9	139	13	070
Charleston, 851—Franklin								
Bollinger Hospital	Gen	Indiv	12	15	..	18	2	76
Clarksburg, 3,031—Johnson								
Johnson County Hosp.	Gen	Corp	16	16	1	8	3	153
Conway, 5,534—Faulkner								
Faulkner County Hosp.	Gen	Part	..	20	4	25	5	196
Crossett, 2,811—Ashley								
Crossett Hospital	Gen	Corp	35	35	6	38	14	381
De Queen, 2,938—Sevier								
Archer Hospital	Gen	Indiv	25	25	1	7	6	310
El Dorado, 16,421—Union								
Henry C. Rosamond Memorial Hospital	Gen	Part	25	25	5	46	7	434
Warner Brown Hospital	Gen	Church	75	75	6	179	50	1,847
Fayetteville, 7,394—Washington								
Fayetteville City Hospital	Gen	City	55	55	10	124	23	1,272
Veterans Admin. Facility	Gen	Vet	238	238	..	..	190	2,205
St. Smith, 31,429—Sebastian								
St. Edward's Mercy Hospital	Gen	Church	100	100	13	185	62	2,502
Sparks' Memorial Hosp.	Gen	NPAAssn	75	60	6	89	33	2,035
Helena, 8,816—Phillips								
Helena Hospital	Gen	NPAAssn	38	38	0	68	15	733
Hope, 6,008—Hempstead								
Josephine Hospital	Gen	Indiv	25	25	3	15	5	274
Julia Chester Hospital	Gen	CyCo	24	20	4	36	10	450
Hot Springs National Park, 20,238—Garland								
Army and Navy General Hospital	Gen	Fed	412	528	2	13	368	2,739
Leo N. Levi Memorial Hospital	Gen	Frat	75	75	5	38	60	1,052
Ozark Sanatorium	Gen	Corp	60	60	6	21	15	382
St. Joseph's Hospital	Gen	Church	150	150	6	39	74	2,137
Jonesboro, 10,326—Craighead								
St. Bernard's Hospital	Gen	Church	100	100	8	119	62	2,227
Lake Village, 1,582—Chicot								
Lake Village Infirmary	Gen	Part	30	30	3	40	12	742
Little Rock, 81,679—Pulaski								
Arkansas Children's Home and Hospital	Chll	NPAAssn	70	43	7	..	36	551
Baptist State Hospital	Gen	Church	300	300	15	268	94	3,914
Granita Mountain Hosp.	Gen	Indiv	18	18	2	44	8	139
Little Rock City Hosp.	Gen	City	176	100	12	78	50	1,700
Missouri Pacific Hospital	Indus	NPAAssn	125	125	..	..	42	1,468
St. Vincent's Infirmary	Gen	Church	150	135	15	305	93	3,693
State Hospital	Gen	State	3,900	3,900	..	..	..	3,875
St. Vincent's Infirmary	Gen	NPAAssn	30	30	..	31	11	425
St. Vincent's Infirmary	Gen	Church	14	16	2	8	11	368
North Little Rock, 10,418—Pulaski								
Veterans Admin. Facility	Ment	Vet	820	889	..	..	875	387
Paragould, 5,966—Greene								
Dickson Memorial Sanit.	Gen	Corp	25	25	3	10	5	250
Paris, 3,234—Logan								
Dr. Jewell's Infirmary	Geo	Indiv	..	20	2	8	6	120
..	Gen	Church	50	23	4	83	25	1,198
Cora Donnell Hospital	Gen	Indiv	26	26	2	30	12	851
Russellville, 5,628—Pope								
St. Mary's Hospital	Geo	Indiv	65	53	6	47	30	1,216
Searcy, 3,357—White								
Wakcoight Sanitarium	Geo	Indiv	30	30	2	16	11	723

## ARKANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Siloam Springs, 2,378—Benton								
Siloam Springs City Hosp.	Gen	City	..	10	2	7	2	100
State Sanatorium—Logan								
Arkansas Tuberculosis Sanatorium	TB	State	550	550	..	..	551	819
Texarkana, 10,704—Miller								
Michael Meagher Memorial Hospital	Gen	Church	50	50	10	121	50	1,539
St. Louis Southwestern Hospital	Indus	NPAAssn	..	150	..	..	41	1,665

## Related Institutions

Bauxite, 2,200—Saline								
Republic Mining and Manufacturing Co. Hosp.	Indus	NPAAssn	..	20	..	..	..	No data supplied
De Queen, 2,938—Sevier								
Childress Hospital	Gen	Indiv	..	20	1	6	13	492
Ft. Smith, 31,429—Sebastian								
Sebastian County Hosp.	Inst	County	80	80	..	..	75	74
Hot Springs National Park, 20,238—Garland								
Camp Garraday Hospital	Gen	StaFed	..	60	6	..	40	2,521
Little Rock, 81,679—Pulaski								
Arkansas Confederate Home	Inst	State	200	200	..	..	148	155
Arkansas School for the Blind	Inst	State	16	16	..	..	2	75
Florence Crittenton Home	Mat	NPAAssn	30	21	12	22	15	30
Pulaski County Hospital	Gen	County	180	190	6	46	184	468
United Friends Hospital (col.)	Gen	Frat	..	25	1	..	..	No data supplied
Newport, 4,547—Jackson								
Dr. Gray's Sanitarium	Gen	Indiv	..	6	2	..	2	..
Rogers, 3,554—Benton								
Home Hospital	Gen	Indiv	8	8	4	8	2	84
Russellville, 5,628—Pope								
Haney Eye, Ear, Nose and Throat Hospital	ENT	Indiv	10	10	..	..	4	300
Searcy, 3,357—White								
Harrison Hospital	Gen	Indiv	12	12	2	20	2	750
Tucker, 219—Jefferson								
Arkansas State Penitentiary Hospital	Inst	State	20	20	..	..	12	750

## Summary for Arkansas:

Hospitals and sanatoriums...	47	8,420	6,904	48,201
Related institutions.....	14	688	515	5,754
Totals.....	61	9,118	7,419	53,955
Refused registration.....	11	266	..	..

## CALIFORNIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Agnew, 300—Santa Clara								
Agnew's State Hospital	Ment	State	2,365	3,155	..	..	3,344	1,087
Abwhanne, 25—Madera								
Abwhanne Tri-County Tuberculosis Sanatorium	TB	County	..	123	..	..	113	115
Alameda, 35,032—Alameda								
Alameda Sanatorium on the South Shore	Gen	Corp	85	75	22	176	36	1,691
Alhambra, 8,569—Alameda								
Humboldt Hospital	Gen	Part	28	28	10	192	16	568
Alhambra, 29,472—Los Angeles								
Alhambra Hospital	Gen	Corp	50	40	12	170	10	972
Angel Island, 478—Marin								
Stamm Hospital	Gen	Army	80	60	..	..	22	1,010
Antioch, 3,563—Contra Costa								
Antioch Hospital	Gen	Indiv	15	15	5	86	6	529
Areata, 1,709—Humboldt								
Trinity Hospital	Gen	Church	20	20	4	36	16	683
Arlington, 3,440—Riverside								
Riverside County Hosp.	G&TB	County	325	325	10	275	287	3,294
Artesia, 3,891—Los Angeles								
Artesia Hospital	Gen	Indiv	20	20	4	63	11	500
Auberry, 100—Fresno								
Wish-lah Sanatorium	TB	County	66	66	..	..	65	74
Auburn, 2,661—Placer								
Highland Hospital	Gen	Indiv	..	22	6	54	8	2,100
Bakersfield, 26,015—Kern								
Bakersfield Emergency Hospital	Gen	Indiv	..	25	4	..	..	No data supplied
Kern General Hospital	Gen	County	237	488	25	562	368	7,753
Mercy Hospital	Gen	Church	75	75	10	264	43	2,730
San Joaquin Hospital	Gen	Corp	40	40	6	23	12	1,107
.. and ..	TB	Indiv	..	25	..	5	12	85
.. at..	TB	Indiv	..	30	..	..	14	52
Bell, 7,834—Los Angeles								
Bell Mission Hospital	Gen	Corp	23	23	14	403	17	777
Belmont, 934—San Mateo								
Alexander Sanitarium	N&M	Corp	56	56	..	..	33	101
California Sanatorium	TB	Corp	100	100	..	..	72	175
Twin Pines Sanitarium	N&M	Corp	..	35	..	..	20	75
Berkeley, 82,109—Alameda								
Alta Bates Hospital	Gen	Corp	100	100	26	467	67	2,766

Key to symbols and abbreviations is on page 1060

## ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Du Quoin, 7,593—Perry								
Marshall Browning Hosp. Gen	NPAssn	67	60	7	60	23	609	
Dwight, 2,534—Livingston								
Veterans Admin. Facility Gen	Vet	225	225	..	..	183	1,335	
East Moline, 10,107—Rock Island								
East Moline State Hosp.+o Ment	State	1,973	1,973	..	..	1,972	823	
East St. Louis, 74,347—St. Clair								
Christian Welfare Hosp.+o Gen	NPAssn	60	55	8	164	41	1,339	
St. Mary's Hospital+o... Gen	Church	340	260	35	514	93	4,143	
Edwardsville, 6,235—Madison								
Madison County Tubercu-								
losis Sanatorium..... TB	County	90	90	..	..	65	77	
Effingham, 4,978—Effingham								
St. Anthony's Hospital... Gen	Church	..	90	8	56	49	1,196	
Elgin, 35,920—Kane								
Elgin State Hospital+o... Ment	State	4,450	4,513	..	..	4,414	2,110	
Resthaven Sanatorium..... N&M	Indiv	..	90	..	..	52	132	
St. Joseph Hospital+o... Gen	Church	150	150	24	227	50	1,214	
Sherman Hospital+o... Gen	NPAssn	125	116	20	440	85	3,625	
Elmhurst, 14,055—Du Page								
Elmhurst Community								
Hospital..... Gen	NPAssn	110	90	20	291	40	2,233	
Evanston, 63,338—Cook								
Evanston Community Hos-								
pital (col.)..... Gen	NPAssn	22	22	4	17	8	177	
Evanston Hospital+o... Gen	NPAssn	..	228	32	813	139	7,274	
St. Francis Hospital+o... Gen	Church	350	303	50	733	98	6,698	
Evergreen Park, 1,534—Cook								
Little Company of Mary								
Hospital+o... Gen	Church	150	127	34	735	97	5,022	
Ft. Sheridan, 2,000—Lake								
Station Hospital..... Gen	Army	143	143	6	45	129	3,568	
Freeport, 22,045—Stephenson								
Evangelical Deaconess								
Hospital+o... Gen	Church	85	86	16	223	48	1,744	
St. Francis Hospital+o... Gen	Church	128	100	19	224	60	2,103	
Galesburg, 25,830—Knox								
Galesburg Cottage Hos-								
pital+o... Gen	NPAssn	100	82	18	249	43	1,806	
St. Mary's Hospital..... Gen	Church	120	120	16	216	45	1,820	
Geneseo, 3,400—Henry								
J. C. Hammond City Hosp. Gen	City	15	25	5	67	9	331	
Geneva, 4,607—Kane								
Community Hospital+o... Gen	NPAssn	85	67	18	183	28	1,074	
Granite City, 25,130—Madison								
St. Elizabeth Hospital+o... Gen	Church	125	103	22	237	64	2,222	
Great Lakes (Waukegan P. O.)—Lake								
U. S. Naval Hospital+o... Gen	Navy	760	333	..	..	91	1,223	
Freeport, 11,025—Saline								
Gen	Corp	30	25	1	13	9	335	
Gen	Indiv	35	35	5	40	10	850	
Harvard, 2,658—McHenry								
Harvard Community Hosp. Gen	Part	35	21	5	50	9	274	
Harvey, 16,374—Cook								
Ingalls Memorial Hospital Gen	NPAssn	..	95	25	428	30	1,608	
Herrin, 3,708—Williamson								
Herrin Hospital..... Gen	Indiv	40	40	5	53	16	542	
Highland, 3,319—Madison								
St. Joseph's Hospital+o... Gen	Church	72	72	8	139	50	1,830	
Highland Park, 12,203—Lake								
Highland Park Hospital+o... Gen	NPAssn	60	53	17	215	23	1,382	
Hillside, 4,435—Montgomery								
Hillside Hospital..... Gen	NPAssn	30	30	5	46	14	497	
Hines, Cook								
Veterans Admin. Facility Gen	Vet	1,750	1,750	..	..	1,651	8,342	
Hinsdale, 6,923—Du Page								
Hinsdale Sanatorium and								
Hospital+o... Gen	NPAssn	135	110	15	176	46	1,415	
Jacksonville, 17,747—Morgan								
Jacksonville State Hosp. Ment	State	3,100	3,381	..	..	3,297	880	
Morgan County Tubercu-								
losis Sanatorium..... TB	County	..	40	..	..	28	30	
Norbury Sanatorium..... N&M	Corp	..	125	..	..	70	170	
Our Savior's Hospital+o... Gen	Church	100	94	12	146	40	1,463	
Passavant Mem. Hosp.+o Gen	Church	..	73	12	135	38	1,195	
Joliet, 42,993—Will								
St. Joseph's Hospital+o... Gen	Church	200	190	36	678	150	4,715	
Silver Cross Hospital+o... Gen	NPAssn	107	107	18	287	50	2,939	
Will County Tuberculosis								
Sanatorium..... TB	County	100	96	..	..	84	69	
Kankakee, 20,620—Kankakee								
Kankakee State Hospital Ment	State	4,000	4,000	..	..	3,806	1,440	
St. Mary Hospital+o... Gen	Church	150	114	12	215	54	2,093	
Kenilworth, 2,701—Cook								
Kenilworth Sanatorium..... N&M	Indiv	..	30	..	..	18	43	
Kewanee, 17,093—Henry								
Kewanee Public Hospital+o Gen	NPAssn	50	50	12	160	33	1,067	
St. Francis Hospital+o... Gen	Church	60	60	11	102	40	735	
La Harpe, 1,175—Hancock								
La Harpe Hospital..... Gen	NPAssn	..	15	3	20	5	152	
Lake Forest, 6,554—Lake								
Allice Home Hospital..... Gen	NPAssn	43	43	9	79	17	696	
La Salle, 13,149—La Salle								
St. Mary Hospital+o... Gen	Church	85	85	15	258	52	1,639	
Libertyville, 3,791—Lake								
Condell Memorial Hosp.. Gen	NPAssn	25	25	6	58	8	276	
Lincoln, 12,855—Logan								
Evangelical Deaconess								
Hospital+o... Gen	Church	52	52	8	124	37	1,515	
St. Clara's Hospital..... Gen	Church	67	67	10	95	23	1,188	
Libertyville, 6,612—Montgomery								
St. Francis Hospital+o... Gen	Church	..	130	16	167	109	3,663	
Mackinaw, 760—Tazewell								
Oak Knoll Sanatorium..... TB	County	..	45	..	..	39	40	

## ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Macomb, 8,509—McDonough								
Marietta Phelps Hospital+o Gen	Corp	45	45	6	81	25	690	
St. Francis Hospital+o..... Gen	Church	85	75	10	142	42	1,596	
Manteno, 1,149—Kankakee								
Manteno State Hospital. Ment	State	2,875	2,875	..	..	2,801	828	
Mattoon, 14,631—Coles								
Memorial Methodist Hosp. Gen	Church	43	43	8	80	23	1,030	
Melrose Park, 10,741—Cook								
Westlake Hospital..... Gen	Corp	75	75	16	241	28	1,189	
Mendota, 4,008—La Salle								
Harris Hospital..... Gen	Indiv	18	15	4	44	6	317	
Moline, 32,236—Rock Island								
Lutheran Hospital+o..... Gen	Church	135	135	18	366	50	1,567	
Moline Public Hospital+o... Gen	City	133	111	22	440	65	2,227	
Monmouth, 8,666—Warren								
Monmouth Hospital..... Gen	City	44	33	10	123	25	761	
Morris, 5,568—Grundy								
Morris Hospital..... Gen	NPAssn	35	35	11	107	18	512	
Mt. Vernon, 12,375—Jefferson								
Mt. Vernon Hospital..... Gen	Indiv	..	20	..	No data supplied			
Moweaqua, 1,478—Shelby								
Moweaqua Hospital..... Gen	Indiv	25	25	8	36	12	108	
Murphysboro, 8,182—Jackson								
St. Andrew's Hospital.... Gen	Church	75	50	10	44	30	728	
.. TB	NPAssn	82	..	82	..	..	54	155
Brokaw Hospital+o..... Gen	Church	..	87	15	172	60	2,374	
Fairview Sanatorium..... TB	County	50	40	..	..	43	48	
North Chicago, 8,466—Lake								
Veterans Admin. Facility Ment	Vet	1,135	1,135	..	..	1,192	303	
North Riverside (Riverside P. O.), 960—Cook								
Municipal Tuberculosis								
Home..... TB	City	..	250	..	..	240	225	
Oak Forest, 825—Cook								
Cook County Infirmary..... Gen	Chr County	3,000	1,016	..	..	1,008	1,364	
Cook County Tuberculo-								
sis Hospital..... TB	County	634	634	..	..	438	514	
Oak Park, 63,982—Cook								
Oak Park Hospital+o... Gen	Church	123	125	40	551	77	4,049	
West Suburban Hosp.+o Gen	NPAssn	327	327	100	1,167	138	7,374	
Olney, 6,140—Richland								
Olney Sanatorium+o..... Gen	Corp	72	70	8	105	49	2,061	
Ottawa, 15,004—La Salle								
Highland..... TB	County	60	40	..	..	38	64	
Ottawa Tuberculosis San. TB	Corp	..	115	..	..	84	135	
Ryburn Memorial Hosp.+o Gen	City	63	63	12	248	41	1,750	
Pana, 5,835—Christian								
Huber Memorial Hosp.+o Gen	Church	45	35	10	64	29	1,001	
Paris, 8,781—Edgar								
Paris Hospital+o..... Gen	NPAssn	..	40	6	No data supplied			
Pekin, 10,120—Tazewell								
Pekin Public Hospital.... Gen	NPAssn	20	52	12	321	38	1,896	
Peoria, 104,969—Peoria								
John C. Proctor Hosp.+o Gen	NPAssn	100	100	18	251	76	2,769	
Methodist Hospital of Cen-								
tral Illinois..... Gen	Church	210	150	23	713	145	5,401	
Michell Farm..... N&M	Indiv	28	20	..	..	15	34	
Peoria Municipal Tubercu-								
losis Sanatorium+o..... TB	City	03	93	..	..	01	170	
Peoria Sanatorium..... N&M	Indiv	25	25	..	..	9	89	
Peoria State Hospital.... Ment	State	2,760	2,666	..	..	2,543	762	
St. Francis Hospital+o... Gen	Church	300	315	48	1,021	230	8,597	
Peru, 9,121—La Salle								
Peoples Hospital+o..... Gen	NPAssn	50	45	10	120	38	1,020	
Pontiac, 8,272—Livingston								
Livingston County Sanat. TB	County	..	33	..	..	37	52	
St. James' Hospital..... Gen	Church	40	40	12	130	15	1,233	
Princeton, 4,762—Bureau								
Julia Ruckley Perry Me-								
morial Hospital..... Gen	City	40	40	6	122	26	753	
Quincy, 39,241—Adams								
Beeching Hospital+o..... Gen	NPAssn	150	130	21	305	71	2,469	
Hillcrest..... TB	County	50	50	..	..	42	82	
St. Mary Hospital+o... Gen	Church	345	195	20	444	135	3,782	
Rantoul, 1,555—Champaign								
Station Hospital..... Gen	Army	50	50	1	10	15	577	
Red Bud, 1,208—Randolph								
St. Clement's Hospital... Gen	Chureb	14	22	2	10	11	232	
Robinson, 3,668—Crawford								
Robinson Hospital..... Gen	Part	18	18	5	14	4	121	
.. N&M	Indiv	35	35	..	..	19	152	
.. Gen	NPAssn	92	92	18	168	39	1,763	
Rockford Municipal Tu-								
berculosis Sanatorium+o... TB	City	126	126	..	..	122	99	
St. Anthony's Hospital+o Gen	Church	220	180	40	710	103	4,645	
Swedish American Hosp.+o Gen	NPAssn	92	80	12	243	48	1,537	
Winnebago County Hosp. Gen	County	80	72	6	50	59	1,002	
Rock Island, 37,952—Rock Island								
Rock Island County Tu-								
berculosis Sanatorium.... TB	County	160	70	..	..	67	50	
St. Anthony's Hospital+o Gen	Church	160	150	18	246	70	2,659	
Rosiclare, 1,794—Hardin								
Rosiclare Hospital..... Gen	Indiv	17	13	2	15	4	219	
Rushville, 2,358—Schuyler								
Culbertson Hospital..... Gen	Indiv	25	25	5	17	5	169	
St. Charles, 5,377—Bane								
St. Charles City Hospital Gen	NPAssn	20	20	6	49	7	200	
Savanna, 5,056—Carroll								
Savanna City Hospital... Gen	City	14	14	5	37	6	221	
Shelbyville, 3,491—Shelby								
Shelby County Memorial								
Hospital..... Gen	NPAssn	20	15	5	31	11	307	
Springfield, 71,864—Sangamon								
Palmer Sanatorium..... Tb	Con Corp	..	60	..	..	46	141	

## CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Livermore, 3,110—Alameda								
Arroyo Sanatorium*.....	TB	County	..	187	..	..	173	220
Livermore Sanatorium.....	N&M	Corp	112	114	..	..	93	153
St. Paul's Hospital.....	Gen	Indiv	20	20	4	50	10	200
Veterans Admin. Facility	G&TB	Vet	312	312	..	..	283	457
Lodi, 6,788—San Joaquin								
Dr. Buchanan's Sanatorium	Gen	Indiv	15	15	4	44	7	337
Mason Hospital.....	Gen	Indiv	..	15	4	22	7	440
Loma Linda, 2,500—San Bernardino								
Loma Linda Sanatorium and Hospital*.....	Gen	Church	112	112	12	233	92	2,786
Long Beach, 142,032—Los Angeles								
Harriman Jones Clinic and Hospital.....	Gen	Indiv	40	40	6	75	15	63
Long Beach Community Hospital.....	Gen	NPAssn	120	100	20	359	65	3,227
St. Mary's Long Beach Hospital.....	Gen	Church	..	23	7	123	18	1,082
Seaside Hospital.....	Gen	Corp	..	235	45	190	137	6,614
Los Angeles, 1,238,048—Los Angeles								
Barlow Sanatorium*.....	TB	NPAssn	..	100	..	..	93	71
Baurhyte Maternity Cottage.....	Mat	NPAssn	28	28	30	322	9	328
California Babies Hosp.*	Chil	NPAssn	..	40	10	52	6	495
California Hospital*.....	Gen	Church	292	261	31	771	227	8,509
Cedars of Lebanon Hospital*.....	Gen	NPAssn	248	248	40	991	232	7,042
Children's Hospital*.....	Chil	NPAssn	230	193	..	..	137	4,134
Ex-Patients Home of the Jewish Consumptive Relief Association.....	TB	NPAssn	60	60	..	..	56	71
Eye and Ear Hospital.....	ENT	Corp	21	21	..	..	11	2,056
French Hospital.....	Gen	NPAssn	75	80	21	231	39	1,051
Golden State Hospital*.....	Gen	Indiv	72	72	2	7	23	747
Hollywood Hospital*.....	Gen	NPAssn	215	215	60	798	155	6,719
Hospital of the Good Samaritan.....	Gen	Church	400	400	45	460	270	8,960
Japanese Hospital.....	Gen	Corp	40	40	6	103	24	1,191
Lincoln Hospital.....	Gen	NPAssn	28	28	8	121	15	677
Los Angeles County Hospital*.....	Gen	County	3,306	3,162	144	3,327	2,181	53,906
Los Angeles County Psychopathic Hospital.....	Unit of Los Angeles	County Hospital						
Los Angeles Sanatorium.....	Gen	Indiv	37	37	..	..	32	101
Methodist Hospital of Southern California.....	Gen	Church	..	155	40	562	100	4,209
Orthopaedic Hospital*.....	Orth	NPAssn	85	85	..	..	67	1,950
Pahl Hospital.....	Gen	Indiv	15	15	3	67	9	503
Queen of Angels Hosp.*	Gen	Church	200	200	35	643	169	5,875
St. Vincent's Hospital*.....	Gen	Church	200	204	50	595	141	5,572
Santa Fe Coast Lines Hospital*.....	Indus	NPAssn	150	150	..	..	108	2,330
Southwest General Hosp.*	Gen	Indiv	..	24	6	No data supplied		
White Memorial Hosp.*.....	Gen	Church	102	102	18	664	01	3,800
Los Gatos, 3,168—Santa Clara								
Oak's Sanatorium.....	TB	Indiv	60	60	..	..	33	58
Madera, 4,065—Madera								
Madera County Hospital	Gen	County	60	53	5	96	47	1,503
Madera Sanatorium.....	Gen	Indiv	20	16	5	41	7	412
Manor,—Marin								
Arquapa Sanatorium.....	TB	NPAssn	45	45	..	..	43	110
Marsh Field,—Riverside								
Station Hospital.....	Gen	Army	90	70	6	24	56	638
Mar Island, 500—Solano								
U. S. Naval Hospital*.....	Gen	Navy	489	480	5	21	363	2,274
Martinez, 6,569—Contra Costa								
Contra Costa County Hospital.....	Gen	County	225	235	..	146	202	2,182
.....	Gen	Corp	..	30	6	87	12	746
.....	Gen	Indiv	30	30	0	..	..	...
McCloud, 2,516—Siskiyou								
McCloud Hospital.....	Gen	Corp	..	32	4	No data supplied		

Key to symbols and abbreviations is on page 1060

## ILLINOIS—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Menard, 22—Randolph								
Illinois Security Hospital	Ment	State	600	500	..	..	282	76
Prison Hospital of Illinois								
State Penitentiary.....	Inst	State	33	33	..	..	29	574
	Gen	Indiv	9	12	3	30	1	370
Woodford County Tubercu- losis Sanatorium.....	TB	County	10	10	..	..	6	4
Mooseheart, 1,510—Kane								
Mooseheart Mem. Hosp..	Chil	Frnt	65	85	..	..	35	...
Mt. Prospect, 1,225—Cook								
Mt. Prospect Gen. Hosp.	Gen	NPAasn	10	10	4	25	3	300
Normal, 6,768—McLean								
Soldiers' and Sailors' Chil- dren's School.....	Inst	State	25	25	..	..	25	1,825
Paxton, 2,692—Ford								
Paxton Community Hosp.	Gen	NPAasn	16	16	4	60	7	331
Pontiac, 8,272—Livingston								
Illinois State Penitentiary Hospital .....	Inst	State	40	40	..	..	18	929
Quincy, 39,241—Adams								
Illinois Soldiers' and Sail- ors' Home and Hospital	Inst	State	345	162	..	..	150	1,048
St. Charles, 6,377—Kane								
St. Charles School for Boys .....	Inst	State	30	23	..	..	19	830
"	Gen	Army	10	7	..	..	2	87
"	Inst	Frot	01	01	..	..	75	200
"	Inst	State	85	85	..	..	..	...
St. Joseph's Health Re- servation .....	Conv	Church	68	68	..	..	40	782
West Cou va n children .....	Orth	NPAasn	..	120	..	..	93	136
Wheaton, 7,258—Du Page								
Howe Home .....	N&M	Part	15	12	..	..	9	4
Mary E. Pogue School.....	McDe	Indiv	..	40	..	..	..	..
Wheaton Nursing Home.	Conv	Part	..	30	..	..	5	40
Wheeling, 467—Cook								
Wheeling Hospital.....	Gen	Indiv	9	9	5	3	1	32
White Hall, 2,928—Greene								
White Hall Hospital.....	Gen	Indiv	..	10	5	50	8	250
Winnetka, 12,166—Cook								
North Shore Health Re- sort .....	Conv	Corp	75	75	..	..	50	256
Summary for Illinois:			Number	Beds	Average Patients		Patients Admitted	
Hospitals and sanatoriums...			206	63,895	61,846		569,447	
Related institutions.....			61	9,933	8,727		19,918	
Totals.....			317	73,828	60,573		609,365	
Refused registration.....			44	1,539				

INDIANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Anderson, 39,804—Madison								
St. John's Heleky Memo- rial Hospital.....	Gen	Church	125	125	15	364	84	2,512
Angola, 2,665—Steuben								
Cameron Hospital.....	Gen	Indiv	17	17	2	24	8	442
Argos, 1,211—Marshall								
Kelly Hospital.....	Gen	NPAasn	10	10	4	20	5	164
Auburn, 5,083—De Kalb								
Dr. Bonnell M. Souder Hospital .....	Gen	Indiv	..	20	12	24	0	172
Batesville, 2,838—Ripley								
Margaret Mary Hospital	Gen	Church	50	50	10	81	17	492
Bedford, 13,208—Lawrence								
Dunn Memorial Hospital.	Gen	NPAasn	30	25	6	96	14	785
Beech Grove, 3,532—Marion								
St. Francis' Hospital....	Gen	Chureb	150	140	30	471	62	1,849
Bloomington, 18,227—Monroe								
Bloomington Hospital....	Gen	NPAasn	35	35	5	55	25	1,168
Bluffton, 5,074—Wells								
Wells County Hospital....	Gen	County	14	21	3	95	14	575
Brazil, 8,744—Clay								
Clay County								

**Key to symbols and abbreviations is on page 1060**





## INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
East Chicago, 54,764—Lake St. Catherine's Hosp.*+o. Gen	Church	350	190	60	654	149	4,760	
Elkhart, 32,949—Elkhart Elkhart General Hospital Gen	NPAasn	85	75	10	289	33	1,634	
Elwood, 10,635—Madison Mercy Hospital .....	Church	50	44	15	227	19	1,003	
Evansville, 102,249—Vanderburgh Boehne Tuberculosis Hosp. pital+ TB	County	125	125	..	..	122	624	
Evansville State Hospital Ment	State	1,200	1,200	..	..	1,184	330	
Protestant Deaconess Hosp. pitalo .....	Church	160	165	20	410	128	5,360	
St. Mary's Hospitalo. .... Gen	Church	..	150	22	279	95	3,916	
U. S. Marine Hospital. .... Gen	USPHS	100	100	..	..	63	833	
Welborn-Walker Hosp.o. .... Gen	Corp	111	111	8	21	65	2,620	
Ft. Benjamin Harrison, —Marion Station Hospital. .... Gen	Army	246	150	6	40	159	2,859	
Ft. Wayne, 114,946—Allen Irene Byron Tuberculosis Sanatorium .....	County	..	200	..	..	..	..	
Lutheran Hospital*o. .... Gen	Church	150	140	25	463	93	3,017	
Methodist Episcopal Hosp. pitalo .....	Church	109	78	22	217	44	1,610	
St. Joseph Hospital*o. .... Gen	Church	250	235	60	681	151	4,452	
Frankfort, 12,196—Clinton Clinton County Hospital Gen	County	50	43	7	109	20	843	
Garrett, 4,428—De Kalh Sacred Heart Hospital. .... Gen	Church	..	42	7	23	17	475	
Gary, 100,420—Lake Gary Hospital. .... Indus	Corp	..	100	..	..	23	257	
Methodist Episcopal Hosp. Gen	Church	85	85	15	523	79	2,819	
St. Antonio Hospital. .... Gen	NPAasn	50	50	6	30	15	560	
St. John Hospital (col.). Gen	Indiv	25	15	6	21	3	297	
St. Mary's Mercy Hosp.*o Gen	Church	235	225	35	855	150	5,890	
Greencastle, 4,613—Putnam Putnam County Hospital Gen	County	40	30	5	64	17	978	
Greensburg, 5,702—Deatur Deatur County Memorial Hospital. .... Gen	County	35	25	6	55	14	489	
Hammond, 64,560—Lake Mount Mercy Sanitarium. N&M	Church	..	31	..	..	26	147	
St. Margaret's Hospital*o Gen	Church	250	214	36	843	130	4,523	
Hartford City, 6,613—Blackford Blackford County Hosp. Gen	County	30	30	5	106	11	394	
Huntington, 13,420—Huntington Huntington County Hosp. Gen	County	..	26	6	98	17	550	
Indianapolis, 364,161—Marion Central State Hospital+. Ment	State	1,845	1,826	..	..	1,831	342	
Community Hosp. .... Gen	NPAasn	..	24	6	No data supplied	..	..	
Dr. W. B. Fletcher's Sanat. N&M	Corp	50	50	..	..	25	326	
Indianapolis City Hos- pital*+o .....	City	..	538	39	549	400	10,131	
Indiana University Hos- pital*+o .....	Gen	State	466	466	38	903	420	9,423
James Whitcomb Riley Hos- pital for Children	Pediatric Unit of the Indiana University Hospitals	..	..	..	..	..	..	
Kiwanis Home. .... Unit of Indiana University Hospitals	..	..	..	..	..	..	..	
Methodist Episcopal Hos- pital*+o .....	Gen	Church	600	500	48	1,165	402	19,505
"Norways" Sterne Memorial Hospital. .... N&M	Corp	80	30	..	..	8	108	
Robert W. Long Hospital Medical and Surgical Unit of Indiana University Hospitals	..	..	..	..	..	..	..	
Rotary Convalescent Home Unit of Indiana University Hospitals	..	..	..	..	..	..	..	
St. Vincent's Hospital*o. .... Gen	Church	275	260	35	713	144	5,394	
Veterans Admin. Facility Gen	Vet	172	172	..	..	148	1,651	
William H. Coleman Hos- pital for Women	Maternity Unit of the Indiana University Hospitals	..	..	..	..	..	..	
Jeffersonville, 11,946—Clark Clark County Memorial Hospital .....	Gen	County	35	35	6	85	22	681
Kendallville, 5,439—Noble Lakeside Hospital. .... Gen	City	21	20	12	67	13	502	
Kokomo, 32,843—Howard Good Samaritan Hosp.o Gen	Church	50	50	10	66	26	1,052	
St. Joseph Memorial Hosp. Gen	Church	..	48	8	..	..	Estab. 1936	
LaFayette, 26,240—Tippeneoe LaFayette Home Hosp.o. Gen	NPAasn	130	130	25	232	67	2,147	
St. Elizabeth Hospital*o Gen	Church	225	225	20	469	134	4,069	
William Ross Sanatorium TB	County	..	40	..	..	35	50	
La Porte, 15,755—La Porte Fairview Hospital. .... Gen	NPAasn	28	33	8	62	20	577	
Holy Family Hospital. .... Gen	Church	..	90	15	223	66	2,009	
Lebanon, 6,445—Boone Witham Memorial Hosp.. Gen	County	25	25	6	90	17	541	
Linton, 5,085—Greene Freeman Greene County Hospital .....	Gen	County	..	30	4	41	14	516
Logansport, 18,508—Cass Cass County Hospital. .... Gen	County	50	40	8	108	20	1,063	
Logansport State Hosp.+ Ment	State	1,840	1,688	..	..	1,639	296	
St. Joseph's Hospital. .... Gen	Church	60	50	10	69	30	1,001	
Madison, 6,530—Jefferson Kings Daughters Hosp.. Gen	NPAasn	27	27	6	49	20	826	
Marion, 24,496—Grant Marion General Hospitalo Gen	NPAasn	55	52	7	149	28	1,000	
Martinsville, 4,962—Morgan Morgan County Memorial Hospital .....	Gen	County	26	18	6	38	8	461
Michigan City, 26,735—La Porte Clinie Hospital. .... Gen	Corp	50	45	10	47	20	605	
St. Anthony's Hospital. .... Gen	Church	..	100	15	103	35	1,254	
Mishawaka, 28,630—St. Joseph St. Joseph Hospitalo. .... Gen	Church	115	100	18	432	57	1,859	

## INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Muncie, 46,548—Delaware Ball Memorial Hosp.*+o. Gen	NPAasn	162	144	18	424	114	3,486	
New Albany, 25,819—Floyd St. Edward's Hospital... Gen	Church	100	100	14	153	35	1,352	
Newcastle, 14,027—Henry Henry County Hospital.. Gen	County	..	55	8	113	28	803	
Newcastle Clinic Hospital Gen	Corp	15	15	4	66	9	540	
Noblesville, 4,811—Hamilton Hamilton County Hosp.. Gen	County	..	30	7	81	15	563	
North Madison, 573—Jefferson Madison State Hospital.. Ment	State	1,580	1,530	..	..	1,636	307	
Oaklandon, 350—Marion Sunnyside Sanatorium. .... TB	County	261	261	..	..	261	233	
Peru, 12,730—Miami Dukes-Miami County Memorial Hospital. .... Gen	County	60	48	12	102	30	615	
Wahash Railroad Employees Hospital .....	Indus	NPAasn	50	50	..	..	30	526
Plymouth, 5,290—Marshall Parkview Hospital. .... Gen	NPAasn	25	30	8	116	17	780	
Portland, 5,276—Jay Jay County Hospital. .... Gen	NPAasn	14	15	5	50	9	500	
Princeton, 7,505—Gihson Methodist Episcopal Hosp. Gen	Church	35	29	6	90	18	664	
Rensselaer, 2,798—Jasper Jasper County Hospital.. Gen	County	32	32	10	151	21	1,054	
Richmond, 32,493—Wayne Reid Memorial Hospitalo Gen	NPAasn	126	126	22	280	68	2,882	
Richmond State Hospital Ment	State	1,391	1,391	..	..	1,363	283	
Smith-Esteh Mem. Hosp.. TB	County	50	50	..	..	23	50	
... Gen	Indiv	40	36	5	48	21	763	
... TB	State	185	212	..	..	206	171	
Rushville, 5,700—Rush City Hospital. .... Gen	City	8	8	3	39	3	184	
Seymour, 7,508—Jackson Schnock Memorial Hosp., Gen	NPAasn	23	25	4	102	23	640	
Shelbyville, 10,618—Shelby W. S. Major Hospital. .... Gen	City	42	38	7	69	17	624	
South Bend, 104,192—St. Joseph Epworth Hospital*o. .... Gen	NPAasn	150	155	37	567	88	4,018	
Healthwin Hospital. .... TB	County	215	215	..	..	202	205	
St. Joseph Hospital*o. .... Gen	Church	147	125	22	450	73	2,648	
St. Joseph Valley Sanit. N&M	Indiv	25	25	..	..	5	41	
Sullivan, 5,300—Sullivan Mary Sherman Memorial Hospital .....	Gen	County	50	40	7	73	23	744
Tell City, 4,873—Perry Parkview Hospital. .... Gen	Indiv	14	14	2	12	2	423	
Terre Haute, 62,810—Vigo St. Anthony's Hospitalo Gen	Church	163	171	26	263	73	2,691	
Union Hospitalo. .... Gen	NPAasn	157	157	20	275	100	3,260	
Union City, 3,034—Randolph Union City Hospital. .... Gen	Indiv	17	15	3	24	0	335	
Valparaiso, 8,070—Porter Christian Hospital. .... Gen	Church	20	20	5	63	10	463	
Veterans Administration Hospital—Veterans Admin. Facility Ment	Grant Vet	1,500	1,530	..	..	1,471	451	
Vincennes, 17,564—Knox Good Samaritan Hosp.o Gen	County	100	92	7	86	43	1,454	
Wabash, 8,840—Wabash Wabash County Hospital Gen	County	..	30	6	No data supplied	..	..	
Warsaw, 5,730—Kosciusko McDonald Hospital. .... Gen	Indiv	25	25	8	92	8	521	
Washington, 9,070—Davies Davies County Hospital Gen	County	50	50	6	125	30	1,263	
Williamsport, 1,053—Warren Williamsport Hospital. .... Gen	Indiv	12	12	4	16	8	144	
Winchester, 4,487—Randolph Randolph County Hosp.. Gen	County	29	29	4	77	13	663	
Wolflake, 250—Noble Luckey Hospital. .... Gen	Part	25	20	4	20	10	300	

## Related Institutions

Anderson, 39,804—Madison Ella B. Kehr Hospital.. TB	County	100	100	..	..	33	163	
Butler, 266—Jennings Grace Convalescent Hosp. Conv	MeDe	State	619	619	..	..	602	46
Dillsboro, 502—Dearborn Dillsboro Sanitarium .....	Conv	Corp	120	120	..	..	60	2,500
Evansville, 102,249—Vanderburgh French Hospital. .... Proet	NPAasn	6	6	..	..	4	234	
Ft. Wayne, 114,946—Allen Ft. Wayne and Allen County Isolation Hosp. Iso	CyCo	..	10	..	..	1	24	
Ft. Wayne State School.. MeDe	State	1,600	1,920	..	..	1,906	130	
Grace Convalescent Hosp. Conv	Indiv	..	16	..	..	12	32	
Medical Center Hospital.. Gen	Part	12	12	7	102	6	427	
Greencastle, 4,613—Putnam Indiana State Farm Hosp. Inst	State	..	30	..	No data supplied	..	..	
Greensburg, 5,702—Deatur Odd Fellows Home Hosp. Inst	Frat	..	100	..	..	65	321	
Indianapolis, 364,161—Marion Indianapolis Orphan Asy- lum .....	Inst	NPAasn	14	14	..	..	6	243
Indiana State School for the Deaf .....	Inst	State	24	24	..	..	7	550
Julietta Insane Hospital Ment	County	400	400	..	..	..	147	
Suemma Coleman Home.. Mat	NPAasn	20	22	18	43	17	65	
Knightstown, 2,200—Henry Indiana Sailors' and Soldiers' Children's Home. Inst	State	35	35	..	..	19	1,492	

## CALIFORNIA—Continued

Hospitals and Sanitariums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
West Los Angeles, —Los Angeles			1,570	1,570	..	..	1,105	6,250
Veterans Admin. Facility G & M	Gen	Indiv	100	30	9	113	11	395
Woodland, 6,742—Yolo	Gen	NPAssh	10	12	5	46	15	433
Woodland Child Hospital	Gen	Part	..	60	10	109	66	1,592
Yosemite National Park, 1,000—Mariposa	Gen	Indiv	13	13	2	20	7	313
Lewis Memorial Hospital	Gen	Indiv	13	13	2	20	7	313
Yreka, 2,126—Siskiyou	Gen	County	..	130	7	117	121	1,463
Siskiyou County General Hospital	Gen	County	..	130	7	117	121	1,463
Yuba City, 3,605—Sutter	Gen	Indiv	18	18	6	131	11	854
Yuba City General Hosp.	Gen	Indiv	18	18	6	131	11	854
Related Institutions								
Alcatraz, —San Francisco			23	35	..	..	10	125
U. S. Penitentiary Hosp.	Gen	Fed	23	35	..	..	10	125
Alta Loma, 1,500—San Bernardino			25	25	..	..	5	13
Our Lady of Lourdes Sanatorium	TB	Indiv	25	25	..	..	5	13
Alturas, 2,339—Modoc			..	18	1	No data supplied		
Modoc County General Hospital	Gen	County	..	18	1	No data supplied		
Artesia, 3,591—Los Angeles			..	30	..	No data supplied		
Resthaven Sanitarium	Ment	Part	..	30	..	No data supplied		
Auburn, 2,661—Placer			126	126	5	61	98	810
Placer County Hosp.	InstGen	County	126	126	5	61	98	810
Azusa, 4,508—Los Angeles			56	56	..	..	48	126
Rural Rest Home and Sanatorium	Conv	NPAssh	56	56	..	..	48	126
Belmont, 984—San Mateo			20	20	..	..	20	78
Chas. S. Howard Foundation	TB	NPAssh	20	20	..	..	20	78
Nerve Rest.	N&M	Indiv	25	25	..	..	11	51
Blythe, 1,620—Riverside			..	12	4	43	3	150
Frank Luke Mem. Hosp.	Gen	NPAssh	..	12	4	43	3	150
Chula Vista, 3,669—San Diego			..	30	..	..	17	..
McNabb Hosp. and Sanit. Inst.	NPAssh	..	..	30	..	..	17	..
Claremont, 2,719—Los Angeles			..	24	..	..	4	329
Claremont Colleges Infirmary	Inst	NPAssh	..	24	..	..	4	329
Colusa, 2,116—Colusa			..	65	2	No data supplied		
Colusa County Hospital	InstGen	County	..	65	2	No data supplied		
Coronado, 5,425—San Diego			12	12	5	57	5	272
Coronado Hospital	Gen	Indiv	12	12	5	57	5	272
Crescent City, 1,720—Del Norte			..	30	1	No data supplied		
Del Norte County Hosp.	InstGen	County	..	30	1	No data supplied		
Dinuba, 2,968—Tulare			..	10	4	31	3	227
Dinuba Hospital	Gen	Indiv	..	10	4	31	3	227
Duarte, 1,500—Los Angeles			..	24	..	..	19	37
Mulrose Sanatorium	TB	Indiv	..	24	..	..	19	37
Eldridge, 16—Sonoma			2,167	2,603	..	..	2,607	351
Sonoma State Home	MeDe	State	2,167	2,603	..	..	2,607	351
Eureka, 15,752—Humboldt			10	16	1	..	5	140
Humboldt County Isolation Hospital	Iso	County	10	16	1	..	5	140
Fowler, 1,171—Fresno			6	6	3	18	3	186
Fowler Sanitarium	Gen	Indiv	6	6	3	18	3	186
Glendale, 62,736—Los Angeles			25	25	..	..	25	28
Villa Shaw Rest Home	N&M	Indiv	25	25	..	..	25	28
Hollister, 3,757—San Benito			..	54	..	..	..	..
San Benito County Hospital	Gen	County	..	54	..	..	..	..
Los Angeles County General Hospital	Gen	County	552	552	..	..	550	242
Los Angeles County General Hospital	Gen	County	552	552	..	..	550	242
Los Angeles County General Hospital	Gen	County	85	85	..	..	78	172
Kern County Preventorium	TB	County	44	44	..	..	41	99
Kingsburg, 1,322—Fresno			8	8	2	17	6	187
Kingsburg Sanitarium	Gen	Indiv	8	8	2	17	6	187
La Crescenta, 600—Los Angeles			25	28	..	..	18	67
Kimball Sanatorium	N&M	Part	25	28	..	..	18	67
La Mesa, 2,513—San Diego			..	20	..	..	..	..
La Mesa Sanatorium	TB	Indiv	..	20	..	..	..	..
La Mesa Sanatorium	TB	Part	..	118	..	..	115	..
Los Angeles County General Hospital	Gen	County	..	15	..	..	8	9
Los Angeles County General Hospital	Gen	County	..	15	..	..	8	9
Livermore, 3,119—Alameda			..	85	..	..	79	180
Del Valle Preventorium	Coov	County	..	85	..	..	79	180
Loe Pine, 360—Inyo			..	10	4	..	8	..
Loe Pine Hospital	Gen	Indiv	..	10	4	..	8	..
Los Angeles, 1,238,048—Los Angeles			22	22	..	..	13	169
Chase Diet Sanitarium	Conv	Indiv	22	22	..	..	13	169
Dougherty Sanatorium	TB	Indiv	..	14	..	..	11	30
Florece Crittenton Home	Mat	NPAssh	30	30	20	77	22	86
Junior League Convalescent Home for Children	Coov	NPAssh	24	24	..	..	23	74
Juvenile Hall Hospital	Gen	County	150	121	..	..	82	4,067
Las Palmas Rest Home	Nerv	Indiv	15	15	..	..	15	13
Los Angeles Smallpox Quarantine Hospital	Iso	City	60	60	..	..	22	103
Resthaven	N&M	NPAssh	60	60	..	..	22	103
St. Barbara's Rest Home for Men	Coov	Church	15	15	..	..	9	91
St. Vincent's Maternity Home	Mat	NPAssh	10	10	12	67	10	67

## CALIFORNIA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Salvation Army Women's Home and Hospital	Mat	Church	..	60	40	134	46	216
Los Banos, 1,875—Merced			14	14	4	38	6	300
Los Banos Hospital	Gen	Indiv	14	14	4	38	6	300
Loyalton, 837—Sierra			8	8	1	15	1	106
Sierra Valley Hospital	Gen	Indiv	8	8	1	15	1	106
Manteca, 1,614—San Joaquin			8	8	4	18	3	155
Manteca Hospital	Gen	Indiv	8	8	4	18	3	155
Marysville, 5,703—Yuba			100	98	6	54	82	806
Yuba County Hosp.	InstGen	County	100	98	6	54	82	806
Merced, 7,066—Merced			220	250	11	240	251	2,693
Merced General Hosp.	InstGen	County	220	250	11	240	251	2,693
Mourovin, 10,890—Los Angeles			..	90	..	..	86	148
Canyon Preventorium	TB	NPAssh	..	90	..	..	86	148
Maryknoll Sanatorium	TB	Church	22	22	..	..	20	18
Mountain View Rest Home	Ment	Indiv	..	45	..	No data supplied		
Palm Grove Sanatorium	N&M	Part	40	40	..	..	37	27
Montebello, 5,498—Los Angeles			40	40	..	..	28	724
Los Angeles Convalescent Home	Conv	NPAssh	40	40	..	..	28	724
Nevada City, 1,701—Nevada			9	10	8	110	5	374
Nevada City Sanitarium	Geo	Indiv	9	10	8	110	5	374
Nevada County Hospital	Inst	County	70	70	..	..	67	148
Oakland, 234,663—Alameda			..	18	..	..	12	75
El Reposo Sanitarium	Conv	Indiv	..	18	..	..	12	75
Patterson Sanitarium	Coov	Indiv	..	30	..	No data supplied		
Salvation Army Women's Home and Maternity Hospital	Mat	Church	..	63	30	160	55	212
Pacific Grove, 5,533—Monterey			18	13	2	..	Reopened 1930	
Pine Grove Sanitarium	Conv	Indiv	18	13	2	..	Reopened 1930	
Pasadena, 76,086—Los Angeles			40	45	..	..	38	60
El Nido, Pasadena Preventorium	Conv	NPAssh	40	45	..	..	38	60
Placerville, 2,322—Eldorado			50	50	2	2	40	121
Eldorado County Hosp.	InstGen	County	50	50	2	2	40	121
Porterville, 5,303—Tulare			8	8	2	24	1	57
Mt. Whitney Hospital	Gen	Indiv	8	8	2	24	1	57
Randsburg, 443—Kern			10	10	4	26	5	540
Rand District Hospital	Geo	Indiv	10	10	4	26	5	540
Redding, 4,158—Shasta			54	49	4	63	40	743
Shasta County Hosp.	InstGen	County	54	49	4	63	40	743
Represa, 30—Sacramento			..	76	..	No data supplied		
Folsom Prison Hospital	Gen	State	..	76	..	No data supplied		
Rosemead, 4,500—Los Angeles			68	50	..	..	40	129
Rosemead Lodge	N&M	Indiv	68	50	..	..	40	129
Ross, 1,333—Marin			36	36	..	..	32	16
The Cedars, School for Nervous and Retarded Children	MeDe	Indiv	36	36	..	..	32	16
Salinas, 10,263—Monterey			110	120	6	150	113	1,579
Monterey County Hosp.	InstGen	County	110	120	6	150	113	1,579
San Andreas, 775—Calaveras			8	6	2	6	1	64
San Andreas Hospital	Gen	Indiv	8	6	2	6	1	64
San Diego, 147,995—San Diego			..	8	..	No data supplied		
Carter Sanitarium	N&M	Indiv	..	8	..	No data supplied		
Hillcrest Home	Coov	Indiv	40	30	..	..	22	64
Lane Sanatorium	Coov	Indiv	9	0	..	..	6	34
San Francisco, 631,304—San Francisco			50	59	..	..	44	81
Garden Nursing Home	Inc	NPAssh	50	59	..	..	44	81
Greer Home	Conv	Corp	25	25	..	..	19	68
Laguna Hooda Home Infirmary	Inst	CyCo	700	690	..	..	685	1,825
San Francisco Polyclinic	Gen	NPAssh	12	12	..	..	6	559
San Gabriel, 7,224—Los Angeles			75	75	..	..	74	96
Baldy View Sanatorium	N&M	Part	75	75	..	..	74	96
Mission Lodge Sanatorium	N&M	Indiv	..	60	..	..	59	52
San Jose, 57,651—Santa Clara			12	12	..	..	6	20
Beale Convalescent Home	N&M	Indiv	12	12	..	..	6	20
Sunnyholme Preventorium	Unit of Santa Clara County Hospital		..	..	..	..	..	..
San Mateo, 13,444—San Mateo			23	23	..	..	25	20
San Mateo Preventorium	TB	NPAssh	23	23	..	..	25	20
San Quentin, 323—Marin			..	214	..	..	132	1,366
Charles L. Neumiller Hosp.	Inst	State	..	214	..	..	132	1,366
San Rafael, 8,022—Marin			23	26	..	..	16	18
Marin County Tuberculosis Hospital	TB	County	23	26	..	..	16	18
Santa Barbara, 33,613—Santa Barbara			12	12	..	..	12	12
La Loma Feliz	CardCh	NPAssh	12	12	..	..	12	12
Santa Monica, 37,146—Los Angeles			8	6	..	..	5	26
Santa Monica Diet Home	Conv	Indiv	8	6	..	..	5	26
Santa Rosa, 10,636—Sonoma			150	156	9	130	142	1,414
Sonoma County Hosp.	InstGeo	County	150	156	9	130	142	1,414
Sonoma, 2,278—Tulumbes			30	34	4	27	22	497
Tulumbes County Hosp.	InstGen	County	30	34	4	27	22	497
Stanford University, 720—Santa Clara			..	70	..	..	68	237
Stanford Convalescent Home	Chil	NPAssh	..	70	..	..	68	237
Suisun City, 965—Solano			100	100	6	72	80	833
Solano County Hosp.	InstGen	County	100	100	6	72	80	833
Sunland, —Los Angeles			60	60	..	..	54	93
Sunland Sanatorium	TB	Corp	60	60	..	..	54	93
Tracy, 3,329—San Joaquin			10	7	2	15	5	75
West Side Hospital	Gen	Indiv	10	7	2	15	5	75
Verdugo City, 1,560—Los Angeles			100	100	..	..	65	83
Rockhaven Sanitarium	N&M	Indiv	100	100	..	..	65	83
Veterans Home, —Napa			258	258	..	..	183	1,446
Veterans Home Hospital	Inst	State	258	258	..	..	183	1,446
Waterman, —Amador			50	50	..	..	10	1,189
Preston School of Industry Hospital	Inst	State	50	50	..	..	10	1,189
Weaverville, 650—Trinity			..	25	..	No data supplied		
Trinity County Hospital	Inst	County	..	25	..	No data supplied		

## INDIANA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Kramer, 1,200—Warren Madison Springs Hotel and Sanitarium.....	Conv	Corp	..	30	..	No data supplied	..	..
Lagrange, 1,640—Lagrange Erwin Hospital.....	Gen	Indiv	8	10	2	13	2	67
Michigan City, 26,736—La Porte Indiana Hospital for In- sane Criminals.....	Ment	State	250	240	..	..	225	13
Indianapolis State Prison Hospital.....	Inst	State	85	80	..	..	52	1,332
Mooreville, 1,910—Morgan Conner's Sanitarium.....	Proct	Part	20	15	..	..	10	130
Newcastle, 14,027—Henry Hospital.....	Epil	State	..	915	..	No data supplied	..	..
Pendleton, 1,548—Madison Indiana State Reform- atory Hospital.....	Inst	State	100	120	..	..	52	1,539
Plainfield, 1,617—Hendricks Indiana Boys School Hosp. Inst	State	State	25	31	..	..	5	541
Plymouth, 5,290—Marshall Plymouth Sanitarium.....	Drug	Indiv	12	12	..	..	2	22
Tipton, 4,591—Tipton Emergency Hospital.....	Gen	Part	6	8	1	101	4	157
Wilkinson, 316—Hancock Dr. Charles Titus Hosp., ENT	Indiv	Indiv	7	7	..	..	1	380
Summary for Indiana:			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums...	110	18,463	15,271	166,921				
Related institutions.....	27	5,044	4,537	11,711				
Totals.....	137	23,507	19,808	178,632				
Refused registration.....	16	728						

## IOWA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Akron, 1,304—Plymouth Akron Hospital.....	Gen	Indiv	15	14	3	30	4	172
Albia, 4,425—Monroe Miner's Hospital.....	Gen	Indiv	25	25	4	13	9	490
Albia, 2,063—Plymouth Albia Hospital.....	Gen	Indiv	25	22	5	62	12	403
Alta Community Hospital Gen	NPAasn	15	13	6	25	6	210	
Anamosa, 3,579—Jones Mercy Hospital.....	Gen	Church	30	30	8	81	15	493
Atlantic, 5,585—Cass Atlantic Hospital.....	Gen	Corp	50	35	6	65	17	680
Battle Creek, 804—Ida New Battle Creek Hospital and Sanitarium.....	Gen	Indiv	10	16	3	28	12	407
Boone, 11,886—Boone Boone County Hospital. Gen	County	..	35	10	255	18	821	
Burlington, 26,755—Des Moines Burlington Protestant Hospital.....	Gen	NPAasn	125	105	20	173	73	1,682
Mercy Hospital.....	Gen	Church	..	125	20	171	57	1,474
St. Francis Mercy Hospital.....	Gen	Church	..	50	8	55	25	700
Carroll, 4,601—Carroll St. Anthony Hospital.....	Gen	Church	130	108	22	362	63	2,083
Cedar Falls, 7,362—Black Hawk Sartori Memorial Hosp. Gen	City	35	35	6	128	17	567	
Cedar Rapids, 56,097—Linn Mercy Hospital.....	Gen	Church	250	150	21	433	84	2,502
St. Luke's Methodist Hos- pital.....	Gen	Church	150	130	20	435	83	3,291
Centerville, 8,147—Appanoose St. Joseph's Mercy Hosp. Gen	Church	50	50	6	81	25	1,205	
Chariton, 5,365—Lucas Yocum Hospital.....	Gen	Indiv	16	16	5	38	10	360
Gen	City	..	25	5	118	27	913	
Ment	State	1,120	1,680	..	..	1,600	550	
Gen	NPAasn	35	35	7	126	12	651	
Clarinda State Hospital.. Ment	State	1,250	1,600	..	..	1,701	336	
Clinton, 25,728—Clinton Jane Lamb Mem. Hosp. Gen	NPAasn	100	100	12	258	55	1,880	
St. Joseph Mercy Hosp. Gen	Church	85	85	12	216	35	1,593	
Colfax, 2,213—Jasper Colfax Sanitarium.....	Gen	Corp	..	26	..	No data supplied	..	..
Council Bluffs, 42,048—Pottawattamie Jennie Edmundson Memo- rial Hospital.....	Gen	NPAasn	130	117	14	216	62	1,999
Mercy Hospital.....	Gen	Church	..	145	14	224	71	2,880
St. Bernard's Hospital... N&M	Church	..	240	..	..	167	321	
Cresco, 3,669—Howard St. Joseph Mercy Hospital Gen	Church	40	20	5	64	8	300	
Creston, 8,615—Union Greater Community Hosp. Gen	NPAasn	..	50	5	29	11	625	
Davenport, 60,751—Scott Mercy Hospital.....	Gen	Church	125	125	20	524	67	2,705

## IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions	
Pino Knoll Sanitarium....	TB	County	102	102	..	..	..	137	
St. Elizabeth's and St. John's Hospitals.....	Units of Mercy Hospital	Church	..	81	19	305	38	1,883	
St. Luke's Hospital.....	Gen	Church	..	81	19	305	38	1,883	
Decorah, 4,581—Winnebago	Decorah Hospital.....	Gsn	NPAssn	..	30	6	94	12	1,126
Denison, 3,905—Crawford	Denison Hospital.....	Gen	Indiv	15	15	3	23	5	228
Des Moines, 142,559—Polk	Broadlawn Polk County	County	49	46	3	..	10	256	
Public Hospital.....	Gen	County	80	90	17	340	89	3,667	
Broadlawn Polk County	Public Hospital.....	TB	County	100	100	..	..	49	61
Public Hospital.....	Gen	Church	125	125	25	398	73	4,032	
Iowa Lutheran Hosp.*	Gen	Church	239	239	40	752	171	7,142	
Iowa Methodist Hosp.*	Gen	Church	..	160	25	489	114	4,220	
Mercy Hospital.....	Gen	Corp	50	50	..	..	34	126	
The Retreat.....	N&M	Vet	300	300	..	..	257	2,245	
Veterans Admin. Facility	Gen	NPAssn	101	91	10	149	43	1,577	
Dubuque, 41,769—Dubuque	Finley Hospital.....	Gen	Church	150	125	25	327	78	2,376
St. Joseph Mercy Hosp.*	Gen	Church	200	200	..	..	181	518	
St. Joseph Sanitarium...	N&M	County	70	70	..	..	69	57	
Sunny Crest Sanatorium. TB	Gen	NPAssn	20	20	8	42	3	311	
Eldora, 3,200—Hardin	Eldora Booth Memorial	Gen	NPAssn	10	16	3	30	5	286
Eldora Booth Memorial	Hospital.....	Gen	NPAssn	15	13	3	50	6	373
Emmettsburg, 2,865—Palo Alto	Palo Alto Hospital.....	Gen	NPAssn	50	35	6	98	14	800
Estherville, 4,940—Emmet	Birney Hospital.....	Gen	Indiv	24	24	6	87	12	510
Coleman Hospital.....	Gen	NPAssn	60	45	..	..	18	460	
Grinnell, 4,949—Powshehek	Grinnell Community Hosp.	Gen	Church	..	60	0	109	30	1,188
Grinnell Community Hosp.	Gen	NPAssn	60	54	6	84	17	630	
Grinnell Community Hosp.	Gen	Church	..	40	10	64	20	515	
Grinnell Community Hosp.	Gen	Indiv	16	16	3	37	10	581	
Lutheran Hospital.....	Gen	Church	65	46	8	104	45	1,041	
Hartley, 1,272—O'Brien	Hand Hospital.....	Gen	Indiv	12	12	2	37	4	198
Hull, 905—Sioux	Hull Hospital.....	Gen	Corp	15	15	3	24	10	459
Hull Hospital.....	Gen	Corp	15	15	3	24	10	459	
Ida Grove, 2,206—Ida	Ida Grove General Hosp.	Gen	Part	12	12	4	25	5	182
Independence, 3,691—Buchanan	Independence State Hosp.	Ment	State	1,284	1,811	..	..	1,735	619
Peoples Hospital.....	Gen	NPAssn	27	30	7	118	15	654	
Iowa City, 15,340—Johnson	Children's Hospital.....	Unit of University Hospitals	..	..	..	..	..	..	..
Iowa State Psychopathic	Hospital.....	Ment	State	60	60	..	..	41	427
Mercy Hospital.....	Gen	Church	..	100	15	230	50	1,905	
University Hospitals*...	Gen	State	900	900	54	1,323	809	18,438	
Iowa Falls, 4,112—Hardin	Ellsworth Municipal Hosp.	Gen	City	33	25	9	..	New building	..
Keokuk, 15,106—Lee	Grinnell Protestant Hosp.*	Gen	NPAssn	75	75	10	95	45	1,107
Grinnell Protestant Hosp.*	Gen	Church	135	120	15	260	64	1,872	
St. Joseph's Hospital.....	Gen	Church	135	120	15	260	64	1,872	
Knoxville, 4,697—Marion	Veterans Admin. Facility	Ment	Vet	851	856	..	..	852	233
Lake City, 2,012—Calhoun	McCrory Hospital.....	Gen	Indiv	25	25	5	47	0	339
McCrory Hospital.....	Gen	Part	16	16	5	45	10	299	
McVay Memorial Hosp....	Gen	Church	50	50	10	120	27	1,072	
Le Mars, 4,788—Plymouth	Sacred Heart Hospital...	Gen	Church	50	50	10	120	27	1,072
Manning, 1,817—Carroll	Wyatt Memorial Hospital	Gen	Indiv	..	22	4	No data supplied	..	..
Maquoket, 3,595—Jackson	City Memorial Hospital.	Gen	Indiv	20	20	4	46	11	275
City Memorial Hospital.	Gen	Church	154	135	19	315	92	3,010	
St. Thomas Mercy Hosp.*	Gen	Church	..	75	10	81	35	986	
Jason City, 23,304—Cerro Gordo	Park Hospital.....	Gen	Corp	45	45	12	182	22	1,075
Park Hospital.....	Gen	Church	100	88	12	227	54	1,464	
St. Joseph's Mercy Hosp.*	Gen	Part	10	10	3	26	4	130	
Story Hospital.....	Gen	Part	10	10	3	26	4	130	
McGregor, 1,299—Clayton	McGregor Hospital.....	Gen	Indiv	20	10	3	21	4	149
Monticello, 2,259—Jones	John McDonald Hospital.	Gen	NPAssn	..	30	6	98	15	582
John McDonald Hospital.	Mt. Pleasant, 3,743—Henry	Ment	State	1,300	1,600	..	..	1,614	450
Mt. Pleasant, 3,743—Henry	Muscatine, 16,778—Muscatine	Gen	NPAssn	24	34	8	95	12	618
Muscatine, 16,778—Muscatine	Bellevue Hospital.....	Gen	NPAssn	50	50	6	75	21	964
Bellevue Hospital.....	Benjamin Hershey Memorial	Gen	NPAssn	50	50	6	75	21	964
Benjamin Hershey Memorial	Hospital.....	Gen	NPAssn	50	50	6	75	21	964
Hospital.....	Nebraska, 3,133—Story	Gen	Church	40	35	5	41	28	448
Nebraska, 3,133—Story	Iowa Sanitarium and Hosp.	Gen	Church	40	35	5	41	28	448
Iowa Sanitarium and Hosp.	New Hampton, 2,438—Chickasaw	Gen	Church	51	51	9	105	21	871
New Hampton, 2,438—Chickasaw	St. Joseph's Hospital.....	Gen	Church	51	51	9	105	21	871

Key to symbols and abbreviations is on page 1060

## CALIFORNIA—Continued

Related institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Willows, 2,024—Glenn								
Glenn County Hospital... Inst	County	..	50	..	No data supplied			
Ilmar, —Los Angeles								
Jean G. McCracken Home N&M	NPAasn	50	50	..	..	43	48	
uba City, 3,605—Sutter								
Sutter County Hospital...InstGen	County	..	64	6	89	47	450	
Summary for California:								
	Number	Beds	Average Patients	Patients Admitted				
Hospitals and sanatoriums...	265	57,052	45,237	525,756				
Related institutions.....	100	8,323	7,188	34,239				
Totals.....	365	65,375	52,475	559,905				
Refused registration.....	72	2,391						

## COLORADO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Alamosa, 5,107—Alamosa								
Lutheran Hospital.....	Gen	Church	20	20	5	66	13	949
Aspen, 705—Pitkin								
Citizens' Hospital.....	Gen	NPAasn	..	25	2	4	6	72
Boulder, 11,223—Boulder								
Boulder-Colorado Sanita-								
rium and Hospital*o...	Gen	Church	101	101	6	55	40	1,394
Community Hospital....	Gen	NPAasn	60	45	8	90	19	918
Brush, 2,312—Morgan								
Eben-Ezer Hospital.....	Gen	Church	..	24	8	69	12	519
Canon City, 5,938—Fremont								
Colorado Hospital.....	Gen	Indiv	31	24	4	..	8	...
Cheyenne Wells, 595—Cheyenne								
Cheyenne County Hosp...	Gen	Indiv	..	10	3	No data supplied		
Colorado Springs, 33,237—El Paso								
Beth-El General Hosp.*o...	Gen	Church	105	98	17	360	96	2,447
Colorado Springs Psycho-								
pathic Hospital.....	N&M	Part	150	150	..	..	112	183
Cragmor Sanatorium.....	TB	NPAasn	..	130	..	No data supplied		
Crestone Heights Sanita-								
rium and Hospital.....	Gen	Indiv	25	20	5	37	6	285
Glockner Sanatorium and								
Hospital*o.....	G&TB	Church	210	150	13	155	96	1,630
National Methodist Epis-								
copal Sanatorium for								
Tuberculosis.....	TB	Church	75	75	..	..	44	71
St. Francis Hospital and								
Sanatorium*.....	G&TB	Church	..	140	10	149	90	1,364
Sunnyrest Sanatorium...	TB	NPAasn	54	54	..	..	25	0
Union Printers Home and								
Tuberculosis Sanat.*....	G&TB	NPAasn	..	160	..	..	57	42
C								
C								
Gen	Indiv		12	12	1	41	8	476
Gen	NPAasn		25	25	6	31	12	360
Del Norte, 1,410—Rio Grande								
St. Joseph's Hospital and								
Sanatorium.....	Gen	Church	..	25	6	44	21	478
Delta, 2,938—Delta								
Western Slope Memorial								
Hospital.....	Gen	NPAasn	..	11	3	26	5	181
Denver, 287,861—Denver								
Bethesda Sanatorium....	TB	Church	68	68	..	..	36	58
Beth Israel Hospital....	Gen	NPAasn	40	55	10	46	29	1,014
Childrens Hospital*o...	Chil	NPAasn	135	135	18	..	126	3,319
Colorado General Hos-								
pital*o.....	Gen	State	158	160	20	384	137	3,627
Colorado Psychopathic								
Hospital*o.....	Ment	State	78	78	..	..	79	902
Denver General Hosp.*o...	Gen	CyCo	556	575	32	593	328	14,157
Ex-Patients' Tubercular								
Home.....	TB	NPAasn	81	81	..	..	49	30
Fitzsimons General Hosp. G&TB	Army		1,185	1,185	6	53	847	5,218
Mercy Hospital*o.....	Gen	Church	225	175	25	470	150	5,475
Mt. Alry Sanatorium....	N&M	Corp	..	60	..	..	48	519
National Jewish Hosp.*...	TB	NPAasn	..	250	..	..	248	161
Porter Sanatorium and								
Hospital.....	Gen	Church	..	100	20	153	36	1,150
Presbyterian Hospital*o...	Gen	Church	165	150	25	542	102	4,167
St. Anthony Hospital*o...	Gen	Church	..	182	30	607	103	3,069
St. Joseph's Hospital*o...	Gen	Church	250	260	30	469	166	4,444
St. Luke's Hospital*o...	Gen	Church	219	219	30	529	153	6,251
Sands House.....	TB	NPAasn	47	47	..	..	40	25
Steele Memorial Hospital	Iso	CyCo	..	85	..	No data supplied		
Durango, 5,400—LaPlata								
Mercy Hospital*o.....	Gen	Church	51	51	7	77	37	1,560
Gen	TB	NPAasn	51	51	..	..	45	13
Gen	NPAasn		90	80	..	..	55	97
Swedish National Sanat...	TB							
Fairplay, 221—Park								
Fairplay Hospital.....	Gen	Part	12	20	2	29	9	389
F								
Gen	Army		118	70	..	..	55	1,253
F								
Veterans Admin. Facility	Ment	Vet	643	545	..	..	530	240
Ft. Morgan, 4,423—Morgan								
Ft. Morgan Hospital....	Gen	Indiv	..	25	6	60	9	431

## COLORADO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Glenwood Springs, 1,825—Garfield								
Dr. Porter's Hospital.... Gen	Indiv	20	17	2	25	9	400	
Grand Junction, 10,247—Mesa								
St. Mary's Hospital*o... Gen	Church	..	65	10	93	35	1,041	
Greeley, 12,203—Weld								
Greeley Hospital..... Gen	County	100	85	15	320	64	3,027	
Hxntun, 1,027—Phillips								
McKnight Hospital..... Gen	Part	..	12	3	42	7	851	
Hayden, 554—Routt								
Solandt Memorial Hosp. Gen	NPAasn	10	10	3	18	3	124	
Holyoke, 1,226—Phillips								
Holyoke Hospital..... Gen	Indiv	8	8	2	12	4	179	
Ignacio, 464—LaPlata								
Edwrd T. Taylor Hosp.. Gen	IA	42	38	4	21	17	553	
LaJunta, 7,193—Otero								
A. T. & S. F. Railroad								
Hospital..... Indus	NPAasn	36	36	..	..	23	400	
Mennonite Hospital and								
Sanitarium*o..... G&TB	Church	70	70	10	143	41	990	
Lamar, 4,233—Powers								
Charles Maxwell Hospital Gen	NPAasn	50	50	6	49	10	440	
Leadville, 3,771—Lake								
St. Vincent Hospital.... Gen	Church	30	28	6	59	17	595	
Longmont, 6,029—Boulder								
Longmont Hospital..... Gen	Indiv	40	33	7	51	14	545	
Montrose, 3,566—Montrose								
Montrose Hospital..... Gen	Indiv	..	12	5	18	5	297	
St. Luke's Hospital..... Gen	Indiv	22	14	3	43	7	339	
Oak Creek, 1,211—Routt								
Oak Creek Hospital..... Gen	Indiv	10	10	2	14	5	220	
Red Cross Hospital..... Gen	Indiv	10	10	2	10	7	650	
Ouray, 707—Ouray								
Bates Hospital and Sani-								
tarium..... Gen	Indiv	25	25	3	12	5	423	
Pueblo, 50,006—Pueblo								
Colorado State Hospital Ment	State	2,500	2,584	..	..	3,409	772	
Corwin Hospital*o..... Gen	NPAasn	225	235	16	144	95	2,013	
Parkview Hospital..... Gen	NPAasn	..	96	7	122	44	1,498	
St. Mary Hospital*o..... Gen	Church	162	150	12	162	80	2,516	
Woodcroft Hospital..... N&M	Corp	130	95	..	..	58	154	
Rocky Ford, 3,426—Otero								
Physicians Hospital..... Gen	NPAasn	10	10	3	51	8	369	
Salida, 5,065—Chaffee								
Denver and Rio Grande								
Western Railroad Hosp. Gen	NPAasn	140	81	6	36	42	1,275	
Red Cross Hospital..... Gen	Corp	40	40	3	17	15	527	
Spivak, 350—Jefferson								
Sanatorium of the Jewish								
Consumptives' Relief So-								
ciety*..... TB	NPAasn	300	300	..	..	217	179	
Steamboat Springs, 1,193—Routt								
Steamboat Springs Hosp. Gen	Indiv	..	10	2	..	3	...	
Sterling, 7,195—Logan								
St. Benedict Hospital.... Gen	Church	35	37	6	92	13	686	
Townoe, 50—Montezuma								
Ute Mountain Indian Hos-								
pital..... Gen	IA	24	24	4	10	11	217	
Trinidad, 11,732—Las Animas								
Mt. San Rafael Hospital*o Gen	Church	90	75	15	220	44	1,329	
Walsenburg, 5,503—Huerfano								
Lamma Brothers Hospital Gen	Part	20	20	3	16	8	403	
Wheat Ridge, 500—Jefferson								
Evangelical Lutheran								
Sanitarium..... TB	Church	125	125	..	..	50	...	
Woodmen, 400—El Paso								
Modern Woodmen of								
America Sanatorium.... TB	Frat	..	240	..	..	106	172	
Related Institutions								
Boulder, 11,223—Boulder								
Boulder County Hosp...InstGen	County	..	40	4	36	30	265	
Mesa Vista Sanatorium... TB	Indiv	36	30	..	..	22	23	
Burlington, 1,280—Kit Carson								
Burlington Hospital..... Gen	Part	8	8	3	16	3	222	
Canon City, 5,938—Fremont								
Colorado State Peniten-								
tiary Hospital..... Inst	State	40	37	..	..	20	1,161	
Colihran, 341—Mesa								
Plateau Valley Congrega-								
tion Hospital..... Gen	Church	8	8	2	20	2	151	
Colorado Springs, 33,237—El Paso								
Myron Stratton Home and								
Hospital..... Inst	NPAasn	..	20	..	..	..	...	
Denver, 287,861—Denver								
Costello Home..... TB	Frat	16	16	..	..	9	3	
Oakes Home Sanatorium. TB	Church	..	100	..	..	43	157	
St. Francis Sanatorium... TB	Church	16	16	..	..	10	43	
Salvation Army Woman's								
Home and Hospital... Mat	Church	..	42	19	71	27	101	
Englewood, 7,950—Arapahoe								
Temple Sanatorium..... TbConv	Indiv	30	30	..	..	29	175	
Fruita, 1,053—Mesa								
Fruita Community Hosp. Gen	Indiv	..	8	2	5	3	120	
Golden, 2,426—Jefferson								
Hospital—State Industrial								
School for Boys..... Inst	State	22	22	..	..	5	519	
Grand Junction, 10,247—Mesa								
State Home and Training								
School for Mental Defec-								
tives..... MeDe	State	..	300	..	..	279	25	
Greeley, 12,203—Weld								
Island Grove Hospital...InstIso	County	..	70	..	..	59	227	

Key to symbols and abbreviations is on page 1060

IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Newton, 11,560—Jasper Mary Frances Skiff Memorial Hospital.....	Gen	City	42	42	8	181	29	985
Oakdale, 7,794—Fayette State Sanatorium for Tuberculosis.....	TB	State	..	350	..	..	340	239
Oelwein, 7,794—Fayette Mercy Hospital.....	Gen	Church	25	26	5	94	15	603
Onawa, 2,539—Monona Onawa Hospital.....	Gen	Indiv	..	15	2	22	7	300
Oseola, 2,871—Clarke Harken Hospital.....	Gen	Indiv	20	20	4	20	8	236
Oseola Hospital.....	Gen	Part	20	20	4	32	8	270
Oseola Sanitarium and Hospital.....	Gen	Indiv	10	10	3	8	3	53
Oskaloosa, 10,123—Mahaaska Mercy Hospital.....	Gen	Part	35	25	6	35	14	452
Ottumwa, 28,075—Wapello Ottumwa Hospital.....	Gen	NPassn	65	65	12	207	42	1,557
St. Joseph Hospital.....	Gen	Church	75	62	12	..	52	1,875
Sunnyslope Sanatorium.....	TB	County	100	100	..	..	95	239
Perry, 5,831—Dallas Kings Daughters Hospital	Gen	NPassn	25	25	5	51	11	472
Red Oak, 5,778—Montgomery Murphy Memorial Hosp.	Gen	City	14	14	7	..	4	...
Sheldon, 3,320—O'Brien Sheldon Good Samaritan Hospital.....	Gen	Church	25	20	5	24	6	203
Shenandoah, 6,502—Page Henry and Catherine Hand Hospital.....	Gen	NPassn	25	25	6	97	16	846
Sibley, 1,870—Oseola Oseola Hospital.....	Gen	Part	15	13	4	40	6	392
Sibley Hospital.....	Gen	Indiv	15	15	4	12	6	868
Sigourney, 2,262—Keokuk Sigourney Hospital.....	Gen	Indiv	15	10	2	7	2	72
Sioux City, 79,183—Woodbury Lutheran Hospital.....	Gen	Church	90	90	15	..	45	...
Methodist Hospital.....	Gen	Church	125	120	18	381	70	3,367
St. Joseph Mercy Hosp.*	Gen	Church	..	200	23	353	115	4,140
St. Vincent's Hospital.....	Gen	Church	..	110	15	224	85	3,660
Spencer, 5,019—Clay Spencer Municipal Hosp.	Gen	NPassn	..	25	7	71	15	489
Spirit Lake, 1,778—Dickinson Spirit Lake Hospital.....	Gen	Part	..	8	2	14	4	268
Toledo, 1,825—Tama Sac and Fox Tuberculosis Sanatorium.....	TB	IA	74	74	3	12	70	185
Vinton, 3,372—Denton Virginia Guy Hospital...	Gen	City	25	20	6	50	10	355
Washington, 4,814—Washington Washington County Hosp.	Gen	County	..	35	9	133	19	791
Waterloo, 40,191—Black Hawk Allen Memorial Hospital...	Gen	Church	..	70	8	No data supplied	..	..
Presbyterian Hospital.....	Gen	NPassn	50	39	10	225	29	1,392
St. Francis Hospital.....	Gen	Church	39	70	10	275	59	1,860
Waverly, 3,632—Bremer St. Joseph Mercy Hosp.	Gen	Church	..	60	6	126	22	1,018
West Union, 2,056—Fayette West Union Community Hospital.....	Gen	City	10	13	2	22	4	154
Williamsburg, 1,219—Iowa Watts Hospital.....	Gen	Indiv	15	15	1	8	2	144
Related Institutions								
Ames, 10,261—Story Iowa State College Hosp.	Inst	State	75	75	..	..	10	833
Anamosa, 3,579—Jones Reformatory Hospital....	Inst	State	..	25	..	..	7	439
Belmond, 1,733—Wright Belmont Hospital.....	Surg	Indiv	8	8	..	..	2	139
Bettendorf, 2,768—Scott Masonic Sanitarium.....	Conv	Frat	..	65	..	No data supplied	..	..
Burlington, 26,755—Des Moines Des Moines County Asylum.....	Ment	County	66	60	..	..	60	7
Clarion, 2,578—Wright Tompkias and Walker Hospital.....	Gen	Part	10	10	3	No data supplied	..	..
Council Bluffs, 42,048—Pottawattamie Christian Home Orphanage.....	Inst	NPassn	36	31	4	..	9	330
Iowa School for the Deaf	Inst	State	34	34	..	..	18	926
Davenport, 60,751—Scott Iowa Soldiers' Orphans' Home Hospital.....	Inst	State	44	44	16	..	24	1,162
Des Moines, 142,559—Polk Benedict Home.....	Mat	NPassn	..	30	15	25	3	44
Junior League Convalescent Home for Children	Conv	Corp	20	20	..	..	19	115
Salvation Army Rescue Home and Mater. Hosp.	Mat	Church	55	50	30	91	4	97
Elkader, 3,200—Hardin Iowa Training School for Boys Hospital.....	Inst	State	..	29	..	..	10	1,200
Elkader, 1,382—Clayton Clayto County Asylum...	Ment	County	50	44	..	..	26	...
Fort Madison, 13,779—Lee Iowa State Penitentiary Hospital.....	Inst	State	37	37	..	..	16	272
Greenwood, 4,269—Mills Iowa Institution for Feeble-minded Children.....	MeDe	State	1,650	1,550	..	..	1,794	127

IOWA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Harlan, 3,145—Shelby Harlan Hospital.....	Gen	Indiv	14	14	5	53	6	425
Indianola, 3,488—Warren Community Hospital.....	Gen	Indiv	6	6	3	..	1	43
Manchester, 3,413—Delaware Manchester Koehler Hosp.	Gen	Indiv	..	7	2	No data supplied	..	..
Marshalltown, 17,383—Marshall Iowa Soldiers' Home Hosp.	Inst	State	250	130	..	..	120	...
Odebolt, 1,388—Sae Odebolt Hospital.....	Gen	Indiv	18	10	3	13	3	66
Orange City, 1,727—Sioux Do Bey Hospital.....	Gen	Part	..	10	2	No data supplied	..	..
Doornink Hospital.....	Gen	Indiv	10	10	3	6	4	166
Osage, 2,964—Mitchell Nissen Hospital.....	Gen	City	9	6	2	41	5	242
Postville, 1,600—Allamakee Postville Community Hosp.	Gen	Corp	15	13	2	29	9	245
Red Oak, 5,778—Montgomery Powell School for Backward and Nervous Children.....	MeDe	Part	50	50	..	..	45	14
Sac City, 2,854—Sae Sac City Hospital.....	Gen	Indiv	..	10	3	9	3	226
Sioux City, 79,183—Woodbury Florence Crittenton Home	Mat	NPassn	80	53	27	57	25	67
Toledo, 1,825—Tama State Juvenile Home Hosp.	Inst	State	40	40	..	..	8	390
Waukon, 2,526—Allamakee Hall Hospital.....	Mat	Indiv	..	7	5	40	2	40
Rominger and Jeffries Emergency Hospital....	Gen	Part	8	8	..	..	2	106
Gen	Indiv	..	14	14	5	67	10	443
Hospital for Epileptics and School for Feeble-minded.....	MeDe	State	1,000	1,300	..	..	1,291	116
Summary for Iowa:								
Hospitals and sanatoriums...	Number	Beds	Average Patients	Patients Admitted				
Related institutions.....	123	15,573	12,579	143,218				
	23	4,000	2,532	9,047				
Totals.....	156	19,663	16,431	152,265				
Refused registration.....	23	554	..	..				

KANSAS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Ableene, 5,638—Dickinson Dickinson County Memorial Hospital.....	Gen	NPassn	23	23	4	52	12	597
Anthony, 2,917—Harper Galloway Hospital.....	Gen	Indiv	32	32	7	132	31	1,341
Arkansas City, 13,046—Cowley Mercy Hospital.....	Gen	NPassn	44	44	8	190	13	745
Stricklen Hospital.....	Gen	NPassn	..	28	5	12	5	225
Atchison, 13,024—Atchison Atchison Hospital.....	Gen	NPassn	26	20	8	261	12	721
Augusta, 4,033—Butler Augusta Hospital.....	Gen	Indiv	17	11	3	14	5	160
Beloit, 3,502—Mitchell Community Hospital.....	Gen	NPassn	50	50	10	110	26	1,000
Chanute, 10,277—Neosho Johnson Hospital.....	Gen	Corp	50	50	6	64	23	963
Coffeyville, 16,198—Montgomery Medical Center.....	Gen	NPassn	18	16	4	..	Estab. 1838	..
Southeast Kansas Hosp.*	Gen	NPassn	20	20	3	63	10	492
Columbus, 3,235—Cherokee Maude Norton Memorial Hospital.....	Gen	City	16	16	2	2	7	693
Concordia, 5,792—Cloud St. Joseph's Hospital....	Gen	Church	..	75	10	91	43	1,299
Dodge City, 10,059—Ford St. Anthony Hospital....	Gen	Church	85	85	15	176	50	1,837
Eldorado, 10,311—Butler Susan B. Allen Memorial Hospital.....	Gen	NPassn	50	47	8	190	23	1,115
Elkhart, 1,435—Morton Tucker Hospital.....	Gen	Indiv	15	15	2	8	4	112
Ellsworth, 2,052—Ellsworth Ellsworth Hospital....	Gen	NPassn	35	37	5	63	25	903
Emporia, 14,067—Lyon Newman Memorial County Hospital.....	Gen	County	67	67	14	226	40	1,556
St. Mary's Hospital.....	Gen	Church	..	70	10	83	23	197
Ft. Leavenworth, 4,982—Leavenworth Station Hospital.....	Gen	Army	182	182	5	54	97	2,425
Ft. Riley, 2,610—Geary Station Hospital.....	Gen	Army	256	189	8	70	140	2,791
Ft. Scott, 10,763—Bourbon Mercy Hospital.....	Gen	Church	..	50	12	150	42	1,116
Garden City, 6,121—Finney St. Catherine's Hospital..	Gen	Church	50	43	7	112	21	691
Girard, 2,442—Crawford Girard General Hospital..	Gen	City	18	14	4	25	6	264



## COLORADO—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Las Animas, 2,517—Bent	Gen	State	35	35	..	..	..	..
Blackwill Hospital.....	Gen	Indiv	12	8	4	15	4	83
Logmont, 6,029—Boulder	Gen	Indiv	..	12	5	30	5	205
St. Vrain Hospital.....	Gen	Indiv	..	12	5	30	5	205
Loveland, 5,306—Larimer	Gen	Indiv	..	10	4	21	5	281
Clinic.....	Gen	Part	..	10	4	..	..	..
Namakin Hospital.....	Gen	Indiv	..	12	4	..	..	..
Monte Vista, 2,610—Rio Grande	Gen	Indiv	10	10	4	27	6	217
Monte Vista Hospital.....	Gen	Indiv	10	10	4	27	6	217
Ridge, 207—Jefferson	Gen	Indiv	10	10	4	27	6	217
State Home and Training School for Mental Defectives.....	MeDe	State	200	206	..	..	200	53
Seibert, 273—Kit Carson	Gen	Indiv	6	6	2	2	2	86
Seibert Hospital.....	Gen	Indiv	6	6	2	2	2	86
Windsor, 1,852—Weld	Gen	Indiv	10	7	2	0	2	60
Bart Memorial Hospital	Gen	Indiv	10	7	2	0	2	60
Yuma, 1,360—Yuma	Gen	Church	7	0	3	50	5	201
Lutheran Deaconess Hosp.	Gen	Church	7	0	3	50	5	201
Summary for Colorado:			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums...			78	11,813	5,621	94,094		
Related institutions.....			25	1,063	810	4,907		
Totals.....			103	12,876	6,440	99,001		
Refused registration.....			23	471				

## CONNECTICUT

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Bridgeport, 146,716—Fairfield	Gen	NPAasn	326	326	74	1,418	274	10,032
Bridgeport Hospital*o....	Gen	City	150	125	..	42	586	586
Englewood Hospital.....	Thiso	Church	215	215	35	700	162	5,868
St. Vincent's Hospital*o....	Gen	Church	215	215	35	700	162	5,868
Bristol, 28,451—Hartford	Gen	NPAasn	100	104	21	402	73	2,397
Bristol Hospital.....	Gen	NPAasn	100	104	21	402	73	2,397
Canaan, 565—Litchfield	Gen	NPAasn	25	26	6	59	10	292
Robert C. Geer Memorial Hospital.....	Gen	NPAasn	25	26	6	59	10	292
Cromwell, 2,814—Middlesex	Gen	Corp	33	33	..	..	18	83
Cromwell Hall.....	Gen	Corp	33	33	..	..	18	83
Danbury, 22,261—Fairfield	Gen	NPAasn	115	138	23	373	93	2,067
Danbury Hospital.....	Gen	NPAasn	115	138	23	373	93	2,067
Derby, 10,788—New Haven	Gen	NPAasn	82	82	19	329	58	2,237
Griffin Hospital.....	Gen	NPAasn	82	82	19	329	58	2,237
Greens Farms, 275—Fairfield	N&M	Corp	80	80	..	..	51	141
Hali-Brooke Sanitarium....	N&M	Corp	80	80	..	..	51	141
Greenwich, 5,981—Fairfield	N&M	Corp	70	70	..	..	58	140
Blythewood.....	N&M	Corp	70	70	..	..	58	140
Greenwich Hospital.....	Gen	NPAasn	100	100	24	339	86	2,584
Hartford, 164,072—Hartford	Gen	NPAasn	291	287	..	..	278	263
Cedarest Sanatorium.....	TB	State	291	287	..	..	278	263
Hartford Hospital*o....	Gen	NPAasn	710	711	60	1,996	562	15,898
Mt. Sinai Hospital.....	Gen	NPAasn	75	65	10	193	51	1,545
Municipal Hospital*o....	Gen	NPAasn	400	315	25	304	233	5,423
Municipal Hospital*o....	Gen	NPAasn	400	315	25	304	233	5,423
Neuro-Psychiatric Institute of the Hartford Retreat*o....	N&M	NPAasn	250	270	..	..	290	631
St. Francis Hospital*o....	Gen	Church	450	450	75	1,157	294	8,108
Wilwood Sanatorium.....	TB	NPAasn	50	50	..	..	31	82
Manchester, 21,973—Hartford	Gen	NPAasn	55	55	11	265	50	1,548
Manchester Mem. Hosp..	Gen	NPAasn	55	55	11	265	50	1,548
Meriden, 33,481—New Haven	Gen	NPAasn	136	112	24	473	76	2,761
Meriden Hospital*o....	Gen	NPAasn	136	112	24	473	76	2,761
Undercliff, Meriden State Tuberculosis Sanat.*o....	TbChll	State	232	252	..	..	222	170
Middletown, 24,554—Middlesex	Gen	NPAasn	2,320	3,079	..	..	3,184	826
Connecticut State Hospital*o....	Gen	State	2,320	3,079	..	..	3,184	826
Middlesex Hospital*o....	Gen	NPAasn	135	135	25	463	94	3,342
Milford, 12,660—New Haven	Gen	NPAasn	55	50	15	100	22	696
Milford Hospital.....	Gen	NPAasn	55	50	15	100	22	696
New Britain, 68,128—Hartford	Gen	NPAasn	250	211	40	733	143	4,016
New Britain General Hospital*o....	Gen	NPAasn	250	211	40	733	143	4,016
New Haven, 162,655—New Haven	Gen	Indiv	8	8	4	17	3	88
Dr. J. H. Evans' Private Hospital.....	Gen	Indiv	8	8	4	17	3	88
Grace Hospital*o....	Gen	NPAasn	243	243	44	769	177	5,937
Hospital of St. Raphael*o....	Gen	Church	220	235	30	750	175	6,175
New Haven Hospital*o....	Gen	NPAasn	510	460	42	739	336	8,121
Newington, 4,572—Hartford	Gen	NPAasn	200	200	..	..	202	128
Newington Home for Crippled Children.....	Orth	NPAasn	200	200	..	..	202	128
Veterans Adm'n. Facility	Vet	NPAasn	265	265	..	..	214	1,705
New London, 29,640—New London	Gen	NPAasn	60	48	12	163	32	891
Home Memorial Hospital	Gen	NPAasn	60	48	12	163	32	891
Lawrence and Memorial Associated Hospitals*o....	Gen	NPAasn	204	201	36	587	137	3,810
Dr. Lena's Surgical Hosp. Surg	Indiv	Indiv	..	26	..	..	17	776
New Milford, 3,000—Litchfield	Gen	NPAasn	30	35	8	79	13	334
New Milford Hospital.....	Gen	NPAasn	30	35	8	79	13	334
Newtown, 482—Fairfield	Gen	State	500	501	..	..	868	445
Fairfield State Hospital..	Ment	State	500	501	..	..	868	445

## CONNECTICUT—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathsets	Number of Births	Average Census	Admissions
Norwalk, 36,010—Fairfield								
Norwalk General Hosp.*o	Gen	NPAasn	180	157	23	562	101	5,605
Norwich, 23,021—New London								
Norwich State Hospital..	Ment	State	2,450	3,102	..	..	2,827	894
Norwich State Tuberculosis Sanatorium (Uneas on Thames)*o	TB	State	..	404	..	..	398	1,709
William W. Backus Hospital*o	Gen	NPAasn	150	121	29	433	83	3,060
Putnam, 7,318—Windham								
Day Kimball Hospital....	Gen	NPAasn	75	75	10	174	46	1,249
Rockville, 7,445—Tolland								
Rockville City Hospital..	Gen	NPAasn	35	35	10	105	12	489
Sharon, 500—Litchfield								
Sharon Hospital.....	Gen	NPAasn	40	40	12	162	22	715
Shelton, 10,113—Fairfield								
Laurel Heights State Tuberculosis Sanatorium..	TB	State	350	350	..	..	343	224
South Norwalk, 8,968—Fairfield								
Dr. Wadsworth's Sanit...	N&M	Indiv	25	35	..	..	16	5
Stafford Springs, 3,402—Tolland								
Cyril and Julia C. Johnson Memorial Hospital..	Gen	NPAasn	50	35	12	168	26	639
Stamford, 46,346—Fairfield								
Dr. Barnes Sanitarium...	N&M	Corp	60	60	..	..	35	129
Stamford Hall.....	N&M	Corp	190	190	..	..	142	201
Stamford Hospital*o	Gen	NPAasn	223	223	42	589	123	4,256
Tophassee Grange.....	N&M	Corp	28	28	..	..	11	9
Thompsonville, 9,643—Hartford								
Elmeroff—Dr. Vail's Sanatorium.....	N&M	Corp	33	26	..	..	8	14
Torrington, 26,040—Litchfield								
Charlotte Hungerford Hospital.....	Gen	NPAasn	130	130	20	388	73	2,274
Wallingford, 11,170—New Haven								
Gaylord Farm Sanatorium	TB	NPAasn	145	145	..	..	140	230
Waterbury, 99,902—New Haven								
St. Mary's Hospital*o....	Gen	Church	220	220	44	844	164	7,845
Waterbury Hospital*o....	Gen	NPAasn	321	254	36	715	183	5,650
Waterford, 100—New London								
The Seaside.....	TbChll	State	175	131	..	..	124	40
West Haven, 25,808—New Haven								
William Wirt Winchester Hospital.....	TB	NPAasn	60	60	..	..	45	158
Westport, 6,073—Fairfield								
Westport Sanitarium.....	N&M	Corp	100	100	..	..	73	210
Williamantle, 12,102—Windham								
Windham Community Memorial Hospital.....	Gen	NPAasn	91	76	15	210	44	1,409
Winsted, 7,883—Litchfield								
Litchfield County Hosp..	Gen	NPAasn	64	64	11	149	82	1,006
Related Institutions								
Bridgeport, 145,716—Fairfield								
Hillside Home and Hosp.-G-N&M City			260	289	..	..	265	5,842
Cheshire, 3,263—New Haven								
Connecticut Reformatory Inst	State	State	28	28	..	..	6	180
Essex, 2,777—Middlesex								
Pettipaug Lodge and Sanitarium.....	Conv	Indiv	24	24	..	..	15	33
Greenwich, 5,981—Fairfield								
Crest View Sanitarium....	N&M	Corp	24	22	..	..	15	19
Municipal Hospital.....	TbIso	City	61	61	2	1	36	139
Gulford, 1,880—New Haven								
Gulford Sanatorium.....	Gen	Corp	10	10	4	33	3	178
Mansfield Depot, 306—Tolland								
Mansfield State Training School and Hospital....	MeDe	State	1,200	1,200	..	..	1,183	60
Meriden, 38,481—New Haven								
Connecticut School for Boys.....	Inst	State	30	30	..	..	8	250
New Canaan, 2,372—Fairfield								
Silver Hill.....	Nerv	Corp	..	20	..	..	17	114
New Haven, 162,655—New Haven								
Jewish Home for the Aged	Inst	NPAasn	02	92	..	..	86	32
Yale Infirmary.....	Inst	NPAasn	..	30	..	..	8	631
Niantic, 1,312—New London								
Connecticut State Farm for Women.....	Inst	State	..	60	80	52	58	180
Noroton Heights, 1,600—Fairfield								
Fitch's Home and Hosp. Inst	Inst	State	122	122	..	..	106	1,435
Springdale, 4,500—Fairfield								
Nestledown Home.....	Conv	Indiv	32	32	..	..	25	45
Stratford, 19,212—Fairfield								
Sunnyside Sanitarium....	Conv	Indiv	12	15	..	..	7	22
West Hartford, 24,941—Hartford								
St. Agnes Home.....	Mat	Church	..	11	8	45	3	60
West Haven, 25,808—New Haven								
West Haven Convalescent Home.....	Conv	Indiv	..	8	..	..	8	8
Wethersfield, 7,512—Hartford								
Connecticut State Prison Hospital.....	Inst	State	..	30	..	..	15	32
Woodmont, 531—New Haven								
Woodmont Hall.....	Conv	Corp	17	15	..	..	3	34
Summary for Connecticut:								
		Number		Beds		Average Patients		Patients Admitted
Hospitals and sanatoriums...		60		15,976		13,707		134,945
Related Institutions.....		20		2,114		1,872		9,611
Totals.....		80		18,090		15,579		144,556
Refused registration.....		1		35				

## KANSAS—Continued.

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Wadsworth,—Leavenworth								
Veterans Admin. Facility	Gen	Vet	741	741	..	..	565	5,009
Wunigro, 1,647—Pottawatomie								
Genn Hospital.....	Gen	City	15	15	2	52	7	266
Wellington, 7,405—Sumner								
Hatcher Hospital.....	Gen	NPAasn	50	50	6	43	9	482
St. Luke's Hospital.....	Gen	NPAasn	25	25	8	90	8	609
Wichita, 11,110—Sedgwick								
Coffman Hospital.....	Gen	Indiv	15	15	2	8	5	310
St. Francis Hospital.....	Gen	Church	300	275	25	537	175	5,638
Sedgwick County Hosp.	Gen	County	63	63	3	10	64	1,795
Veterans Admin. Facility	Gen	Vet	180	180	..	..	154	1,390
Wesley Hospital.....	Gen	Church	210	210	26	475	146	5,155
Wichita Hospital.....	Gen	Church	100	100	15	269	90	2,376
Winfield, 0,398—Cowley								
St. Mary's Hospital.....	Gen	Church	50	50	6	72	33	985
William Newton Memorial Hospital.....	Gen	City	42	42	10	150	34	1,181
Related Institutions								
Ashland, 1,232—Clark								
Ashland Hospital.....	Gen	NPAasn	10	10	4	51	4	397
Atchison, 13,024—Atchison								
Prospect Park Sanitarium	N&M	Indiv	..	25	..	..	15	30
Ellsworth, 2,072—Ellsworth								
Mother Bleckerdye Home and Hospital.....	Inst	State	33	33	..	..	23	74
Ft. Dodge, 515—Ford								
Kansas State Soldiers' Home Hospital.....	Inst	State	56	56	..	..	18	211
Ft. Leavenworth, 4,682—Leavenworth								
U. S. Penitentiary Annex Hospital.....	Inst	Fed	..	175	No data supplied			
Lansing, 988—Leavenworth								
Asylum for Criminal Insane	Ment	State	100	115	..	..	110	7
Kansas State Penitentiary Hospital.....								
Lawrence, 13,725—Douglas	Inst	State	45	43	..	..	23	1,109
Haskell Institute Hosp.								
Watkins Memorial Hosp.	Inst	IA	40	40	..	..	9	471
Leavenworth, 14,466—Leavenworth								
U. S. Penitentiary Hosp.	Inst	State	46	46	..	..	20	1,283
Little River, 618—Rice								
Hoffman Memorial Hosp.	Gen	Fed	175	175	..	..	123	1,797
Manhattan, 10,136—Riley								
Kansas State College Hosp.	Gen	City	20	18	2	8	3	113
Marysville, 4,013—Marshall								
Marysville Hospital.....	Inst	State	25	25	..	..	5	673
.....								
.....	Gen	Indiv	10	8	3	14	4	72
.....								
.....	Gen	Indiv	9	9	1	18	1	115
Norwich Hospital.....								
Onithe, 3,650—Johnson	Gen	Indiv	7	7	2	8	4	300
State School for the Deaf								
Scott City, 1,544—Scott	Inst	State	17	17	..	..	1	227
Scott City Hospital.....								
Topeka, 64,320—Shawnee	Gen	Indiv	9	9	6	25	2	202
Florence Crittenton Home								
State Industrial School for Boys.....	Mat	NPAasn	16	13	12	17	7	19
Wichita, 111,110—Sedgwick								
Salvation Army Home and Hospital.....	Mat	State	..	24	..	..	10	333
Sedgwick County Tuberculosis Sanitarium.....	TB	Church	59	59	39	80	43	83
Suburban Rest Sanitarium	Conv	County	60	60	..	..	45	43
Wichita Children's Home Hospital.....	Inst	Indiv	60	50	..	..	10	102
Winfield, 9,393—Cowley								
State Training School....	McDe	NPAasn	25	25	..	..	5	200
Winfield, 1,284—Cowley								
State Training School....	McDe	State	1,284	1,160	..	..	1,112	133
Summary for Kansas:								
		Number	Beds	Average Patients		Patients Admitted		
Hospitals and sanatoriums....		92	12,037	9,446		105,071		
Related institutions.....		25	2,144	1,670		10,473		
Totals.....		117	14,229	11,116		115,544		
Refused registration.....		30	710					
KENTUCKY								
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
.....								
N&M		Indiv	55	55	..	..	37	105
Kings Daughters Hospital								
Berea, 1,827—Madison	Gen	NPAasn	..	75	8	No data supplied		
Berea College Hospital								
Beverly, 69—Bell	Gen	NPAasn	..	50	5	30	26	2,835
.....								
.....	Gen	Church	15	9	4	26	3	174
.....								
.....	Gen	City	52	52	8	74	13	863
Carlisle, 1,463—Nicholas								
Johnson Memorial Hosp.	Gen	County	..	11	2	9	..	169
Corbin, 1,806—Whitley								
Smith Hospital.....	Gen	Indiv	40	23	2	4	11	412
Covington, 63,232—Kenton								
St. Elizabeth Hospital.....	Gen	Church	500	231	35	787	201	5,252

Hospitals and Sanatoriums	Type of Service	Owned or Controlled	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admits
N&M	Indiv		55	55	..	..	37	105
Kings Daughters Hospital Gen	NPAsn		..	75	8	No data	supplied	
Beren, 1,827—Madison Hospital	Gen	NPAsn	..	50	5	50	36	2,835
Beverly, 69—Bell Hospital	Gen	Church	15	9	4	26	3	174
Carlisle, 1,469—Nicholas Johnson Memorial Hosp.	Gen	City	52	52	8	74	13	863
Corbin, 1,806—Whitley Smith Hospital	Gen	County	..	11	2	9	..	169
Covington, 63,252—Kenton St. Elizabeth Hospital	Gen	Indiv	40	23	2	4	11	412
	Gen	Church	500	231	35	787	201	5,252

## DELAWARE

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Dover, 4,800—Kent								
Kent General Hospital... Gen	NPAssn	35	56	8	121	23	1,079	
Farnhurst, 250—New Castle								
Delaware State Hosp.+o. Ment	State	800	1,120	..	..	1,063	351	
Ft. Dupont (Delaware City P.O.)—New Castle								
Station Hospital..... Gen	Army	25	25	..	..	12	267	
Lewes, 1,923—Sussex								
Beebe Hospital..... Gen	NPAssn	..	60	8	..	20	...	
Marshallton, 1,500—New Castle								
Brandywine Sanatorium.. TB	State	120	120	..	..	106	61	
Edgewood Sanat. (col.).. TB	State	25	40	..	..	35	40	
Milford, 3,719—Sussex								
Milford Emergency Hos- pital..... Gen	NPAssn	43	43	6	100	31	1,163	
Wilmington, 108,597—New Castle								
Delaware Hospital*o..... Gen	NPAssn	..	196	29	475	142	4,568	
Gross Private Hospital.. Gen	Corp	15	15	6	59	7	247	
Homeopathic Hospital*o Gen	NPAssn	168	168	30	492	120	3,920	
St. Francis Hospital*o.... Gen	Church	70	75	12	214	50	1,663	
Wilmington General Hos- pital*o..... Gen	NPAssn	115	85	18	466	75	2,803	
Related Institutions								
Marshallton, 1,500—New Castle								
Sunnybrook Cottage..... TB	NPAssn	..	22	..	..	Nodata supplied		
Smyrna, 1,958—Kent								
Delaware State Welfare Home.....InstGen	State	150	86	4	11	56	615	
Stockley, 138—Sussex								
Delaware Colony..... McDe	State	500	435	..	..	320	33	
Summary for Delaware:								
	Number	Beds	Average	Patients	Admitted			
Hospitals and sanatoriums...	13	1,998	1,654	16,659				
Related institutions.....	2	593	393	681				
Totals.....	15	2,591	2,032	17,340				
Refused registration.....	0							

## DISTRICT OF COLUMBIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Washington, 497,000								
Carson's Private Hos- pital (col.)..... Gen	Indiv	15	15	4	13	8	235	
Central Dispensary and Emergency Hospital*+o Gen	NPAssn	270	270	..	..	248	8,323	
Cherry Chas. Sanatorium, N&M	Indiv	23	23	..	..	20	34	
Children's Hospital*+o.... Chil	NPAssn	..	152	..	..	123	6,050	
Children's Tuberculosis Sanatorium (Glen Dale, Md. P. O.)..... TB	City	300	300	..	..	114	101	
Columbia Hospital for Women and Lying-In Asylum..... GynMat	NPAssn	125	127	83	2,000	101	2,616	
Eastern Dispensary and Casualty Hospital..... Gen	NPAssn	130	150	25	10	47	2,040	
Episcopal Eye, Ear, and Throat Hospital*+o.... ENT	Church	100	100	..	..	74	6,464	
Freedmen's Hosp. (col.)*+o Gen	Fed	322	322	54	790	211	4,330	
Gallinger Municipal Hos- pital*+o..... Gen	City	1,236	1,119	117	1,945	802	16,037	
Garfield Mem. Hosp.*+o Gen	NPAssn	311	252	59	960	208	6,496	
Georgetown University Hospital*o..... Gen	NPAssn	261	210	51	792	170	5,638	
Georgia Washington Uni- versity Hospital*+o.... Gen	NPAssn	114	92	22	539	76	2,385	
National Homeopathic Hospital..... Gen	NPAssn	75	60	20	250	44	1,474	
Providence Hospital*o.... Gen	Church	271	241	30	691	185	6,105	
St. Elizabeths Hosp.*o.... Gen	Fed	446	446	4	5	370	1,500	
St. Elizabeths Hosp.*+o. Ment	Fed	5,145	5,145	..	..	5,429	936	
Sibley Memorial Hosp.*o Gen	Church	210	210	100	1,979	231	8,804	
Tuberculosis Hospital..... TB	City	..	220	..	..	Nodata supplied		
U. S. Naval Hospital*+o.... Gen	Navy	172	178	..	..	178	1,599	
Veterans Admin. Facility Gen	Vet	327	327	..	..	315	2,541	
Walter Reed General Hos- pital*..... Gen	Army	1,201	1,201	23	195	895	7,505	
Washington Sanatorium and Hospital*o..... Gen	Church	170	170	15	320	129	2,865	
Related Institutions								
Washington, 497,000								
District of Columbia Re- formatory Hospital..... Inst	City	78	70	..	..	19	517	
District Training School (Laurel, Md. P. O.)..... McDe	City	546	546	..	..	531	23	
Florence Crittenton Home Mat	NPAssn	..	50	50	54	4	121	
Home for the Aged and Infirm..... Inst	City	134	125	..	..	107	260	
Kendall House Sanit..... Conv	Indiv	22	22	..	..	10	90	

## DISTRICT OF COLUMBIA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
National Training School for Boys Hospital..... Inst	Fed	30	30	..	..	14	1,370	
U. S. Soldiers' Home Hosp. Gen	Army	500	500	..	..	290	1,590	
Washington Home for In- curables..... Inst	NPAssn	160	160	..	..	160	75	
Summary for District of Columbia:								
	Number	Beds	Average	Patients	Admitted			
Hospitals and sanatoriums...	23	11,369	10,223	98,102				
Related institutions.....	8	1,503	1,213	4,277				
Totals.....	31	12,872	11,506	102,379				
Refused registration.....	0							

## FLORIDA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Arcadia, 4,032—De Soto								
Arcadia General Hospital Gen	Corp	..	22	3	77	8	516	
Bartow, 5,269—Polk								
Bartow General Hospital Gen	Indiv	25	21	4	47	9	556	
Polk County Hospital.... Gen	County	..	60	5	26	55	1,181	
Bay Pines,—Pinellas								
Veterans Admin. Facility. Gen	Vet	197	197	..	..	183	2,152	
Bradenton, 5,986—Manatee								
Bradenton General Hosp. Gen	Indiv	15	15	6	18	6	263	
Century, 1,525—Escambia								
Turberville Hospital..... Gen	Part	..	30	4	Nodata supplied			
Chattahoochee, 450—Gadsden								
Florida State Hospital*o. Ment	State	..	4,000	..	..	3,950	1,023	
Clearwater, 7,007—Pinellas								
Morton F. Plant Hospital Gen	NPAssn	35	50	10	90	20	674	
Coral Gables, 5,697—Dade								
University Hospital..... Gen	Corp	37	35	12	126	22	867	
Dade City, 1,811—Pasco								
Jackson Memorial Hosp.. Gen	County	12	13	2	8	3	187	
Daytona Beach, 16,566—Volusia								
Hallfax District Hospital Gen	NPAssn	125	125	..	122	32	985	
Hallfax District Hospital (Colored Annex)..... Gen	NPAssn	18	18	6	8	7	206	
De Land, 5,246—Volusia								
De Land Memorial Hosp. Gen	NPAssn	28	26	11	50	6	389	
Ft. Barrancas, 150—Escambia								
Station Hospital..... Gen	Army	30	60	..	..	21	782	
Ft. Lauderdale, 8,666—Broward								
Memorial Hospital..... Gen	Corp	..	35	7	Nodata supplied			
Ft. Myers, 9,632—Lee								
Lee Memorial Hospital... Gen	NPAssn	30	30	4	46	9	471	
Gainesville, 10,465—Alachua								
Alachua County Hospital Gen	County	55	55	10	140	23	1,039	
Jacksonville, 129,540—Duval								
Brewster Hosp. (col.)*o. Gen	Church	65	65	10	109	26	1,028	
Duval County Hospital*o. Gen	County	210	185	15	450	168	3,598	
Dr. Randolph's Sanitarium N&M	Indiv	12	12	..	..	7	44	
Riverside Hospital*o.... Gen	NPAssn	40	40	6	67	29	1,030	
St. Luke's Hospital*o.... Gen	NPAssn	153	153	22	637	91	2,643	
St. Vincent's Hospital*o. Gen	Church	200	200	40	466	92	3,770	
Key West, 12,831—Monroe								
U. S. Marine Hospital... Gen	USPHS	65	65	..	..	22	723	
Lake City, 4,416—Columbia								
Lake Shore Hospital... Gen	Corp	15	15	3	50	8	412	
Veterans Admin. Facility Gen	Vet	300	300	..	..	287	1,709	
Lakeland, 18,544—Polk								
Morrell Memorial Hosp.. Gen	City	100	81	16	100	35	1,261	
Lake Wales, 3,401—Polk								
Lake Wales Hospital..... Gen	NPAssn	25	23	6	14	4	165	
..	Gen	Indiv	20	20	3	20	10	400
Baltzell Hospital..... Gen	Indiv	..	12	2	Nodata supplied			
Melbourne, 2,677—Brevard								
Brevard Hospital..... Gen	NPAssn	..	15	2	..	10	...	
Miami, 110,637—Dade								
Dade County Hospital... Gen	County	165	121	13	177	82	2,118	
James M. Jackson Memo- rial Hospital*+o.... Gen	City	500	460	40	816	308	10,976	
Miami Retreat..... N&M	Indiv	50	50	..	..	22	282	
Miami Riverside Hospital Gen	Indiv	..	50	10	160	20	629	
Victoria Hospital..... Gen	Corp	..	75	15	466	46	2,796	
..	Gen	Church	125	125	6	114	53	1,929
..	Gen	NPAssn	..	100	..	..	40	274
..	Gen	CyCo	..	192	11	110	32	979
..	Gen	N&M	..	26	..	..	15	273
..	Gen	Church	112	109	12	90	57	1,149
Orange General Hospital*o Gen	NPAssn	140	115	20	171	59	2,761	
Panama City, 5,402—Bay								
Panama City Hospital... Gen	NPAssn	10	10	3	68	3	209	
Whitfield Hospital..... Gen	Part	35	25	3	29	6	312	
P								
..	Gen	Church	125	127	17	409	72	2,411
..	Gen	Navy	142	142	..	..	67	1,129
..	Gen	NPAssn	26	22	4	41	10	479
..	Gen	NPAssn	..	55	5	82	27	1,279
Flagler Hospital..... Gen	NPAssn	85	59	6	65	23	759	

## KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Wm. Booth Memorial Hospital .....	Gen	Church	100	94	18	Reopened 1937		
Cynthiana, 4,386—Harrison Harrison Memorial Hosp. Gen	NPAssn		30	30	6	35	14	325
Danville, 6,729—Boyle Danville and Boyle County Hospital .....	Gen	CyCo	60	44	6	..	26	...
Dayton, 9,071—Campbell Speer's Mem. Hospital° Gen	County		105	100	15	245	73	2,517
Ft. Knox, 5,042—Hardin Station Hospital..... Gen	Army		164	200	3	49	115	3,039
Ft. Thomas (Newport P. O.),—Campbell Station Hospital..... Gen	Army		142	142	..	..	68	821
Frankfort, 11,626—Franklin Kings Daughters Hospital Gen	NPAssn		30	30	5	58	22	880
Frenchburg, 246—Menifee Frenchburg Hospital..... Gen	Church		..	16	..	4	1	110
Georgetown, 4,229—Scott John Graves Ford Memorial Hospital..... Gen	CyCo		26	23	6	38	16	527
Glasgow, 5,042—Barren T. J. Samson Community Hospital .....	Gen	NPAssn	50	51	8	53	31	1,831
Harlan, 4,327—Harlan Harlan Hospital..... Gen	Corp		100	100	10	52	44	1,906
Harrodsburg, 4,029—Mercer A. D. Price Mem. Hosp. Gen	NPAssn		..	24	4	14	9	275
Hazard, 7,021—Perry Hazard Hospital .....	Corp		75	75	8	29	35	2,058
Hurst-Snyder Hospital.... Gen	Corp		23	25	4	10	9	418
Henderson, 11,668—Henderson Henderson Hospital..... Gen	NPAssn		42	42	5	60	30	1,244
Hopkinsville, 10,746—Christian Jennie Stuart Mem. Hosp. Gen	NPAssn		27	27	3	21	24	1,064
Hyden, 1,471—Leslie Frontier Nursing Service Hospital .....	Gen	NPAssn	..	15	3	33	10	355
Jackson, 2,109—Breathitt Bach Hospital..... Gen	Indiv		30	20	3	12	4	250
Jenkins, 8,465—Letcher Jenkins Hospital .....	Gen	NPAssn	..	65	8	21	29	792
Lebanon, 3,248—Marion Baute Infirmary .....	Gen	Indiv	9	11	2	19	5	241
Lexington, 45,736—Fayette Good Samaritan Hosp.*° Gen	Church		200	200	16	294	154	5,914
High Oaks Sanatorium... N&M	Indiv		35	35	..	..	16	220
Julius Marks Sanatorium TB	County		90	90	..	..	93	126
St. Joseph's Hospital*° Gen	Church		225	193	23	266	130	6,264
Shriners Hospital for Crippled Children..... Orth	Frat		28	20	..	..	13	78
U. S. Public Health Service Hospital..... Drug	USPHS		1,000	1,000	..	..	758	915
Veterans Admin. Facility Vet	Vet		259	290	..	..	272	534
London, 1,950—Laurel Pennington General Hosp. Gen	Corp		..	35	4	..	..	360
Louis, 1,961—Lawrence Louisa General Hospital Gen	Indiv		35	21	6	15	5	179
Riverview Hospital .....	Indiv		..	10	2	7	5	156
Louisville, 307,745—Jefferson Children's Free Hospital° Chil	NPAssn		75	75	..	..	60	1,251
Jewish Hospital°..... Gen	NPAssn		100	86	14	165	51	1,560
Kentucky Baptist Hosp.*° Gen	Church		130	130	20	274	113	3,549
Kosair Crippled Children Hospital .....	Orth		62	62	..	..	58	374
Louisville City Hosp.*° Gen	City		400	528	58	898	394	10,643
Louisville Neuropathic Sanatorium..... N&M	Corp		24	24	..	..	24	318
Methodist Episcopal Deaconess Hospital°..... Gen	Church		75	67	8	190	50	1,635
Norton Mem. Infirmary*° Gen	NPAssn		120	120	30	263	92	3,174
Red Cross Hosp. (col.)° Gen	NPAssn		60	51	6	18	30	366
St. Anthony's Hospital° Gen	Church		135	135	22	453	101	2,458
St. Joseph Infirmary*° Gen	Church		500	320	30	429	160	6,152
SS. Mary and Elizabeth Hospital*° Gen	Church		..	135	20	451	94	3,241
State Tuberculosis Sanat. TB	State		82	82	..	..	68	165
Stokes Hospital..... N&M	Corp		30	30	..	..	15	153
U. S. Marine Hospital.... Gen	USPHS		185	185	..	..	101	1,343
Lynch, 7,000—Harlan Lynch Hospital..... Gen	Corp		50	50	4	63	23	876
Madisonville, 6,908—Hopkins Madisonville Hospital.... Gen	Corp		21	21	3	17	10	725
Martin, 799—Floyd Beaver Valley Hospital... Gen	Part		..	75	4	12	32	1,445
Mayfield, 8,177—Graves Fuller-Gilliam Hospital... Gen	Corp		25	21	4	32	10	498
Mayfield Hospital..... Gen	NPAssn		40	40	2	40	14	684
Maysboro, 6,557—Mason Haywood Hospital..... Gen	NPAssn		50	43	5	40	17	736
Middlesboro, 10,350—Bell Middlesboro Hospital.... Gen	Part		..	50	6	..	32	1,218
Murray, 2,891—Calloway Keys-Houston Clinic Hosp. Gen	Part		30	25	3	14	11	418
Wm. Mason Memorial Hospital° .....	Gen	NPAssn	..	100	6	New building		
Outwood,—Christian Veterans Admin. Facility TB	Vet		375	375	..	..	281	845
Owensboro, 22,765—Davies Owensboro City Hosp.*° Gen	City		80	80	13	197	51	2,224
Paducah, 33,541—McCracken Ewart Purcell Isolation Hospital .....	Unit of Riverside Hospital							
Illinois Central Hospital. Gen	NPAssn		100	95	2	1	37	1,975

## KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Riverside Hospital..... Gen	City		108	107	8	217	40	1,811
Paintsville, 2,411—Johnson Paintsville Hospital..... Gen	Corp		50	50	2	32	35	1,325
Paris, 6,204—Bourbon W. W. Massie Memorial Hospital° .....	Gen	City	55	51	4	74	24	707
Pewee Valley, 582—Oldham Pewee Valley Sanitarium and Hospital..... Gen	NPAssn		35	35	3	12	16	218
Pikeville, 3,376—Pike Methodist Hospital..... Gen	Church		50	50	5	47	26	1,335
Pineville, 3,567—Bell Pineville Community Hosp. Gen	Corp		25	25	2	22	17	660
Richmond, 6,495—Madison Gibson Hospital .....	Gen	Indiv	15	15	2	10	7	200
Pattie A. Clay Infirmary Gen	NPAssn		40	42	4	39	25	988
U. S. Public Health Service Trachoma Hospital Trach	FedState		38	38	..	..	24	289
Shelbyville, 4,033—Shelby Kings Daughters Hosp.. Gen	NPAssn		25	28	8	54	12	607
Somerset, 5,506—Pulaski Somerset General Hosp.. Gen	Corp		..	16	2	No data supplied		
Versailles, 2,244—Woodford Woodford Memorial Hosp. Gen	CyCo		20	25	4	72	12	407
Waverly Hills,—Jefferson Waverly Hills Sanat.*° TB	CyCo		500	520	..	..	504	450
Winchester, 8,233—Clark Clark County Hospital... Gen	NPAssn		35	35	4	47	4	625
Guerrant Clinic and Hosp. Gen	NPAssn		..	20	3	No data supplied		

## Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Gen	Indiv		..	12	2	No data supplied		
Fleming Hospital..... Indus	Corp		25	25	..	6	7	402
Florence, 450—Boone Highway Medical Hospital Gen	Indiv		..	20	2	No data supplied		
Frankfort, 11,626—Franklin Kentucky State Reformatory Hospital..... Inst	State		..	107	..	..	15	1,800
State Institution for the Feeble-minded .....	McDe		..	874	..	..	862	57
Fulton, 3,502—Fulton Fulton Hospital..... Gen	Corp		10	10	1	20	4	250
Grayson, 1,022—Carter J. Q. Stovall Memorial Hospital .....	Gen	Corp	23	20	1	14	6	256
Guerrant, 27—Breathitt Highland Institution Hosp. Gen	Church		10	10	1	1	1	154
Hopkinsville, 10,746—Christian Western State Hospital.. Ment	State		1,941	1,941	..	..	1,964	670
Lakeland, 55—Jefferson Central State Hospital... Ment	State		1,800	2,443	..	..	2,369	546
Lexington, 45,736—Fayette Eastern State Hospital.. Ment	State		..	1,875	..	No data supplied		
Louisville, 307,745—Jefferson Kings Daughters Home for Incurables .....	Ine	NPAssn	96	96	..	..	89	13
Susan Speed Davis Home and Hospital..... MatCh	Church		..	49	6	71	..	90
Princeton, 4,764—Caldwell Princeton Hospital..... Gen	NPAssn		..	12	2	41	6	320
Shelbyville, 4,033—Shelby Old Masons' Home of Kentucky Hospital..... Inst	Frat		18	18	..	..	5	24
Smiths Grove, 718—Warren Luey T. Owen Hospital... Gen	Indiv		..	12	1	No data supplied		

## Summary for Kentucky:

	Number	Beds	Average Patients	Admitted
Hospitals and sanatoriums...	81	7,602	4,970	98,411
Related institutions.....	16	7,464	7,248	5,590
Totals.....	97	15,086	12,218	104,001
Refused registration.....	12	196		

## LOUISIANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Alexandria, 23,025—Rapides Baptist Hospital..... Gen	Church		60	50	9	180	28	1,700
Veterans Admin. Facility Vet	Vet		465	465	..	..	354	1,768
Barksdale Field,—Bossier Station Hospital..... Gen	Army		76	150	2	55	116	2,152
Bastrop, 5,121—Morehouse Bastrop General Hospital Gen	Indiv		25	22	4	25	5	326
Baton Rouge, 30,729—East Baton Rouge Baton Rouge Gen. Hosp. Gen	NPAssn		75	69	6	197	38	1,570
Our Lady of the Lake Sanitarium° .....	Gen	Church	125	100	14	330	63	3,208
Bogalusa, 14,029—Washington Elizabeth Sullivan Memorial Hospital° .....	Gen	Corp	96	82	12	272	81	4,004
Carville, 308—Theriville U. S. Marine Hospital.... Lepro	USPHS		454	454	..	..	372	61
Converse, 291—Sabine Allen Sanitarium..... Gen	Indiv		26	26	11	57	8	781

## FLORIDA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
St. Petersburg, 40,425—Pinellas								
City Hospital (Mercy Hos- pital-col.) .....	Gen	City	20	29	4	8	17	227
City Hospital (Mound)	Gen	Church	90	70	15	211	61	3,678
	Gen		50	50	10	101	21	884
	Gen	NPAssn	20	20	6	81	10	517
	Gen	Indiv	15	12	3	15	2	161
Sarasota Hospital .....	Gen	City	60	40	10	67	13	761
Schlag, 2,012—Hillslands								
Sebring General Hospital.	Gen	Indiv	10	10	2	11	6	255
Dr. Weems' Hospital.....	Gen	Indiv	..	13	2	56	4	271
	Gen	Indiv	21	20	5	73	15	592
	Gen	Frat	..	70	7	..	47	..
	Gen	Indiv	30	30	10	103	21	826
St. Joseph's Hospital....	Gen	Church	60	60	12	88	13	847
Tampa Municipal Hosp.*o Gen		City	300	189	25	710	117	5,493
Tampa Negro Hospital....	Gen	City	..	30	3	47	16	486
Umatilla, 907—Lake								
Harry Anna Crippled Chil- dren's Home .....	Orth	Frat	50	50	..	..	43	174
Lake County Medical Cen- ter .....	Gen	NPAssn	70	35	6	89	19	748
West Palm Beach, 26,610—Palm Beach								
Good Samaritan Hosp.o Gen		NPAssn	..	100	14	256	29	2,455
Pine Ridge Hospital (col.)	Gen	NPAssn	..	27	5	3	25	482
Related Institutions								
Daytona Beach, 16,598—Volusia								
Daytona Beach Sanit... Gen		Indiv	50	29	2	15	5	120
Gainesville, 10,465—Alachua								
Florida Farm Colony for Epileptic and Feeble- minded .....	McDe	State	475	335	..	..	509	32
University of Florida In- firmery .....	Gen	State	45	45	..	..	14	1,033
Homesland, 2,339—Dade								
Post Graduate Hospital.. Gen		Indiv	..	15	2	45	2	193
Jacksonville, 129,549—Duval								
Hope Haven .....	Orth	NPAssn	21	21	..	..	..	...
Kissimmee, 3,162—Osceola								
Osceola Hospital .....	Gen	Indiv	25	25	5	49	12	412
Largo, 1,429—Pinellas								
Pinellas County Home... TB	County		..	21	..	..	19	11
Leesburg, 4,113—Lake								
Theresa Holland Hospital Gen		Indiv	25	22	8	81	11	601
Miami, 110,637—Dade								
Christian Hospital (col.) Gen		NPAssn	25	25	4	86	14	590
Edgewater Hospital ..... Gen		Indiv	30	30	6	51	8	543
Orange Park, 601—Clay								
Mooshaven Hospital ... Inst		Frat	..	26	..	..	14	84
Palatka, 6,500—Putnam								
Glenado Hospital..... Gen		Indiv	..	20	1	No data supplied	..	..
Mary Lawson Sanat. (col.) Gen		Indiv	50	50	6	12	5	96
Railford, 460—Union								
Florida State Farm Hosp. Inst		State	..	43	..	..	25	586
St. Petersburg, 10,000—Polk								
	Orth	NPAssn	32	32	..	..	20	182
	Conv	Indiv	25	25	..	..	9	115
Fluorence Crittenton Home Mat		NPAssn	18	18	3	12	12	31
Stuart, 1,924—Martin								
St. Lucie Sanitarium.... Gen		County	10	10	3	12	4	158
Tallahassee, 10,700—Leon								
Florida Agricultural and Mechanical College Hos- pital. (col.)o .....	GenInst	State	45	43	2	12	25	638
Tampa, 101,161—Hillsborough								
Hillsboro County Tubercu- losis Sanatorium .... TB	County		84	84	..	..	82	107
Mills Hospital .....	N&M	Indiv	10	10	..	..	..	...
Pine Heath Home for Tu- bercular Children..... Chil		NPAssn	28	24	..	..	12	42
Vero Beach, 2,208—Indian River								
Indiana River Hospital.... Gen		Indiv	15	15	5	28	5	262
Summary for Florida:								
Hospitals and sanatoriums...		Number	67	8,454		Average Patients	6,618	Patients Admitted 79,416
Related institutions.....			23	1,167			857	6,307
Totals.....			90	9,621		7,455		85,723
Refused registration.....			13	593				

## GEORGIA

Hospitals and Sanatoriums	Type of Service	Owned or Controlled	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Allan, 14,507—Dougherty Phoebe Putney Memorial Hospital .....	Gen	NPAssn	50	44	7	100	21	1,069
Alto, 219—Habersham State Tuberculosis Sanatorium .....	TB	State	344	344	..	..	304	535
Americus, 8,760—Sumter Americus and Sumter County Hospital .....	Gen	NPAssn	17	34	4	37	11	498

**GEORGIA—Continued**

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Athens, 13,192—Clarke								
Athens General Hospital, Gen		County	55	55	8	81	27	1,124
Fuhrhagen Tuberculosis Sanatorium	TB	NP Assn	..	36	..	..	15	32
Atlanta, 360,691—Fulton								
Albert Steiner Clinic for Cancer and Allied Diseases†		City	..	30	..	..	25	..
Battle Hill Sanatorium	TB	CyCo	233	233	..	..	250	119
Blackman Sanatorium	Gen	Indiv	..	25	..	No data supplied		
Crawford W. Long Memorial Hospital	Gen	NP Assn	210	150	15	485	95	3,854
Georgian Baptist Hosp.*	Gen	Church	164	164	30	724	144	6,648
Grady Hospital**	Gen	City	335	275	60	1,405	244	10,571
Grady Hosp., Emory University Division (col.)**	Gen	City	252	242	36	1,633	209	9,589
Hennetta Eggleston Hospital for Children**	Chil	NP Assn	50	40	2	62	31	1,036
Piedmont Hospital**	Gen	Corp	135	120	15	238	77	3,260
St. Joseph Infirmary	Gen	Church	125	125	13	269	100	2,634
Veterans Admin. Facility	Gen	Vet	200	200	..	..	197	253
Augusta, 60,342—Richmond								
University Hospital**	Gen	City	230	300	23	589	230	8,060
Veterans Admin. Facility, Ment		Vet	1,020	1,020	..	..	1,018	471
Wilhelmsen Hospital for Women and Children	Gen	NP Assn	50	50	4	39	13	1,803
Bainbridge, 6,141—Deerhurst								
Bainbridge Hospital	Surg	Indiv	32	32	1	16	11	518
Riverside Hospital	Part	Corp	30	30	4	45	14	439
Brunswick, 14,022—Glynn								
Brunswick City Hospital	Gen	CyCo	..	75	6	..	20	..
Calro, 3,169—Grady								
Calro Hospital	Gen	Indiv	20	25	4	54	7	487
Canton, 2,892—Cherokee								
Cokers' Hospital	Gen	Corp	50	32	4	24	15	700
Codartown, 8,124—Polk								
Hall-Chaudron Hospital	Gen	Indiv	10	8	2	16	5	155
Columbus, 43,131—Muscogee								
Columbus City Hospital	Gen	CyCo	200	175	25	236	81	3,170
Cuthbert, 2,235—Randolph								
Patterson Hospital	Gen	Indiv	..	30	3	17	12	614
Dalton, 8,150—Whitfield								
Hamilton Memorial Hosp.	Gen	NP Assn	50	25	4	73	11	676
Decatur, 13,276—De Kalb								
Scottish Rite Hospital for Crippled Children	Orth	Frat	60	64	..	..	59	321
Donalsonville, 1,183—Seminole								
Chason's Hospital	Gen	NP Assn	50	20	5	00	10	360
Douglas, 4,206—Coffee								
Douglas Hospital	Gen	City	25	21	2	6	8	450
Dublin, 6,631—Laurens								
Claxton Sanitarium	Gen	Indiv	35	35	3	34	23	1,702
Hicks Hospital	Gen	Indiv	25	25	1	4	15	672
Eastman, 3,022—Dodge								
Coleman Sanatorium	Gen	Indiv	..	23	4	8	10	465
Elberton, 4,650—Elbert								
Elbert County Hospital	Gen	CyCo	..	20	3	23	4	338
Emory University,—De Kalb								
Emory University Hospital**	Gen	NP Assn	500	190	16	363	115	4,001
Fitzgerald, 6,412—Ben Hill								
Fitzgerald Hospital	Gen	Corp	..	30	4	No data supplied		
Ft. Benning,—Chattahoochee								
Station Hospital	Gen	Army	442	442	0	132	212	4,943
Ft. McPherson (Atlanta P. O.), 150—								
Station Hospital	Gen	Army	250	226	4	20	149	2,718
Ft. Oglethorpe, 1,186—Catoosa								
Station Hospital	Gen	Army	202	202	..	..	129	2,927
Ft. Screven, 17—Chatham								
Station Hospital	Gen	Army	60	56	..	..	36	871
Gainesville, 3,624—Hall								
Downey Hospital	Gen	Corp	50	52	6	71	29	1,323
Griffin, 10,321—Spalding								
R. F. Strickland and Son Memorial Hospital	Gen	Indiv	42	46	5	51	18	805
Homerville, 1,150—Clinch								
Huey Hospital	Gen	Indiv	10	10	1	12	6	303
Hoselton, 427—Jackson								
Allen Clinic and Hospital	Gen	Part	12	11	2	7	2	122
Jesup, 2,303—Wayne								
Drs. Colvin-Ritch Sanit.	Gen	Part	24	24	3	39	10	462
La Grange, 20,131—Group								
Dunson Hospital	Gen	City	35	34	6	102	17	1,006
Macon, 64,045—Bibb								
Clinic Hospital	Gen	Corp	..	22	2	26	12	819
Hopewell Sanatorium	TB	CyCo	..	27	..	..	22	55
Macon Hospital	Gen	CyCo	175	178	24	563	144	4,622
Middle Georgia Hospital	Gen	Corp	50	50	8	123	23	1,560
Oglethorpe Private Infirmary								
St. Luke Hospital (col.)	Gen	Corp	35	35	6	64	18	974
Marietta, 7,633—Cobb		Indiv	13	12	1	16	3	142
Marietta Hospital								
Metter, 1,424—Candler		Corp	..	30	3	32	7	337
Metter Sanitarium	Gen	Indiv	..	12	..	No data supplied		
Milledgeville, 5,534—Baldwin								
Allen's Invalid Home	N&M	Indiv	..	160	..	..	115	180
Baldwin Memorial Hosp.	Gen	Indiv	50	40	6	29	24	594
Milledgeville State Hosp.	Ment	State	5,500	7,000	..	..	6,654	1,774
Scott Hospital	Gen	Indiv	25	25	4	10	18	333

Key to symbols and abbreviations is on page 1060



## LOUISIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Coriagton, 3,308—St. Tammany								
New Fenwick Sanitarium N&M	Indiv		61	61	..	..	10	106
Crowley, 7,656—Acadia								
Crowley Sanitarium.....	Gen	NPAasn	18	18	4	40	10	015
.. Gen	Corp		..	16	2	20	2	127
.. Gen	Part		20	17	5	15	6	377
.. on Rouge								
.. TB	State		100	100	..	..	59	80
.. Gen	NPAasn		25	25	2	20	5	330
Houma, 6,531—Terrebonne								
Ellender Memorial Hosp..	Gen	Part	16	16	4	38	12	467
Jackson, 3,966—East Feliciana								
East Louisiana State								
Hospital .....	Ment	State	4,000	3,600	..	..	3,110	712
Parker Hospital.....	Unit of East Louisiana State Hospital							
Lafayette, 14,635—Lafayette								
Lafayette Sanitarium....	Gen	Corp	..	25	2	39	5	368
St. John Hospital.....	Gen	Indiv	..	25	2	18	14	1,230
Lake Charles, 15,791—Calcasieu								
St. Patrick's Hospital....	Gen	Church	75	75	7	181	26	2,253
Leconte, 1,247—Rapides								
Leconte Sanitarium....	Gen	Part	25	25	2	82	4	750
Mansfield, 3,837—De Soto								
Mansfield Sanitarium....	Gen	NPAasn	..	32	2	18	7	436
Minden, 5,623—Webster								
Minden Sanitarium.....	Gen	Corp	35	32	4	63	8	717
Monroe, 25,629—Ouachita								
Riverside Sanitarium....	Gen	Indiv	65	25	4	33	8	503
St. Francis' Sanitarium	Gen	Church	..	125	15	229	60	2,839
Vaughan-Wright-Dendel								
Clinic .....	Gen	Part	37	29	8	62	22	811
New Iberia, 5,003—Iberia								
Dauterive Hospital.....	Gen	Indiv	25	20	4	61	8	617
Iberia General Hospital.	Gen	Indiv	30	18	4	22	6	434
New Orleans, 438,762—Orleans								
Charity Hospital*.....	Gen	State	1,756	1,586	69	3,878	2,889	65,809
City Hospital for Mental								
Diseases .....	Ment	City	100	100	..	..	77	512
Delgado Memorial Hosp..	Unit of Charity Hospital							
De Paul Sanitarium.....	N&M	Church	230	230	..	..	..	351
Eye, Ear, Nose and Throat								
Hospital* .....	EXT	NPAasn	70	70	..	..	31	9,774
Flint Goodridge Hosp. of								
Dillard University (col.)*	Gen	NPAasn	100	88	12	181	28	1,498
French Hospital.....	Gen	Frnt	..	62	13	122	12	919
Hotel Dieu, Sisters' Hos-								
pital* .....	Gen	Church	250	232	25	547	169	8,283
Illinois Central Hospital	Indus	NPAasn	60	60	..	..	28	882
John Dibert Memorial Tu-								
berculosis Hospital.....	Unit of Charity Hospital							
Mercy Hospital-Soniat Me-								
morial* .....	Gen	Church	118	125	25	249	70	2,721
New Orleans Hospital and								
Dispensary for Women								
and Children .....	Gen	NPAasn	34	34	12	358	27	843
Richard Milliken Memorial								
Hospital .....	Unit of Charity Hospital							
Southern Baptist Hosp.*	Gen	Church	200	198	24	541	130	8,672
Touro Infirmary*.....	Gen	NPAasn	322	322	44	505	259	10,050
U. S. Marine Hospital*..	Gen	USPHS	572	572	..	..	428	4,630
Opelousas, 6,299—St. Landry								
St. Rita's Infirmary.....	Gen	Part	20	20	..	..	No data supplied	
Pineville, 3,612—Rapides								
Central Louisiana State								
Hospital .....	Ment	State	1,600	1,975	..	..	2,000	673
Plaquemine, 5,124—Iberville								
Plaquemine Sanitarium...	Gen	Corp	25	25	7	49	9	1,120
Ruston, 4,400—Lincoln								
Ruston-Lincoln Sanit....	Gen	NPAasn	30	25	2	37	5	258
Shreveport, 76,635—Caddo								
Gowea Sanatorium.....	TB	Indiv	18	18	..	..	12	54
Highland Sanitarium*...	Gen	Corp	100	100	8	205	60	3,002
North Louisiana Sanit.*	Gen	Corp	100	100	10	167	52	2,224
Pines Sanatorium .....	TB	NPAasn	..	100	..	..	68	135
T. E. Schumpert Memo-								
rial Sanitarium*.....	Gen	Church	150	150	12	233	75	3,859
Shreveport Charity Hos-								
pital* .....	Gen	State	800	800	40	1,689	655	22,891
Shriners Hospital for								
Crippled Children*.....	Orth	Frat	60	60	..	..	60	263
Tri-State Hospital*.....	Gen	Corp	100	100	10	210	70	3,356
Winnboro, 1,955—Franklin								
Rogers Clinic.....	Gen	Indiv	12	12	1	22	6	250
Related Institutions								
Alexandria, 23,025—Rapides								
State Colony and Train-								
ing School.....	MeDe	State	450	875	..	..	730	170
Agola, 18—West Feliciana								
Louisiana State Penite-								
tiary Hospital.....	Inst	State	..	35	..	..	No data supplied	
Breaux Bridge, 1,399—Saint Martin								
St. Paul Hospital.....	Gen	Indiv	10	10	1	4	2	127
Elizabeth, 3,000—Allen								
Industrial Lumber Com-								
pany Hospital.....	Indus	NPAasn	..	35	2	..	3	...
Eunice, 3,597—St. Landry								
Eunice Clinic and Hosp..	Gen	Corp	18	18	1	..	5	...

## LOUISIANA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
New Orleans, 458,762—Orleans								
New Orleans Convalescent								
Homa .....	Conv	NPAasn	30	30	..	..	18	274
Orleans Tuberculosis Hosp. TB		NPAasn	..	100	..	..	41	104
Opelousas, 6,299—St. Landry								
St. Landry Sanitarium...	Gen	Indiv	15	15	1	36	5	685
Winnboro, 1,065—Franklin								
Winnboro Sanitarium....	Gen	Corp	..	25	1	No data supplied		
Summary for Louisiana:								
Hospitals and sanatoriums...		Number	Beds	Average Patients	Admitted			
Related institutions.....		54	13,153	12,283	181,814			
Totals.....		10	993	780	1,818			
Refused registration.....		64	14,146	13,063	183,632			
		2	20					

## MAINE

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Augusta, 17,198—Kennebec								
Augusta General Hosp.*	Gen	NPAasn	80	80	15	150	39	1,208
Augusta State Hospital..	Ment	State	970	1,444	..	..	1,446	296
Bangor, 23,749—Penobscot								
Bangor Sanatorium.....	TB	NPAasn	30	30	..	..	19	26
Bangor State Hospital...	Ment	State	890	1,068	..	..	1,063	327
Eastern Maine General								
Hospital* .....	Gen	NPAasn	159	159	14	78	158	4,119
Palmo Private Hospital..	Gen	Indiv	25	25	5	5	11	225
Bar Harbor, 4,486—Hancock								
Mount Desert Island Hosp.	Gen	NPAasn	35	35	6	29	22	776
Bath, 6,110—Sagadahoc								
Bath Memorial Hospital*	Gen	NPAasn	50	50	10	90	28	705
Belfast, 4,993—Waldo								
Bradbury Memorial Hosp.	Gen	NPAasn	15	15	5	3	7	126
Waldo County General								
Hospital* .....	Gen	NPAasn	37	32	5	40	21	518
Blue Hill Memorial Hosp.	Gen	NPAasn	25	25	8	39	11	251
Boothbay Harbor, 2,076—Lincoln								
St. Andrews Hospital...	Gen	Corp	20	20	4	7	3	117
Brunswick, 6,144—Cumberland								
Brunswick Hospital*.....	Gen	Indiv	52	46	6	38	22	575
Calais, 5,470—Washington								
Calais Hospital*.....	Gen	Indiv	52	52	5	69	30	888
en								
en	Army		62	62	..	..	48	2,117
Cary Memorial Hospital*	Gen	City	40	40	10	72	21	587
Castine, 726—Hancock								
Castine Community Hosp.	Gen	NPAasn	..	12	6	No data supplied		
Ellsworth, 3,557—Hancock								
Hurley Private Hospital.	Gen	Corp	12	12	5	22	5	230
Fairfield, 3,529—Somerset								
Central Maine Sanatorium	TB	State	186	186	..	..	180	185
en								
en	NPAasn		50	49	10	69	19	589
en	Corp		18	18	6	32	7	401
Gardiner, 5,609—Kennebec								
Gardiner General Hospital	Gen	NPAasn	40	40	12	206	24	914
Greenville Junction, 345—Piscataquis								
Charles A. Dean Hospital	Gen	NPAasn	23	23	5	31	10	396
Greenwood Mountain,—Oxford								
Western Maine Sanat.*..	TB	State	150	150	..	..	142	186
Houlton, 6,865—Aroostook								
Aroostook Hospital*.....	Gen	Corp	40	40	10	102	27	1,044
Madigan Memorial Hosp.*	Gen	Church	..	33	7	78	23	894
Lewiston, 34,945—Androscoggin								
Central Maine Gen. Hosp.*	Gen	NPAasn	182	182	23	475	172	3,706
St. Mary's Gen. Hosp.*	Gen	Church	150	150	12	175	93	2,818
Portland, 70,810—Cumberland								
Children's Hospital*.....	Chil	NPAasn	100	100	..	..	59	464
Farrington Hospital.....	Gen	City	150	190	16	230	160	1,833
Dr. Leighton's Private								
Hospital .....	GynOb	Indiv	14	14	12	88	9	338
Maine Eye and Ear Infir-								
mary* .....	Gen	NPAasn	100	100	20	285	89	2,530
Maine General Hosp.*...	Gen	NPAasn	..	264	27	496	186	5,472
Queen's Hospital*.....	Gen	Church	..	48	12	78	32	577
St. Barnabas Hospital*..	Gen	Indiv	..	75	15	88	52	1,206
State Street Hospital*...	Gen	Corp	50	50	12	76	43	1,103
U. S. Marine Hospital...	Gen	USPHS	72	72	..	..	52	433
Presque Isle, 4,662—Aroostook								
Northern Maine Sanat.*	TB	State	..	119	..	..	114	107
Presque Isle Gen. Hosp.	Gen	NPAasn	50	50	10	108	29	1,059
Quoddy (Eastport P.O.)—Washington								
Quoddy Hospital .....	Gen	Fed	..	20	..	..	7	278
Rockland, 9,075—Knox								
Knox County Gen. Hosp.*	Gen	NPAasn	100	66	7	95	33	866
Rumford, 10,340—Oxford								
Rumford Community Hos-								
pital* .....	Gen	Corp	75	55	8	162	33	1,161
Sanford, 13,392—York								
Henrietta D. Goodall Hosp.	Gen	NPAasn	50	50	8	80	27	955

## GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Millen, 2,527—Jenkins								
Millen Hospital.....	Gen	Indiv	26	22	4	10	8	497
Mulkey Hospital.....	Gen	Indiv	20	18	2	10	7	375
Monroe, 3,706—Walton								
Walton County Hospital	Gen	NPAasn	..	17	4	11	4	233
Montezuma, 2,284—Macon								
Macon County Clinic.....	Gen	Part	25	16	3	17	6	255
Newnan, 6,386—Coveta								
Newnan Hospital.....	Gen	NPAasn	..	25	6	31	10	481
Rome, 21,843—Floyd								
Rome Hospital.....	Gen	Part	..	50	6	85	25	...
McCall Hospital.....	Gen	Corp	60	60	10	116	21	1,606
Sandersville, 3,011—Washington								
Rawlings Sanitarium.....	Gen	Corp	..	50	7	40	20	1,064
Savannah, 83,024—Chatham								
Central of Georgia Rail- way Hospital.....	Indus	NPAasn	62	62	..	..	58	2,103
Charity Hospital (col.)...	Gen	NPAasn	75	43	12	264	35	2,302
Georgia Infirmary (col.)...	Gen	NPAasn	..	60	6	229	55	1,829
Oglethorpe Sanatorium....	Gen	Indiv	68	60	8	106	29	1,250
St. Joseph Hospital.....	Gen	Church	100	100	10	185	45	1,506
Telfair Hospital.....	Gen	NPAasn	65	65	16	334	65	2,959
U. S. Marine Hospital.....	Gen	USPHS	150	200	..	..	176	1,635
Warren A. Candler Hos- pital.....	Gen	Church	70	72	11	197	44	1,979
Smyrna, 1,178—Cobb								
Dr. Branner's Sanitarium N&M		Indiv	40	40	..	..	30	306
Statesboro, 3,996—Bulloch								
Bulloch County Hospital	Gen	County	42	42	6	..	..	Estab. 1936
Van Buren's Sanitarium (col.).....	Gen	Indiv	..	25	4	..	..	No data supplied
Swainsboro, 2,442—Emanuel								
Franklin Hospital.....	Gen	Indiv	30	25	2	16	6	286
Tate, 1,548—Pickens								
Robinson Hospital.....	Gen	Indiv	12	15	2	8	6	215
Thomaston, 4,922—Upson								
Blackburn Hospital.....	Gen	Indiv	14	11	2	3	1	91
Thomasville, 11,733—Thomas								
John D. Archbold Mem- orial Hospital.....	Gen	NPAasn	117	117	15	75	41	1,837
Tifton, 3,390—Tift								
Coastal Plain Hospital... Gen		Corp	..	25	3	18	6	300
Trion, 3,289—Chattooga								
Rice's Hospital.....	Gen	Indiv	25	25	5	78	15	927
Valdosta, 13,482—Lowndes								
Frank Bird Hospital.....	Gen	Indiv	..	22	4	25	11	550
Little-Griffin Private Hosp.	Gen	Corp	..	45	5	84	21	1,011
Washington, 3,158—Wilkes								
Washington General Hosp.	Gen	NPAasn	40	30	2	37	11	528
Waycross, 15,610—Ware								
Atlantic Coast Line Hos- pital.....	Indus	NPAasn	75	75	..	..	36	1,098
Ware County Hospital.... Gen		County	76	68	8	101	42	1,909
Related Institutions								
Athens, 18,192—Clarke								
St. Mary's Hospital.....	Gen	Corp	..	55	4	40	12	641
Atlanta, 360,691—Fulton								
Atlanta Hospital.....	Gen	Indiv	20	20	4	5	6	240
Dwelle Nursing Home (col.)	Gen	Indiv	15	30	2	..	..	Estab. 1936
Florence Crittenton Home	Mat	NPAasn	..	25	15	39	32	49
Georgia Sanitarium.....	Gen	Indiv	10	8	2	..	2	36
U. S. Penitentiary Hosp...	Inst	Fed	..	187	..	..	122	1,051
Venerable Hosp. and Clinic	Ven	City	..	69	..	..	21	482
William A. Harris Mem- orial Hospital (col.).....	Gen	Indiv	..	13	2	10	8	360
Barwick, 499—Brooks								
Sanchez Private Sanit... Gen		Indiv	15	15	2	12	8	650
Ocdartown, 8,124—Polk								
Ocdartown Hospital.....	Gen	Indiv	12	10	3	36	5	204
Whitely Hospital.....	Gen	Indiv	10	10	2	..	1	143
Columbus, 43,131—Muscooke								
Muscooke County Tuber- culosis Sanatorium.....	TB	County	35	35	..	..	20	27
Cordele, 6,880—Crisp								
Cordele Sanatorium.....	Gen	Corp	16	16	..	9	5	185
Gillespie Hospital (col.)... Gen		Church	..	14	2	..	..	No data supplied
Decatur, 13,276—De Kalb								
Georgia Psychoanalytical Health Farm.....	N&M	Indiv	15	12	..	..	10	45
Gracewood, 500—Richmond								
Georgia Training School for Mental Defectives... MeDe		State	350	262	..	..	244	27
.....		State	75	75	..	..	..	No data supplied
Moultrie, 8,027—Colquitt								
Daniel Emergency Sanit. Gen		Indiv	11	11	3	12	2	450
Edmondson-Brannen Hosp. Gen		Part	..	12	2	..	..	No data supplied
Summerville, 933—Chattooga								
Summerville-Trion Hosp... Gen		Corp	22	22	3	25	5	296
Warm Springs, 400—Meriwether								
Georgia Warm Springs Foundation.....	Ortb	NPAasn	113	113	..	..	87	236
Summary for Georgia:								
Hospitals and sanatoriums...		Number	Beds	Average Patients	Patients Admitted			
Related institutions.....		21	14,479	11,940	127,107			
Totals.....		108	15,433	12,582	132,416			
Refused registration.....		2	36					

## IDAHO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
American Falls, 1,280—Power								
Schultz Memorial Hospital	Gen	County	14	22	4	92	12	678
Boise, 21,544—Ada								
St. Alphonsus Hospital.....	Gen	Church	125	140	14	244	67	2,497
St. Luke's Hospital.....	Gen	Church	115	100	16	472	82	4,165
Veterans Admin. Facility	Vet		302	302	..	..	185	1,238
Bonniers Ferry, 1,418—Boudary								
Bonniers Ferry Hospital... Gen		Corp	30	25	4	68	8	260
Coeur d'Alene, 8,297—Kootenai								
Coeur d'Alene Hospital... Gen		NPAasn	40	25	..	1	12	82
Lakeside Hospital.....	Gen	Indiv	..	18	4	..	..	No data supplied
Cottonwood, 519—Idaho								
-Our Lady of Consolation Hospital.....	Gen	Church	14	14	4	34	8	356
Ft. Hall, 100—Bingham								
Ft. Hall Indian Agency Hospital.....	Gen	IA	14	14	4	42	12	343
Gooding, 1,592—Gooding								
Gooding County Hospital	Gen	CyCo	..	18	6	..	..	No data supplied
Hailey, 973—Blaine								
Hailey Clinical Hospital... Gen		Indiv	20	20	5	12	8	344
Idaho Falls, 9,420—Bonnerville								
Idaho Falls Latter-Day Saint's Hospital.....	Gen	Church	100	87	13	456	57	2,893
Spencer Hospital.....	Gen	Corp	26	26	6	58	10	632
Kellogg, 4,124—Shoshone								
Wardner Hospital.....	Gen	Part	30	30	5	50	15	897
Lapwai, 416—Nez Perce								
Ft. Lapwai Sanatorium... TB		IA	132	132	..	..	116	209
Lewiston, 9,403—Nez Perce								
St. Joseph's Hospital.....	Gen	Church	..	97	12	250	65	1,902
White Hospital.....	Gen	Corp	..	32	8	43	14	457
Moscow, 4,476—Latah								
Griffin Private Hosp... Gen		Indiv	..	37	7	73	20	694
Nampa, 8,206—Canyon								
Mersey Hospital.....	Gen	Church	45	45	10	146	26	812
Nazarene Missionary San- itarium and Institute... Gen		Church	44	44	6	58	38	1,423
Orofino, 1,078—Clearwater								
Orofino Hospital.....	Gen	Part	30	30	4	19	27	583
Pocatello, 16,471—Bannock								
Pocatello General Hosp... Gen		County	..	45	15	306	40	1,661
St. Anthony Mercy Hosp... Gen		Church	50	50	12	272	38	1,373
Potlatch, 800—Latah								
Potlatch Hospital.....	Gen	Part	..	21	3	24	10	410
Preston, 3,381—Franklin								
General Memorial Hosp. Gen		Corp	15	15	4	93	9	606
Rexburg, 3,048—Madison								
Rexburg General Hospital	Gen	Indiv	10	10	3	33	3	188
Rupert, 2,250—Minidoka								
Rupert General Hospital... Gen		Indiv	20	15	2	4	7	184
St. Maries, 1,996—Beneviah								
St. Maries Hospital.....	Gen	Part	40	22	3	24	12	341
Sandpoint, 3,200—Bonner								
Page Hospital.....	Gen	Indiv	30	30	6	21	9	263
Soda Springs, 831—Caribou								
Caribou County Hospital	Gen	County	38	38	2	18	20	833
Twin Falls, 3,787—Twin Falls								
Twin Falls County Gen- eral Hospital.....	Gen	County	65	65	15	266	61	1,912
Wallace, 3,634—Shoshone								
Providence Hospital.....	Gen	Church	..	50	6	77	25	859
Wallace Hospital.....	Gen	Part	50	44	6	37	7	575
Wendell, 725—Gooding								
St. Valentine's Hospital... Gen		Church	25	23	6	94	9	327
Related Institutions								
Blackfoot, 3,199—Bingham								
Beck Hospital.....	Gen	Corp	7	7	2	17	4	264
State Hospital South... Ment		State	600	600	..	..	323	134
Boise, 21,544—Ada								
Salvation Army Women's Home and Hospital... Mat		Church	..	35	15	114	4	122
Malad City, 2,535—Oneida								
Community Hospital.....	Gen	NPAasn	10	8	4	75	5	392
Moscow, 4,476—Latah								
Inland Empire Hospital... Gen		Indiv	..	12	3	7	..	81
University of Idaho In- firmery.....	Inst	State	..	20	..	..	16	899
Nampa, 8,206—Canyon								
State School and Colony MeDe		State	385	537	..	..	513	42
Orofino, 1,078—Clearwater								
State Hospital North... Ment		State	300	405	..	..	392	85
Priest River, 949—Bonner								
Priest River Hospital... Gen		Indiv	..	10	..	1	2	73
Salmon, 1,371—Lemhi								
Salmon General Hospital... Gen		Part	..	9	3	..	..	No data supplied
Spirit Lake, 1,241—Kootenai								
Spirit Lake Hospital.....	Gen	Part	10	10	2	18	4	152
Summary for Idaho:								
Hospitals and sanatoriums...		Number	Beds	Average Patients	Patients Admitted			
Related institutions.....		12	1,694	1,065	31,228			
Totals.....		46	3,358	2,541	32,656			
Refused registration.....		2	54					

## MAINE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Skowhegan, 6,433—Somerset								
Kennebec Valley Hospital Gen	Indiv		37	37	5	21	15	387
Togus, 2,350—Kennebec								
Veterans Admin. Facility Gen	Vet		294	294	..	..	221	1,287
Waterville, 15,454—Kennebec								
Elm City Hospital <sup>o</sup> ..... Gen	Indiv		35	32	6	54	26	672
Sisters Hospital <sup>o</sup> ..... Gen	Church		100	90	10	103	42	2,515
Thayer Hospital..... Gen	Corp		83	32	4	52	19	870
Westbrook, 10,807—Cumberland								
Westbrook Hospital..... Gen	Corp		22	22	7	62	5	398
York Village, 800—York								
York Hospital..... Gen	NPAasn		..	20	7	86	6	285
Related Institutions								
Auburn, 18,571—Androscoggin								
Auburn Private Hospital Gen	Indiv		10	10	6	32	4	86
Bangor, 28,749—Penobscot								
Friendship Hospital..... Gen	Indiv		..	12	2	4	7	364
Gay Private Hospital..... N&M	Indiv		18	18	..	..	10	166
Stinson Private Hospital Gen	Indiv		18	18	12	124	10	..
Ber Mills, 500—York								
Buxton-Holls Hospital... Gen	Indiv		..	12	2	No data supplied		
Bridgton, 2,650—Cumberland								
Northern Cumberland Memorial Hospital..... Gen	NPAasn		5	5	4	21	2	61
Eagle Lake, 1,780—Aroostook								
Northern Maine General Hospital..... Gen	Church		..	42	..	..	40	742
East Parsonfield, 135—York								
Restland..... Conrv	Indiv		40	40	..	..	15	25
Lube, 1,500—Washington								
Metcalf Hospital..... Gen	Indiv		..	9	3	15	4	158
Millinocket, 5,830—Penobscot								
Bryant Hospital..... Gen	Indiv		7	7	5	39	4	191
Portland, 70,810—Cumberland								
Dr. C. P. Westcott Sanatorium "Shadow Lawn" Conrv	Indiv		..	14	..	No data supplied		
Pownal, 462—Cumberland								
Pownal State School.... McDe	State		820	820	..	..	794	39
Strong, 678—Franklin								
Dr. Bell's Private Hosp.. Surg	Indiv		..	15	2	14	5	234
Union, 1,000—Knox								
Jones Sanitarium..... N&M	Corp		30	30	..	..	16	8
Summary for Maine:								
		Number	Beds	Average Patients	Patients Admitted			
Hospitals and sanatoriums...		52	5,932	4,836	50,218			
Related institutions.....		14	1,064	825	2,625			
Totals.....		66	6,996	5,761	52,843			
Refused registration.....		6	116					

## MARYLAND

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Aberdeen Proving Ground, 215—Harford								
Station Hospital..... Gen	Army		12	12	..	..	3	127
Annapolis, 12,531—Anne Arundel								
Annapolis Emergency Hospital..... Gen	Corp		100	85	15	237	51	2,604
U. S. Naval Hospital..... Gen	Navy		224	224	..	..	80	1,990
Baltimore, 804,874—Baltimore City								
Baltimore City Hosps.*+ Gen	City		1,180	1,280	60	1,623	1,216	7,505
Baltimore City Psychopathic Hospital..... Unit of Baltimore City Hospitals								
Baltimore City Tuberculosis Hospital..... Unit of Baltimore City Hospitals								
Baltimore Eye, Ear and Throat Charity Hosp.*+ ENT	NPAasn		60	60	..	..	25	2,311
Bon Secours Hospital*+ Gen	Church		143	118	25	531	79	2,668
Children's Hospital School Orth	NPAasn		100	120	..	..	89	243
Church Home and Infirmary*+ Gen	Church		162	162	22	243	104	2,730
Franklin Square Hosp.*+ Gen	NPAasn		200	163	35	133	65	1,955
Good Shepherd General Hospital (col.)..... Gen	NPAasn		57	30	5	6	19	123
Gundry Sanitarium..... N&M	Indiv		45	45	..	..	25	37
Hospital for Women*+ Gen	NPAasn		111	104	24	404	80	2,110
Howard A. Kelly Hospital SkCa	Corp		..	27	..	..	5	169
James Lawrence Kernan Hospital and Industrial School for Crippled Children*+ Gen	Orth		80	80	..	..	70	178
Johns Hopkins Hosp.*+ Gen	NPAasn		909	833	72	1,174	624	14,401
Johnston Memorial Children's Hospital..... Unit of Union Memorial Hospital								
Maryland Gen. Hosp.*+ Gen	Church		239	239	21	316	185	4,318
Mercy Hospital*+ Gen	Church		..	255	25	363	120	5,992
Mt. Hope Retreat*+ N&M	Church		..	600	..	..	583	116
Phipps Psychiatric Clinic Unit of Johns Hopkins Hospital								
Presbyterian Eye, Ear and Throat Charity Hosp.. ENT	Church		40	40	..	..	9	2,297
Provident Hospital and Free Dispensary (col.)*+ Gen	NPAasn		120	124	9	149	100	2,055
St. Agnes' Hospital*+ Gen	Church		200	188	28	349	133	3,828
St. Joseph's Hospital*+ Gen	Church		290	255	35	593	170	4,977
Sinal Hospital*+ Gen	NPAasn		243	213	40	705	174	5,245

## MARYLAND—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
South Baltimore General Hospital*+ Gen	NPAasn		125	115	10	107	89	2,976
Sydenham Hospital..... Iso	City		110	110	..	..	72	1,636
.. .. Gen	NPAasn		336	307	24	358	217	5,633
.. .. Gen	USPHS		380	439	..	..	287	3,369
.. .. Gen	State		490	396	47	877	345	8,303
Volunteers of America Hospital..... Gen	NPAasn		..	32	14	432	31	1,332
West Baltimore General Hospital*+ Gen	Corp		165	165	35	328	83	2,751
Cambridge, 8,544—Dorchester								
Cambridge-Maryland Hospital..... Gen	NPAasn		80	65	15	209	30	1,160
Eastern Shore State Hosp. Ment	State		300	359	..	..	344	90
Catonsville, 7,647—Baltimore								
Harlem Lodge..... N&M	Indiv		..	35	..	..	23	61
Spring Grove State Hosp.*+ Ment	State		1,800	1,785	..	..	1,761	584
Crisfield, 3,850—Somerset								
Edward W. McCready Memorial Hospital..... Gen	NPAasn		35	35	5	39	15	452
Crownsville (Wentbury, P. O.),—Anne Arundel								
Crownsville State Hospital (col.)..... Ment	State		..	1,097	..	..	1,099	421
.. .. the								
Memorial Hospital..... Gen	Church		100	90	14	375	81	2,643
Easton, 4,692—Talbot								
Emergency Hospital..... Gen	NPAasn		100	80	19	196	54	2,001
Edgewood, 300—Harford								
Statioo Hospital..... Gen	Army		72	72	..	..	22	633
Elkton, 3,331—Ceell								
Union Hospital of Ceell County..... Gen	NPAasn		..	45	8	156	41	885
Ellieott City, 1,216—Howard								
Patapasco Manor Sanit... N&M	Corp		..	26	..	No data supplied		
Ft. George G. Meade,—Anne Arundel								
Station Hospital..... Gen	Army		71	87	4	16	59	1,722
Ft. Howard, 598—Baltimore								
Station Hospital..... Gen	Army		27	27	1	5	15	437
Ft. Washington, 415—Prince Georges								
Station Hospital..... Gen	Army		18	28	..	..	9	224
Frederick, 14,434—Frederick								
Emergency Hospital..... Gen	County		50	50	10	149	35	675
Frederick City Hospital*+ Gen	NPAasn		113	113	12	135	43	1,511
Frostburg, 5,588—Allegany								
Miners Hospital..... Gen	State		45	38	5	97	22	742
Hagerstown, 30,861—Washington								
Washington County Hospital..... Gen	NPAasn		146	171	24	200	100	2,909
Harford Memorial Hosp. Gen	NPAasn		40	42	8	52	37	820
Henryton, 27—Carroll								
Maryland Tuberculosis Sanatorium (col.)..... TB	State		206	206	..	..	206	200
Ijamsville, 72—Frederick								
Riggs Cottage Sanitarium N&M	Indiv		30	30	..	..	28	35
Laurel, 2,632—Prince Georges								
Laurel Sanitarium..... N&M	Corp		..	75	..	..	65	273
Mt. Wilson,—Baltimore								
Mt. Wilson Branch, Maryland Tuberculosis Sanat. TB	State		175	178	..	..	179	89
Olney, 83—Montgomery								
Montgomery County General Hospital..... Gen	NPAasn		40	40	8	129	84	1,341
Perry Point, 80—Ceell								
Veterans Admin. Facility Meot	Vet		1,015	1,096	..	..	1,000	154
Prince Frederick, 200—Chilver								
Calvert County Hospital. Gen	County		..	35	5	No data supplied		
Reisterstown, 1,635—Baltimore								
Mt. Pleasant..... TB	NPAasn		60	60	..	..	59	40
Relay, 2,016—Baltimore								
Relay Sanitarium..... N&M	Part		40	40	..	..	14	86
Rockville, 1,422—Montgomery								
Chestnut Lodge Sanit... N&M	Indiv		..	35	..	..	25	165
Salisbury, 10,977—Wicomico								
Maryland Tuberculosis Sanatorium, Eastern Shore Branch..... TB	State		..	55	..	..	37	16
Peninsula General Hosp.*+ Gen	NPAasn		85	60	16	192	77	2,285
State Sanatorium, 260—Frederick								
Maryland Tuberculosis Sanatorium..... TB	State		510	510	..	..	507	723
Sykesville, 661—Carroll								
Springfield State Hosp.*+ Ment	State		2,647	2,647	..	..	2,602	508
Towson, 2,074—Baltimore								
Alghur Manor..... Conrv	Indiv		..	25	..	..	16	50
Hosp. for Consumptives TB	NPAasn		190	190	..	..	191	264
Sheppard and Enoch Pratt Hospital*+ N&M	NPAasn		260	285	..	..	258	730
Related Institutions								
Baltimore, 804,874—Baltimore City								
Baltimore City Jail Hosp. Inst	City		..	35	..	..	16	464
Happy Hills Convalescent								
Home for Children..... Conrv	NPAasn		..	60	..	..	51	254
Home for Incurables..... Ioc	NPAasn		118	118	..	..	..	26
Maryland Penitentiary Hospital..... Inst	State		44	44	..	..	32	436
.. .. TB	NPAasn		26	24	..	..	..	29
Sylvan Retreat..... Ment	County		115	104	..	..	..	14

tolerance according to Rowe's galactose method<sup>13</sup> were done on all patients. In arriving at a diagnosis the history, physical examination, routine laboratory and special tests were all considered in the light of the generally accepted views concerning the changes produced in endocrine diseases. The more important of these are shown in table 1. In all, thirty-one cases have been studied. The usually accepted deviations of the special tests in endocrine disease are shown in table 1. The cases are presented with the results of examination classified according to the diagnosis in tables 2, 3, 4 and 5. The averages of the basal metabolic rate, the specific

TABLE 1.—Changes Produced by Endocrine Diseases					
Observations	Normal	Anterior Pituitary Dysfunction	Bllobar Pituitary Failure	Thyroid	Ovary
Basal metabolism, per cent	-10 +10	<<<	<<<	<<<<<	<
Specific dynamic action of protein	10-16%	<<<	<<<	N	N>
Galactose tolerance	40 Gin.	<<<<<	>>>>>	<>	<<<<<
Pulse.....	65	N<	N<	<<<	N>
Temperature.....	98.6	N<	N<	<<<	N or >
Respiration.....	17	N<	N<	<<<	N>
Blood pressure.....	120/80	N<	N<	<<<	<<<

TABLE 2.—Cases Showing Evidence of Primary Ovarian Disturbances					
Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams
F. N.	23	Regular periods, very profuse flow	-10	21	15 1° failure
J. E.	21	Periods usually regular, varying amount of flow	-1	12	30 1° failure
G. E.	29	Regular periods, profuse flow, slightly prolonged	-12	9	20 1° failure
F. M.	17	Irregular periods, sometimes normal profuse flow, often prolonged	-2	12	15 1° failure 10/15/35 2° failure 11/20/35
E. M.	35	Has never had regular periods; interval long or short, profuse prolonged flow	-3	13	30 2° failure
L. H.	20	Prolonged profuse periods of irregular interval, occasional normal regular period	-12	13	15 2° failure 9/16/36 1° failure 10/18/36 2° failure 11/ 1/36 2° failure 11/25/36
M. W.	37	Profuse, moderately prolonged periods, increased irregular interval	+8	13	30 2° failure
M. T.	44	Long intervals, profuse prolonged flow	+11	9	30 2° failure
Average	8	28.3	-2.6	12.8	23

dynamic action of protein and the galactose tolerance test for the groups and for the series are given in table 6.

COMMENT

The experimental data clearly show that primary and secondary ovarian failure are capable of producing the same endometrial lesions. The clinical correlation of symptoms and endometrium indicates that there is no single endometrial lesion always associated with a specific menstrual history, although there is a general tendency for certain symptoms to predominate in certain groups. We are not prepared to defend the accuracy or specificity of the tests in all instances. In some instances, undoubtedly, a case has been incorrectly classified, as the lines of division between the types are

not always clear. Admitting these weaknesses and the fact that as knowledge advances our conception of endocrine disease will materially change, we nevertheless believe that the clinical data, taken as a whole, strongly supports our experimental observations.

TABLE 3.—Cases Showing Evidence of Thyroid Hypofunction					
Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams
O. B.	30	Slightly irregular periods, profuse flow, normal duration	-8	10	35 1° failure
H. O.	33	Very long irregular periods, occasional scanty flow	-22	13	30 2° failure
I. S.	29	Profuse irregular flow, long periods, irregular increased interval	-23	15	45 2° failure
D. F.	36	Profuse periods 10-20 days duration, short intervals	-12	15	20 2° failure
M. D.	29	Scanty periods, occasionally irregular profuse periods, increased interval	-19	12	20 2° failure
O. S.	43	Periods of profuse flow up to 6 weeks	-19	14	35 2° failure (6 biopsies)
D. S.	25	Severe almost continual bleeding for 1 yr., very short intervals	-19	10	50 2° failure (4 biopsies)
M. B.	28	Profuse moderately prolonged periods, interval decreasing	-15	12	80 2° failure
Average	8	31.6	-17.1	12.6	39.4

TABLE 4.—Cases Showing Evidence of Anterior Pituitary Dysfunction					
Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams
E. J.	33	Profuse slightly prolonged periods, intervals normal	+0	1	25 1° failure
A. H. T.	35	Periods profuse, intervals usually normal	-3	0	25 1° failure 1/ 4/34 2° failure 1/15/36
W. D.	47	Profuse irregular prolonged periods	-13	0	25 2° failure 8/19/35 1° failure 9/ 4/35 1° failure 11/23/35
O. B.	20	Profuse, prolonged irregular periods; has over been regular	-11	2	15 2° failure
S. McO.	17	Profuse irregular periods, prolonged intervals; has never been regular	-1	4	10 2° failure
O. T.	27	Profuse irregular periods, "spots" at times; sometimes has normal flow	-6	6	20 2° failure
S. T.	40	Profuse prolonged period, long intervals, occasionally regular	-6	0	20 2° failure
J. E.	28	Scanty periods and long intervals following prolonged profuse periods	-12	6	35 3° failure
O. S.	27	Scanty periods long intervals, 4 years of decreasing amount of flow	-6	6	20 3° failure
A. Y.	46	Profuse periods at times; scanty flow generally increasing interval	-9	0	15 3° failure
Average	10	32	-6.7	2.5	21

Our clinical and experimental observations indicate the fallacies of present treatment. Serious discrepancies arise over the relative merits of the various treatments for the disorders of flow and interval. Some put their faith in thyroid, some in extracts of pregnancy urine and others in pituitary extracts or substance. All these

13. Rowe, A. W.: Sugar Tolerance as an Aid to Diagnosis, J. A. M. A. 89: 1403 (Oct. 22) 1927.

are good in a certain percentage of cases but fail in the majority of instances. Since evolving this conception of menstrual disorders we have treated, to the best of our knowledge, the primary focus of the disease. It is still too early to evaluate this treatment clearly but our clinical impression is one of a definitely improved therapy. Surgery, of course, has been necessary in some, and the results as usual are brilliant. It should be borne in mind that, no matter how brilliant the surgical result, it is at best a symptomatic cure. The glandular disturbance is not removed, and most active surgeons will find several instances among their patients in which the symptom has been surgically relieved but the endocrinopathy remains to invalid the patient.

TABLE 5.—Cases Showing Evidence of Bilobar Pituitary Failure

Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams	Biopsies
J. C. E.	23	Periods have never been regular, 3 wks. to 3 mos. apart, duration 6-10 days	-3	0	50	1* failure
M. P.	36	Prolonged profuse periods, prolonged irregular intervals	-11	6	40	2* failure (2 biopsies)
M. H.	45	Irregular, profuse and prolonged periods, short intervals	-15	0	50	2* failure
R. B.	26	Profuse moderately prolonged periods, irregular intervals	+1	4	50	2* failure (4 biopsies)
B. C.	49	Irregular, prolonged periods, scanty flow at times, interval variable	-15	6	60	2* failure (3 biopsies)
Average	36		-8.6	3.2	50	

TABLE 6.—Summary of Endocrine Cases Causing Menstrual Disorders

Observations	Anterior Pituitary Dysfunction	Bilobar Pituitary Failure	Thyroid Hypofunction	Ovarian Hypofunction	Average of All Cases
Basal metabolism.....	-6.7	-8.6	-17.1	-2.6	-8.6
Specific dynamic action of protein.....	2.5	3.2	12.6	12.8	7.8
Galactose tolerance.....	21 Gm.	50 Gm.	39.4 Gm.	23 Gm.	30 Gm.
Average age.....	32	36	31.6	28.3	31.9
Number of cases.....	10	5	5	5	31

CONCLUSION

We conclude that the disorders of menstrual interval and flow are the result of an ovarian underfunction. The severity of this underfunction is indicated by the state of the endometrium. The ovarian condition may be the result of a primary lesion in the ovary or may arise as a secondary manifestation to a lesion in other endocrine glands. Crude clinical methods are at hand for the determination of the type of endocrinopathy present. Intelligent treatment must consider these facts.

ABSTRACT OF DISCUSSION

DR. J. P. PRATT, Detroit: The title as stated is not entirely justified by the material offered, because menstrual disorders have not been classified in the paper. The authors have presented, however, an enumeration and correlation of some of the causes of menstrual disorders. The method of studying changes in the endometrium by repeated biopsies is a creditable contribution, but interpretation of the entire endometrium from a small fragment of tissue incurs certain difficulties. Bartelmez, who has studied the endometrium of uteri during menstruation,

concludes that the only characteristic of normal menstrual endometrium is bleeding. He finds in the same specimen areas of desquamation, regeneration, hemorrhage and progesterational hypertrophy. Biopsies taken on the first day of bleeding might not indicate, therefore, the true state or even the average of the whole endometrium. On the other hand, if a large number of specimens are available for comparison, they have at least a relative value. The postulate that, "since glandular cystic hyperplasia of the endometrium is the result of the prolonged secretion of estrogen, it cannot occur in patients whose ovaries contain active corpora lutea," may be questioned. It is well known that estrogenic substances are normally secreted by the ovary throughout the cycle. The source of this secretion is not only the granulosa cell but also the luteal cell. Furthermore, hyperplasia of the endometrium does occur in the presence of corpora lutea as well as in their absence. The microscopic appearance of such corpora lutea indicates a normal activity. May it be a question then of definition of hyperplasia of the endometrium? Only underfunction of the ovary has been mentioned as a cause of menstrual disorder. Is hyperfunction intentionally denied or implied? If so, how should one explain the increased flow associated with inflammations involving the ovaries? The quantitative changes in function have been well emphasized, which correctly implies that qualitative changes in ovarian secretion do not occur. It is true that different hormones have been isolated from the ovary, theelin and its derivatives and progesterin. The evidence so far presented indicates variation in quantity of these hormones and not their quality. While considering the influence of other glands on the uterus through the ovary, might it not be well also to consider a possible change in receptivity of the uterus? No doubt the ability of the endometrium to respond is conditioned by a number of agents. The study of menstrual disorders is complicated. The authors wisely claim no finality.

DR. E. C. HAMBLIN, Durham, N. C.: During the past two years my associates and I have studied 358 consecutive patients with functional bleeding. Clinical and laboratory data in these cases have been correlated. The responses to various forms of therapy have been considered. Specimens of endometrium from these cases available through biopsy, curettage and hysterectomy have been reviewed. In instances in which laparotomies have been necessary, the gross appearance and measurements of ovaries have been recorded and, where ovarian material has been available for microscopic studies, the entire material has been reviewed. Of these 358 patients, 172 were bleeding actively at the time the endometrial specimens were obtained. Of the latter, 146 were bleeding from an interval type of endometrium which showed no evidence of tissue shedding. In this group of cases, four general patterns of endometrium were observed: an atrophic or senile pattern, attributed to an anestrogonic or hypo-estrogonic phase, was observed in 38 cases; an early or midinterval pattern, not different histologically from the usual estrogenic phase, occurred in six cases; a pattern that showed moderate irregularity in gland size but without evidence of thickening or hypertrophy, attributed to an arrested estrogen phase, was found in thirty-four cases; actual endometrial hyperplasia of the classic type, attributed to a phase of prolonged estrogenic action, was observed in sixty-eight cases. Of the twenty-six cases in which bleeding occurred from endometrium in which there were progesterational glands, nine showed no evidence of tissue shedding, eight showed irregular and incomplete shedding and nine showed tissue loss characteristic of the normal menstruating endometrium. Patchy distribution of the progesterational glands characterized those instances in which no tissue loss was observed. In five cases there had occurred apparently a progesterational phase following a phase of estrogen arrest, while in four cases this progesterational reaction had followed a phase of prolonged estrogenic action. It is evident that functional bleeding occurs in the vast majority of instances from an estrogen type of endometrium. Only about 45 per cent of such cases showed the classic pattern of endometrial hyperplasia. We object to the term endometrial hyperplasia, especially when used to cover the various patterns of estrogen or interval endometrium associated with functional bleeding. Dr. Burch and his associates have essayed a difficult task in attempting to diagnose and classify menstrual disturbances, especially those cases in which the ovarian-endometrial disturbance is secondary to dysfunction in other endocrine glands, such as the pituitary and thyroid.



MARYLAND—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Jessup, 161—Anne Arundel								
Maryland House of Correction Hospital	Inst	State	50	50	..	..	30	705
Leonardtown, 607—St. Mary's								
St. Mary's County Hosp.	Gen	NPAAssn	35	32	6	54	7	257
Owings Mills, 215—Baltimore								
Rosewood State Training School	McDe	State	1,150	1,150	..	..	1,070	110
Summary for Maryland:			Number	Beds	Average Patients	Admitted		
Hospitals and sanatoriums...			66	17,052	14,622	122,686		
Related institutions.....			10	1,043	1,434	2,421		
Totals.....			76	18,695	16,056	125,107		
Refused registration.....			4	71				

MASSACHUSETTS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Acushnet (New Bedford P. O.), 4,092—Bristol								
Acushnet Hospital..... Gen	NPAAssn	..	25	6	..	19	..	..
Adams, 12,697—Berkshire								
W. B. Plunkett Memorial Hospital..... Gen	City	50	50	15	169	29	903	
Amesbury, 11,859—Essex								
Amesbury Hospital..... Gen	City	20	20	6	79	15	1,140	
Arlington, 36,091—Middlesex								
King Sanot. and Hosp. N&M	Corp	60	60	..	..	41	247	
Symmes Arlington Hosp. Gen	NPAAssn	109	80	18	218	41	1,614	
Attleboro, 21,769—Bristol								
Bristol County Tubercu- lois Hospital..... TB	County	60	60	..	..	57	87	
Sturdy Memorial Hosp. Gen	NPAAssn	125	102	23	312	51	1,629	
Ayer, 3,660—Middlesex								
Community Mem. Hosp. Gen	NPAAssn	22	22	7	76	11	239	
Bedford, 2,603—Middlesex								
Veterans Admin. Facility Ment	Vet	513	899	..	..	847	118	
Belmont, 21,748—Middlesex								
McLean Hospital+o..... N&M	NPAAssn	232	232	..	..	213	232	
Beverly, 25,066—Essex								
Beverly Hospital+o..... Gen	NPAAssn	121	121	20	235	101	3,578	
Boston, 761,185—Suffolk								
Adams Nervine..... Nerv	NPAAssn	..	36	..	..	20	..	
Beth Israel Hospital+o. Gen	NPAAssn	185	220	..	..	163	5,847	
Boston City Hospital+o. Gen	City	1,770	1,622	148	3,036	1,332	40,120	
Boston Floating Hosp.+o. Child	NPAAssn	50	50	..	..	35	1,280	
Boston Lying-in Hosp.+o. Mat	NPAAssn	223	223	224	2,601	118	3,223	
Boston Psychopathic Hos- pital..... Ment	State	109	110	..	..	81	2,059	
Boston State Hospital+o. Ment	State	2,116	2,531	..	..	2,237	961	
Carney Hospital+o..... Gen	Church	210	168	24	318	128	3,831	
Chauncy Home..... TB	NPAAssn	..	27	..	..	25	44	
Children's Hospital+o..... Child	NPAAssn	233	233	..	..	178	5,390	
Collis P. Huntington Me- morial Hospital+o..... SkCa	NPAAssn	25	25	..	..	12	1,411	
Diagnostic Hospital of the Boston Dispensary Gen	NPAAssn	20	20	..	..	14	747	
Emerson Hospital..... Gen	Corp	50	25	10	66	12	512	
Evangelical Booth Mater- nity Hosp. and Home. Ment	Church	75	75	75	464	52	756	
Faulkner Hospital+o..... Gen	NPAAssn	165	144	21	404	124	3,743	
Glenside Hospital..... N&M	Corp	..	85	..	..	85	216	
Greater Boston Bikur Cho- na Hospital..... Chr	NPAAssn	..	90	..	..	25	61	
Horley Private Hospital, Geu	Corp	..	62	21	234	32	1,189	
House of the Good Sa- maritao..... Card	NPAAssn	80	80	..	..	72	158	
Isaacs' Hospital..... Child	NPAAssn	..	50	..	..	..	..	
Long Island Hospital+o. Gen	City	599	599	4	25	537	2,002	
Massachusetts Eye and Ear Infirmary+o..... ENT	NPAAssn	231	219	12	..	149	7,366	
Massachusetts General Hospital+o..... Gen	NPAAssn	424	424	..	..	385	7,931	
Massachusetts General Hos- pital, Tho Baker Memo- rial..... Gen	NPAAssn	330	242	43	556	197	5,319	
..... Gen	NPAAssn	103	103	15	110	78	2,218	
..... Gen	NPAAssn	392	392	45	551	232	6,992	
..... Gen	NPAAssn	..	61	20	214	36	867	
New England Baptist Hospital..... Gen	NPAAssn	150	150	25	171	119	5,030	
New England Deaconess Hospital+o..... Gen	Church	395	395	..	7	237	7,146	
New England Hosp. for Women and Children+o. Gen	NPAAssn	260	185	75	1,196	107	4,488	
Palmer Memorial Hospital Unit of the New England Deaconess Hos- pital+o..... Gen	NPAAssn	247	247	..	..	187	4,712	
Robert Breck Brigham Hospital..... Gen	NPAAssn	115	115	..	..	79	903	
St. Elizabeth's Hospital+o. Gen	Church	250	250	50	729	151	4,326	
St. Margaret's Hospital+o. Gen	Church	..	50	32	475	31	1,193	
St. Mary's Maternity Hos- pital..... MatCh	Church	..	62	12	110	14	139	

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Sanatorium Division of Boston City Hospital.. TB	City	616	616	..	..	581	493	
South Department for In- fectious Diseases..... Unit of Boston City Hospital	Gen	NPAAssn	22	21	..	..	16	268
Vincent Memorial Hosp. Gen	Gen	..	..	..	..	..	..	..
Bridgewater, 9,055—Plymouth								
Bridgewater State Hosp. Ment	State	982	916	..	..	878	51	
Brookline, 63,797—Plymouth								
Brookline Hospital+o..... Gen	NPAAssn	125	125	29	338	98	2,718	
Goodard Hospital+o..... Gen	Corp	59	59	15	389	47	1,874	
Moore Hospital..... Geo	Iodiv	..	25	8	56	16	425	
Brookline, 47,490—Norfolk								
Bournewood Hospital... Nerv	Indiv	18	18	..	..	9	1	
Brooks Hospital..... Gen	Corp	43	43	..	..	36	932	
Free Hospital for Women+ Gyn	NPAAssn	101	101	..	..	78	2,134	
Trumbull Hospital..... Gen	NPAAssn	50	50	11	72	32	1,151	
Cambridge, 113,643—Middlesex								
Cambridge City Hosp.+o Gen	City	200	200	32	635	141	5,400	
Cambridge Hospital+o.... Gen	NPAAssn	300	243	52	806	152	5,007	
Cambridge Sanatorium... TB	City	85	90	..	..	80	292	
Charlesgate Hospital..... Gen	Corp	85	85	10	103	35	920	
Chester Hospital..... Gen	Corp	40	40	20	152	11	411	
Canton, 5,816—Norfolk								
Massachusetts Hospital School..... Orth	State	300	300	..	..	290	329	
Chelsea, 42,816—Suffolk								
Captain John Adams Hos- pital nt Soldiers' Home+o Gen	State	..	264	..	..	216	1,353	
Chelsea Memorial Hosp.+o Gen	NPAAssn	85	85	25	299	69	1,755	
U. S. Marine Hospital... Gen	USPHS	167	200	..	..	172	1,937	
U. S. Naval Hospital+o.... Gen	Navy	551	551	..	..	178	1,809	
Clinton, 12,817—Worcester								
Clinton Hospital+o..... Geo	NPAAssn	85	65	20	165	26	1,200	
Concord, 7,447—Middlesex								
Emerson Hospital..... Gen	NPAAssn	35	37	12	191	16	640	
Valleyhead..... Nerv	Indiv	20	20	..	..	14	152	
Danvers, 12,957—Essex								
Hunt Memorial Hospital Gen	City	17	20	6	58	9	274	
Everett, 48,424—Middlesex								
Whidden Memorial Hosp.+o Gen	NPAAssn	95	95	21	536	90	2,477	
Fall River, 115,274—Bristol								
Fall River General Hosp. G&TB City	..	281	..	..	..	207	2,640	
St. Anne's Hospital+o.... Gen	Church	100	100	26	204	50	1,596	
Truesdalo Hospital+o.... Gen	NPAAssn	134	134	16	250	72	2,504	
Union Hospital+o..... Gen	NPAAssn	172	172	30	415	108	3,244	
Fitchburg, 40,692—Worcester								
Burbank Hospital+o..... Gen	Corp	215	193	22	476	145	3,002	
Forest Hills (Boston, P. O.),—Suffolk								
Forest Hills Gen. Hosp. Gen	NPAAssn	150	150	36	582	64	2,349	
Fl. Devereux (Ayer P. O.),—Middlesex								
Station Hospital..... Gen	Army	140	140	..	..	74	1,087	
Foxboro, 5,317—Norfolk								
Foxboro State Hospital.. Ment	State	1,119	1,234	..	..	1,259	286	
Framingham, 22,210—Middlesex								
Framingham Union Hos- pital..... Gen	NPAAssn	130	130	30	387	57	2,196	
Gardner, 19,399—Worcester								
Gardner State Hospital+o Ment	State	1,193	1,340	..	..	1,381	268	
Henry Heywood Memo- rial Hospital+o..... Gen	NPAAssn	100	81	19	204	62	1,851	
Gloucester, 24,204—Essex								
Addison Gilbert Hosp.+o. Gen	NPAAssn	75	75	15	209	50	1,935	
Great Barrington, 5,934—Berkshire								
Fairview Hospital..... Gen	NPAAssn	49	49	15	83	13	414	
Greenfield, 15,500—Franklin								
Franklin County Public Hospital+o..... Geo	NPAAssn	100	87	20	269	38	1,502	
Groton, 2,434—Middlesex								
Groton Hospital..... Gen	Indiv	..	13	4	..	7	264	
Hathorne, 171—Essex								
Danvers State Hospital+o. Ment	State	1,868	2,310	..	..	2,232	973	
Haverhill, 48,710—Essex								
Benson Hospital..... Geo	Indiv	..	26	2	13	16	398	
Haverhill Municipal Hos- pital..... Gen	City	123	101	22	268	98	3,720	
Haydenville, 1,360—Hampshire								
Hampshire County Sanat. TB	County	..	100	..	..	85	..	
..... Unit. Nerv	Iodiv	20	20	..	..	12	90	
Holden District Hospital. Geo	NPAAssn	36	36	6	83	17	929	
Holyoke, 56,537—Hampden								
Holyoke Hospital+o..... Geo	NPAAssn	150	126	24	283	74	1,822	
Holyoke Tuberculosis Sanatorium..... TB	City	18	18	..	..	12	16	
Providence Hospital+o.... Gen	Church	200	168	32	507	117	5,205	
Hyannis, 1,800—Barnstable								
Cape Cod Hospital..... Gen	NPAAssn	65	65	15	180	48	1,379	
Ipswich, 5,599—Essex								
Benjamin Stickney Cable Memorial Hospital..... Gen	NPAAssn	50	50	7	112	13	453	
Lawrence, 35,068—Essex								
Bessie Burke Mem. Hosp. Gen	City	100	110	6	129	..	1,616	
Clover Hill Hospital..... Gen	Corp	30	30	8	232	20	899	
Lawrence General Hosp.+o Gen	NPAAssn	130	120	29	323	89	3,219	
..... Geo	NPAAssn	61	61	12	171	37	1,651	
Lowell General Hosp.+o. Gen	NPAAssn	150	150	20	353	81	3,696	
St. Johns Hospital+o.... Gen	Church	173	148	27	369	108	3,275	
St. Joseph's Hospital+o. Gen	Church	122	107	17	333	91	3,108	
..... Iodiv	Iodiv	20	20	8	67	10	259	
..... Gen	NPAAssn	29	29	11	147	15	622	

## NEBRASKA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Friend, 1,214—Saline	Gen	City	..	16	0	40	6	237
Warren Memorial Hosp...	Gen	Part	5	5	3	13	2	66
Genoa, 1,089—Nance	Gen	Part	5	5	3	13	2	66
Emergency Hospital.....	Gen	Part	5	5	3	13	2	66
Grand Island, 18,011—Hall	Gen	Part	5	5	3	13	2	66
Nebraska Soldiers and Sailors Home—Pershing	Inst	State	100	100	..	..	72	41
Hastings, 15,490—Adams	Gen	Indiv	10	10	2	3	4	82
Dr. Egbert Hospital.....	Gen	Indiv	10	10	2	3	4	82
Hebron, 1,804—Thayer	Gen	Corp	25	20	5	43	11	415
Blue Valley Hospital.....	Gen	Corp	25	20	5	43	11	415
for Boys .....	Inst	State	14	11	..	..	2	123
Kimball, 1,711—Kimball	Gen	Indiv	12	12	6	18	4	...
Kimball Hospital.....	Gen	Indiv	12	12	6	18	4	...
McAleer Hospital.....	Gen	Indiv	..	0	6	0	3	104
Lexington, 2,962—Dawson	Gen	Corp	25	18	6	..	..	1936
Lexington Community Hospital .....	Gen	Corp	25	18	6	..	..	1936
Lincoln, 75,003—Lancaster	Gen	City	..	22	..	..	..	14
Isolation Hospital.....	Iso	City	..	22	..	..	..	14
Nebraska State Penitentiary Hospital .....	Inst	State	20	20	..	..	0	314
Millard, 832—Seward	Inst	State	0	13	11	46	2	43
Nebraska Industrial Home	Inst	State	0	13	11	46	2	43
Nebraska Soldiers and Sailors Home Hospital. Inst	Inst	State	60	60	..	..	35	40
Odell, 472—Gage	Gen	Indiv	0	0	3	35	6	230
Odell General Hospital... Gen	Gen	Indiv	0	0	3	35	6	230
Omaha, 214,006—Douglas	Gen	Church	75	55	15	92	41	106
Salvation Army Women's Home and Hospital.... Mut	Mut	Church	75	55	15	92	41	106
Orchard, 505—Axtelpe	Gen	Indiv	..	10	3	2	1	90
Orchard Hospital .....	Gen	Indiv	..	10	3	2	1	90
Plainsview, 1,216—Pierce	Gen	NPAssn	10	10	2	1	2	43
Plainsview General Hosp.. Gen	Gen	NPAssn	10	7	2	14	2	126
Sutherland, 753—Lincoln	Gen	Indiv	10	10	3	22	3	154
Russell Hospital.....	Gen	Indiv	10	10	3	22	3	154
Sutton, 1,340—Clay	Gen	Indiv	..	10	2	16	4	155
Sutton Hospital .....	Gen	Indiv	..	10	2	16	4	155
Table Rock, 672—Pawnee	Gen	Indiv	10	7	2	7	1	18
McCreary Private Hospital Gen	Gen	Indiv	10	7	2	7	1	18
Teumseh, 1,829—Johnson	Gen	Indiv	12	10	3	18	7	125
Teumseh Hospital.....	Gen	Indiv	12	10	3	18	7	125
Thide, 1,106—Madison	Gen	Indiv	0	0	2	2	..	116
Thide Hospital .....	Gen	Indiv	0	0	2	2	..	116
Walsh, 1,162—Thurston	Gen	Indiv	14	12	4	12	2	96
Dr. Picotte Mem. Hosp.. Gen	Gen	Indiv	14	12	4	12	2	96
Westpoint, 2,225—Chimney	Gen	Church	16	14	2	43	0	429
St. Joseph Home for Aged and Hospital .....	InstGen	Church	16	14	2	43	0	429
Summary for Nebraska:			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums...			64	8,129	6,688	74,270		
Related institutions.....			33	2,000	1,633	5,790		
Totals.....			97	10,219	8,321	80,060		
Refused registration.....			18	380				

## NEVADA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
East Ely, 600—White Pine	Gen	NPAssn	50	40	7	55	18	233
Stephens Valley Hospital.. Gen	Gen	NPAssn	50	40	7	55	18	233
Eiko, 3,217—Eiko	Gen	County	50	48	8	55	19	625
Eiko General Hospital.... Gen	Gen	County	50	48	8	55	19	625
Ely, 3,045—White Pine	Gen	County	53	53	4	12	28	505
White Pine County and General Hospital .....	Gen	County	53	53	4	12	28	505
Las Vegas, 5,105—Clark	Gen	NPAssn	40	35	7	81	30	968
Las Vegas Hospital.....	Gen	NPAssn	40	35	7	81	30	968
Reno, 18,529—Washoe	Gen	State	365	365	..	..	356	90
Nevada State Hospital for Mental Diseases.....	Ment	State	365	365	..	..	356	90
St. Mary's Hospital.....	Gen	Church	52	52	12	168	50	1,661
Washoe General Hospital Gen	Gen	County	175	181	12	243	164	2,238
Schurz, 75—Mineral	Gen	IA	28	28	3	29	18	303
Walker River Indian Hosp. Gen	Gen	IA	32	32	4	20	22	330
Stewart, 412—Ormsby	Gen	IA	32	32	4	20	22	330
Carson Indian Hospital. Gen	Gen	IA	32	32	4	20	22	330
Tonopah, 2,115—Nye	Gen	NPAssn	20	20	3	35	12	360
Tonopah Mines Hospital Gen	Gen	NPAssn	20	20	3	35	12	360
Winnemucca, 1,989—Humboldt	Gen	County	30	30	4	..	23	...
Humboldt County General Hospital .....	Gen	County	30	30	4	..	23	...
Related Institutions								
Battle Mountain, 1,120—Lander	Gen	County	..	10	3	No data supplied		
Battle Mountain General Hospital .....	Gen	County	..	10	3	No data supplied		
Eureka, 600—Eureka	Gen	County	..	0	..	No data supplied		
Eureka County Hospital Gen	Gen	County	..	0	..	No data supplied		

## NEVADA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Hawthorne, 328—Mineral	Gen	County	14	14	..	13	12	98
Mineral County Hospital Gen	Gen	County	14	14	..	13	12	98
Stewart, 412—Ormsby	Gen	IA	30	40	..	..	17	730
Carson Indian School Hospital .....	Inst	IA	30	40	..	..	17	730
Yerington, 1,005—Lyon	Gen	County	16	16	..	..	12	62
Lyon County Hospital... Gen	Gen	County	16	16	..	..	12	62
Summary for Nevada:			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums...			11	876	733	7,696		
Related institutions.....			6	95	54	990		
Totals.....			17	971	787	8,686		
Refused registration.....			2	320				

## NEW HAMPSHIRE

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Berlin, 20,018—Coos	Gen	Church	75	65	10	124	50	1,503
St. Louis Hospital.....	Gen	Church	75	65	10	124	50	1,503
Chremont, 12,377—Sullivan	Gen	Corp	70	59	11	111	26	874
Chremont General Hosp. Gen	Gen	Corp	70	59	11	111	26	874
Concord, 25,223—Merrimack	Gen	NPAssn	134	90	18	274	65	2,034
Margaret Pillsbury General Hospital .....	Gen	NPAssn	134	90	18	274	65	2,034
New Hampshire Memorial Hospital .....	Gen	NPAssn	55	44	11	151	23	669
New Hampshire State Hospital .....	Ment	State	1,650	2,000	..	..	1,984	501
Dover, 13,573—Strafford	Gen	City	69	69	15	184	46	1,245
Wentworth Hospital.... Gen	Gen	City	69	69	15	184	46	1,245
Exeter, 4,672—Rockingham	Gen	NPAssn	52	40	12	100	29	1,144
Exeter Hospital .....	Gen	NPAssn	52	40	12	100	29	1,144
Franklin, 6,576—Merrimack	Gen	NPAssn	44	37	7	74	19	523
Franklin Hospital.....	Gen	NPAssn	44	37	7	74	19	523
Glencliff, 118—Grafton	Gen	State	109	109	..	..	100	60
New Hampshire State Sanatorium for the Treatment of Tuberculosis... TB	TB	State	109	109	..	..	100	60
Grasmere, 200—Hillsboro	Gen	County	104	164	12	174	114	1,930
Hillsborough County General Hospital .....	Gen	County	104	164	12	174	114	1,930
Honover, 3,043—Grafton	Gen	NPAssn	142	123	14	163	102	3,768
Mary Hitebeck Memorial Hospital .....	Gen	NPAssn	142	123	14	163	102	3,768
Keene, 13,794—Cheshire	Gen	NPAssn	86	72	4	216	60	2,065
Elliot Community Hosp. Gen	Gen	NPAssn	86	72	4	216	60	2,065
Loon, 12,471—Belknap	Gen	NPAssn	..	80	23	231	64	2,329
Laconia Hospital .....	Gen	NPAssn	..	80	23	231	64	2,329
Lancaster, 2,837—Coos	Gen	NPAssn	15	15	6	32	10	411
Lancaster Hospital.....	Gen	NPAssn	15	15	6	32	10	411
Littleton, 4,558—Grafton	Gen	NPAssn	64	49	8	65	15	478
Littleton Hospital .....	Gen	NPAssn	64	49	8	65	15	478
Manchester, 76,834—Hillsboro	Gen	City	30	30	..	..	14	214
Boch Hospital for Children .....	Chil	City	30	30	..	..	14	214
Christine H. Parker House Maternity Unit of Elliot Hospital	Gen	NPAssn	140	103	32	313	69	2,542
Elliot Hospital .....	Gen	NPAssn	140	103	32	313	69	2,542
Hopital Notre-Dame de Lourdes .....	Gen	Church	234	85	15	224	65	1,667
Lucy Hastings Hospital. Gen	Gen	Corp	31	25	6	12	14	362
Our Lady of Perpetual Help Hospital .....	Mat	Church	22	22	19	305	10	319
Sacred Heart Hospital .....	Gen	Church	66	64	2	..	57	1,823
New London, 812—Merrimack	Gen	NPAssn	77	77	16	211	68	1,036
New London Hospital.... Gen	Gen	NPAssn	77	77	16	211	68	1,036
Newport, 4,659—Sullivan	Gen	NPAssn	15	15	6	46	5	229
Carroll, 1,600—Carroll	Gen	NPAssn	20	20	5	50	0	274
Memorial Hospital .....	Gen	NPAssn	25	25	6	74	19	588
Portsmouth, 14,493—Rockingham	Gen	NPAssn	..	30	8	No data supplied		
Portsmouth Hospital.... Gen	Gen	NPAssn	..	30	8	No data supplied		
U. S. Naval Hospital.... Gen	Navy	150	150	..	..	21	285	
Rockester, 10,209—Strafford	Gen	NPAssn	25	26	8	175	21	1,091
Frederick Memorial Hospital Gen	Gen	NPAssn	25	26	8	175	21	1,091
Whitefield, 1,693—Coos	Gen	NPAssn	50	50	8	50	13	849
Morrison Hospital .....	Gen	NPAssn	50	50	8	50	13	849
Wolfeboro, 2,338—Carroll	Gen	NPAssn	29	31	6	99	24	783
Huggins Hospital.....	Gen	NPAssn	29	31	6	99	24	783
Woodsville, 1,500—Grafton	Gen	NPAssn	36	24	8	84	16	627
Cottage Hospital .....	Gen	NPAssn	36	24	8	84	16	627
Related Institutions								
p. Gen	County	..	50	4	12	45	200	
.. Inst	NPAssn	53	53	..	..	0	53	

## MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Lynn, 102,320—Essex								
Lynn Hospital*..... Gen	NPAssn	205	159	46	319	74	3,061	
Union Hospital*..... Gen	NPAssn	65	65	22	478	33	1,358	
Malden, 58,036—Middlesex								
Malden Hospital*..... Gen	NPAssn	200	200	32	491	86	3,367	
Marblehead, 8,668—Essex								
Mary A. Alley Emergency Hospital..... Gen	City	14	15	8	70	10	430	
Marlboro, 15,587—Middlesex								
Marlboro Hospital..... Gen	NPAssn	83	61	22	225	30	1,038	
Medfield, 4,066—Norfolk								
Medfield State Hospital*..... Ment	State	1,588	1,859	..	..	1,845	276	
Medford, 59,714—Middlesex								
Lawrence Memorial Hosp.*..... Gen	NPAssn	65	75	34	637	54	2,041	
Melrose, 23,170—Middlesex								
Melrose Hospital*..... Gen	NPAssn	..	100	25	421	77	2,220	
New England Sanitarium and Hospital*..... Gen	Church	135	135	17	288	95	2,368	
Middleboro, 3,608—Plymouth								
Lakeville State Sanat..... TB	State	302	302	..	..	281	201	
St. Luke's Hospital*..... Gen	NPAssn	23	23	8	98	11	347	
Middleton, 1,712—Essex								
Essex Sanatorium..... TB	County	300	354	..	..	334	287	
Milford, 14,741—Worcester								
Milford Hospital*..... Gen	NPAssn	60	60	15	280	32	1,386	
Milton, 16,434—Norfolk								
Milton Hospital and Convalescent Home..... Gen	NPAssn	..	98	12	70	17	552	
Montague City, 761—Franklin								
Farren Memorial Hosp.*..... Gen	Church	80	68	12	125	41	1,407	
Nantucket, 3,678—Nantucket								
Nantucket Cottage Hosp. Gen	NPAssn	20	20	5	57	12	400	
Natick, 13,569—Middlesex								
Leonard Morse Hospital. Gen	City	43	43	14	163	33	920	
Needham, 10,548—Norfolk								
Glover Memorial Hospital Gen	City	22	22	5	45	9	236	
New Bedford, 12,597—Bristol								
St. Luke's Hospital*..... Gen	NPAssn	294	294	45	790	180	6,634	
Sassaquin Sanatorium..... TB	NPAssn	116	116	..	..	112	116	
Union Hospital*..... Gen	Corp	31	31	3	28	25	700	
Newburyport, 15,084—Essex								
Anna Jacques Hospital..... Gen	NPAssn	60	52	10	119	32	915	
Newburyport Homeopathic Hospital..... Gen	NPAssn	..	25	5	40	10	359	
Newton, 65,276—Middlesex								
New England Peabody Home for Crippled Children..... TbOr	NPAssn	100	100	..	..	83	11	
Newton Hospital*..... Gen	NPAssn	248	198	46	668	141	5,261	
North Adams, 21,621—Berkshire								
North Adams Hospital*..... Gen	NPAssn	80	80	20	229	46	1,638	
Northampton, 24,351—Hampshire								
Cooley Dickinson Hosp.*..... Gen	NPAssn	150	132	24	314	78	3,323	
Northampton State Hosp. Ment	State	1,666	1,936	..	..	1,875	619	
Veterans Admin. Facility Ment	Vet	011	650	..	..	643	142	
North Dighton, 1,220—Bristol								
Mt. Hope Hospital*..... Gen	NPAssn	10	10	8	76	5	169	
North Grafton, 2,340—Worcester								
Grafton State Hospital*..... Ment	State	1,258	1,518	..	..	1,415	165	
North Wilmington, 472—Middlesex								
North Reading State Sanatorium..... TbChil	State	..	297	..	..	249	215	
Norwood, 15,049—Norfolk								
Norwood Hospital..... Gen	NPAssn	100	80	20	309	62	2,326	
Oak Bluffs, 1,333—Dukes								
Martha's Vineyard Hosp. Gen	NPAssn	26	28	10	68	12	357	
Palmer, 9,577—Hampden								
Monson State Hospital*..... Epil	State	1,164	1,500	..	..	1,486	190	
Wing Memorial Hospital. Gen	NPAssn	36	27	9	76	15	838	
Peabody, 21,345—Essex								
Josiah B. Thomas Hosp.*..... Gen	City	66	60	15	244	35	1,090	
Pittsfield, 46,677—Berkshire								
Hillcrest Hospital*..... Gen	NPAssn	42	42	10	152	35	723	
House of Mercy Hosp.*..... Gen	NPAssn	..	194	33	368	107	3,540	
St. Luke's Hospital*..... Gen	Church	156	156	33	384	88	3,530	
..... Gen	NPAssn	60	50	10	170	28	1,023	
..... TbIso	County	..	48	..	..	45	141	
Quincy, 71,938—Norfolk								
Quincy City Hospital*..... Gen	City	200	240	50	811	186	6,247	
Rutland, 2,442—Worcester								
Central New England Sanatorium..... TB	NPAssn	75	75	..	..	36	43	
Rutland State Sanat..... TB	State	370	370	..	..	368	298	
Rutland Heights, Worcester								
Veterans Admin. Facility TB	Vet	471	471	..	..	362	921	
Salem, 43,353—Essex								
North Shore Babies' Hosp. Chil	NPAssn	..	50	..	..	22	441	
Salem Hospital*..... Gen	NPAssn	140	155	30	525	125	4,100	
Sharon, 3,331—Norfolk								
Sharon Sanatorium..... TB	NPAssn	..	50	..	..	30	55	
Somerville, 103,908—Middlesex								
Central Hospital..... Gen	Indiv	50	50	25	188	39	1,506	
Somerville Hospital*..... Gen	NPAssn	138	114	24	481	90	3,206	
South Braintree, Norfolk								
Norfolk County Hospital TB	County	133	139	..	..	139	148	
Southbridge, 14,264—Worcester								
Harrington Mem. Hosp.*..... Gen	NPAssn	40	40	8	148	22	747	
South Dartmouth, 1,815—Bristol								
Sol-e-Mar Orthopedic Hospital for Children..... Orth	NPAssn	80	80	..	..	50	32	
South Hanson, 531—Plymouth								
Plymouth County Hosp.* TB	County	140	140	..	..	108	104	

## MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Springfield, 149,900—Hampden Health Department Hospitals	TbIso	City	100	96	4	..	44	331
Mercy Hospital*.....	Gen	Church	380	315	50	881	221	6,639
Shriners Hospital for Crippled Children.....	Orth	Frat	60	60	..	..	60	407
Springfield Hospital*.....	Gen	NPAssn	323	261	4	2	212	5,517
Wesson Maternity Hosp.*.....	Mat	NPAssn	..	62	66	1,288	44	1,463
Wesson Memorial Hosp.*.....	Gen	NPAssn	125	125	..	3	76	2,667
Stockbridge, 1,762—Berkshire								
Austen Riggs Foundation Nerv		NPAssn	52	52	..	..	38	332
.....	Gen	Corp	..	64	12	232	36	1,821
.....	Ment	State	1,282	1,506	..	..	1,583	583
.....	Gen	State	3,150	3,200	40	148	2,977	3,921
Vineyard Haven, 1,500—Dukes								
U. S. Marine Hospital....	Gen	USPHS	24	24	..	..	24	119
Waltham, 39,247—Middlesex								
Metropolitan State Hosp. Ment		State	1,333	1,598	..	..	1,533	137
Middlesex County Sanat.* TB		County	258	258	..	..	259	220
Waltham Hospital*.....	Gen	NPAssn	163	163	53	554	82	3,183
Ware, 7,385—Hampshire								
Mary Lane Hospital.....	Gen	NPAssn	38	38	12	255	28	1,157
Webster, 12,992—Worcester								
Webster District Hospital	Gen	NPAssn	23	23	7	171	22	987
Wellesley, 11,439—Norfolk								
Channing Sanitarium.....	N&M	Corp	35	35	..	..	27	58
Wiswall Sanatorium.....	N&M	Corp	30	30	..	..	20	48
Westboro, 6,409—Worcester								
Westboro State Hospital* Ment		State	1,285	1,615	..	..	1,526	584
Westfield, 19,775—Hampden								
Noble Hospital.....	Gen	NPAssn	89	89	19	155	36	1,288
Westfield State Sanat....	TB	State	270	270	..	..	210	108
Westwood, 2,097—Norfolk								
Westwood Lodge.....	N&M	Corp	21	21	..	..	17	63
Weymouth, 20,882—Norfolk								
Weymouth Hospital....	Gen	NPAssn	91	67	24	383	60	2,127
Whitinsville, 6,090—Worcester								
Whitinsville Hospital.....	Gen	NPAssn	15	15	7	92	5	620
Winchendon, 6,202—Worcester								
Millers River Hospital....	Gen	NPAssn	30	25	6	55	17	597
Winchester, 12,719—Middlesex								
Winchester Hospital.....	Gen	NPAssn	65	65	20	242	40	1,491
Winthrop, 16,852—Suffolk								
Station Hospital.....	Gen	Army	102	102	6	45	57	976
Winthrop Community Hospital.....	Gen	NPAssn	39	44	20	299	28	976
Woburn, Middlesex								
Charles Choate Memorial Hospital*.....	Gen	NPAssn	60	41	19	237	31	1,802
Worcester, 195,311—Worcester								
Belmont Hospital*.....	TbIso	City	275	275	..	..	184	635
Fairlawn Hospital.....	Gen	NPAssn	45	45	15	180	20	811
Harvard Private Hosp. Gen		Corp	25	25	5	19	6	247
Louis Pasteur Hospital.....	Gen	Corp	35	35	6	58	7	381
Memorial Hospital*.....	Gen	NPAssn	185	185	30	548	151	5,774
St. Vincent Hospital*.....	Gen	Church	230	225	25	522	189	6,134
Worcester City Hosp.*.....	Gen	City	480	480	60	923	333	9,270
Worcester County Sanat. TB		County	128	128	..	..	103	108
Worcester Hahnemann Hospital*.....	Gen	NPAssn	111	111	29	524	75	2,801
Worcester State Hosp.*.....	Ment	State	2,373	2,240	..	..	2,276	815
Wrentham, 3,584—Norfolk								
Pondville Hospital at Norfolk*.....	Ca	State	140	140	..	..	128	1,474
Related Institutions								
Aldenville (Chloepee Falls P. O.)—Hampden								
Chloepee Hospital.....	Gen	Indiv	35	35	8	34	24	265
Baldwinsville, 2,360—Worcester								
Hospital Cottages for Children.....	Chil	NPAssn	135	129	..	..	120	49
Belchertown, 3,139—Hampshire								
Belchertown State School MeDe		State	1,100	1,312	..	..	1,286	112
Boston, 781,188—Suffolk								
Bay State Hospital.....	Gen	Part	21	21	6	32	9	305
Boston Home for Incurables.....	Ine	NPAssn	57	58	..	..	57	14
Deer Island Hospital.....	Inst	CyCo	30	30	..	..	20	600
Dorchester Cottage Hosp. Gen		Corp	12	11	8	62	6	101
Fenway Hospital.....	Gen	Corp	..	40	3	33	..	251
Florence Crittenton Home and Hospital.....	Mat	NPAssn	..	21	47	89	8	129
MacLeod Hospital.....	Gen	Corp	25	25	3	48	9	399
Massachusetts State Prison								
Hospital.....	Inst	State	40	40	..	..	6	223
New England Home for Little Wanderers.....	Inst	NPAssn	19	19	6	..	9	429
Prendergast Preventorium TB		NPAssn	..	115	..	..	103	370
Riverbank Hospital.....	Gen	Indiv	32	32	6	9	3	110
St. Luke's Home for Convalescents.....	Conv	Church	..	25	..	..	16	251
Talitha Cumi Home.....	Mat	NPAssn	16	16	17	51	..	49
Dr. Taylor's Private Hosp. Drug		Indiv	18	18	..	..	6	256
Washingtonian Home.....	Aleob	NPAssn	..	35	..	..	15	699
Brookline, 47,490—Norfolk								
Board of Health Hospital TbIso		City	55	55	..	..	22	91
Cambridge, 113,642—Middlesex								
Holy Ghost Hospital for Incurables.....	Ine	Church	214	214	..	..	206	277
Chloepee, 43,930—Hampden								
Health Department Hosp. TB		City	28	28	..	..	17	14
Freart (Lowell P. O.), 6,912—Middlesex								
Blanchard Private Hosp. Mat		Indiv	8	8	6	21	3	55

## NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Irvington, 56,733—Essex	Gen	City	56	79	17	282	51	1,832
Irvington General Hosp..	Gen	City	56	79	17	282	51	1,832
Jersey City, 316,715—Hudson	Gen	City	56	79	17	282	51	1,832
Christ Hospital*0.....	Gen	Church	206	186	20	461	162	4,107
Fairmount Hospital.....	Gen	NPAssn	75	70	15	190	30	1,468
Greenville Hospital*0.....	Gen	NPAssn	60	60	16	185	47	810
Jersey City Hospital*00.....	Gen	City	1,200	1,200	..	..	744	19,554
Margaret Hague Maternity Hospital*0.....	Mat	County	..	272	282	5,088	186	6,093
Psychopathic Hospital.....	N&M	City	..	50	..	..	36	1,299
St. Francis' Hospital*0.....	Gen	Church	240	240	14	114	137	3,608
Kearny (Arlington P. O.), 40,716—Hudson	Gen	City	240	240	14	114	137	3,608
West Hudson Hospital... Gen	Gen	NPAssn	52	62	15	123	38	1,508
Lakewood, 5,600—Ocean	Gen	NPAssn	75	65	11	141	41	1,403
Paul Kimball Hospital... Gen	Gen	NPAssn	75	65	11	141	41	1,403
Long Branch, 18,399—Monmouth	Gen	NPAssn	95	95	30	237	78	1,387
Dr. E. C. Hazard Hospital Gen	Gen	NPAssn	207	177	30	502	163	4,730
Monmouth Mem. Hosp.*0 Gen	Gen	NPAssn	207	177	30	502	163	4,730
Lyons,—Somerset	Gen	City	56	79	17	282	51	1,832
Veterans Admin. Facility Ment	Ment	Vet	895	980	..	..	908	275
Marlboro, 500—Monmouth	Gen	City	56	79	17	282	51	1,832
New Jersey State Hosp... Ment	Ment	State	1,800	2,281	..	..	1,994	675
Midland Park, 3,638—Bergen	Gen	City	56	79	17	282	51	1,832

al..... Gen	NPAssn	42	36	
Essex				

Montclair Community									
Hospital .....	Gen	NPA Assn	60	56	20	232	29	966	
Mountainside Hospital*o	Gen	NPA Assn	330	207	53	681	183	5,436	
St. Vincent's Hospital*o	Gen	Church	58	46	12	248	35	1,075	
Morristown, 15,197—Morris									
All Souls Hospital*o	Gen	Church	117	109	25	302	74	1,963	
Morristown Mem. Hosp.*	Gen	NPA Assn	135	135	20	222	84	2,780	
Shonghoun Mountain Sanat.	TB	County	36	52	..	..	51	48	
Mt. Holly, 6,573—Burlington									
Burlington County Hos- pital*o	Gen	NPA Assn	141	123	18	455	99	2,538	
Neptune, 2,238—Monmouth									
Fitch Memorial Hosp.*o	Gen	NPA Assn	173	153	23	581	142	4,283	
Newark, 442,337—Essex									
Babbs' Hospital-Colt Me- morial	Chil	NPA Assn	60	60	..	..	29	983	
Community Hosp. (col.)	Gen	NPA Assn	34	29	4	15	13	248	
Hospital and Home for Crippled Children	Orth	NPA Assn	110	110	..	..	74	338	
Hospital of St. Barnabas and for Women and Children*o	Gen	Church	225	225	40	571	162	4,453	
Lincoln Hospital.....	Gen	Corp	50	50	12	132	..	630	
Newark Beth Israel Hos- pital*o	Gen	NPA Assn	423	353	70	1,568	329	10,161	
Newark City Hospital	City	350	660	40	1,377	600	16,105		
Newark Eye and Ear In- firmmary	FNT	NPA Assn	65	69	..	..	33	2,508	
Newark Memorial Hospital	Gen	NPA Assn	75	131	30	450	78	2,600	
Presbyterian Hospital	Gen	NPA Assn	267	214	53	753	141	4,921	
St. James Hospital*o	Gen	Church	125	107	18	524	85	2,745	
St. Michael's Hospital*o	Gen	Church	300	300	17	704	165	4,527	
New Brunswick, 34,555—Middlesex									
Middlesex General Hosp.*	Gen	NPA Assn	90	86	17	296	55	2,008	
St. Peter's Gen. Hosp.*o	Gen	Church	179	179	33	541	169	4,211	
New Lisbon, 213—Burlington									
Fairview Sanatorium	TB	County	120	120	..	..	108	137	
Newton, 5,401—Sussex									
Newton Memorial Hosp.	Gen	NPA Assn	50	43	7	118	20	637	
Northfield, 2,804—Atlantic									
Atlantic County Hospital for Mental Diseases....	Ment	County	400	400	..	..	325	154	
Atlantic County Hospital for Tuberculous Diseases	TB	County	50	50	..	..	47	71	
Oceanport, 1,572—Monmouth									
Station Hospital.....	Gen	Army	75	56	..	..	12	558	
Orange, 35,399—Essex									
New Jersey Orthopaedic Hosp. and Dispensary*o	Orth	NPA Assn	36	36	..	..	32	372	
Orange Memorial Hosp.*o	Gen	NPA Assn	323	325	75	1,029	208	7,147	
St. Mary's Hospital*o	Gen	Church	150	124	26	563	86	2,401	
Passaic, 62,959—Passaic									
Beth Israel Hospital....	Gen	NPA Assn	75	67	13	249	27	1,134	
Passaic General Hosp.*o	Gen	NPA Assn	175	175	25	634	122	4,129	
St. Mary's Hospital*o	Gen	Church	165	170	30	812	126	4,751	
Paterson, 138,513—Passaic									
Nathan and Miriam Bar- nert Memorial Hosp.*o	Gen	NPA Assn	..	102	16	465	89	3,690	
Puterson General Hosp.*o	Gen	NPA Assn	..	282	44	899	207	6,473	
St. Joseph's Hospital*o	Gen	Church	400	411	47	771	240	6,472	
Valley View Sanatorium	TB	County	229	229	..	..	221	220	
Perth Amboy, 43,516—Middlesex									
Perth Amboy Gen. Hosp.*	Gen	NPA Assn	136	160	18	489	127	4,702	
Phillipsburg, 19,255—Warren									
Warren Hospital.....	Gen	NPA Assn	25	63	12	138	36	1,191	
Plainfield, 34,422—Union									
Muhlenberg Hospital*o	Gen	NPA Assn	274	239	35	789	100	5,124	
Point Pleasant, 2,038—Ocean									
Point Pleasant Hospital	Gen	NPA Assn	28	28	4	95	17	604	
Princeton, 6,992—Mercer									
Princeton Hospital .....	Gen	NPA Assn	69	56	13	112	27	1,079	
Rahway, 16,011—Union									
Rahway Memorial Hosp.	Gen	NPA Assn	100	100	20	298	41	1,669	
Red Bank, 11,622—Monmouth									
Riverview Hospital.....	Gen	NPA Assn	28	28	10	135	21	863	
Ridgewood, 12,188—Bergen									
"Bergen Pines" Bergen									
County Hospital.....	TB Iso	County	400	460	..	..	271	657	

MASSACHUSETTS—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Lowell, 10,331—Middlesex	City	City	40	40	..	..	63	127
Lowell Tuberculosis Hosp. Thilo	City	City	..	87	..	..	61	306
Malden, 38,066—Middlesex	City	City	40	40	..	..	12	101
Malden Contagious Hosp. Iso	City	City	40	40	..	..	12	101
Marblehead, 8,608—Essex	City	City	40	40	..	..	12	101
Children's Island Sanit. Conv	City	City	40	40	..	..	12	101
Malden, 39,714—Middlesex	City	City	40	40	..	..	12	101
Deborah Hospital..... Conv	City	City	40	40	..	..	12	101
Medford, 21,063—Essex	City	City	40	40	..	..	12	101
Mary E. Barr Sanitarium Gen	City	City	40	40	..	..	12	101
Newton, 65,276—Middlesex	City	City	40	40	..	..	12	101
Woodland Sanitarium..... Epil	City	City	40	40	..	..	12	101
Norfolk, 1,429—Norfolk	City	City	40	40	..	..	12	101
Hospital of Norfolk State	City	City	40	40	..	..	12	101
Prison Colony..... Inst	City	City	40	40	..	..	12	101
Pittsfield, 49,677—Berkshire	City	City	40	40	..	..	12	101
Frederic S. Coolidge Me-	City	City	40	40	..	..	12	101
morial Home..... TB	City	City	40	40	..	..	12	101
Pittsfield Anti-Tuberculo-	City	City	40	40	..	..	12	101
sis Hospital..... TB	City	City	40	40	..	..	12	101
Rutland, 2,412—Worcester	City	City	40	40	..	..	12	101
Rutland Cottage Sanatoria TB	City	City	40	40	..	..	12	101
Salem, 43,533—Essex	City	City	40	40	..	..	12	101
Health Department Hos-	City	City	40	40	..	..	12	101
pital for Contagious Dis-	City	City	40	40	..	..	12	101
eases..... Iso	City	City	40	40	..	..	12	101
Shirley, 2,427—Middlesex	City	City	40	40	..	..	12	101
Industrial School for Boys Inst	City	City	40	40	..	..	12	101
Somerville, 103,908—Middlesex	City	City	40	40	..	..	12	101
Chandler Street Hospital Gen	City	City	40	40	..	..	12	101
Somerville Contagious	City	City	40	40	..	..	12	101
Disease Hospital..... Iso	City	City	40	40	..	..	12	101
Springfield, 149,900—Hamden	City	City	40	40	..	..	12	101
Bureau Nursing Home..... Conv	City	City	40	40	..	..	12	101
City of Springfield Infr-	City	City	40	40	..	..	12	101
mmary..... Inst	City	City	40	40	..	..	12	101
Repar-Wilson Private	City	City	40	40	..	..	12	101
Hospital..... Gen	City	City	40	40	..	..	12	101
Waltham, 39,247—Middlesex	City	City	40	40	..	..	12	101
Teresian Lying-in Hospital Mnt	City	City	40	40	..	..	12	101
Walter E. Fernald State	City	City	40	40	..	..	12	101
School..... MeDe	City	City	40	40	..	..	12	101
Waltham Baby Hospital Chil	City	City	40	40	..	..	12	101
Wellesley, 11,430—Norfolk	City	City	40	40	..	..	12	101
Convalescent Home of the	City	City	40	40	..	..	12	101
Children's Hospital..... Chil	City	City	40	40	..	..	12	101
Simpson Infirmary of Wel-	City	City	40	40	..	..	12	101
lesley College..... Inst	City	City	40	40	..	..	12	101
West Concord, 1,831—Middlesex	City	City	40	40	..	..	12	101
Massachusetts Reformatory	City	City	40	40	..	..	12	101
Hospital..... Inst	City	City	40	40	..	..	12	101
Wrentham, 3,384—Norfolk	City	City	40	40	..	..	12	101
Wrentham State School.. MeDe	City	City	40	40	..	..	12	101

Summary for Massachusetts:	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums...	202	50,640	43,111	370,177
Related institutions.....	54	7,078	6,329	10,421
Totals.....	256	57,718	49,440	380,598
Refused registration.....	18	460		

MICHIGAN

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Adrian, 13,064—Lenawee	City	City	30	42	10	392	30	1,105
Emma L. Bixby Hospital Gen	City	City	30	42	10	392	30	1,105
Albion, 8,324—Calhoun	City	City	30	42	10	392	30	1,105
James W. Sheldon Memo-	City	City	30	42	10	392	30	1,105
rial Hospital..... Gen	City	City	30	42	10	392	30	1,105
Alma, 6,734—Gratiot	City	City	30	42	10	392	30	1,105
Carney-Wilcox Hospital.. Gen	City	City	30	42	10	392	30	1,105
R. B. Smith Mem. Hosp. Gen	City	City	30	42	10	392	30	1,105
Ann Arbor, 26,944—Washtenaw	City	City	30	42	10	392	30	1,105
Merewood Sanitarium... N&M	City	City	30	42	10	392	30	1,105
St. Joseph's Mercy Hos-	City	City	30	42	10	392	30	1,105
pital*o..... Gen	City	City	30	42	10	392	30	1,105
State Psychopathic Hos-	City	City	30	42	10	392	30	1,105
pital at the University	City	City	30	42	10	392	30	1,105
of Michigan*..... Ment	City	City	30	42	10	392	30	1,105
University Hospital*+o... Geo	City	City	30	42	10	392	30	1,105
Bad Axe, 2,332—Huron	City	City	30	42	10	392	30	1,105
Hubbard Memorial Hosp. Gen	City	City	30	42	10	392	30	1,105

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Battle Creek, 43,573—Calhoun	City	City	350	350	..	..	190	183
American Legion Hosp.+ TB	City	City	350	350	..	..	190	183
Battle Creek Sanitarium+ Gen	City	City	350	350	..	..	325	5,455
Calhoun County Public Hospital.....	TB	County	..	75	..	..	61	7
La.....	Gen	Church	200	153	17	304	65	2,077
Nichols Memorial Hosp.+o	Gen	NPAssn	87	73	16	341	44	3,444
Bay City, 47,355—Bay	City	City	25	25	6	44	14	59
Bay City General Hosp. Gen	City	NPAssn	47	43	4	25	23	1,181
Bay City Samaritan Hosp. Gen	City	Church	140	140	20	209	75	4,233
Mersey Hospital*o.....	Gen	NPAssn	45	40	10	0	29	1,144
Hentan Harbor, 15,431—Berrien	Gen	City	14	14	5	..	10	583
Mersey Hospital.....	Gen	Indiv	12	12	4	20	0	293
Big Rapids, 4,671—Mecosta	Gen	Church	50	50	8	49	23	1,213
Community Hospital.....	Gen	County	..	22	..	..	15	2
Brighton, 1,287—Livingston	Gen	City	12	12	4	20	0	293
Mellus Hospital.....	Gen	Church	50	50	8	49	23	1,213
Cadillac, 9,570—Wexford	Gen	County	..	22	..	..	15	2
Wexford County Hospital G&TB	Gen	County	..	22	..	..	15	2
Calhoun, 1,557—Boughton	Gen	City	12	14	5	90	6	661
Calhoun and Hecla Hosp. Indus	Indus	Corp	..	21	..	..	10	423
Camp Custer, 3,440—Alcona	Gen	Army	200	84	..	..	38	1,594
Station Hospital.....	Gen	Vet	835	835	..	..	846	233
Veterans Admin. Facility Ment	Ment	City	..	17	3	14	5	170
Caro, 2,554—Tuscola	Gen	Part	8	8	4	32	4	273
Caro Community Hosp. Gen	Gen	City	23	27	7	56	14	363
Cassopolis, 1,448—Cass	Gen	City	12	14	5	90	6	661
McCutcheon Hospital.....	Gen	Indiv	25	25	5	54	12	523
Charlevoix, 2,217—Charlevoix	Gen	Indiv	14	14	2	19	5	217
Charlevoix Hospital.....	Gen	Church	375	350	..	..	315	607
Charloite, 5,307—Eaton	Gen	NPAssn	..	60	5	32	54	1,230
Hayes-Green Mem. Hosp. Gen	Gen	NPAssn	83	83	..	..	62	131
Coldwater, 6,735—Branch	Gen	NPAssn	66	66	6	127	33	1,413
Windsor Memorial Hospital Gen	Gen	NPAssn	52	52	..	..	20	103
Crystal Falls, 2,095—Iron	Gen	NPAssn	239	239	..	..	193	6,313
Crystal Falls Gen. Hosp. Gen	Gen	City	655	650	20	5	619	21,017
Detroit, 50,353—Wayne	N&M	City	655	650	20	5	619	21,017
St. Joseph's Retreat*o....	N&M	City	655	650	20	5	619	21,017
Detroit, 1,563,622—Wayne	Gen	City	655	650	20	5	619	21,017
Alexander Blain Hospital+ Gen	Gen	City	655	650	20	5	619	21,017
Bethesda Hospital (col.) TB	TB	City	655	650	20	5	619	21,017
Charles Godwin Jennings	Gen	City	655	650	20	5	619	21,017
Hospital.....	Gen	City	655	650	20	5	619	21,017
Chenik Hospital.....	TB	City	655	650	20	5	619	21,017
Children's Hospital*o....	Chil	City	655	650	20	5	619	21,017
City of Detroit Receiving	Gen	City	655	650	20	5	619	21,017
Hospital*+.....	Gen	City	655	650	20	5	619	21,017
City of Detroit Receiving	Gen	City	655	650	20	5	619	21,017
Hospital (Redford Branch).....	Gen	City	655	650	20	5	619	21,017
Cottage Hospital.....	Gen	City	655	650	20	5	619	21,017
Delray General Hospital. Gen	Gen	City	655	650	20	5	619	21,017
Detroit Tuberculosis Sanat. TB	TB	City	655	650	20	5	619	21,017
East Side General Hosp. Gen	Gen	City	655	650	20	5	619	21,017
Evangelical Deaconess Hospital*o.....	Gen	City	655	650	20	5	619	21,017
Fairview Sanat. (col.)... TB	TB	City	655	650	20	5	619	21,017
Florence Crittenton Hosp. Gen	Gen	City	655	650	20	5	619	21,017
Good Samaritan Hospital (col.).....	TB	City	655	650	20	5	619	21,017
Grace Hospital*+o.....	Gen	City	655	650	20	5	619	21,017
Grosse Pointe Hospital..	Gen	City	655	650	20	5	619	21,017
Harper Hospital*+o.....	Geo	City	655	650	20	5	619	21,017
Henry Ford Hospital*+o... Gen	Gen	City	655	650	20	5	619	21,017
Herman Klefer Hosp.+o. G&TB	G&TB	City	655	650	20	5	619	21,017
Lincoln Hospital.....	Gen	City	655	650	20	5	619	21,017
Marr General Hospital..	Gen	City	655	650	20	5	619	21,017
Michigan Mutual Hosp. Indus	Indus	City	655	650	20	5	619	21,017
Parkside Hospital (col.) Gen	Gen	City	655	650	20	5	619	21,017
Pingree General Hospital Gen	Gen	City	655	650	20	5	619	21,017
Providence Hospital*+o... Gen	Gen	City	655	650	20	5	619	21,017
St. Aubin General Hospital (col.).....	Gen	City	655	650	20	5	619	21,017
St. Joseph's Mercy Hospital*o.....	Gen	City	655	650	20	5	619	21,017
St. Mary's Hospital*o....	Gen	City	655	650	20	5	619	21,017
Shurly Hospital.....	Gen	City	655	650	20	5	619	21,017
Station Hospital.....	Gen	City	655	650	20	5	619	21,017
Trinity Hospital (col.)... Gen	Gen	City	655	650	20	5	619	21,017
U. S. Marine Hospital.....	Gen	City	655	650	20	5	619	21,017
Warren Avenue Diagnostic Hospital.....	Gen	City	655	650	20	5	619	21,017
West Side Sanitarium.... Geo	Geo	City	655	650	20	5	619	21,017
Woman's Hospital*+o.... Gen	Gen	City	655	650	20	5	619	21,017
Dowagiac, 5,550—Cass	Gen	City	655	650	20	5	619	21,017
.....	Gen	City	655	650	20	5	619	21,017
.....	Gen	City	655	650	20	5	619	21,017
.....	Gen	City	655	650	20	5	619	21,017
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.....	Gen	City	655	650	20	5	619	21,017
.....	Gen	City	655	650	20	5	619	21,017
.....	Gen	City	655	650	20	5	619	21,017
.....	Gen	City	655	650	20	5	619	21,017
.....	Gen	City	655	650				



## NEW JERSEY—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
New Lisbon, 213—Burlington								
Burlington County Hos-								
pital for the Insane.....	Ment	County	..	288	..	..	273	68
State Colony for Feeble-								
minded Males.....	MeDe	State	800	800	..	..	774	110
Northfield, 2,504—Atlantic								
Atlantic County Hospital	Inst	County	135	125	..	..	86	48
Ocean Grove, 3,650—Monmouth								
Methodist Episcopal Home								
for Aged.....	Inst	Church	16	16	..	..	15	38
Passaic, 6,259—Passaic								
Passaic Municipal Hosp. Iso	Iso	City	30	31	2	..	2	37
Paterson, 138,713—Passaic								
Paterson City Hospital.....	TbIso	City	..	110	..	No data supplied		
Princeton, 6,882—Mercer								
Isabella McCosh Infirmary								
of Princeton University	Inst	NPAasn	78	54	..	..	16	1,403
Rahway, 16,011—Union								
New Jersey Reformatory								
Hospital.....	Inst	State	16	16	..	..	5	221
Roseland, 1,053—Essex								
Mountain View Rest.....	N&M	Corp	22	22	..	..	20	108
Sea Isle City, 850—Cape May								
Sea Isle Hospital and								
Training School.....	N&M	Corp	35	30	6	..	18	94
Totowa (Little Falls P. O.), 4,600—Passaic								
North Jersey Training								
School.....	MeDe	State	740	747	..	..	539	1,291
Trenton, 125,356—Mercer								
New Jersey State Prison								
Hospital.....	Inst	State	42	42	..	..	22	556
State Home for Girls.....	Inst	State	75	46	3	22	32	403
Upper Montclair, Essex								
Montclair Sanitarium.....	Conv	Part	10	10	..	..	6	68
Vineland, 7,556—Cumberland								
Maplehurst School.....	MeDe	Indiv	..	17	..	..	16	..
New Jersey Mem. Home for								
Disabled Soldiers, Sailors,								
Marines and Their Wives								
and Widows.....	Inst	State	63	65	..	..	37	357
Training School at Vine-								
land.....	MeDe	NPAasn	..	535	..	..	516	47
Vineland State School.....	MeDe	State	1,400	1,450	..	2	1,389	119
West Englewood, 2,207—Bergen								
Englewood Sanitarium								
(Lynnwood Lodge).....	N&M	Corp	40	40	..	..	15	7
Westfield, 15,801—Union								
Children's Country Home.....	Unit	of New Jersey Orthopaedic Hospital and Dispensary, Orange						
Woodbine, 2,164—Cape May								
Woodbine Colony for Fee-								
ble-minded Males.....	MeDe	State	635	638	..	..	636	54
Summary for New Jersey:			Number	Beds	Average Patients		Patients Admitted	
Hospitals and sanatoriums....			120	36,113	29,903		285,928	
Related institutions.....			44	6,813	5,637		10,453	
Totals.....			164	42,926	35,540		296,381	
Referred registration.....			9	175				
NEW MEXICO								
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
.....								
.....								
.....								
.....								
Methodist Sanatorium.....	TB	Church	..	65	..	..	50	75
St. Joseph Sanatorium								
and Hospital.....	G&TB	Church	..	200	12	263	120	3,112
Southwestern Presbyterian								
Sanatorium.....	G&TB	Church	..	125	12	252	95	2,107
U. S. Indian School Hosp. Gen	Gen	IA	66	66	12	71	52	1,311
Veterans Admin. Facility G&TB	Gen	IA	239	259	..	..	241	1,621
Black Rock (Zuni P. O.)—McKale								
Zuni Sanatorium.....	Gen	IA	39	39	2	6	9	485
Carlsbad, 3,708—Eddy								
St. Francis Hospital.....	Gen	Church	45	35	5	68	12	688
Clayton, 2,538—Union								
St. Joseph Hospital.....	Gen	Church	..	25	5	82	5	291
Clovis, 8,627—Curry								
A. T. & S. F. Hospital	Indus	NPAasn	32	32	..	..	20	253
.....	Gen	Church	..	21	4	50	9	467
.....	Gen	IA	26	26	4	37	22	756
Dawson, 2,662—Cotton								
Phelps Dodge Corporation								
Hospital.....	Gen	Corp	50	30	4	13	6	147
Deming, 3,377—Luna								
Deming Ladies' Hospital. Gen	Gen	NPAasn	30	24	3	14	6	...
Duce, 44—Rio Arriba								
Hacienda Hospital.....	Gen	IA	19	19	5	8	14	158
Farmington, 1,350—San Juan								
St.....	Gen	Church	16	16	4	4	7	161
St.....	Gen	NPAasn	25	22	4	41	8	810
.....								
Veterans' Admin. Facility G&TB	Gen	IA	450	450	..	..	234	1,042

Key to symbols and abbreviations is on page 1060



## NEW MEXICO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Ft. Stanton, 490—Lincoln	..	USPHS	270	270	..	..	184	163
U. S. Marine Hospital*.. TB								
Ft. Wingate, 14—McKinley	..	IA	34	34	1	..	25	880
Charles H. Burke Hosp.. Gen								
Gallup, 5,992—McKinley	..	Church	65	65	6	88	32	936
St. Mary's Hospital..... Gen								
Gardiner, 300—Colfax	..	NPAssn	40	40	..	..	12	91
Gardiner Hospital..... Indus								
Holy Cross, —Luna	..	Church	183	183	..	..	58	59
Holy Cross Sanatorium.. TB								
Hot Springs, 1,336—Sierra	..	Church	24	18	4	20	8	340
Virginia Ann Olinde and Hospital..... Gen								
Las Vegas, 4,719—San Miguel	..	Indiv	21	25	4	28	14	642
Las Vegas Hospital (Car-penter Memorial)..... Gen								
New Mexico State Hosp.. Ment	..	NPAssn	730	800	..	..	733	193
St. Anthony's Hospital.. Gen	..	Church	..	48	4	35	20	392
Mesalero, 300—Otero	..	IA	33	33	4	22	14	703
Mesalero Hospital..... Gen								
Raton, 6,090—Colfax	..	State	..	38	5	27	12	454
New Mexico Miners Hosp. Gen								
Rehoboth, 150—McKinley	..	Church	40	30	10	85	26	1,020
Rehoboth Mission Hosp.. Gen								
Roswell, 11,173—Chaves	..	Church	90	60	8	152	52	1,128
St. Mary's Hospital..... Gen								
Santa Fe, 11,176—Santa Fe	..	Church	95	95	10	122	51	1,187
St. Vincent's Sanatorium and Hospital*..... G&TB	..	Church	50	50	..	..	..	42
Sunmount Sanatorium..... TB	..	Corp	70	70	6	21	34	950
U. S. Indian Hospital..... Gen	..	IA	..	50	8	No data supplied		
Santa Rita, 1,500—Grant	..	NPAssn	..	50	8	No data supplied		
Nevada Consolidated Cop-per Company Hospital Gen								
Shiprock, 125—San Juan	..	IA	48	44	4	39	51	1,394
Northern Navajo Hosp. Gen								
Silver City, 3,519—Grant	..	NPAssn	25	24	5	55	10	637
Grant County Hospital.. Gen								
Toadlena, 49—San Juan	..	IA	14	14	2	..	10	265
Toadlena Hospital..... Gen								
Valmora, 125—Mora	..	NPAssn	75	75	..	..	60	100
Valmora Sanatorium..... TB								

## Related Institutions

Dixon, 800—Rio Arriba	..	Church	..	10	5	72	7	336
Brooklyn Cottage Hosp. Gen								
Dulce, 44—Rio Arriba	..	IA	56	66	..	..	49	12
Jicarilla Indian Sanat.... TB	..	Chil	22	22	5	13	5	185
Farmington, 1,350—San Juan	..	Indiv	20	20	..	53	8	558
Mersey General Hospital.. Gen								
Hobbs, 598—Lea	..	Indiv	20	20	3	19	6	184
Hobbs General Hospital. Gen								
Lordsburg, 2,069—Hidalgo	..	Corp	20	20	3	19	6	184
Lordsburg Hospital..... Gen								
Los Lunas, 513—Valencia	..	State	80	80	..	..	73	12
New Mexico Home and Training School for Men-tal Defectives..... MeDe	..	State	16	10	2	20	2	285
Portales, 2,510—Roosevelt	..	Indiv	55	30	..	..	10	157
Brasol Hospital..... Gen								
Santa Fe, 11,176—Santa Fe	..	Indiv	10	10	3	12	3	53
New Mexico Penitentiary Hospital..... Inst	..	State	13	13	2	New building		
Springer, 937—Colfax	..	Indiv	11	11	3	22	15	599
Springer Hospital..... Gen								
Taos, 1,235—Taos	..	IA	13	13	2	New building		
Taos Indian Hospital..... Gen								
Tohatchi, 2,104—McKinley	..	IA	11	11	3	22	15	599
Tohatchi General Hospital Gen								

## Summary for New Mexico:

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums...	40	3,711	2,480	26,192
Related institutions.....	11	272	181	2,510
Totals.....	51	3,983	2,661	28,702
Refused registration.....	2	41		

## NEW YORK

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Albany, 127,412—Albany	..	NPAssn	590	590	40	728	475	10,456
Albany Hospital*+o..... Gen								
Anthony N. Brady Mater-nity Hospital*..... Mat	..	Church	55	55	65	1,141	44	1,228
Child's Hospital..... Chil	..	Church	66	66	..	..	45	533
Memorial Hospital*o..... Gen	..	NPAssn	140	120	16	247	102	2,609
St. Peter's Hospital*o..... Gen	..	Church	151	151	..	..	117	3,250
Albion, 4,878—Orleans	..	NPAssn	23	23	11	79	12	523
Arnold Gregory Memorial Hospital..... Gen								
Amityville, 4,437—Suffolk	..	Corp	109	93	16	242	62	1,977
Brunswick General Hosp. Gen								
Long Island Home..... N&M	..	Corp	206	206	..	..	111	119
Louden-Kalckerhooker Hall N&M	..	Part	159	159	..	..	136	193
Reed General Hospital... Gen	..	Indiv	17	17	5	7	9	302
Amsterdam, 34,817—Montgomery	..	NPAssn	86	71	15	176	55	1,466
Amsterdam City Hosp.. Gen	..	County	72	72	..	..	79	206
Montgomery Sanatorium.. TB	..	Church	100	100	18	264	73	2,013
St. Mary's Hospital*o..... Gen								

## NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Auburn, 36,632—Cayuga								
Auburn City Hospital*o...	Gen	NPAssn	133	133	22	411	101	3,521
Mersey Hospital.....	Gen	Church	80	80	14	151	30	991
Ballston Spa, 4,591—Saratoga								
Benedict Memorial Hosp.	Gen	NPAssn	16	16	6	84	11	270
Batavia, 17,375—Genesee								
St. Jerome's Hospital....	Gen	Church	..	54	12	No data supplied		
Veterans Adm'n. Facility	Gen	Vet	297	297	..	..	251	1,920
..	Gen	NPAssn	..	62	15	No data supplied		
..	Gen	NPAssn	50	50	8	85	40	1,184
..	TB	County	50	59	..	..	48	139
Veterans Adm'n. Facility	Gen	Vet	..	395	..	..	333	1,669
Ray Shore, 4,080—Suffolk								
Dr. King's Hospital.....	Gen	Indiv	..	28	8	53	19	521
Southside Hospital.....	Gen	NPAssn	82	82	24	353	53	1,747
Beacon, 11,933—Dutchess								
Craig House.....	N&M	Corp	77	77	..	..	54	75
Highland Hospital.....	Gen	Corp	..	50	10	97	21	700
Matteawan State Hospital	Ment	State	1,375	1,365	..	..	1,360	135
Bedford Hills, 1,000—Westchester								
Montefiore Hospital Coun-try Sanatorium*.....	TB	NPAssn	230	230	..	..	225	294
Binghamton, 76,662—Broome								
Binghamton City Hosp.*o	Gen	City	460	460	40	879	323	10,107
Binghamton State Hosp.*o	Ment	State	2,391	2,974	..	..	3,018	533
Brentwood, 534—Suffolk								
Pilgrim State Hospital...	Ment	State	8,740	8,740	..	..	6,169	2,226
Ross Sanitarium.....	Gen	Indiv	35	35	2	13	18	200
Bronxville, 6,387—Westchester								
Lawrence Hospital.....	Gen	Corp	85	85	20	267	61	2,169
Brooklyn, 2,560,401—Kings								
Adelphi Hospital.....	Gen	Indiv	80	78	16	183	46	1,760
Bay Ridge Hospital.....	Gen	Corp	75	75	25	486	46	2,265
Bensonhurst Maternity Hospital.....	Mat	Corp	24	24	24	379	11	404
Bethany Deaconess Hosp.	Gen	Church	95	84	20	261	43	1,011
Beth-El Hospital*.....	Gen	NPAssn	190	190	48	1,454	160	6,526
Beth Moses Hospital*....	Gen	NPAssn	..	194	30	729	151	5,307
Boro Park General Hosp.	Gen	Indiv	83	83	35	679	32	1,422
Brooklyn Cancer Institute	Unit of Kings County Hospital							
Brooklyn Eye and Ear Hospital+	ENT	NPAssn	143	143	..	..	75	8,882
Brooklyn Home for Con-sumptives.....	TB	NPAssn	120	120	..	..	111	124
Brooklyn Hospital*o....	Gen	NPAssn	362	362	53	1,037	250	7,702
Brooklyn State Hosp.*o	Ment	State	1,703	2,100	..	..	1,614	2,570
Brooklyn Womens Hosp.	Mat Gyn	NPAssn	50	50	40	1,091	36	1,375
Bushwick Hospital*o.....	Gen	NPAssn	130	107	23	514	70	2,375
Caledonian Hospital*....	Gen	NPAssn	100	100	30	274	47	1,765
Carson C. Peek Memorial Hospital.....	Gen	NPAssn	88	92	33	..	55	1,970
Coney Island Hospital*+.	Gen	City	270	357	52	1,003	285	4,040
Crown Heights Hospital.	Gen	Corp	115	115	28	572	111	5,595
Cumberland Hospital*+o.	Gen	City	..	284	34	978	282	5,008
Evangelical Deaconess Hospital.....	Gen	Church	..	65	20	189	35	1,007
Greenpoint Hospital*....	Gen	City	320	270	50	1,262	276	7,240
Harbor Hospital.....	Gen	NPAssn	..	54	12	51	25	977
Hospital of the Holy Family.....	Gen	Church	62	62	..	..	57	1,509
House of St. Giles the Cripple.....	Orth	Church	..	39	..	..	40	150
Israel-Zion Hospital*....	Gen	NPAssn	350	350	100	2,379	285	9,288
Jewish Hospital*+o.....	Gen	NPAssn	541	541	127	2,194	395	15,337
Kings County Hosp.*+o.	Gen	City	..	2,850	120	2,712	2,772	54,761
Kingston Avenue Hosp.*+o	Iso	City	510	620	..	..	320	4,350
Kingsway Hospital.....	Gen	Indiv	22	22	5	151	10	237
Liberty Hospital.....	Gen	Corp	40	25	24	364	15	575
Long Island College Hos-pital*+o.....	Gen	NPAssn	426	426	47	1,274	335	9,020
Lutheran Hospital.....	Gen	Church	110	90	21	577	67	3,045
Madison Park Hospital..	Gen	Corp	..	76	36	623	56	2,025
Methodist Episcopal Hos-pital*+o.....	Gen	Church	..	395	89	1,027	272	9,413
Midwood Hospital.....	Gen	Corp	80	53	27	453	36	1,547
Norwegian Lutheran Dea-conesses' Home and Hos-pital*+o.....	Gen	Church	..	161	29	835	168	4,320
Prospect Heights Hosp.*o	Gen	NPAssn	175	136	39	493	62	2,231
Riverdale Hospital.....	Gen	Corp	40	29	36	295	10	550
St. Catherine's Hosp.*o..	Gen	Church	..	260	53	1,210	213	5,317
St. Cecilia Hospital for Women.....	Mat	Church	56	50	50	602	22	1,257
St. Charles Hospital Ortho-pedic Clinic.....	Orth	Church	..	55	..	..	52	193
St. John's Hospital*+o...	Gen	Church	204	204	20	679	173	4,963
St. Mary's Hospital*o....	Gen	Church	306	250	50	1,030	189	4,659
St. Peter's Hospital*....	Gen	Church	224	210	14	257	125	2,527
Samaritan Hospital (Main Division).....	Gen	Church	34	34	12	260	25	1,216
Samaritan Hospital (Skeae Division).....	Gen	Church	60	60	15	390	31	1,126
Shore Road Hospital.....	Corp	Corp	55	55	22	360	40	2,490
Station Hospital.....	Gen	Army	..	55	..	..	23	583
Swedish Hospital.....	Gen	NPAssn	64	63	16	225	50	1,619
Trinity Hospital*.....	Gen	NPAssn	110	110	15	198	..	3,684
U. S. Naval Hospital*....	Gen	Navy	1,050	494	..	..	226	1,892
Unity Hospital.....	Gen	NPAssn	200	176	31	676	129	4,210
Victory Memorial Hosp.	Gen	NPAssn	56	56	16	408	34	1,379
Dr. Wade's Private Hosp.	Gen	Indiv	40	40	14	21	12	137
Williamsburgh Maternity Hospital.....	Mat	Indiv	..	69	55	1,037	26	1,016
Wyckoff Heights Hosp.*o	Gen	NPAssn	170	170	20	570	147	5,029

## MICHIGAN—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Mercy Hospital (col.).... Gen	Indiv		40	40	6	26	30	462
St. Luke's Convalescent Home..... Conv	Church		..	26	..	..	18	192
Saratoga General Hosp... Gen	NPAasn		40	40	10	169	25	715
Sheppard Hospital..... Gen	Indiv		60	25	2	5	15	61
William Booth Memorial Hospital..... Mnt	Church		53	53	10	280	35	390
Douglas, 385—Allegan Community Hospital..... Gen	Indiv		..	11	3	23	5	199
..... Gen	Indiv		10	10	2	21	4	311
..... Conv	NPAasn		..	240	..	..	172	374
Wehenkel Convalescent Home..... TB	Indiv		50	28	..	..	28	67
Flint, 135,492—Genesee Genesee County Infirmary..... Inst	Gen County		..	200	6	No data supplied		
Michigan School for the Deaf..... Inst	State		35	35	..	..	11	159
Grand Rapids, 108,682—Kent Kent County Receiving Hospital..... Ment	County		..	32	..	..	16	447
Michigan Soldiers' Home Hospital..... Inst	State		225	245	..	..	140	658
Municipal Isolation Hosp. Iso City	City		20	39	..	..	6	104
Salvation Army Exchange Home Booth Home and Hospital..... Mat	Church		45	45	27	110	35	186
Harbor Beach, 1,892—Huron Harbor Beach Hospital... Gen	Corp		..	14	4	37	7	255
Ionia, 6,562—Ionia Michigan State Reformatory..... Inst	State		22	22	..	..	12	443
Jackson, 55,187—Jackson Florence Crittenton Home and Hospital..... Mat	NPAasn		25	25	12	88	5	88
Michigan State Prison Hospital..... Inst	State		250	225	..	..	87	1,467
Laings, 78,397—Ingham Boy's Vocational School Hospital..... Inst	State		..	60	..	..	9	378
Laings City Hospital... Iso City	City		60	60	..	..	6	...
Lapeer, 5,608—Lapeer Lapeer City Hospital... Gen	Part		18	18	4	21	5	306
Michigan Home and Training School+..... MeDe	State		2,705	3,731	7	3	3,643	372
Marquette, 14,789—Marquette Hospital of the State House of Correction and Branch Prison..... Inst	State		24	24	..	..	6	191
Mt. Clemens, 13,497—Macomb Sigma Gamma Hospital School for Crippled Children..... Orth	NPAasn		60	50	..	..	32	143
Mt. Pleasant, 5,211—Isabella Mt. Pleasant Community Hospital..... Gen	NPAasn		40	18	6	Reopened 1930		
N..... Gen	Indiv		..	20	3	58	15	377
Northville, 2,566—Wayne Wayne County Training School..... MeDe	County		885	749	..	..	662	170
Okemos, 216—Ingham Ingham County Infirmary..... Conv	County		35	35	..	..	32	56
Ontonagon, 1,937—Ontonagon Don Air Tuberculosis Sanatorium..... TB	County		14	16	..	..	15	17
Otter Lake, 230—Lapeer American Legion Children's Bldg..... TB	Prnt		120	125	..	..	125	265
Plymouth, 4,484—Wayne Plymouth Hospital..... Gen	Part		..	8	3	34	..	200
Posiatic, 64,928—Oakland Oakland County Infirmary..... Inst	County		..	100	..	..	70	...
Port Huron, 31,361—St. Clair Port Huron Emergency Hospital..... Iso	City		22	22	..	..	7	112
Rochester, 3,554—Oakland "The Haven"..... N&M	Indiv		45	40	..	..	31	135
Rogers City, 2,978—Boscawen Tele Gen	Indiv		..	6	1	8	3	80
Helene Meinke Hospital... Gen	Indiv		12	12	8	45	5	308
Sunnybrook Hospital..... Gen	Indiv		23	23	7	39	8	360
St. Clair, 3,389—St. Clair St. Clair Community Hosp. Gen	City		..	12	5	No data supplied		
Shelby, 1,152—Oceana Shelby Community Hosp. Gen	NPAasn		12	11	4	27	6	210
Stockbridge, 715—Ingham Rowe Memorial Hospital Gen	Part		8	8	3	45	5	166
Traverse City, 12,539—Grand Traverse Grand Traverse County Hospital..... Gen	County		..	25	2	5	16	196
Wahjamega, 111—Tuscola Michigan Farm Colony for Epileptics..... Epil	State		699	1,044	..	..	993	155
Summary for Michigan:								
Hospitals and sanatoriums...	Number	Beds	Average Patients	Patients Admitted				
Related institutions.....	186	35,797	30,127	345,508				
Totals.....	236	43,757	36,889	359,160				
Refused registration.....	23	562						

## MINNESOTA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Adn, 1,285—Norman Norman County Memorial Hospital..... Gen	NPAasn		..	10	3	28	3	220
Alh-gwub-ehing, 45—Cass Minnesota State Sanat... TB	State		480	480	..	..	354	450
Albert Len, 10,169—Freeborn Nuevo Hospital..... Gen	NPAasn		100	70	10	306	36	1,451
Alexandria, 3,876—Douglas Douglas County Hospital Gen	NPAasn		35	30	6	47	13	382
St. Luke's Hospital..... Gen	Indiv		17	17	6	37	7	289
Anokn, 4,851—Anoka Gntes' Hospital..... Gen	Indiv		..	11	5	No data supplied		
Appleton, 1,625—Swift Kaufmann Hospital..... Gen	Indiv		..	18	4	33	7	460
Austli, 12,276—Mower St. Olaf Lutheran Hosp. Gen	Church		65	59	12	237	40	2,483
Bingley, 885—Clearwater Clearwater Hospital..... Gen	Indiv		12	12	4	21	5	208
Butte Lake, 552—Otter Tail Otter Tail County Sanat. TB	County		..	44	..	..	38	37
Beaulj, 7,202—Beltrami Lutheran Hospital..... Gen	NPAasn		50	39	6	97	23	1,032
Benson, 2,095—Swift Swift County Hospital... Gen	NPAasn		19	19	5	36	10	461
Blwabik, 1,385—St. Louis Blwabik Hospital..... Gen	Indiv		10	10	5	22	3	140
Blue Earth, 2,884—Fribault Blue Earth Hospital..... Gen	Indiv		8	8	4	40	5	215
Brainerd, 10,221—Crow Wing St. Joseph's Hospital... Gen	Church		..	63	15	151	37	1,460
Breckenridge, 2,264—Wilkin St. Francis Hospital... Gen	Church		50	50	8	170	33	1,206
Buffalo, 1,469—Wright Canlin Hospital..... Gen	Indiv		12	12	3	22	41	146
Canby, 1,738—Yellow Medicine John Swenson Memorial Hospital..... Gen	City		18	18	5	46	7	237
Cannon Falls, 1,358—Goodhue Mineral Springs Sanat... TB	County		100	100	..	..	97	63
Clarkfield, 802—Yellow Medicine Clarkfield Community Hospital..... Gen	Indiv		10	10	4	40	7	25
Cloquet, 6,782—Carlton Lppard Hospital..... Gen	Indiv		10	7	3	..	..	...
Pond du Lac Indian Hosp. Gen	IA		25	25	4	60	24	515
Ralter Hospital..... Gen	Part		35	35	5	77	12	685
Crookston, 6,321—Polk Bethesda Hospital..... Gen	Church		45	41	7	115	30	811
St. Vincent's Hospital... Gen	Church		50	44	6	110	38	787
Sunnyrest Sanatorium... TB	County		70	70	..	..	69	63
Crosby, 3,451—Crow Wing Miner's Hospital..... Gen	Indiv		..	20	0	65	6	229
Dawson, 1,386—Luc qui Parle Dawson Surgical Hosp... Gen	Corp		25	25	4	41	11	459
Deerwood, 552—Crow Wing Deerwood Sanatorium... TB	County		25	26	..	..	22	16
Detroit Lakes, 3,675—Becker Community Hospital..... Gen	NPAasn		21	21	0	57	0	437
Duluth, 101,468—St. Louis Miller Memorial Hospital Gen	City		50	50	..	..	13	538
St. Luke's Hospital*... Gen	NPAasn		..	237	33	773	158	5,744
St. Mary's Hospital*... Gen	Church		290	260	30	627	182	5,633
Webber Hospital..... Gen	Corp		40	40	10	180	21	1,230
Ely, 6,156—St. Louis Shipman Hospital..... Gen	Part		15	15	6	32	4	230
Eveleth, 7,484—St. Louis More Hospital..... Gen	Corp		30	30	8	107	19	889
Fairmont, 5,521—Martin Fairmont Hospital..... Gen	Indiv		10	10	4	16	4	223
Fairmont Hospital..... Gen	Indiv		..	10	2	12	2	110
Fairbault, 12,767—Rice St. Luens Evangelical Deaconess Hospital*... Gen	Church		50	50	14	227	42	1,317
Fergus Falls, 9,389—Otter Tail Fergus Falls State Hosp. Ment	State		1,800	2,070	..	..	1,966	682
George B. Wright Memorial Hospital..... Gen	NPAasn		50	38	9	83	22	940
St. Luke's Hospital..... Gen	NPAasn		70	48	8	93	18	698
Ft. Snelling, 1,327—Hennepin Station Hospital..... Gen	Army		168	150	7	41	132	2,761
Fosston, 978—Polk Fosston Hospital..... Gen	Part		15	15	4	73	10	275
Graceville, 969—Big Stone West Central Minnesota Hospital..... Gen	Corp		55	30	5	114	15	697
Grand Rapids, 3,206—Itasca Itasca Hospital..... Gen	County		55	45	10	187	37	1,487
Granite Falls, 1,791—Yellow Medicine Granite Falls Hospital... Gen	Indiv		12	11	5	31	5	234
Riverside Sanatorium... TB	County		55	55	..	..	48	31
Hallock, 869—Kittson Kittson War Veterans' Memorial Hospital..... Gen	County		25	32	6	81	25	711
Hendricks, 702—Lincoln Hendricks Hospital..... Gen	NPAasn		..	14	4	36	9	800
Heron Lake, 786—Jackson Southwestern Minnesota Hospital..... Gen	Indiv		16	10	2	19	4	118
Hibbing, 15,606—St. Louis Adams Hospital..... Gen	Indiv		25	25	6	72	11	741
Road Hospital..... Gen	Indiv		40	40	12	111	21	1,024
Hutchinson, 3,406—McLeod Hutchinson Community Hospital..... Gen	NPAasn		25	21	7	64	15	496

Key to symbols and abbreviations is on page 1060

## NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Ft. Niagara (Youngstown P. O.),—Niagara Station Hospital.....	Gen	Army	27	27	2	4	26	525
Ft. Snodgrass,--Westchester Station Hospital.....	Gen	Army	155	155	..	..	46	1,302
Ft. Snodgrass (Staten Island P. O.),—Richmond Station Hospital.....	Gen	Army	32	26	..	..	6	331
Fulton, 12,462—Oswego Albert Lindley Lee Memorial Hospital.....	Gen	City	37	36	11	200	25	1,067
Gabriele, 200—Franklin Sanatorium Gabriele.....	TB	Church	128	128	..	..	58	66
Geneva, 16,653—Ontario Geneva General Hospital	Gen	NPAssn	..	73	20	195	48	1,431
Glen Cove, 11,430—Nassau North Country Community Hospital.....	Gen	NPAssn	100	100	20	327	55	2,491
Parkside Hospital.....	Gen	Part	13	13	5	33	6	154
Glen Falls, 18,531—Warren Glen Falls Hospital.....	Gen	NPAssn	80	95	15	330	74	2,266
Westmount Sanatorium.....	TB	County	52	52	..	..	50	44
Gloversville, 23,099—Fulton Nathan Littner Hosp.°	Gen	NPAssn	117	102	18	222	61	2,005
Goshen, 2,891—Orange Goshen Hospital.....	Gen	NPAssn	..	40	12	153	22	767
Interphases.....	N&M	Indiv	67	67	..	..	37	51
Gouverneur, 4,015—St. Lawrence Stephen B. Van Duzee Hosp. Gen	Gen	NPAssn	25	18	7	103	9	455
Governors Island,—New York Station Hospital.....	Gen	Army	170	170	9	102	138	2,472
Gowanda, 3,042—Cattaraugus Townsend Hospital.....	Gen	Part	20	20	6	116	10	502
Granville, 3,483—Washington Emma Laing Stevens Hospital.....	Gen	NPAssn	16	16	5	63	9	215
Greenport, 3,062—Suffolk Eastern Long Island Hosp. Gen	Gen	NPAssn	28	28	8	121	16	767
Harrison, 1,485—Westchester St. Vincent's Retreat.....	N&M	Church	..	200	..	No data	supplied	
Hastings on Hudson, 7,007—Westchester Hastings Hillside Hosp.+ N&M	N&M	NPAssn	41	41	..	..	39	97
Helmuth,—Erie Gowanda State Homeopathic Hospital+°.....	Ment	State	2,106	2,481	..	..	2,873	598
Hempstead, 12,650—Nassau Meadowbrook Hospital*..	Gen	County	200	200	16	346	194	4,729
Mercy Hospital.....	Gen	Church	15	18	14	222	11	470
Station Hospital.....	Gen	Army	35	35	..	..	12	536
Herkimer, 10,446—Herkimer Herkimer Memorial Hosp. Gen	Gen	NPAssn	40	32	8	86	27	757
Holcomb, 294—Ontario Oak Mount Sanatorium. TB	TB	County	45	45	..	..	41	29
Holtsville, 260—Suffolk Suffolk Sanatorium.....	TB	County	162	162	..	..	138	193
Hornell, 16,250—Steuben Bethesda Hospital.....	Gen	NPAssn	50	44	10	128	27	908
St. James Mercy Hospital Gen	Gen	Church	106	93	16	254	41	1,718
.....	Gen	Corp	100	91	15	285	75	2,743
.....	Gen	NPAssn	77	77	12	232	57	1,696
.....	Gen	NPAssn	25	25	6	95	19	695
.....	rd	NPAssn	150	110	..	..	99	135
Hudson, 20,008—Tompkins Hermann M. Biggs Memorial Hospital.....	TB	State	..	250	..	..	Estab. 1936	
Tompkins County Memorial Hospital.....	Gen	NPAssn	102	102	23	264	84	2,104
Jamaica,—Queens Jamaica Hospital+°.....	Gen	NPAssn	..	154	33	753	120	4,029
Mary Immaculate Hospital+°.....	Gen	Church	250	261	60	1,242	227	7,078
.....	Gen	Indiv	41	41	12	90	12	662
.....	n	City	686	584	62	1,233	542	12,654
.....	n	Indiv	75	70	19	67	30	563
.....	n	City	100	100	15	415	81	3,704
Woman's Christian Association Hospital°.....	Gen	NPAssn	128	96	32	419	70	2,569
Johnson City, 13,567—Broome Charles S. Wilson Memorial Hospital+°.....	Gen	NPAssn	..	318	32	634	220	5,478
Katonah, 1,400—Westchester "Four Winds".....	N&M	Indiv	37	35	..	..	27	42
Hillbourne Farms.....	Nerv	NPAssn	15	15	..	..	6	8
Kings Park, 1,067—Suffolk Kings Park State Hosp.+°	Ment	State	3,919	5,115	..	..	4,799	983
Kingston, 28,088—Ulster Benedictine Hospital (Our Lady of Victory Sanit.°)	Gen	Church	..	84	16	197	67	1,695
Kingston Hospital+°.....	Gen	NPAssn	118	118	15	299	68	2,521
Dr. C. O. Sahler Sanit.°	NervDr	Corp	100	100	..	..	46	122
Ulster County Tuberculosis Hospital.....	TB	County	56	56	..	..	52	85

Key to symbols and abbreviations is on page 1060



## MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinstcks	Number of Births	Average Census	Admissions
Redwood Falls, 2,532—Redwood Redwood Falls Hospital Gen		Part	15	15	4	35	6	602
Richmond, 603—Stearns Riehmood Hospital .....	Gen	NPAssn	10	10	..	21	4	204
Rochester, 20,621—Olmsted Colonial Hospital.....	Gen	Corp	271	271	..	..	222	7,036
Kahler Hospital.....	Gen	Corp	200	52	..	Reopened	1936	
Rnehester State Hospital.....	Ment	State	1,545	1,400	..	..	1,532	576
St. Mary's Hospital.....	Gen	Church	..	537	30	583	397	10,117
Worrall Hospital.....	SkCa	ENT Cnpr	192	192	..	..	131	8,251
Roseau, 1,023—Roseau Budd Hospital.....	Gen	Indiv	15	15	3	16	7	316
St. Cloud, 21,000—Stearns St. Cloud Hospital.....	Gen	Chureh	300	203	21	412	135	3,228
Veterans Admin. Facility	Ment	Vet	752	752	..	..	702	105
St. Paul, 271,606—Ramsey Ancker Hospital.....	Gen	CyCo	1,000	850	50	1,208	681	10,753
Betbesda Hospital.....	Gen	Church	137	112	25	748	108	3,783
Charles T. Miller Hosp.....	Gen	NPAssn	200	200	25	563	130	5,017
Children's Hospital.....	Chil	NPAssn	75	65	..	..	29	1,515
Gillette State Hospital for Crippled Children.....	Orth	State	250	250	..	..	217	533
Midway Hospital.....	Gen	Chureb	125	100	25	443	81	2,718
Mounds Park Hospital.....	Gen	Church	125	125	12	206	93	1,836
Northern Pacific Beneficial Assnlation Hospital.....	Gen	NPAssn	150	139	11	98	82	2,394
St. John's Hospital.....	Gen	Church	50	75	15	187	53	2,705
St. Joseph's Hospital.....	Gen	Church	..	224	26	590	185	6,672
St. Luke's Hospital.....	Gen	NPAssn	125	125	25	223	52	2,049
West Side General Hosp. Gen		Church	65	50	16	217	35	1,171
St. Peter, 4,811—Neollet Covell Hospital.....	Gen	Corp	..	28	10	62	8	235
St. Peter State Hospital.....	Ment	State	2,037	2,162	..	..	2,038	744
Slayton, 1,102—Murray Home Hospital.....	Gen	Part	..	25	8	40	10	433
Springfield, 2,049—Brown St. John's Hospital.....	Gen	Church	..	22	5	65	10	202
Spring Grove, 867—Houston Spring Grove Hospital....	Gen	Corp	..	14	6	82	6	337
Starbuck, 781—Pope Minnewaska Hospital ....	Gen	NPAssn	16	15	4	50	8	282
Stillwater, 7,173—Washington Lakeview Memorial Hosp. Gen		CyCo	33	33	6	126	23	728
Thief River Falls, 4,268—Pennington Oakland Park Sanatorium TB		County	55	55	..	..	55	23
Physicians Hospital.....	Gen	NPAssn	25	25	6	110	14	1,290
St. Luke's Hospital.....	Gen	NPAssn	75	41	6	67	21	883
Traey, 2,570—Lyon Clinic Hospital.....	Gen	Part	20	12	4	42	10	280
Traey Hospital.....	Gen	Indiv	..	17	4	69	12	465
Two Harbors, 4,223—Lake Burns and Christensen Hospital .....	Gen	Part	36	35	6	95	16	631
Tyler, 505—Lincoln Tyler Hospital.....	Gen	NPAssn	20	18	5	58	..	513
Virginia, 11,903—St. Louis Lenont Hospital.....	Gen	Indiv	15	15	4	..	6	...
Virginia Municipal Hosp. Gen		City	60	50	10	..	Estab.	1936
Wabasha, 2,212—Wabasha Buena Vista Sanatorium. TB		County	25	30	..	..	25	92
St. Elizabeth's Hospital....	Gen	Church	38	38	6	41	24	517
Wadena, 2,512—Wadena Fair Oaks Lodge Sanat....	TB	County	38	36	..	..	30	21
Wesley Hospital.....	Gen	Church	50	31	5	113	24	877
Walker, 618—Cass Walker Hospital.....	Gen	Indiv	25	24	3	30	3	267
Warren, 1,472—Marshall Warren Hospital.....	Gen	Church	50	28	6	65	14	504
Waseca, 3,815—Waseca Waseca Memorial Hnsp. Gen		CyCo	26	26	8	135	14	525
White Earth, 415—Becker White Earth Indian Hnsp. Gen		IA	20	20	4	119	16	558
Willmar, 6,173—Kandiyohi General Hospital .....	Gen	Indiv	..	16	6	35	6	238
Willmar Hospital.....	Gen	Corp	50	34	4	45	13	421
Windom, 2,123—Cottonwood Windom Hospital.....	Gen	NPAssn	15	15	5	46	6	345
Winnebago, 1,701—Faribault Winnebago Community Hospital .....	Gen	Part	12	11	4	26	4	201
Winona, 20,850—Winona Winona General Hospital Gen		NPAssn	120	112	17	334	46	1,502
Worthington, 3,878—Nobles Southwestern Minnesota Sanatorium .....	TB	County	54	54	..	..	43	35
Worthingtn Clinic Hosp. Gen		Part	25	25	5	115	16	619
Worthington Hospital....	Gen	Indiv	12	12	6	40	..	221
Related Institutions								
Aitkin, 1,545—Aitkin Beercroft Hospital .....	Mat	Indiv	..	5	2	6	1	75
Annka, 4,851—Annka Anoka State Asylum.....	Ment	State	1,225	1,450	..	..	1,397	201
Barrett, 368—Grant Powers Hospital.....	Gen	Indiv	10	10	..	1	2	60
Bertha, 490—Todd Thiel Hospital .....	Gen	Indiv	12	20	6	77	8	303
Brahm, 579—Isanti Braham Hospital.....	Gen	Indiv	12	12	4	33	5	254
Buhl, 1,634—St. Louis St. Luuls County Hosp. Inst		County	51	51	..	..	37	425
Caledonia, 1,534—Houston Caledonia Hospital.....	Gen	Indiv	15	15	8	52	6	279

**Key to symbols and abbreviations is on page 1060**

## NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
L. Potts Memorial Hospital	TB	NPAssn	25	33	10	133	34	1,123
Lockport, 23,160—Niagara				55			45	27
Lockport City Hospital	Gen	City	70	70	14	313	50	1,981
Niagara County Sanat. TB		County	200	200			198	129
Long Beach, 5,817—Nassau								
Long Beach Hospital	Gen	NPAssn	41	56	5	73	20	793
Long Island City, Queens								
Astoria Sanatorium	Gen	Corp	50	33	24	409	15	742
Boulevard Hospital	Gen	Corp	73	73	28	659	47	2,237
River Crest Sanitarium	N&M	Corp	132	120			100	274
St. John's Long Island City Hospital	Gen	Church	260	253	44	929	215	5,764
Loomis, 200—Sullivan								
Loomis Sanatorium	TB	NPAssn	124	124			91	186
Lowville, 3,424—Lewis								
Lewis County Gen. Hosp.	Gen	StateCo	40	40	3	123	24	1,009
Lyons, 3,556—Wayne								
Edward J. Barber Hosp.	Gen	Indiv	24	24	3	44	17	368
Lyons Hospital	Gen	Corp	26	26	5	39	11	410
Malone, 8,657—Franklin								
Alice Hyde Mem. Hosp.	Gen	NPAssn	74	74	12	134	58	1,669
Marcy, 112—Oneida								
Marcy State Hospital	Gen	State	2,140	2,742			2,632	584
Medina, 6,071—Orleans								
Medina Memorial Hosp.	Gen	NPAssn	29	29	7	77	11	526
Middle Grove, 280—Saratoga								
Saratoga County Tuberculosis Hospital	TB	County		90			72	100
Middletown, 21,276—Orange								
Elizabeth A. Horton Memorial Hospital	Gen	NPAssn	76	90	13	241	62	1,812
Middletown Sanitarium and Hospital	Gen	Indiv		45				No data supplied
Middletown State Homeopathic Hospital	Gen	State	2,780	3,354			3,156	715
Mineola, 8,135—Nassau								
Nassau Hospital	Gen	NPAssn	170	170	30	641	136	4,617
Monticello, 3,450—Sullivan								
Hamilton Avenue Hosp.	Gen	Indiv		12	4			No data supplied
Monticello Hospital	Gen	NPAssn	30	34	5	38	12	529
Mt. Kisco, 5,127—Westchester								
Northern Westchester Hospital	Gen	NPAssn	108	108	18	230	77	2,640
Mt. McGregor, Saratoga								
Metropolitan Life Insurance Company Sanat.	G&TB	NPAssn		330			193	361
Mt. Morris, 3,238—Livingston								
Mt. Morris Tuberculosis Hospital	TB	State	250	250				Estab. 1936
Mt. Vernon, 91,400—Westchester								
Mt. Vernon Hospital	Gen	NPAssn	146	146	35	664	108	3,897
Mt. Vision, 238—Otsego								
Otsego County Sanat.	TB	County		26			16	31
Newburgh, 31,275—Orange								
Estelle and Walter C. Odell Memorial Sanatorium for Tuberculosis	TB	County	50	50			50	41
St. Luke's Hospital	Gen	NPAssn	211	192	19	213	76	2,831
New Rochelle, 54,000—Westchester								
New Rochelle Hospital	Gen	NPAssn	121	121	26	410	148	4,701
New York City, 4,211,699—New York								
Babies Hospital	Chil	NPAssn	200	174			104	2,984
Beekman Street Hospital	Gen	NPAssn	100	100			64	2,179
Bellevue Hospital	Gen	City	2,218	115	1,415	2,201	62,112	
Beth David Hospital	Gen	NPAssn	156	182	24	271	73	2,375
Beth Israel Hospital	Gen	NPAssn	444	360	84	1,830	270	10,151
Black's Sanatorium	Gen	Corp		74	36	103	11	387
Broad Street Hospital	Gen	NPAssn	125	117	8	52	49	2,111
Bronx Eye and Ear Infirmary	ENT	NPAssn		30			13	2,563
Bronx Hospital	Gen	NPAssn	303	303	39	1,972	217	10,777
Bronx Maternity and Woman's Hospital	Mat	NPAssn	36	34	36	597	17	655
Central Neurological Hospital	Neur	City	470	470			432	725
Charles B. Towns Hosp. Drug	Gen	Corp	50	50			15	654
Columbus Hospital	Gen	Church	260	260	40	508	156	5,108
Columbus Hospital Extension	Gen	Church	100	91	15	225	71	2,100
Community Hospital	Gen	NPAssn	100	85	15	133	27	1,793
Concourse Hospital	Gen	Indiv		43	30	346	22	1,168
Crotona Park Sanitarium	Gen	Corp		30	20	350	15	722
Doctors Hospital	Gen	NPAssn	230	275	50	576	107	3,224
Elton Sanitarium	Gen	Corp	75	77	46	442	33	1,123
Flower-Fifth Avenue Hospital	Gen	NPAssn	450	294	57	1,062	247	8,439
Fordham Hospital	Gen	City	441	558	51	1,439	450	12,896
Franklin Maternity Sanit.	Mat	Indiv	10	10	10	138	4	150
French Hospital	Gen	NPAssn	270	230	50	656	165	4,792
Gouverneur Hospital	Gen	City		200	20	334	158	4,269
Harlem Eye and Ear Hospital	ENT	NPAssn		50			5	1,632
Harlem Hospital	Gen	City	672	519	123	2,186	329	17,318
Herman Knapp Memorial Eye Hospital	Eye	NPAssn	50	50			32	741
Hospital for Joint Diseases	G&Or	NPAssn	335	335			303	5,897
Hunts Point Hospital	Gen	Corp		90	27			No data supplied
Jewish Maternity Hospital	Unit of Beth Israel Hospital	NPAssn		175	36			New Building
Jewish Memorial Hospital	Gen	NPAssn	174	174	30	561	113	3,770
Kniekerbocker Hospital	Gen							

## NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
Lebanon Hospital	Gen	NPAssn	175	130	15	235	100	2,867
Dr. Leff's Maternity Hosp.	Mat	Indiv		50	50	605	15	715
Lenox Hill Hospital	Gen	NPAssn	521	521	74	886	407	10,523
Le Roy Sanitarium	Gen	Corp		54	10	No data supplied		
Lincoln Hospital	Gen	City	363	331	37	1,327	344	9,434
Lutheran Hospital	Gen	NPAssn	100	100	21	383	72	2,871
Lying-in Hospital	Unit of New York Hospital							
Manhattan Eye, Ear and Throat Hospital	ENT	NPAssn		212			131	16,403
Manhattan General Hosp.	Gen	Corp	315	165	20	146	83	2,792
Manhattan Maternity and Dispensary	Unit of New York Hospital							
Manhattan State Hosp.	Gen	State	3,433	3,679			2,229	2,583
Memorial Hospital for the Treatment of Cancer and Allied Diseases	Ca	NPAssn	112	112			101	2,608
Mt. Eden Hospital	Gen	City	1,367	1,367	58	1,128	1,313	11,830
Mt. Morris Park Hosp.	Gen	NPAssn	60	60	10	50	43	5,409
Mt. Sinai Hospital	Gen	Church	252	205	47	1,520	215	5,398
Nazareth Hospital for Women and Children	Unit of Seton Hospital							
Neurological Institute of New York	Neur	NPAssn	222	222			158	2,538
New York City Cancer Institute Hospital	Ca	City	132	192			180	878
New York City Hosp.	Gen	City	1,000	1,000	30	510	869	8,645
New York Eye and Ear Infirmary	ENT	NPAssn	170	170			101	5,069
New York Foundling Hospital	MatCh	Church		309	48	686	251	2,897
New York Hospital	Gen	NPAssn		832	142	2,635	644	14,584
New York Infirmary for Women and Children	Gen	NPAssn	125	125	37	973	91	3,610
New York Nursery and Childs Hospital	Unit of New York Hospital							
New York Ophthalmic Hospital	Unit of Flower-Fifth Avenue Hospital							
New York Orthopaedic Dispensary and Hospital	Orth	NPAssn		132			106	1,387
New York Polyphlebic Medical School and Hosp.	Gen	NPAssn	350	300	37	516	210	7,564
New York Post-Graduate Medical School and Hospital	Gen	NPAssn	406	406			231	9,511
New York Society for the Relief of the Ruptured and Crippled	Orth	NPAssn	269	236	3		186	2,391
New York State Psychiatric Institute and Hosp.	Gen	State	200	200			163	225
Park East Hospital	Gen	Corp	148	124	24	287	61	2,104
Park Hill Sanitarium	Gen	Corp	73	73	8	90	39	1,534
Parkway Hospital	Gen	Corp	75	75	10	184	35	1,025
Park West Hospital	Gen	Corp	74	64	10	184	33	2,162
Payne Whitney Psychiatric Clinic	Unit of New York Hospital							
Peoples Hospital	Gen	NPAssn	53	53	5	36	22	1,210
Presbyterian Hospital	Gen	NPAssn		667			452	10,864
Psychiatric Pavilion of Bellevue Hospital	Unit of Bellevue Hospital							
Reconstruction Hospital	Unit of New York Post-Graduate Medical School and Hospital							
Research Division for Chronic Diseases	Gen	City		80				Estab. 1906
Riker's Island Hospital	Gen	City	356	356			176	2,377
Riverside Hospital	Tbiso	City	332	375			362	1,185
Roosevelt Hospital	Gen	NPAssn		384			269	7,311
Royal Hospital	Gen	Indiv		110	35	No data supplied		
St. Ann's Maternity Hosp.	Unit of New York Foundling Hospital							
St. Clare's Hospital	Gen	Church	90	90	21	293	52	1,637
St. Elizabeth's Hospital	Gen	Church	144	110	27	407	60	1,793
St. Francis' Hospital	Gen	Church	380	380			238	
St. John's Hospital	Unit of New York Foundling Hospital							
St. Joseph's Hospital for Consumptives	TB	Church		355			341	523
St. Luke's Hospital	Gen	Church	540	475			531	8,009
St. Vincent's Hospital	Gen	Church	430	430	35	727	523	8,424
Seton Hospital	TB	Church		256			253	
Sloan Hosp. for Women	GynOb	NPAssn		178	144	2,399	237	5,040
Sydenham Hospital	Gen	NPAssn	176	176	24	730	165	5,557
Union Hospital	Gen	NPAssn	55	55	20	169	36	1,192
U. S. Marine Hospital	Gen	USPHS	540	540			324	5,284
University Heights Hosp.	Gen	Corp		50	17	401	40	1,715
Veterans Admin. Facility	Gen	Vet		973			471	4,343
Webb Sanitarium	Gen	Corp		12	12	148	40	610
Westchester Square Hosp.	Gen	Indiv	75	75	22	545	42	2,200
West Hill Sanitarium	N&M	Indiv	55	55			43	133
Wickensham Hospital	Gen	Corp	75	75	10	117	35	1,517
Willard Parker Hospital	Tbiso	City	424	424			267	5,737
William Booth Memorial Hospital	Gen	Church	48	48	24	274	29	919
Woman's Hospital	GynOb	NPAssn	212	212	87	1,396	131	4,711
Niagara Falls, 15,400—Niagara								
Mt. St. Mary's Hospital	Gen	Church	132	132	23	441	81	2,713
Niagara Falls Memorial Hospital	Gen	NPAssn	175	162	25	539	110	2,315
Northport, 2,525—Suffolk								
Veterans Admin. Facility	Ment	Vet	1,392	1,453			1,456	297
North Tonawanda, 19,109—Niagara								
De Graff Memorial Hosp.	Gen	City	48	48	18	203	24	1,240

Key to symbols and abbreviations is on page 1060

MINNESOTA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Cambridge, 1,183—Isanti Minnesota Colony for Epileptics.....	Medic	State	800	880	..	..	873	02
Cokato, 1,125—Wright Cokato Hospital.....	Gen	Indiv	12	12	6	32	6	186
Detroit Lakes, 3,675—Becker Detroit Hospital.....	Gen	Indiv	..	8	3	1	2	61
Duluth, 101,463—St. Louis Hearland Hospital.....	Inst	County	65	65	..	..	40	1,131
Ellsworth, 614—Nobles Ellsworth Hospital.....	Gen	Indiv	10	10	3	17	3	77
Ely, 6,156—St. Louis Detention Hospital.....	Isn	City	16	16	..	..	2	21
Faribault, 12,767—Rice Blindfolded.....	McDe	State	2,200	2,300	4	4	2,215	269
Glenwood, 2,220—Pope Glenwood Hospital.....	Gen	Part	..	10	3	30	7	388
Thorsen Hospital.....	Gen	Indiv	..	8	2	No data supplied		
Greenbush, 387—Roseau General Hospital.....	Gen	Indiv	8	8	3	40	4	223
Hastings, 5,656—Dakota Hastings State Asylum.....	McDe	State	1,000	1,000	..	..	1,067	112
Lafayette, 1,111—Gen Lafayette Hospital.....	Gen	Indiv	20	20	5	21	12	114
St. Francis, 1,111—Gen St. Francis Hospital.....	Gen	Indiv	15	15	3	25	6	218
St. Raphael, 1,111—Gen St. Raphael Hospital.....	Gen	Indiv	..	17	4	44	12	270
Hibbing, 15,666—St. Louis Hibbing Detention Hosp., Isn	City	City	25	10	..	..	1	33
Long Prairie, 1,834—Todd Long Prairie Hospital.....	Gen	Part	12	12	3	16	4	179
Madelia, 1,237—Watsonwan Madelia Hospital.....	Gen	Indiv	13	13	5	61	5	260
Minneapolis, 464,356—Hennepin Barton-Loring Home for Convalescents.....	Conv	NPAasn	25	25	..	..	13	176
Franklin Hospital.....	Conv	NPAasn	60	60	..	..	27	748
Homeoed Hospital.....	Conv	NPAasn	46	46	..	..	25	278
Minneapolis Sanitarium.....	N&M	Indiv	24	24	..	..	20	..
Minnesota Sanitarium.....	N&M	Indiv	..	29	..	..	No data supplied	
Minnesota Soldiers' Home Hospital.....	Inst	State	110	80	..	..	75	176
Parkview Sanatorium.....	Chr	City	186	186	..	..	167	651
Portland Resthome.....	N&M	Indiv	..	10	..	..	..	..
Rest Home.....	Conv	Indiv	10	10	..	..	14	36
Rest Hospital.....	N&M	Indiv	18	18	..	..	120	..
Sarahurst.....	Trl	NPAasn	18	18	..	..	12	20
Vocational Hospital.....	Conv	NPAasn	40	35	..	..	31	122
Morris, 2,474—Stevens Stevens County Hospital Gen	NPAasn	14	15	5	60	10	361	
Mudbaden, Scott Mudbaden Sulphur Springs Conv	Corp	..	90	..	..	..	19	1,771
Nicollet, 431—Nicollet Nicollet Hospital.....	Gen	Indiv	10	10	3	18	2	132
Owatonna, 7,654—Steele Minnesota State Public School.....	Inst	State	60	60	..	..	23	1,092
Parkers Prairie, 631—Otter Tail Leibold Hospital.....	Surg	Indiv	12	10	3	No data supplied		
Pelleau Rapids, 1,263—Otter Tail Dr. Boyce's Hospital.....	Gen	Indiv	10	8	4	20	2	73
Pelleau Rapids Hospital.....	Gen	Indiv	7	7	3	38	3	128
Pipestone, 3,489—Pipestone Pipestone Indian Hospital Gen	IA	36	36	7	3	21	238	
Red Wing, 9,629—Goodhue Minnesota State Training School for Boys.....	Inst	State	20	20	..	..	11	000
St. Cloud, 21,000—Stearns Minnesota State Reforma- tory Hospital.....	Inst	State	30	30	..	..	20	643
St. Paul, 271,606—Ramsey TB N&M	CyCo	Indiv	80	80	..	..	75	30
Salvation Army Home and Hospital.....	Mat	Church	75	75	10	91	42	130
Samaritan Hospital.....	Gen	NPAasn	25	26	8	53	9	386
Sauk Centre, 2,716—Stearns Long Hospital.....	Gen	Indiv	0	9	4	14	2	91
Shakopee, 2,023—Scott Mudcura Sanitarium.....	Conv	Indiv	75	75	..	..	24	973
Stillwater, 7,173—Washington Minnesota State Prison Hospital.....	Inst	State	..	50	..	No data supplied		
Warroad, 1,184—Roseau Warroad Hospital.....	Gen	City	12	12	4	41	6	210
Watertown, 594—Carver Shrader and Lee Hospital Gen	Indiv	..	11	2	18	..	164	
Wayzata, 1,100—Hennepin Minnetonka Hospital.....	Gen	NPAasn	..	12	3	20	6	156
Wheaton, 1,279—Traverse Wheaton Hospital.....	Gen	Indiv	..	12	5	34	5	288
Willmar, 6,173—Kandiyohi Willmar State Asylum.....	Ment	State	1,450	1,450	..	..	1,448	350
Worthington, 3,578—Nobles General Hospital.....	Gen	Part	8	8	4	7	4	63
Summary for Minnesota:			Number	Beds	Average Patients	Patients Admitted		
Hospitals and sanatoriums...			163	19,074	15,509	218,824		
Related institutions.....			57	8,653	7,909	15,888		
Totals.....			220	27,727	23,418	234,712		
Refused registration.....			9	181				

MISSISSIPPI

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Aberdeen, 3,925—Monroe Aberdeen Hospital.....	Gen	City	..	22	3	No data supplied		
Amory, 3,214—Monroe Gilmara Sanitarium.....	Gen	NPAasn	35	35	3	18	13	508
Biloxi, 14,850—Harrison Biloxi Hospital.....	Gen	NPAasn	..	25	8	84	11	548
Bononeville, 1,703—Prentiss North East Mississippi Hospital.....	Gen	NPAasn	207	207	..	..	160	1,798
Brookhaven, 5,288—Lincoln Kings Daughters Hosp., Gen	Gen	NPAasn	50	37	6	40	11	677
Canton, 4,725—Madison Madison County Kings Daughters Hospital.....	Gen	NPAasn	20	20	5	10	4	275
Centerville, 1,344—Wilkinson Field Memorial Hospital Gen	Part	32	28	4	35	16	646	
Charleston, 2,014—Tallahatchie Charleston Hospital.....	Gen	Indiv	20	15	2	15	5	225
Clarksdale, 10,034—Conhoma Clarksdale Hospital.....	Gen	NPAasn	23	19	5	72	4	467
Columbia, 4,833—Marion Columbia Clinic Hospital Gen	Indiv	26	35	4	20	10	1,005	
Columbus, 10,743—Lowndes Columbus Hospital.....	Gen	Indiv	..	25	6	16	5	206
Fite Hospital.....	Gen	Indiv	35	35	5	49	6	..
Carlinth, 6,220—Abern Carlinth Hospital.....	Gen	Indiv	..	12	3	37	4	278
McRae Hospital.....	Gen	NPAasn	..	60	5	No data supplied		
Electric Mills, 1,084—Kemper George C. Hixon Mem. Hospital.....	Gen	NPAasn	..	50	6	36	15	654
Greenville, 14,807—Washington Kings Daughters Hosp., Gen	Gen	NPAasn	100	100	14	140	64	2,318
Greenwood, 11,123—Leflore Greenwood-Leflore Hosp., Gen	CyCo	65	65	8	60	13	585	
Grenada, 4,340—Grenada Grenada General Hosp., Gen	Part	50	50	4	45	15	1,010	
Gulfport, 12,547—Harrison Kings Daughters Hosp., Gen	NPAasn	..	75	6	191	33	1,583	
Veterans Admin. Facility Ment	Vet	628	628	..	..	599	425	
Hattiesburg, 18,601—Forrest Methodist Hospital.....	Gen	Church	75	75	12	175	24	1,433
South Mississippi Infr- mary.....	Gen	Indiv	60	60	15	12	10	408
.. Gen	NPAasn	..	40	2	No data supplied			
Jackson Infirmary.....	Gen	NPAasn	..	75	15	220	30	2,427
Mississippi Baptist Hosp., Gen	Church	108	100	11	270	73	4,170	
Mississippi State Charity Hospital.....	Gen	State	120	80	..	..	50	..
Dr. Willis Wadley Hosp., Gen	Corp	70	65	3	9	17	1,044	
Laurel, 18,017—Jones Laurel General Hospital Gen	Indiv	50	50	6	161	21	1,540	
South Mississippi Charity Hospital.....	Gen	State	..	60	6	..	40	..
.. Gen	County	25	25	2	28	8	619	
.. Gen	Indiv	30	30	4	No data supplied			
.. Gen	Indiv	26	26	2	49	13	1,034	
.. Gen	Indiv	25	25	2	42	..	635	
McComb Infirmary.....	Gen	Indiv	..	45	5	72	12	721
Meridian, 31,954—Lauderdale Anderson Infirmary.....	Gen	Indiv	..	..	..	..	..	..
East Mississippi State Hospital.....	Ment	State	900	900	..	..	818	310
Matty Hersee Hospital.....	Gen	State	..	90	10	76	..	2,316
Meridian Sanitarium and Clinic.....	Gen	Indiv	..	65	12	86	23	1,089
Dr. F. G. Riley's Hospital and Clinic.....	Gen	Indiv	35	35	6	30	10	497
Rush's Infirmary.....	Gen	Part	50	50	6	58	22	1,285
Natchez, 13,422—Adams Chamberlain-Rice Hosp., Gen	Corp	..	35	6	No data supplied			
Natchez Charity Hosp., Gen	State	75	70	8	228	49	1,996	
Na.....	Gen	Corp	50	50	5	56	17	879
New.....	Gen	Indiv	32	32	2	55	9	549
New.....	Gen	NPAasn	15	13	2	16	3	297
Clinic.....	Gen	Corp	25	25	3	36	12	1,003
Newton, 2,011—Newton Newton Infirmary.....	Gen	Corp	30	30	5	41	16	1,054
.. Gen	County	..	25	4	50	8	425	
.. Gen	IA	28	28	7	42	22	888	
.. Gen	Indiv	..	24	2	29	..	259	
.. NPAasn	..	10	2	12	5	158		
.. TB	State	460	460	..	..	307	389	
.. Gen	Indiv	..	20	2	No data supplied			
Oktobersa Hospital.....	Gen	Corp	35	35	6	78	21	685
Tupelo, 6,361—Lee Tupelo Hospital.....	Gen	Corp	15	15	2	42	7	437
Tylertown, 1,102—Walshall Tylertown Hospital.....	Gen	Indiv	..	..	..	..	..	..

Key to symbols and abbreviations is on page 1060

## NEW YORK—Continued

Hospitals and Sanitariums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Rome, 72,338—Onondaga County Hospital..... Gen	County		190	105	5	88	184	1,440
Rome Hospital and Murphy Memorial Hospital..... Gen	City		53	65	17	379	50	1,792
Roma Infirmary..... Gen	Indiv		52	60	6	21	6	780
Sackett Harbor, 742—Jefferson Station Hospital..... Gen	Army		30	30	..	..	21	511
Salamanca, 6,577—Cattaraugus City Hospital..... Gen	City		42	42	14	146	26	1,166
Salisbury Center, 331—Herkimer Philo Crest Sanatorium.... TB	County		90	90	..	..	88	62
Saratoga Lake, 8,020—Franklin General Hospital..... Gen	NPAssn		44	34	10	90	25	841
National Variety Artists Lodge (Will Rogers Memorial Hospital)..... TB	NPAssn		100	75	..	..	50	21
Northwinds Sanatorium.... TB	NPAssn		26	26	..	..	26	27
Reception Hospital..... TB	NPAssn		21	21	..	..	18	21
St. Mary's of the Lake.... TB	Church		30	30	..	..	17	38
Saratoga Springs, 13,169—Saratoga Saratoga Hospital..... Gen	NPAssn		90	90	17	162	46	1,522
Schenectady, 65,602—Schenectady Eastern New York Orthopedic Hospital-School... Orth	NPAssn		14	15	..	..	14	27
Ellis Hospital*..... Gen	NPAssn		..	262	33	708	227	7,808
Glenridge Sanatorium.... TB	County		132	132	..	..	124	74
Seneca Falls, 6,443—Seneca Seneca Falls Hospital... Gen	City		28	28	7	87	17	685
Sherburne, 1,077—Chemung Chemung County Tuberculosis Hospital..... TB	County		33	37	..	..	34	30
Sodus, 1,444—Wayne Myers Hospital..... Gen	Indiv		50	35	7	40	12	267
Somerville, 100—Westchester Phinewood Sanitarium.... N&M	Indiv		43	43	..	..	32	146
Sonyea, 1,173—Livingston Craig Colony*..... Epil	State		1,090	2,480	..	..	2,233	420
Southampton, 3,737—Suffolk Southampton Hospital*... Gen	NPAssn		100	95	19	240	38	1,866
Stapleton (States Island P. O.)—Richmond U. S. Marine Hospital*... USPHS			700	716	..	..	516	6,187
States Island, 135,246—Richmond Richmond Memorial Hosp. Gen	NPAssn		100	100	18	211	65	1,770
St. Vincent's Hospital*... Church			208	208	33	618	157	5,364
Sea View Hospital*..... TB	City		1,441	1,441	5	24	1,616	2,069
States Island Hospital*... Gen	Corp		268	219	40	975	132	6,502
Sufferin, 3,757—Rockland Good Samaritan Hosp... Gen	Church		40	39	10	173	40	1,993
Summound,—Franklin Veterans Adminl. Facility TB	Vet		320	520	..	..	368	451
Syracuse, 209,326—Onondaga City Hospital*..... Iso	City		..	84	..	..	26	521
Crouse-Irving Hospital*... Gen	NPAssn		235	210	25	632	170	5,875
General Hospital*..... Gen	NPAssn		85	85	25	505	72	2,344
Hospital of the Good Shepherd**..... Gen	NPAssn		250	242	..	..	163	5,203
Onondaga General Hosp. Gen	NPAssn		..	52	25	No data	supplied	
Onondaga Sanatorium.... TB	County		255	255	..	..	238	107
Peoples Hospital..... Gen	NPAssn		33	33	10	84	8	836
St. Joseph Hospital*... Gen	Church		200	200	31	510	154	6,294
St. Mary's Maternity Hospital and Infants Asylum Mat Ch	Church		..	72	20	251	36	435
Syracuse Mem. Hosp.*... Corp			250	210	40	1,032	212	6,615
Syracuse Psychopathic Hospital..... Ment	Gen		60	60	..	..	50	700
Twin Elms..... N&M	Indiv		10	10	..	..	8	64
Unionville, 1,400—Unionville Hospital..... Gen	NPAssn		70	57	13	238	35	1,409
Utica, 1,400—Utica Hospital..... Gen	NPAssn		53	47	6	69	23	853
Troy, 72,763—Rensselaer Leonard Hospital..... Gen	NPAssn		100	85	15	295	75	2,057
Marshall Sanitarium.... N&M	NPAssn		60	60	..	..	45	297
St. Joseph's Maternity Hospital..... Mat	Church		30	30	23	344	12	391
Samaritan Hospital*... Gen	NPAssn		165	165	16	335	104	2,861
Troy Hospital*..... Gen	Church		250	272	22	191	162	3,407
Trudene, 230—Essex Trudean Sanatorium+... TB	NPAssa		200	200	..	..	207	260
Tupper Lake, 5,271—Franklin Mercy General Hospital... Gen	Church		40	35	2	35	19	606
Tuxedo Park, 2,000—Orange Tuxedo Hospital..... Gen	NPAssn		32	32	8	51	16	462
Utica, First Maccos Hospital..... Gen	NPAssn		120	115	16	262	62	2,503
Utica, Second Maccos Hospital..... Frat			200	200	..	..	127	310
Oneida, 1,400—Oneida Sanatorium..... TB	County		150	150	..	..	137	146
St. Elizabeth Hospital*... Gen	Church		130	130	20	380	85	2,927
St. Luke's Home and Hospital..... Gen	Church		151	123	28	373	69	2,143
Utica, 1,400—Utica Hospital..... Gen	City		125	125	10	283	75	3,534
Utica, 1,400—Utica Hospital..... Gen	NPAssn		62	62	13	180	40	1,576
Utica State Hospital*... Ment	State		1,336	1,669	..	..	1,638	538
Vermont, 1,400—Vermont State Hospital..... Gen	County		917	917	15	246	672	6,414
Warsaw, 1,400—Warsaw Wyoming County Community Hospital..... Gen	County		80	84	11	226	53	2,011
Warwick, 2,433—Orange Warwick Hospital and Clinic..... Gen	Indiv		..	20	4	26	8	317
Waterloo, 4,047—Seneca Waterloo Memorial Hosp. Gen	NPAssn		13	13	5	78	11	360

Key to symbols and abbreviations is on page 1060

## MISSISSIPPI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Vicksburg, 22,943—Warren Mississippi State Charity Hospital	Gen	State	50	52	8	210	52	2,827
Vicksburg Hospital	Gen	NPAasn	60	60	6	56	23	1,422
Vicksburg Infirmary	Gen	NPAasn	80	70	5	36	40	1,402
Vicksburg Sanitarium and Crawford Street Hosp.	Gen	NPAasn	75	75	6	67	48	1,993
Water Valley, 3,738—Yalobusha Water Valley Hospital	Gen	Part	..	25	4	18	6	330
West Point, 4,677—Clay Iry Hospital	Gen	Indiv	25	25	6	18	13	390
Whitfield, Rankin Mississippi State Hospital	Ment	State	3,500	3,050	..	..	2,690	1,751
Winona, 2,607—Mongomery Wiaona Infirmary	Gen	NPAasn	38	38	2	25	12	453
Yazoo City, 5,578—Yazoo Kings Daughters Hosp.	Gen	NPAasn	26	24	5	23	8	553
<b>Related Institutions</b>								
Beloxi, 14,850—Harrison Jefferson Davis Soldiers Home	Inst	State	..	60	..	No data supplied	..	..
Ellisville, 2,127—Jones Ellisville State School	MeDe	State	..	400	..	No data supplied	..	..
Greenville, 14,807—Washington Kings Daughters Hospital (col.)	Gen	NPAasn	60	60	..	12	50	750
Greenwood, 11,123—Leflore Greenwood Colored Hosp.	Gen	Indiv	..	12	..	2	4	61
Meridian, 31,354—Lauderdale Kings Daughters Tuberculosis Hospital	..	NPAasn	45	45	..	..	23	33
Okolona, 2,235—Chickasaw Wicks Hospital	Gen	Indiv	9	9	2	5	..	..
State College, 220—Oktibbeha James Z. George Memorial Hospital	Inst	State	..	44	..	..	14	648
University, 15—Lafayette University of Mississippi Hospital	Inst	State	..	15	..	..	6	..
<b>Summary for Mississippi:</b>								
Hospitals and sanatoriums...	Number	Beds	Average Patients	Patients Admitted				
Related institutions.....	65	7,865	5,669	63,222				
Totals.....	8	647	433	1,857				
Refused registration.....	73	8,512	6,102	65,079				
	2	72						

## MISSOURI

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Bonne Terre, 4,021—St. Francois Bonne Terre Hospital	Gen	NPAasn	30	30	5	56	13	511
Boonville, 6,435—Cooper St. Joseph's Hospital	Gen	Church	75	75	14	59	40	1,187
Butler, 2,706—Bates Butler Memorial Hospital	Gen	Indiv	25	25	2	77	8	523
California, 2,334—Moniteau Latham Sanitarium	Gen	Indiv	30	32	2	3	12	900
Canton, 2,044—Lewis Canton Community Hosp.	Gen	Indiv	15	18	2	8	2	100
Cape St. Sou	..	..	..	60	10	136	41	1,404
Carthage, 9,736—Jasper McCune-Brooks Hospital	Gen	City	50	78	6	65	14	998
St. Louis County Hosp.++	Gen	County	150	187	39	318	163	3,831
Columbia, 14,967—Boone Boone County General Hospital	Gen	County	50	46	4	86	24	1,005
Noyes Hospital	Unit of University Hospitals	..	..	..	..	..	..	..
Parker Memorial Hospital	Unit of University Hospitals	..	..	..	..	..	..	..
State Hospital for Crippled Children	Unit of University Hospitals	..	..	..	..	..	..	..
University Hospitals+0...	Gen	State	100	100	8	47	70	2,700
Excelsior Springs, 1,565—Clay Excelsior Springs Sanitarium and Hospital	Gen	Corp	50	20	2	11	9	424
Veterans Admin. Facility	Gen	Vet	232	232	..	..	225	1,171
Yarmington, 3,001—St. Francois State Hospital No. 4+	Ment	State	649	1,364	..	..	1,320	491
Fayette, 2,630—Howard Lee Hospital	Gen	Part	20	20	5	9	7	323
Oakland Park Hospital	N&M	Corp	..	20	..	..	..	10
Harrisonville, 2,306—Cass Harrisonville Hospital	Gen	Indiv	10	10	2	7	2	159

## MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Independence, 15,206—Jackson Independence Sanitarium and Hospital	Gen	Church	80	68	12	303	42	1,868
Ironton, 974—Iron Arcadia Valley Hosp.—St. Mary's of the Ozarks	Gen	Church	30	25	4	31	10	565
Jefferson Barracks, 842—St. Louis Station Hospital	Gen	Army	75	145	5	43	136	2,328
Veterans Admin. Facility	Gen	Vet	420	372	..	..	382	2,161
Jefferson City, 21,590—Cole St. Mary's Hospital	Gen	Church	100	87	13	202	60	2,340
Joplin, 33,454—Jasper Freeman Hospital	Gen	Church	90	87	12	102	87	1,403
St. John's Hospital	Gen	Church	100	100	10	148	50	1,813
Kansas City, 399,746—Jackson Children's Hospital	Gen	NPAasn	125	123	12	..	137	2,236
..	..	Corp	75	65	30	172	46	260
..	..	City	410	410	40	749	350	10,130
Kansas City General Hospital No. 2 (col.)+0...	Gen	City	300	250	24	337	167	3,158
Kansas City Tuberculosis Hospital	TB	City	..	200	..	..	210	295
Memorial Hospital	Gen	NPAasn	150	120	23	327	18	3,333
Neurological Hospital	N&M	NPAasn	150	41	..	..	23	273
Ralph Sanitarium	Drug	Indiv	20	20	..	..	9	214
Receiving Hospital	Unit of Kansas City General Hospital	..	..	..	..	..	..	..
Research Hospital	Gen	NPAasn	200	200	25	344	157	5,346
St. Joseph Hospital+0...	Gen	Church	250	210	26	482	150	4,731
St. Luke's Hospital+0...	Gen	Church	210	193	27	457	142	4,545
St. Mary's Hospital+0...	Gen	Church	175	156	19	437	133	4,463
St. Vincent's Maternity Hospital	Mnt	Church	..	42	35	559	14	390
..	N&M	Part	..	30	..	No data supplied	..	..
..	Gen	Church	125	112	24	282	75	2,525
..	Sur	Indiv	..	32	..	5	23	1,018
..	Gen	NPAasn	100	95	15	72	23	803
..	Gen	NPAasn	67	67	2	21	22	581
..	Mat	Indiv	75	75	75	160	33	184
Kirksville, 8,203—Admiral Grim-Smith Hospital and Clinic	Gen	Corp	40	32	3	25	22	842
Stickler Hospital	Gen	Indiv	25	25	5	54	10	531
Lebanon, 3,562—Laclede Louise G. Wallace Hosp.	Gen	NPAasn	24	24	5	39	10	682
Louisiana, 3,549—Pike Pike County Hospital	Gen	County	50	50	11	30	10	519
Macon, 3,851—Macon Samaritan Hospital	Gen	NPAasn	25	20	6	18	5	155
Marceline, 3,555—Linn B. B. Putnam Memorial Hospital	Gen	Indiv	15	12	2	20	5	172
Marshall, 8,103—Soline George Brown Blosser Home for Crippled Children	Orth	NPAasn	60	60	..	..	24	184
John Fitzgibbon Memorial Hospital	Gen	NPAasn	45	45	5	44	12	662
Maryville, 5,217—Nodaway St. Francis Hospital	Gen	Church	86	75	6	112	30	1,005
Moberly, 13,772—Randolph McCormick Hospital	Gen	Indiv	40	40	5	41	22	741
Wabash Employee's Hosp.	Indus	NPAasn	50	50	..	..	17	314
Woodland Hospital	Gen	Corp	35	35	5	25	16	529
Monett, 4,000—Barry Dr. William M. West's Hospital	Gen	Indiv	18	18	3	23	3	114
Mt. Vernon, 1,342—Lawrence Missouri State Sanat.	TB	State	506	506	..	..	487	569
Neosho, 4,485—Newton Sule Hospital	Gen	Indiv	..	12	3	26	7	390
Neydn, 7,448—Vernon Nernda Medical and Surgical Sanitarium	Gen	Indiv	..	12	3	0	7	319
State Hospital No. 3	Ment	State	1,760	1,300	..	..	1,732	508
Pine Lawn (St. Louis P. O.)—St. Louis Tiernon Hosp. and Clinic	Gen	Indiv	35	25	4	21	15	100
Poplar Bluff, 7,551—Butler Brandon Hospital	Gen	Indiv	40	45	4	29	14	723
Poplar Bluff Hospital	Gen	Corp	48	38	4	40	38	750
Robertson, 500—St. Louis Jewish Sanitarium	TB	NPAasn	103	103	..	..	..	63
Rolla, 3,670—Phelps Missouri Trachoma Hosp.	Trach	USPHS	35	25	..	..	23	314
Rolla Hospital	Gen	Indiv	..	46	10	39	21	796
St. Charles, 10,491—St. Charles St. Joseph's Hospital	Gen	Church	50	50	8	107	39	1,427
St. James, 1,294—Phelps St. James Hospital	Gen	Indiv	..	18	7	15	6	111
..	N&M	Indiv	..	25	..	No data supplied	..	..
..	Gen	Church	225	200	20	249	50	3,734
St. Joseph's Hospital+0...	Gen	Church	200	160	20	..	99	2,957
State Hospital No. 2+	Ment	State	2,000	2,610	..	..	2,561	791
St. Louis, 821,980—St. Louis City Alexian Brothers Hosp.+0	Gen	Church	250	250	..	..	92	1,375
American Hospital	Gen	Indiv	25	25	12	21	22	471
Barnard Free Skin and Cancer Hospital+	SKCa	NPAasn	44	44	..	..	37	714
Barnes Hospital+0...	Gen	Church	430	350	..	..	252	2,155
Bethesda General Hosp.	Gen	NPAasn	100	100	20	134	22	1,222
Central Hospital	Gen	Corp	20	20	12	309	29	764

Key to symbols and abbreviations is on page 1060



## NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Watertown, 32,205—Jefferson House of the Good Samaritan <sup>o</sup> .....	Gen	NPAasn	100	122	13	202	86	2,223
Jefferson County Sanat. TB	County	78	78	..	..	78	..	85
Mersey Hospital <sup>o</sup> .....	Gen	Church	120	100	14	224	72	1,917
Waverly, 5,662—Tioga	Gen	NPAasn	56	56	12	82	41	919
Tioga County Gen. Hosp.	Gen	Part	17	17	3	52	7	342
Wayland, 1,814—Steuben	Gen	City	..	45	10	172	25	883
Wayland Hospital.....	Gen	Part	17	17	3	52	7	342
Wellsville, 5,674—Allegany Memorial Hospital of Wm. F. and Gertrude F. Jones	Gen	City	..	45	10	172	25	883
West Haverstraw, 2,834—Rockland New York State Reconstruction Home <sup>+</sup> .....	OrthChil	State	310	310	..	..	343	111
West Point, 1,250—Orange Station Hospital.....	Gen	Army	250	158	8	54	82	2,390
White Plains, 35,830—Westchester New York Hospital-Westchester Division <sup>+</sup> .....	N&M	NPAasn	350	330	..	..	264	277
New York Orthopaedic Dispensary and Hospital, and Country Branch	Hospital, New York City	..	..	..	..	..	..	..
St. Agnes Hospital <sup>+</sup> .....	Gen	Church	106	106	34	542	77	3,044
White Plains Hospital <sup>o</sup> .....	Gen	NPAasn	122	120	22	204	63	2,416
Willard, 200—Seneca	Ment	State	2,543	2,578	..	..	2,737	443
Willard State Hospital <sup>o</sup> .....	Ment	State	3,072	4,571	..	..	4,701	754
Wingdale, 156—Dutchess Harlem Valley State Hospital <sup>o</sup> .....	Ment	State	3,072	4,571	..	..	4,701	754
Woodhaven, Queens	Gen	Church	400	400	..	..	366	631
St. Anthony's Hospital.....	TB	Church	400	400	..	..	366	631
Wyandkill, 167—Rensselaer	TB	County	152	152	..	..	127	118
Pawling Sanatorium.....	TB	County	152	152	..	..	127	118
Yonkers, 134,646—Westchester Gray Oaks Hospital.....	TB	City	55	55	..	..	48	103
House of Rest at Sprain Ridge.....	TB	NPAasn	100	100	..	..	61	84
St. John's Riverside Hospital <sup>+</sup> .....	Gen	NPAasn	200	176	24	403	110	4,447
St. Joseph's Hospital <sup>+</sup> .....	Gen	Church	177	177	20	253	86	2,305
Yonkers General Hosp. <sup>+</sup> .....	Gen	NPAasn	150	137	41	326	65	2,227
Related Institutions								
Albany, 127,412—Albany Albany's Hospital for Incurables.....	Inc	NPAasn	85	85	..	..	85	80
Evergreens Sanatorium.....	MeDe	Indiv	..	10	..	..	No data supplied	..
School.....	MeDe	Indiv	..	10	..	..	No data supplied	..
St. Margaret's House and Hospital.....	Inst	Church	55	43	12	..	42	78
Van Rensselaer Preventive Unit of Albany Hospital	Hospital	..	..	..	..	..	..	..
Albany School.....	MeDe	State	436	480	3	7	249	99
Orleans Welfare Hosp.....	Gen	County	40	42	5	23	35	122
Alden, 846—Erie	Gen	County	..	23	..	..	8	130
Erie County Penitentiary Hospital.....	Inst	County	..	23	..	..	8	130
Amityville, 4,437—Suffolk	MeDe	Corp	355	355	..	..	231	366
Brunswick Home.....	MeDe	Corp	355	355	..	..	231	366
Bainbridge Hospital.....	Gen	Indiv	..	10	6	33	5	217
Bedford Hills, 1,000—Westchester Westfield State Farm.....	Inst	State	80	83	..	..	23	405
Binghamton, 76,662—Broome Binghamton Training School for Nervous, Backward and Mental Defectives	MeDe	Indiv	50	50	..	..	34	44
Breeseport, 498—Chemung Chemung County Home	Inst	County	..	65	..	..	50	128
Brewster, 1,664—Putnam	Conv	Indiv	25	25	..	..	17	52
and Hospital for Aged	Inst	NPAasn	463	463	..	..	457	119
Churchill Sanatorium.....	Gen	Indiv	12	12	3	27	3	86
Faith Home for Incurables	Inc	NPAasn	54	54	..	..	52	11
Hamilton Private Hosp. Gen	Inst	Indiv	22	22	4	45	12	412
Jewish Sanatorium and Hospital for Chronic Diseases	Chr	NPAasn	525	525	..	..	498	222
Buffalo, 573,076—Erie Buffalo Eye and Ear Infirmary and Wettlaufer Clinic.....	ENT	NPAasn	10	10	..	..	2	117
Ingleside Home.....	Mat	NPAasn	..	46	30	63	23	91
Calumet, 111—Jefferson Jefferson County Contagious Hospital.....	Iso	County	..	18	..	..	2	26
Camden, 1,912—Onondaga Health Home.....	N&M	Indiv	..	15	..	..	..	4
Canandaigua, 7,541—Ontario	Conv	Indiv	18	18	..	..	12	52
and Hospital for Chronic Diseases	Chr	NPAasn	525	525	..	..	498	222
and Tuberculosis Hosp.	Inst	State	172	172	..	..	139	965

## NEW YORK—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Delhi, 1,840—Delaware Delaware Hospital.....	Gen	County	16	15	2	..	12	243
Delhi Hospital.....	Gen	NPAasn	14	14	6	..	6	272
Eastview, 161—Westchester Solomon and Betty Loeb Memorial Home for Convalescents.....	Conv	NPAasn	112	112	..	..	112	1,695
Edmeston, 749—Otsego Otsego School for Backward Children.....	MeDe	Indiv	..	25	..	..	24	8
Elmira, 47,397—Chemung Chemung County Prevention Home.....	TbChil	County	22	22	..	..	21	46
Children's Reconstruction Home.....	Orth	Frat	..	26	..	..	11	33
Elmira Reformatory.....	Inst	State	100	100	..	..	40	545
Gleason Health Resort.....	Conv	Part	35	35	..	..	18	145
Far Rockaway, Queens Brooklyn Jewish Home for Convalescents.....	Conv	NPAasn	..	44	..	..	44	941
Wava Crest Convalescent Home and Seaside Hosp.	Orth	NPAasn	70	70	..	..	65	95
Flushing, Queens New York City Children's Hospital.....	MeDe	City	130	130	..	..	178	17
Genoa, 457—Cayuga Genoa Hospital.....	Gen	Indiv	..	10	2	No data supplied	..	..
Herkimer, 10,466—Herkimer Herkimer County Hosp.	Inst	County	..	18	..	..	16	76
Hudson, 12,337—Columbia New York State Training School for Girls.....	Inst	State	63	63	2	15	4	400
Industry, Monroe Industry General Hosp.	Inst	State	50	50	..	..	22	857
Iroquois, 40—Erie Thomas Indian School Hospital.....	Inst	State	..	26	..	..	11	557
Ithaca, 20,705—Tompkins Bailey-Jones Hospital....	Gen	Indiv	14	14	..	..	7	227
Conklin Sanatorium.....	Gen	Indiv	14	10	..	..	5	238
Reconstruction Home.....	Orth	Corp	75	75	..	..	48	70
Keene Valley, 400—Essex Keene Valley Neighborhood House and Hosp.	Gen	NPAasn	9	9	2	16	4	102
Lake Ronkonkoma, 49—Suffolk Gary de Vabre Academy	MeDe	Part	18	18	..	..	18	19
Margaretville, 771—Delaware Margaretville Hospital....	Gen	NPAasn	16	14	3	39	6	249
Millgrove, 110—Erie Erie County Home and Infirmary.....	Inst	County	1,150	1,150	..	..	1,124	440
Montour Falls, 1,489—Schuyler Shepard Relief Hospital..	Gen	NPAasn	27	27	6	89	12	456
Napanoch, 633—Ulster Institution for Male Delinquent Delinquents.....	MeDe	State	..	25	..	..	17	591
Newark, 7,649—Wayne Newark State School.....	MeDe	State	1,432	1,037	12	14	1,853	355
New York City, 4,211,699—New York Beth Abraham Home for Incurables.....	Inc	NPAasn	254	254	..	..	254	40
Bryant Sanatorium.....	Mat	Indiv	10	10	10	122	3	131
Colored Orphan Asylum.....	Inst	NPAasn	20	20	..	..	7	451
Harts Island Prison Hosp.	Inst	City	..	24	..	..	25	1,357
Hebrew Convalescent Home.....	Conv	NPAasn	85	85	..	..	57	658
Home for Aged and Infirm Hebrews.....	Inst	NPAasn	..	31	..	..	26	329
Home for Dependents.....	Inst	City	..	40	..	..	20	...
Home for Hebrew Infants	Inst	NPAasn	61	61	..	..	33	1,109
Home for Incurables.....	Inc	Church	354	354	..	..	340	312
House of Calvary.....	SkCa	Church	140	140	..	..	130	470
House of Holy Comforter	Inc	Church	100	92	..	..	66	9
Jewish Home for Convalescents.....	Conv	NPAasn	..	115	..	..	66	1,594
Dr. Rogers' Hospital.....	N&M	Indiv	25	25	..	..	15	161
St. Andrew's Convalescent Hospital.....	Conv	Church	..	30	..	..	15	284
St. Mary's Hospital for Children.....	Conv	Church	..	60	..	..	33	239
St. Rose's Free Home for Incurable Cancer.....	Ca	Church	..	89	..	..	88	357
Sherman Square Hospital	Gen	Corp	..	43	10	No data supplied	..	..
Tonawanda Hospital.....	N&T	NPAasn	..	36	..	No data supplied	..	..
Niagara Falls, 75,460—Niagara Falls Municipal Hospital.....	Iso	City	38	38	..	..	12	245
Onondaga, 12,536—Otsego Parshall Private Hospital	Gen	Indiv	..	34	6	No data supplied	..	..
Onondaga, 269—Onondaga Onondaga County Hospital.....	Gen&Inst	County	..	178	13	129	157	553
Oriskany, 1,142—Onondaga Eastern Star Home and Infirmary.....	Inst	Frat	80	80	..	..	53	33
Ossining, 15,241—Westchester Greencourt-on-Hudson...	N&M	Indiv	..	10	..	..	9	5
Sing Sing Prison Hosp.	Inst	State	100	100	..	..	49	1,693
Otisville, 869—Orange Dr. Sherrell's Convalescent Home.....	TB	Indiv	15	15	..	..	6	...
Oxford, 1,601—Chemung New York State Woman's Relief Corps Home.....	Inst	State	62	62	..	..	55	33

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Christian Hospital.....	Gen	NP Assn	110	90	25	301	50	1,732
City Isolation Hospital.....	Thlso	City	125	250	..	..	117	2,008
City Sanitarium.....	Mont	City	100	5,651	..	..	3,480	569
De Paul Hospital.....	Gen	Church	350	250	35	850	170	7,338
Evangelical Deaconess Home and Hospital.....	Gen	Church	..	170	25	407	132	1,931
Firmen Desloge Hosp.....	Gen	Church	212	223	24	527	191	3,997
Fraser Employees' Hosp.....	Indiv	NP Assn	100	100	..	..	48	1,350
Jewish Hospital.....	Gen	NP Assn	264	250	23	254	112	5,518
Josephine Heltkamp Memorial Hospital.....	Gen	Church	35	35	10	131	20	973
Lutheran Hospital.....	Gen	Church	175	150	30	475	92	3,681
Missouri Baptist Hosp.....	Gen	Church	500	150	11	286	100	4,880
Missouri Pacific Hospital.....	Indiv	NP Assn	300	300	..	..	152	4,201
Mt. St. Rose Sanatorium.....	Thlso	Church	150	135	..	..	126	262
Peoples Hospital (col.).....	Gen	NP Assn	50	68	4	36	56	692
Robert Koch Hospital.....	Thlso	City	500	500	..	..	490	2,490
St. Ann's Lying-In Hosp.....	Mat	Church	60	15	10	482	22	523
St. Anthony's Hospital.....	Gen	Church	250	150	50	942	117	4,081
St. John's Hospital.....	Gen	Church	241	281	31	196	219	5,536
St. Louis Children's Hospital.....	Thlso	NP Assn	208	208	..	..	127	3,502
St. Louis City Hosp.....	Gen	City	..	550	56	1,871	502	20,506
St. Louis City Hospital No. 2 (col.).....	Gen	City	285	255	40	690	300	7,689
St. Louis Maternity Hospital.....	Mat	NP Assn	100	100	100	1,155	50	1,760
St. Luke's Hospital.....	Gen	Church	210	178	32	381	158	4,682
St. Mary's Hospital.....	Gen	Church	275	275	45	406	210	5,777
St. Mary's Infirmary (col.).....	Gen	Church	160	150	20	763	175	2,220
St. Vincent's Sanitarium.....	N&M	Church	230	230	..	..	215	191
Sinners Hospital for Crippled Children.....	Orth	Thlso	100	100	..	..	102	470
T. S. Marine Hospital.....	Gen	USNHS	120	120	..	..	90	993
Sedalia, 20,506—Pettis Memorial Hospital.....	Gen	City	120	70	12	100	20	1,077
Springfield, 57,527—Greene Bridge Hospital.....	Gen	Church	85	85	10	115	31	1,798
St. John's Hospital.....	Gen	Church	100	100	10	241	61	2,481
Springfield Baptist Hosp.....	Gen	Corp	..	88	12	142	47	2,105
T. S. Hospital for Delinquent Boys.....	Mont	Fed	707	505	..	..	348	420
Stella, 226—Newton C. Cardwell Hospital.....	Gen	Indiv	..	20	1	No data supplied	..	..
Tram, 6,422—Grundy Callers Hospital.....	Gen	Indiv	20	20	2	16	4	225
Wright Hospital.....	Gen	Indiv	..	17	5	4	2	176
Washington, 5,918—Franklin St. Francis Hospital.....	Gen	Church	40	20	6	112	16	790
Webb City, 6,876—Jasper Jasper County Tuberculosis Hospital.....	Thlso	County	103	103	..	..	..	106
Welster Groves, 16,487—St. Louis Glenwood Sanatorium.....	N&M	Corp	35	35	..	..	31	68
Westphalia, 3,235—Howell Christa Hogan Hospital.....	Gen	Indiv	13	13	2	16	9	220
Related Institutions								
Diamond, 456—Newton Dr. Riley F. Cheatham's Hospital.....	Gen	Indiv	8	8	..	36	2	140
Independence, 15,296—Jackson Vail Sanitarium.....	N&M	Corp	23	17	..	..	10	10
.. .. .. .. ..	Inst	State	66	60	..	..	60	809
.. .. .. .. ..	Mat	NPA Assn	24	14	16	27	9	39
.. .. .. .. ..	Mat	NPA Assn	..	51	6	54	28	94
.. .. .. .. ..	MeDe	Indiv	20	20	..	..	15	17
.. .. .. .. ..	Inst	Frat	85	85	..	..	59	708
.. .. .. .. ..	State	1,264	1,264	..	..	1,200	161	..
.. .. .. .. ..	Church	125	125	..	..	103	23	..
.. .. .. .. ..	Indiv	12	12	1	6	3	72	..
.. .. .. .. ..	Inst	NPA Assn	..	22	..	..	215	..
.. .. .. .. ..	Inst	State	14	14	..	..	2	131
.. .. .. .. ..	Church	136	142	..	..	127	26	..
.. .. .. .. ..	State	56	56	..	..	29	145	..
.. .. .. .. ..	City	27	30	6	..	11	203	..
.. .. .. .. ..	City	..	90	..	..	85	350	..

MISSOURI—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Hospital of Masque Home Inst Night and Day Rest Camp Conv St. Louis Training School MeDe Salvation Army Women's Home and Hospital.....	Thlso	NP Assn	..	123	..	..	88	425
.. .. .. .. ..	City	..	80	..	..	..	76	120
.. .. .. .. ..	City	..	512	..	..	..	25	..
.. .. .. .. ..	Church	55	50	10	83	41	120	..
.. .. .. .. ..	Gen	City	..	10	2	6	5	502
.. .. .. .. ..	County	15	15	..	..	10	24	..
.. .. .. .. ..	Unit of St. Louis Children's Hospital	..	..	..	..	..	..	..
.. .. .. .. ..	Indiv	10	10	1	No data supplied	..	..	..
.. .. .. .. ..	Part	10	8	..	5	1	114	..
.. .. .. .. ..	Conv	30	30	..	..	12	352	..
.. .. .. .. ..	Indiv	..	7	4	2	2	62	..
Summary for Missouri:								
Hospitals and sanatoriums.....	Number	Beds	Average Patients	Patients Admitted				
Related institutions.....	122	24,954	21,314	218,216				
.. .. .. .. ..	26	2,838	2,493	4,401				
Totals.....	148	27,812	23,812	222,617				
Refused registration.....	25	1,206	..	..				

MONTANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Anaconda, 12,494—Deer Lodge St. Ann's Hospital.....	Gen	Church	78	78	10	165	47	1,069
Billings, 16,330—Yellowstone Billings Deaconess Hosp. <sup>o</sup>	Gen	Church	50	54	12	288	44	1,626
Orthopedic Hospital.....	Unit of St. Vincent's Hospital							
St. Vincent's Hospital <sup>o</sup> .....	Gen	Church	200	140	12	301	81	1,836
Bozeman, 6,855—Gallatin Bozeman Deaconess Hospital <sup>o</sup> .....	Gen	Church	64	52	12	138	34	1,336
Browning, 1,172—Glacier Blackfoot Hospital.....	Gen	IA	30	20	8	127	31	751
Butte, 3,552—Silver Bow Murray Hospital*.....	Gen	Corp	...	120	12	124	58	2,448
St. James Hospital* <sup>o</sup> .....	Gen	Church	170	150	26	487	103	2,694
Choteau, 326—Teton Choteau Hospital.....	Gen	Indiv	13	13	4	31	12	204
Conrad, 1,499—Pondera St. Mary's Hospital.....	Gen	Church	..	40	10	132	24	963
Crow Agency, 536—Big Horn Crow Indian Hospital.....	Gen	IA	14	13	6	55	17	444
Deer Lodge, 3,510—Powell Montana State Tuberculosis Sanitarium.....	TB	State	215	215	..	..	190	260
St. Joseph's Hospital.....	Gen	Church	..	45	14	62	14	285
Dillon, 2,422—Beaverhead Barrett Hospital.....	Gen	Corp	22	22	4	68	8	500
Ft. Benton, 1,109—Chouteau St. Clare Hospital.....	Gen	Church	40	40	6	43	23	360
Ft. Harrison, 550—Lewis and Clark Veterans Admin. Facility Gen		Vet	..	145	..	..	..	Reopened 1937
Ft. Missoula (Missoula P. O.), 400—Missoula Station Hospital.....	Gen	Army	38	38	..	..	49	845
Ft. Peck, 5,500—Valley Ft. Peck Hospital.....	Gen	Army	..	32	..	..	23	1,512
Glasgow, 2,216—Valley Frances Mahon Deaconess Hospital.....	Gen	Church	90	75	15	232	55	2,114
Glendive, 4,629—Dawson Dawson County Hospital Gen	Gen	County	25	25	7	64	21	347
Northern Pacific Hospital Gen	Gen	NP Assn	70	64	6	33	35	1,303
Great Falls, 28,822—Cascade Columbus Hospital <sup>o</sup> .....	Gen	Church	340	290	50	444	147	4,800
Montana Deaconess Hosp. <sup>o</sup> Gen	Gen	Church	225	150	25	395	116	3,215
Hamilton, 1,839—Ravalli Murens Daly Mem. Hosp. Gen	Gen	NP Assn	50	50	6	112	14	639
Hardin, 1,169—Big Horn Hardin General Hospital Gen	Gen	Corp	30	30	4	49	5	218
Harlem, 708—Blaine Ft. Belknap Indian Hospital and Sanitarium... Gen	Gen	IA	45	45	4	75	22	581
Havre, 6,372—Hill Kennedy Deaconess Hospital <sup>o</sup> .....	Gen	Church	45	52	12	128	31	1,246
Sacred Heart Hospital <sup>o</sup> .....	Gen	Church	100	75	9	174	55	2,146
Helena, 11,893—Lewis and Clark St. John's Hospital.....	Gen	Church	52	40	12	108	22	833
St. Peter's Hospital.....	Gen	NP Assn	70	58	12	190	33	1,134
Jordan, 401—Garfield Good Samaritan Hospital Gen	Gen	Church	..	13	5	44	9	590
Kalispell, 6,094—Flathead Kalispell General Hospital Gen	Gen	Church	47	37	10	131	23	1,141
Lame Deer, 89—Rosebud Tongue River Agency Hosp. Gen	Gen	IA	47	47	3	24	15	421
Lewistown, 5,353—Fergus St. Joseph's Hospital... Gen	Gen	Church	106	106	16	200	57	2,237
Libby, 1,752—Lincoln Libby General Hospital... Gen	Gen	Indiv	14	14	4	36	8	200

## NEW YORK—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
		Indiv	..	21	0	No data supplied		
		Corp	..	19	..	..	12	5
		NPAssn	30	30	..	..	28	53
dian Orphan Asylum... Inst		NPAssn	33	33	..	..	6	339
Pt. Jervis, 10,243—Orange								
Deerpark Hospital..... Gen		Corp	..	15	4	26	7	348
Poughkeepsie, 40,288—Dutchess								
Poughkeepsie City Home								
Infirmary .....		City	50	50	..	..	20	3
Sadler Hospital..... Inst		Indiv	..	9	..	..	8	108
Switt Infirmary — Nassau								
College .....		NPAssn	29	29	..	..	3	1,139
Queens Village, — Queens								
Queens Village Sanat... Gen		Indiv	12	10	12	52	11	132
Rensselaer, 457—Oneida								
Whitesboro Sanit. and Adirondack Annex.....		Alcoh	15	15	..	..	1	6
Rhinbeck, 1,569—Dutchess								
Holiday Farm, Home for Convalescent Children....		Conv	Indiv	50	25	..	..	23
Rochester, 328,132—Monroe								
Beldere Private Hosp... Gen		Indiv	..	10	12	76	..	150
Convalescent Hospital for Children .....		Conv	NPAssn	48	48	..	..	42
Feld Sanatorium.....		Conv	Indiv	18	18	..	..	14
Kaor Sanitarium..... N&M		Indiv	35	35	..	..	..	56
Rockaway Park (Rockaway Beach P. O.),—Queens								
Convalescent Home for Hebrew Children.....		ConvOr	NPAssn	112	112	..	..	102
Rome, 32,338—Oneida								
Rome State School..... MeDe		State	3,517	3,558	24	31	3,509	409
Rye, 8,712—Westchester								
Halcyon Rest..... N&M			41	41	..	..	..	106
Schenectady, 35,632—Schenectady								
General Electric Company Hospital .....		Indus	Corp	..	12	..	..	3
Schenectady City Hosp., @ Iso		City	35	35	..	..	17	379
Schenectady County Home and Hospital.....		Inst	County	..	65	..	No data supplied	
Sea Cliff, 3,456—Nassau								
Country Home for Convalescent Babies .....		Conv	NPAssn	70	70	..	..	46
Staten Island, 158,346—Richmond								
New York City Farm Colony .....		Inst	City	..	1,449	..	No data supplied	
Staten Island, 158,346—Richmond		Inst	NPAssn	195	195	..	..	140
Staten Island, 158,346—Richmond		Chil	NPAssn	190	190	..	..	146
Staten Island, 158,346—Richmond								
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NORTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Albemarle, 3,493—Stanly								
Stanly General Hospital.....	Gen	NPAssn	30	27	6	50	11	645
Yadkin Hospital.....	Gen	NPAssn	34	34	10	113	17	861
Asheboro, 5,021—Randolph								
Randolph Hospital.....	Gen	NPAssn	40	36	6	69	18	818
Asheville, 50,193—Buncombe								
Ambler Heights Sanit.....	TB	Corp	..	25	..	..	19	40
Appalachian Hall.....	N&M	Corp	..	175	..	..	53	368
Asheville Mission Hosp.°	Gen	NPAssn	120	104	16	237	69	2,289
Asheville Physiatric In-								
stitute, Wescon.....	NervConv	Indlv	35	18	..	..	8	60
Ashton Park Hospital.....	Gen	NPAssn	..	55	6	97	40	1,568
Norburn Hospital.....	Surg	Corp	35	35	2	14	30	1,191
St. Joseph's Sanatorium.....	TB	Church	96	90	..	..	62	151
Zephyr Hill Sanatorium.....	TB	Indlv	35	30	..	..	25	54
Badin, 3,040—Stanly								
Badin Hospital .....	Gen	Corp	30	28	4	20	5	247
Banners Elk, 340—Avery								
Grace Hospital°.....	Gen	Church	60	49	8	76	43	830
Beaufort, 2,957—Carteret								
Potter Emergency Hosp. Gen	Gen	Corp	15	12	4	20	4	213
Blittmore, 172—Buncombe								
Blittmore Hospital°.....	Gen	NPAssn	52	52	10	72	29	1,188
Black Mountain, 737—Buncombe								
Beallmont Park Sanat.....	N&M	Corp	20	20	..	..	8	110
Cragmont Sanatorium.....	TB	Corp	25	25	..	..	15	15
Fellowship Sanatorium of								
the Royal League.....	TB	Frat	20	20	..	..	12	10
Brevard, 2,339—Transylvania								
Lyday Memorial Hospital Gen	Gen	NPAssn	..	24	3	14	6	297
Burlington, 0,737—Alamance								
Rainey Hospital.....	Gen	Corp	40	40	3	32	21	780
Charlotte, 82,675—Mecklenburg								
Charlotte Eye, Ear and								
Throat Hospital.....	ENT	Part	20	20	..	..	12	1,765
Good Samaritan Hospital								
(col.)° .....	Gen	Church	62	62	6	90	42	2,043
Mercy Hospital°.....	Gen	Church	100	95	20	455	71	3,293
New Charlotte Sanat.....	Gen	Corp	..	77	10	No data supplied		
Presbyterian Hospital°.....	Gen	Church	100	100	10	304	93	3,075
St. Peter's Hospital.....	Gen	Church	78	66	12	284	63	2,302
Cherokee, 35—Swain								
Eastern Cherokee Indian								
Hospital .....	Gen	IA	20	20	4	69	17	679
Concord, 11,820—Cabarrus								
Concord Hospital.....	Gen	NPAssn	..	20	4	30	10	312
Crossnore, 181—Avery								
Garrett Memorial Hosp..	Gen	NPAssn	20	20	0	53	11	492
Durham, 62,037—Durham								
Duke Hospital*+°.....	Gen	NPAssn	456	400	35	422	309	10,750
Lincoln Hospital (col.)*°	Gen	NPAssn	108	99	9	106	58	1,700
McPherson Hospital.....	ENT	Indlv	..	24	..	..	7	974
Watts Hospital*+°.....	Gen	NPAssn	200	190	25	404	133	4,971
Elizabeth City, 10,037—Pasquotank								
Albemarle Hospital.....	Gen	NPAssn	..	35	6	62	19	688
Elkin, 2,357—Surry								
Hugh Chatham Memorial								
Hospital .....	Gen	Church	40	40	4	58	20	1,203
Erwin, 4,000—Harnett								
Good Hope Hospital.....	Gen	NPAssn	34	34	8	85	6	332
Fayetteville, 13,049—Cumberland								
Highsmith Hospital*°.....	Gen	NPAssn	125	120	5	119	92	3,061
Pittman Hospital°.....	Gen	NPAssn	74	74	10	91	51	2,228
Fleteber, 60—Henderson								
Mountain Sanitarium and								
Hospital° .....	Gen	Church	33	33	3	40	25	606
Ft. Bragg,—Cumberland								
Station Hospital.....	Gen	Army	83	83	5	90	93	2,295
Franklin, 1,094—Macon								
Angel Hospital.....	Gen	NPAssn	52	50	2	23	28	1,204
Gastonia, 17,093—Gaston								
City Hospital.....	Gen	Corp	..	60	8	No data supplied		
Garrison General Hosp. Gen	Gen	NPAssn	..	40	6	No data supplied		
North Carolina Orthope-								
dic Hospital.....	Orth	State	150	160	..	..	158	439
Goldsboro, 14,985—Wayne								
Goldsboro Hospital.....	Gen	NPAssn	125	94	6	72	50	1,594
State Hospital (col.).....	Ment	State	1,919	1,919	..	..	1,915	469
Greensboro, 53,569—Guilford								
Clinic Hospital.....	Gen	NPAssn	50	45	7	120	34	1,663
Glenwood Park Sanitarium	N&M	Indlv	30	30	..	..	16	266
L. Richardson Memorial								
Hospital (col.)*°.....	Gen	NPAssn	60	60	4	47	32	991
St. Leo's Hospital°.....	Gen	Church	80	80	6	109	51	2,121
Sternberger Children's								
Hospital .....	Gen	NPAssn	40	40	12	174	16	581
Wesley Long Hospital....	Gen	NPAssn	50	65	10	166	48	1,000
Greenville, 9,194—Pitt								
Pitt General Hospital....	Gen	Corp	54	50	4	62	28	1,370
Hamlet, 4,807—Richmond								
Hamlet Hospital°.....	Gen	Corp	50	50	4	27	35	1,012
.....								
.....	1	Indlv	15	15	2	18	6	284
.....	1	Church	35	33	4	20	17	443
.....	1	NPAssn	50	40	6	100	19	1,164
.....	1	NPAssn	50	44	6	41	10	500
.....	1	Corp	50	25	6	29	16	652
.....	1	Indlv	45	45	10	95	23	969
.....	1	NPAssn	75	68	7	103	41	1,598
Guilford General Hosp.°	Gen	NPAssn	31	31	5	68	21	970

Key to symbols and abbreviations is on page 1060

## MONTANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Livingston, 6,391—Park	Gen	Indiv	..	24	4	11	14	385
Miles City, 1,175—Custer	Gen	Indiv	..	24	4	11	14	385
Miles City Hospital (Holy Rosary Hospital).....	Gen	Church	85	85	7	72	51	1,485
Missoula, 14,657—Missoula	Gen	Church	85	85	7	72	51	1,485
Northern Pacific Beneficial Association Hospital.....	Indus	NPAasn	..	75	..	..	42	1,621
St. Patrick Hospital.....	Gen	Church	112	100	12	198	72	2,367
Thornton Hospital.....	Gen	Part	38	38	12	116	21	987
Plentywood, 1,226—Sheridan	Gen	NPAasn	20	18	5	50	..	361
Sheridan Memorial Hosp. Gen	Gen	NPAasn	20	18	5	50	..	361
Poplar, 1,046—Roosevelt	Gen	IA	25	25	6	106	21	825
Ft. Peck Indian School Hospital .....	Gen	IA	25	25	6	106	21	825
Roundup, 2,577—Musselshell	Gen	Indiv	..	20	6	..	5	...
Musselshell Valley Hosp. Gen	Gen	Indiv	..	20	6	..	5	...
St. Ignatius, 727—Lake	Gen	Church	40	34	6	86	10	757
Holy Family Hospital... Gen	Gen	Church	40	34	6	86	10	757
Sidaey, 2,010—Richland	Gen	Church	30	24	6	131	17	786
Sidney Deaconess Hosp. Gen	Gen	Church	30	24	6	131	17	786
Warm Springs, 1,900—Deer Lodge	Gen	State	..	1,850	..	No data supplied	..	..
Montana State Hospital. Ment	Gen	State	..	1,850	..	No data supplied	..	..

## Related Institutions

Billings, 16,380—Yellowstone	Gen	County	16	18	3	43	7	212
Yellowstone County Hosp. Gen	Gen	County	16	18	3	43	7	212
Butte, 39,532—Silver Bow	Gen	County	150	115	3	12	110	244
Silver Bow County Hosp. Inst	Gen	County	150	115	3	12	110	244
Great Falls, 28,822—Cascade	Gen	CyCo	..	35	..	..	7	103
Detention Hospital .....	Iso	CyCo	..	35	..	..	7	103
Helena, 11,803—Lewis and Clark	Gen	NPAasn	..	40	6	38	10	21
Florence Crittenton Home Mat	Gen	NPAasn	..	40	6	38	10	21
Lewis and Clark County Hospital .....	Inst	County	..	54	2	No data supplied	..	..
Lewistown, 5,358—Fergus	Gen	County	15	15	4	35	5	190
Fergus County Hospital. Gen	Gen	County	15	15	4	35	5	190
Livingston, 6,391—Park	Gen	Indiv	8	8	7	39	2	65
Robinson Hospital.....	Gen	Indiv	8	8	7	39	2	65
Malta, 1,342—Phillips	Gen	Indiv	..	13	5	No data supplied	..	..
Malta Hospital.....	Gen	Indiv	..	13	5	No data supplied	..	..
Polson, 1,455—Lake	Gen	Church	20	20	7	60	14	529
Hotel Dieu Hospital.....	Gen	Church	20	20	7	60	14	529
Scobey, 1,259—Daniels	Gen	Indiv	20	20	4	40	9	232
Scobey Clinic Hospital... Gen	Gen	Indiv	20	20	4	40	9	232
Twin Bridges, 671—Madison	Gen	State	25	23	6	..	3	250
State Orphans' Home Hos. pital .....	Inst	State	25	23	6	..	3	250
White Sulphur Springs, 578—Meagher	Gen	Indiv	8	12	3	10	3	84
MeKay Hospital .....	Gen	Indiv	8	12	3	10	3	84

## Summary for Montana:

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums...	45	4,964	3,683	50,242
Related institutions.....	13	378	206	3,165
Totals.....	58	5,342	3,889	53,407
Refused registration.....	6	106	..	..

## NEBRASKA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Ainsworth, 1,378—Brown	Gen	Indiv	28	25	4	94	10	547
Ainsworth Hospital.....	Gen	Indiv	28	25	4	94	10	547
Allamore, 6,669—Box Butte	Gen	Church	80	75	12	120	67	1,641
St. Joseph's Hospital.....	Gen	Church	80	75	12	120	67	1,641
Arnold, 899—Custer	Gen	Indiv	15	15	3	32	5	165
Arnold Hospital.....	Gen	Indiv	15	15	3	32	5	165
Arthur, 2,068—Nemaha	Gen	Indiv	10	10	4	13	3	148
Beatrice, 10,297—Gage	Gen	Indiv	..	16	9	16	7	210
Beatrice Sanitarium.....	Gen	Indiv	..	16	9	16	7	210
Lutheran Hospital.....	Gen	Church	100	49	8	119	18	720
Mennonite Deaconess Home and Hospital .....	Gen	Church	30	30	10	162	20	685
Broken Bow, 2,715—Custer	Gen	Indiv	35	35	4	..	10	...
Broken Bow Hospital... Gen	Gen	Indiv	35	35	4	..	10	...
Cambridge, 1,203—Furnas	Gen	Indiv	25	25	2	16	3	149
Republican Valley Hosp. Gen	Gen	Indiv	25	25	2	16	3	149
Chadron, 4,606—Dawes	Gen	City	23	23	7	19	9	383
Chadron Municipal Hosp. Gen	Gen	City	23	23	7	19	9	383
Columbus, 6,898—Platte	Gen	Church	..	29	4	No data supplied	..	..
Lutheran Good Samaritan Hospital .....	Gen	Church	135	125	12	133	85	1,457
St. Mary Hospital.....	Gen	Church	135	125	12	133	85	1,457
David City, 2,333—Butler	Gen	NPAasn	15	13	4	26	4	232
David City Hospital.....	Gen	NPAasn	15	13	4	26	4	232
Falls City, 5,787—Richardson	Gen	Indiv	..	15	4	40	6	407
Falls City Hospital.....	Gen	Indiv	..	15	4	40	6	407
Ft. Crook, 75—Searcy	Gen	Army	50	50	..	..	45	982
Station Hospital.....	Gen	Army	50	50	..	..	45	982
Grand Island, 18,041—Hall	Gen	Church	250	135	10	183	61	2,073
St. Francis Hospital.....	Gen	Church	250	135	10	183	61	2,073

## NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Hartington, 1,568—Cedar	Gen	Indiv	..	16	6	6	..	105
St. John's Hospital.....	Gen	Indiv	..	16	6	6	..	105
Hastings, 15,490—Adams	Gen	NPAasn	100	85	15	201	53	1,738
Mary Lanning Memorial Hospital.....	Gen	NPAasn	100	85	15	201	53	1,738
Imperial, 946—Chase	Gen	NPAasn	22	15	4	64	8	470
Imperial Community Hosp. Gen	Gen	NPAasn	22	15	4	64	8	470
Ingleside, 1,600—Adams	Gen	State	1,406	1,520	..	..	1,513	201
Hastings State Hospital+ Ment	Gen	State	1,406	1,520	..	..	1,513	201
Kenney, 8,575—Buffalo	Gen	Church	75	60	10	109	13	915
Good Samaritan Hospital Gen	Gen	Church	75	60	10	109	13	915
Hospital for the Tuberculous .....	TB	State	160	160	..	..	155	214
Lincoln, 75,033—Lancaster	Gen	Church	100	100	14	306	80	2,353
Bryn Memorial Hosp.* Gen	Gen	Church	100	100	14	306	80	2,353
Green Gables, Dr. Benj. F. Bailey Sanatorium. Gen	Gen	Corp	110	110	4	15	102	772
Lincoln General Hosp.* Gen	Gen	Corp	110	110	4	15	102	772
Lincoln State Hospital... Ment	Gen	State	1,206	1,233	..	..	1,226	315
Nebraska Orthopedic Hosp. Orth	Gen	State	110	110	..	..	91	161
St. Elizabeth's Hosp.* Gen	Gen	Church	..	175	25	317	119	4,250
Veterans Admin. Facility, Gen	Gen	Vet	197	212	..	..	185	1,302
Lyneb, 498—Boyd	Gen	Church	25	18	2	13	5	206
Sacred Heart Hospital.. Gen	Gen	Church	25	18	2	13	5	206
McCook, 6,688—Red Willow	Gen	Church	60	50	10	103	23	910
St. Catherine of Sienna Hospital .....	Gen	Church	60	50	10	103	23	910
Minden, 1,716—Kearney	Gen	Indiv	24	12	6	55	10	475
Seeley Hospital.....	Gen	Indiv	24	12	6	55	10	475
Nebraska City, 7,230—Otoe	Gen	Church	35	35	10	204	30	1,234
St. Mary's Hospital.....	Gen	Church	35	35	10	204	30	1,234
Norfolk, 10,717—Madison	Gen	State	850	1,061	..	..	1,056	114
Norfolk State Hospital+ Ment	Gen	State	850	1,061	..	..	1,056	114
Our Lady of Lourdes Hosp. Gen	Gen	Church	25	22	5	49	8	440
Verges Sanitarium.....	Gen	Indiv	..	30	3	10	18	232
Oakland, 1,433—Burt	Gen	Indiv	15	12	3	41	4	210
Oakland Community Hosp. Gen	Gen	Indiv	15	12	3	41	4	210
Omaha, 214,006—Douglas	Gen	Church	150	162	13	213	80	2,408
Bishop Clarkson Memorial Hospital*.....	Gen	Church	150	162	13	213	80	2,408
Crichton Memorial St. Joseph's Hospital*.....	Gen	Church	..	362	33	626	226	7,540
Douglas County Hospital Gen	Gen	County	600	420	10	189	388	4,160
Douglas County Psychiatric Hospital.....	Unit of Douglas County Hospital	Gen	600	420	10	189	388	4,160
Evangelical Covenant Hospital*.....	Gen	Church	102	86	16	274	43	2,078
Immanuel Deaconess Institute*.....	Gen	Church	..	118	24	451	87	4,019
Lutheran Hospital.....	Gen	Church	100	111	7	102	70	1,848
Nebraska Methodist Episcopal Hospital and Deaconess Home*.....	Gen	Church	185	176	24	392	109	4,172
Nicolaus Senn Hospital.. Gen	Gen	NPAasn	60	80	12	153	65	3,007
St. Catherine's Hosp.* Gen	Gen	Church	150	150	25	350	101	3,674
Station Hospital.....	Gen	Army	8	8	..	..	5	217
University of Nebraska Hospital*.....	Gen	State	210	210	20	438	173	3,300
Ord, 2,226—Valley	Gen	Indiv	20	15	2	7	5	235
Ord Hospital .....	Gen	Indiv	20	15	2	7	5	235
Oxford, 1,155—Furnas	Gen	Corp	14	14	5	16	7	240
Oxford General Hospital Gen	Gen	Corp	14	14	5	16	7	240
Pawnee City, 1,573—Pawnee	Gen	Indiv	30	26	4	45	14	636
Pawnee Hospital .....	Gen	Indiv	30	26	4	45	14	636
Scottsbluff, 8,465—Scottsbluff	Gen	Church	60	50	10	180	37	1,499
West Nebraska Methodist Episcopal Hospital.....	Gen	Church	60	50	10	180	37	1,499
Seward, 2,737—Seward	Gen	Part	25	20	5	22	8	332
Seward Clinic Hospital.. Gen	Gen	Part	25	20	5	22	8	332
Seward Hospital .....	Gen	Indiv	..	12	5	48	6	155
Sidney, 3,306—Cheyenne	Gen	Indiv	25	20	5	50	6	284
Taylor Hospital .....	Gen	Indiv	25	20	5	50	6	284
Stuart, 763—Holt	Gen	Indiv	20	20	3	36	15	520
Wilson Hospital.....	Gen	Indiv	20	20	3	36	15	520
Valentine, 1,672—Cherry	Gen	Indiv	15	15	4	18	7	372
General Hospital .....	Gen	Indiv	15	15	4	18	7	372
Wahoo, 2,689—Saunders	Gen	Indiv	20	20	7	72	10	542
Community Hospital.... Gen	Gen	Indiv	20	20	7	72	10	542
Winnebago, 653—Thurston	Gen	IA	50	50	15	98	48	1,000
Winnebago Indian Hosp. Gen	Gen	IA	50	50	15	98	48	1,000
York, 5,712—York	Gen	Church	50	50	6	83	21	701
Lutheran Hospital.....	Gen	Church	50	50	6	83	21	701
York Clinic and Clinic Hospital .....	Gen	Part	12	12	6	35	3	161

## Related Institutions

Atkinson, 1,144—Holt								
Atkinson General Hosp..	Gen	Indiv	8	8	2	9	2	87
Axtell, 328—Kearney								
Bethphage Inner Mission	MeDe	Church	150	150	..	..	147	18
Beatrice, 10,297—Gage								
Nebraska Institution for								
Feeble-minded .....	MeDe	State	1,370	1,370	..	..	1,217	201
Beemer, 571—Cumlag								
Beemer Hospital.....	Gen	Indiv	6	6	2	7	2	164
Dalton, 453—Cheyenne								
Pioneer Memorial Hosp..	Gen	Indiv	10	10	4	12	5	125
Farnam, 394—Dawson								
Reeves Memorial Hospital	Gen	Indiv	12	12	3	44	4	174
Fremont, 11,407—Dodge								
Lutheran Good Samaritan								
Hospital .....	Gen	Church	40	35	10	120	17	760
Military Avenue Hospital	Gen	Indiv	22	22	6	56	7	600

## NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Huntersville, 800—Mecklenburg	County	162	162	..	..	140	112	
Mecklenburg Sanatorium. TB	County	..	111	..	..	107	91	
Guilford County Sanat. TB	County	..	111	..	..	107	91	
Kinston, 11,362—Lenoir	County	..	111	..	..	107	91	
Memorial General Hosp. Gen	NPAasn	50	45	5	85	28	1,429	
Parrott Memorial Hosp. Gen	NPAasn	..	45	10	No data	supplied		
Laurinburg, 3,312—Scotland	Gen	NPAssn	..	30	3	24	15	418
Laurinburg Hospital. Gen	NPAssn	..	30	3	24	15	418	
Leaksville, 1,814—Rockingham	Gen	NPAssn	35	30	5	48	21	1,232
Leaksville General Hosp. Gen	NPAssn	35	30	5	48	21	1,232	
Lenoir, 6,532—Caldwell	Gen	NPAssn	25	25	4	113	13	637
Blackwelder Hospital. Gen	NPAssn	25	25	2	24	12	624	
Caldwell Hospital. Gen	NPAssn	25	25	2	24	12	624	
Dula Hospital. Gen	Indiv	15	15	2	17	7	350	
Lexington, 6,652—Davidson	Gen	NPAssn	24	24	6	32	10	615
Davidson Hospital. Gen	NPAssn	24	24	6	32	10	615	
Lincolnton, 3,781—Lincoln	Gen	Indiv	..	35	3	..	..	..
Lincoln Hospital. Gen	Indiv	26	26	6	54	12	622	
Reeves Hospital. Gen	Indiv	26	26	6	54	12	622	
Lumberton, 4,140—Robeson	Gen	NPAssn	75	60	6	225	54	2,530
Baker Sanatorium. Gen	NPAssn	53	55	5	175	58	2,605	
Thompson Mem. Hosp. Gen	NPAssn	53	55	5	175	58	2,605	
Manteo, 547—Dare	Gen	Fed	25	25	..	..	..	..
Camp Wirth Hospital. Gen	Fed	25	25	..	..	..	..	..
Marion, 2,467—McDowell	Gen	NPAssn	..	30	3	No data	supplied	
Marion General Hospital Gen	NPAssn	..	30	3	No data	supplied		
Monroe, 6,100—Union	Gen	NPAssn	45	30	5	16	11	412
Ellen Fitzgerald Hospital Gen	NPAssn	45	30	5	16	11	412	
Mooreville, 5,619—Iredell	Gen	NPAssn	60	54	6	200	46	2,034
Lowrance Hospital. Gen	NPAssn	60	54	6	200	46	2,034	
Morehead City, 3,433—Carteret	Gen	City	25	25	6	53	9	440
Morehead City Hospital. Gen	City	25	25	6	53	9	440	
Morganton, 6,001—Burke	Gen	Part	..	70	..	..	48	182
Broad Oaks Sanatorium. N&M	Part	..	70	..	..	..	48	182
Grace Hospital. Gen	Church	65	55	10	186	27	1,152	
State Hospital. Gen	State	2,091	2,093	..	..	2,602	566	
St. Mary, 6,045—Surry	Gen	NPAssn	50	44	6	35	34	803
Martin Memorial Hosp. Gen	NPAssn	50	44	6	35	34	803	
Murphy, 1,612—Cherokee	Gen	Indiv	30	22	2	20	10	444
Petrie Hospital. Gen	Indiv	30	22	2	20	10	444	
New Bern, 11,381—Craven	Gen	NPAssn	..	35	3	30	18	1,109
St. Luke's Hospital. Gen	NPAssn	..	35	3	30	18	1,109	
North Wilkesboro, 3,663—Wilkes	Gen	Indiv	50	50	8	69	25	1,122
Wilkes Hospital. Gen	Indiv	50	50	8	69	25	1,122	
Oteen, 504—Buncombe	Gen	Vet	850	850	..	..	754	2,418
Veterans Admin. Facility TB	Vet	850	850	..	..	..	754	2,418
Oxford, 4,101—Granville	Gen	NPAssn	30	30	6	15	12	431
Brantwood Hospital. Gen	NPAssn	30	30	6	15	12	431	
Susie Clay Cheatham Memorial Hospital (col.). Gen	NPAssn	..	14	1	18	7	287	
Pinehurst, 55—Moore	Gen	NPAssn	33	34	6	67	30	..
Moore County Hospital. Gen	NPAssn	33	34	6	67	30	..	
Raleigh, 37,370—Wake	Gen	Corp	34	34	8	113	20	1,000
Mary Elizabeth Hospital. Gen	Corp	34	34	8	113	20	1,000	
Rex Hospital. Gen	NPAssn	110	110	16	338	111	4,267	
St. Agnes Hosp. (col.). Gen	Church	90	90	10	127	71	1,376	
State Hospital. Gen	State	2,258	2,037	..	..	2,176	765	
Reidsville, 6,851—Rockingham	Gen	NPAssn	..	45	6	101	19	807
Rockingham Hospital. Gen	NPAssn	..	45	6	101	19	807	
Rocky Mount, 21,412—Nash	Gen	NPAssn	90	77	13	226	56	2,302
Nash Memorial Hospital. Gen	NPAssn	90	77	13	226	56	2,302	
Atlantic Coast Line Hosp. Indus	NPAssn	50	50	..	..	14	900	
Park View Hospital. Gen	NPAssn	120	110	10	205	78	820	
Rocky Mount Sanatorium. Gen	NPAssn	65	65	5	55	28	1,190	
Rutherford, 2,920—Rutherford	Gen	NPAssn	64	60	4	22	32	1,763
Rutherford Hospital. Gen	NPAssn	64	60	4	22	32	1,763	
Salisbury, 16,951—Rowan	Gen	NPAssn	80	64	12	..	..	New building
Rowan Memorial Hospital Gen	NPAssn	80	64	12	..	..	..	New building
.. TB	State	450	450	..	..	473	697	
Sanford, 4,253—Lee	Gen	County	50	47	8	57	22	1,040
Lee County Hospital. Gen	County	50	47	8	57	22	1,040	
Shelby, 10,780—Cleveland	Gen	CyCo	65	65	10	179	41	1,438
Shelby Hospital. Gen	CyCo	65	65	10	179	41	1,438	
Smithfield, 2,543—Johnston	Gen	NPAssn	..	35	10	40	16	593
Johnston County Hosp. Gen	NPAssn	..	35	10	40	16	593	
Southern Pines, 2,524—Moore	Gen	Indiv	60	60	..	..	29	81
Pine Crest Manor Sanat. TB	Indiv	60	60	..	..	..	29	81
Southport, 1,760—Brunswick	Gen	CyCo	30	45	4	40	17	620
Brunswick County Hosp. Gen	CyCo	30	45	4	40	17	620	
Statesville, 10,490—Iredell	Gen	Corp	130	130	12	122	89	2,705
Davis Hospital. Gen	Corp	130	130	12	122	89	2,705	
H. F. Long Hospital. Gen	NPAssn	50	50	5	49	33	1,439	
Sylva, 1,240—Jackson	Gen	NPAssn	25	25	2	17	11	420
C. J. Harris Community Hospital. Gen	NPAssn	25	25	2	17	11	420	
Tarboro, 6,373—Edgecombe	Gen	Indiv	..	8	5	2	4	191
Bass Memorial Hospital Gen	Indiv	..	8	5	2	4	191	
Edgecombe General Hosp. Gen	NPAssn	55	48	5	..	15	..	..
Thomasville, 10,000—Davidson	Gen	City	35	32	2	31	19	652
City Memorial Hospital. Gen	City	35	32	2	31	19	652	
Tryon, 1,670—Polk	Gen	NPAssn	35	23	3	23	0	471
St. Luke's Hospital. Gen	NPAssn	35	23	3	23	0	471	
Wadesboro, 3,121—Anson	Gen	NPAssn	50	50	5	78	30	1,278
Anson Sanatorium. Gen	NPAssn	50	50	5	78	30	1,278	
Washington, 7,025—Beaufort	Gen	NPAssn	75	60	3	124	40	1,502
Taylor Hospital. Gen	NPAssn	75	60	3	124	40	1,502	
Waynesville, 2,414—Haywood	Gen	County	65	87	10	112	67	1,617
Haywood County Hosp. Gen	County	65	87	10	112	67	1,617	

## NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
James Walker Memorial Hospital. Gen	NPAssn	132	132	20	716	106	5,061	
Wilmington Red Cross Sanatorium. TB	NPAssn	38	38	..	..	30	48	
Wilson, 12,613—Wilson	Gen	NPAssn	50	40	10	37	18	841
Wilson Hospital. Gen	NPAssn	50	40	10	37	18	841	
City Memorial Hosp. Gen	City	101	172	19	245	125	4,614	
Forsyth County Sanat. TB	County	134	134	..	..	127	141	
North Carolina Baptist Hospital. Gen	Church	113	97	16	455	93	3,565	
Wrightsville Sound, 23—New Hanover	NPAssn	..	35	..	..	16	213	
Bables Hospital. Gen	NPAssn	..	35	..	..	16	213	
Related Institutions								
Asheville, 50,193—Buncombe	Gen	Indiv	24	24	..	..	17	35
Elmhurst Cottage Sanit. TB	Indiv	24	24	..	..	17	35	
Sunset Heights. TB	Corp	32	20	..	..	12	51	
Violet Hill Sanatorium. TB	Indiv	37	37	..	..	27	50	
Biltmore, 172—Buncombe	Gen	Part	50	50	..	..	20	52
Hillcroft Sanatorium. TB	Part	..	14	..	..	8	7	
Ontario Lodge. TB	Part	..	14	..	..	8	7	
Condler, 50—Buncombe	Gen	Church	30	30	2	10	11	253
Pisgah Sanit. and Hosp. Gen	Church	30	30	2	10	11	253	
Charlotte, 82,675—Mecklenburg	Gen	NPAssn	26	30	5	39	4	78
Florence Crittenton Industrial Home. Mat	NPAssn	26	30	5	39	4	78	
Thompson Orphanage and Training Institution. Inst	Church	..	12	4	No data	supplied		
Davidson, 1,445—Mecklenburg	Gen	NPAssn	17	15	..	..	7	326
Davidson College Infirmary. Inst	NPAssn	17	15	..	..	7	326	
Fayetteville, 13,049—Cumberland	Gen	Part	10	10	..	..	3	492
Fayetteville Eye, Ear, Nose and Throat Hospital. ENT	Part	10	10	..	..	3	492	
Halifax, 321—Halifax	Gen	County	..	21	..	..	19	57
Halifax County Tuberculosis Sanatorium. TB	County	..	21	..	..	19	57	
Kinston, 11,362—Lenoir	Gen	State	..	40	..	..	35	433
Caswell Training School. MeDe	State	..	40	..	..	35	433	
Monroe, 6,100—Union	Gen	Indiv	16	11	3	5	6	100
Quality Hill Sanatorium (col.). Gen	Indiv	16	11	3	5	6	100	
North Wilkesboro, 3,663—Wilkes	Gen	County	14	10	..	..	6	21
Wilkes County Tuberculosis Hut. TB	County	14	10	..	..	6	21	
Oxford, 4,101—Granville	Gen	Indiv	..	72	..	..	14	370
William J. Hicks Memorial Hospital. Inst	Indiv	..	72	..	..	14	370	
Pinebluff, 250—Moore	Gen	Part	25	25	..	..	10	50
Pinebluff Sanatorium. N&M	Part	25	25	..	..	10	50	
Raleigh, 37,379—Wake	Gen	Indiv	12	9	2	0	4	100
McGulley Private Hospital (col.). Gen	Indiv	12	9	2	0	4	100	
North Carolina State School for the Blind and Deaf Inst	State	18	18	..	..	2	..	..
Roaring Gap, Alleghany	Gen	Indiv	..	30	..	..	3	89
Roaring Gap Baby Hosp. Chll	Indiv	..	30	..	..	3	89	
Saluda, 538—Polk	Gen	Indiv	55	55	..	..	23	156
Infants and Children's Sanatorium. Chll	Indiv	55	55	..	..	23	156	
Spartanburg Baby Hosp. Chll	NPAssn	..	55	..	..	No data	supplied	
Thomasville, 10,000—Davidson	Gen	Church	30	30	..	..	5	226
Mills Home Infirmary. Inst	Church	30	30	..	..	5	226	
Washington, 7,025—Beaufort	Gen	NPAssn	..	16	2	15	8	225
S. R. Fowle Mem. Hosp. Gen	NPAssn	..	16	2	15	8	225	
Wilson, 12,613—Wilson	Gen	CyCo	37	35	2	14	18	429
Mercy Hospital (col.). Gen	CyCo	37	35	2	14	18	429	

## Summary for North Carolina:

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums...	130	14,634	11,910	152,019
Related institutions.....	25	710	325	4,376
Totals.....	155	15,344	12,244	156,395
Refused registration.....	5	181	..	..

## NORTH DAKOTA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Belcourt, 295—Rolette								
Turtle Mountain Hospital G & TB 1A			50	50	5	162	36	841
Bismarek, 11,090—Burleigh								
Bismarek Hospital..... Gen	Church	..	123	12	174	81	2,275	
St. Alexius Hospital..... Gen	Church	138	138	12	204	93	2,541	
Bottineau, 1,322—Bottineau								
St. Andrew's Hospital... Gen	Church	60	60	10	115	40	1,233	
Corrington, 1,717—Foster								
Corrington Hospital..... Geo	Corp	..	25	4	35	10	465	
Devils Lake, 5,451—Ramsey								
General Hospital..... Gen	NPAasn	70	44	6	63	34	620	
Merely Hospital..... Gen	Church	..	66	12	174	51	1,839	



JOHN C. BURCH, Nashville, Tenn.: The term endometrial lasia is, perhaps, a bad one. We have recognized this in its use at length in previous papers. The general use of the term should help in clearing up the terminology. True, as cystic hyperplasia of the endometrium does not and occur in the presence of an active corpus luteum. The effect of the corpus luteum in sufficient concentration and over sufficient time produces certain characteristic changes in the estrogen sensitized endometrium. In the early part of its action the changes in the endometrium may be delayed, but these changes should be definitely present by the time of menstruation. If they are overlooked, it is because the action of the corpus is abnormally weak or absent altogether. If a mistake in diagnosis is made at this time, it is of only theoretical importance, as it makes little practical difference whether the case is classified as a severe first degree failure or a mild second degree failure. The biopsy instrument has been of considerable help to us. It is a reliable and safe procedure for obtaining endometrial tissue in the office or clinic. Anesthesia is not necessary. The amount of tissue obtained has been adequate for our purposes. If more is desired, the instrument can be inserted a number of times. The mechanism of bleeding in pelvic inflammation is not settled at present. Some cases of bleeding are probably the direct result of damage to the ovary, while others are not. Fluhmann discussed the question in a paper before this section five years ago.

## MANAGEMENT OF FACIAL INJURIES CAUSED BY MOTOR ACCIDENTS

CLAIRE L. STRAITH, M.D.

DETROIT

In its relatively short career, the motor car has already brought about more casualties in the United States than all the wars in which this country has been engaged. In 1935 alone, motor car accidents caused approximately 36,000 deaths and a far greater number of severe injuries. So serious has the situation become that traffic and safety engineers, public officials and educators have set about intensively to seek a solution of this problem. Safety campaigns have stressed the harrowing picture of "Sudden Death."<sup>1</sup> More tragic than sudden death, however, is the suffering borne by the injured who escape it. And more pitiable even than the immediate period of pain and disability is the suffering, through long bitter years of mental agony, of those left with lasting, conspicuous facial disfigurements.<sup>1</sup> The psychologic handicap imposed by unprepossessing or even relatively minor disfigurements has helped to blight many promising business and social careers and has helped to swell the ranks of the unemployed and unemployable.<sup>2</sup>

Hence the need of again calling attention to certain essentials in the management of acute facial injuries and their late sequelae. The hasty "emergency care" usually given these victims often jeopardizes the possibility of a good end result. The necessity of careful, meticulous care according to well established principles derived from experience with such injuries cannot be too strongly emphasized.

Facial injuries resulting from motor accidents may be classified according to two general types: (1) injuries

to the driver ("steering post injuries"<sup>3</sup>); (2) "guest-passenger injuries." These two types, because of the different factors which produce them, are usually quite distinctive.

"Driver injuries," because of the relative protection afforded the driver by the steering wheel to which he may cling for support, are the least frequent variety. It is remarkable how often, even after a violent smash-up, the driver emerges free from injury. If, on the other hand, the driver relaxes his hold on the wheel, falls asleep or is subjected to an unusually sharp impact, his head may be projected forward so that the chin strikes the center of the wheel. This results in a typical "steering post injury," namely, laceration and contusion of the chin associated with fractures of the mandible (symphysis, necks of the condyles, and so on). When the force of the impact is even greater, the head may be projected forward to the point where the face is thrown down on the steering wheel. In such instances the upper jaw (maxilla, malar bones) receives the brunt of the blow (fig. 1).



Fig. 1.—Severe steering post injury. Chin laceration; fracture of symphysis; bilateral fracture of neck of condyles; transverse maxillary fracture; compression fracture of left malar and maxilla. Serious breathing difficulty corrected by traction on wires through lower lip to arch wire from head cast. Maxilla wired by Federspiel's method.

"Guest-passenger injuries," i. e., injuries of persons riding in the front seat beside the driver, are more frequent. In my experience they constitute about 75 per cent of severe, crushing, facial injuries sustained in motor accidents. The majority of these victims are young women. Lacking the support of a structure comparable to the steering wheel, guest-passengers are thrown forward more violently at the impact. The injury is sustained when the head strikes the instrument panel with resultant crushing of the midportion of the face. These injuries—chiefly fractures and depressions—involve the maxilla and the nasal and malar bones as well as the orbit and eyeball. Projecting objects on the instrument panel (handles, knobs and cranks) add to the hazard.



Fig. 2.—Guest-passenger injury. Fractured nose, malar, maxilla and mandible.

Read before the European Congress of Plastic Surgeons in Brussels, Belgium, Oct. 4, 1936.

Owing to lack of space, a number of illustrations have had to be omitted from this article as published in THE JOURNAL. The complete article will appear in the reprints, a copy of which may be obtained on application to the author.

1. Furnas, J. C.: "And Sudden Death" and "Worse Than Death."  
2. Straith, C. L.: Plastic Surgery: Its Psychological Aspects.  
J. Michigan M. Soc. 31: 13 (Jan.) 1932.

3. Straith, C. L.: Treatment of Facial Wounds Due to Motor Accidents.  
J. Michigan M. Soc. 47: 1249 (Feb.) 1935.

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Elimination of such objects from the passenger's side of the instrument panel should be attempted by motor car engineers. The use of "crash padding" might do much to minimize the seriousness and extent of these injuries (fig. 2).

#### PRELIMINARY EXAMINATION AND TREATMENT

To obtain successful and satisfactory end results in the surgical treatment of these injuries, a systematic

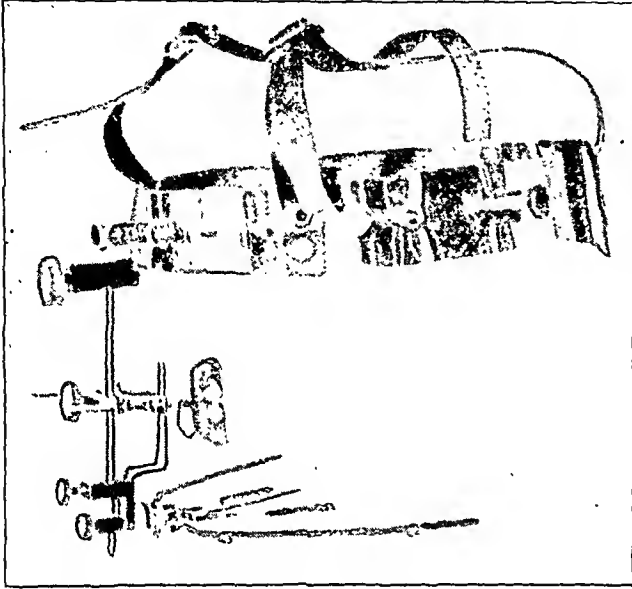


Fig. 3.—Author's apparatus for treating fractured facial bones. Head band has anterior and lateral binding posts and knobs for suspension of maxillary fractures and other attachments. There is an adjustable nasal assembly for elevation of the nasal bridge and compression of the sides of the nose and a maxillary splint adjustable to different size jaws with fixed side arms for upward traction if needed. The head band should be embedded in a plaster cast for proper fixation.

examination of the patient is of primary importance. The following routine is suggested:

1. *Careful inspection and cleansing of all lacerations, with removal of gross foreign bodies.* This is a very necessary and important first step, which must not be neglected. Hurried closure of wounds with skin clips and heavy suture materials (heavy silk or catgut) is to be condemned. Surgical repair should not be attempted until it can be done properly under conditions that will leave a minimal scar.

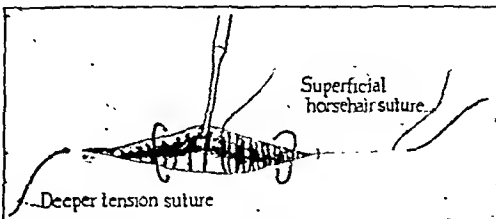


Fig. 4.—Double subcuticular stitch leaves the finest scar. Deeper tension stitch of dermal or other strong material is used and the exact approximation of skin edges is accomplished by a fine horsehair stitch.

2. *Careful palpation of all facial bones.* Using both index fingers, the operator should carefully palpate the forehead, orbital rims and zygoma. Separation of the malar attachments, depressions and eversions of the zygoma and depressed malar fragments at the infra-orbital foramen may thus be detected. The latter condition can also be recognized by intra-oral palpation with the index fingers, which detects prominent bone

edges. Anesthesia of the lateral surface of the nose and upper lip on the affected side is a frequent finding in these fractures.

3. *Palpation of the nose and intranasal inspection.*

4. *Inspection and palpation of the oral cavity.* This step is of extreme importance, since it will often reveal maxillary lesions otherwise overlooked, lateral or downward displacement of the maxilla caused by transverse fracture, and midline or unilateral maxillary compression fractures. Mandibular fractures usually are easily recognized. When chin lacerations are present they should always be suspected and a careful search should be made to determine the presence of fractures of the necks of the condyles. Backward displacement of the mandible in fractures of the condyles may give rise to serious respiratory difficulties that require immediate attention (fig. 1).

#### WOUND CLOSURE

Every effort must be made at the onset to conserve tissue. Hence severed portions of skin (after denuding the subcutaneous fat) should be replaced immediately and sutured in place in the manner of a Wolfe graft.

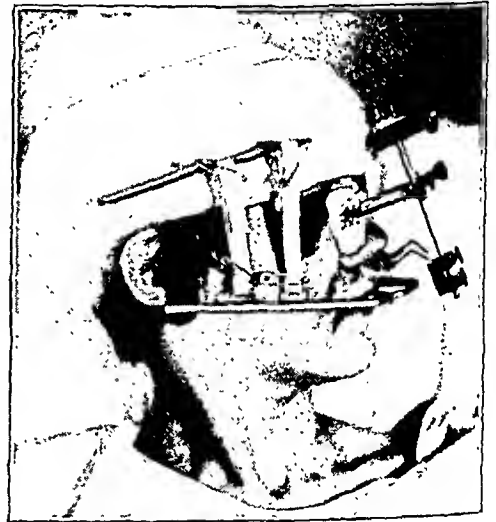


Fig. 5.—Plaster head cap makes excellent firm attachment for nasal appliance. Nasal bones were held up and lateral pressure applied by author's appliance. Maxillary splint was held up by elastic traction to coat hanger wire attachments embedded in plaster cap. Light elastic should be used or an impaction of the maxillary fracture with overcorrection may be produced. These side arm splints have now largely been discarded.

This is followed by the application of a pressure dressing. The abundant circulation of the face will often save an apparently useless skin flap. The same applies to ears and nasal tips that have been partially or almost completely severed.

After the wound has been carefully cleansed, the jagged skin edges are trimmed to straight lines. Buried dermal sutures are then placed to relieve tension. I prefer a double subcuticular stitch, since it leaves the least conspicuous scar. Deep skin layers are approximated by a subcuticular stitch of dermal or other fine though strong suture material. The surface is approximated accurately with a subcuticular horse hair suture threaded on a small eye-needle, which is passed just beneath the surface epithelium. In long wounds the stitches should be brought to the surface at intervals of one inch so that they may subsequently be cut and removed in sections. The horsehair suture is removed in forty-eight hours, the other sutures in from seven to ten days (fig. 4).

## NORTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Dickinson, 5,025—Stark	Gen	Church	100	85	10	131	39	1,163
St. Joseph's Hospital.....	Gen	Church	100	85	10	131	39	1,163
Drayton, 522—Pembina	Gen	NPAssn	11	11	2	31	10	423
Drayton Hospital.....	Gen	NPAssn	11	11	2	31	10	423
Edgeley, 521—La Moure	Gen	Indiv	11	11	..	6	6	256
Edgeley Hospital.....	Gen	Indiv	11	11	..	6	6	256
Fargo, 25,619—Cass	Gen	Church	135	135	30	477	97	4,000
St. John's Hospital.....	Gen	Church	135	135	30	477	97	4,000
St. Luke's Hospital.....	Gen	Church	108	108	17	163	69	2,325
Veterans Admin. Facility Gen	Vet	Army	100	100	..	..	01	798
St. Michael's Hospital.....	Gen	Church	56	56	..	..	35	532
St. Totten, 125—Benson	Gen	IA	50	51	4	52	13	733
St. Totten Hospital.....	Gen	IA	50	51	4	52	13	733
St. Yates, 400—Sioux	Gen	IA	50	56	11	45	13	611
Standing Rock Indian Hos- pital.....	Gen	IA	50	56	11	45	13	611
Gratton, 3,136—Walsh	Gen	Church	50	41	6	175	32	1,154
Gratton Deaconess Hosp. <sup>o</sup> Gen	Gen	Church	50	41	6	175	32	1,154
Grand Forks, 17,112—Grand Forks	Gen	Church	110	65	25	233	58	2,698
Grand Forks Deaconess Hospital.....	Gen	Church	70	65	15	251	46	1,406
St. Michael's Hospital.....	Gen	Church	70	65	15	251	46	1,406
Harvey, 2,157—Wells	Gen	NPAssn	30	30	6	69	14	511
Good Samaritan Hospital and Sanitarium.....	Gen	NPAssn	30	30	6	69	14	511
Jamestown, 8,187—Stutsman	Gen	State	1,700	1,519	..	..	1,614	437
North Dakota State Hos- pital for Insane.....	Ment	State	1,700	1,519	..	..	1,614	437
Trinity Hospital.....	Gen	Church	80	80	12	114	41	1,231
Kenmare, 1,491—Ward	Gen	Church	40	31	6	111	25	779
Kenmare Deaconess Hosp. Gen	Gen	Church	40	31	6	111	25	779
Linton, 1,192—Emmons	Gen	Parl	16	16	5	35	4	176
Linton Hospital.....	Gen	Parl	16	16	5	35	4	176
Mandan, 5,037—Morton	Gen	Church	..	59	6	107	31	1,098
Mandan Deaconess Hosp. Gen	Gen	Church	..	59	6	107	31	1,098
McVie, 513—Nelson	Gen	Corp	17	17	4	47	6	325
Community Hospital.....	Gen	Corp	17	17	4	47	6	325
Minot, 16,059—Ward	Gen	Indiv	13	12	1	..	6	600
McConnell's Private Hosp. ENT	Gen	Indiv	13	12	1	..	6	600
St. Joseph's Hospital.....	Gen	Church	100	100	14	212	50	2,625
Trinity Hospital.....	Gen	Church	156	156	16	231	59	2,651
New Rockford, 2,195—Eddy	Gen	Indiv	12	12	3	60	4	193
Donahue Hospital.....	Gen	Indiv	12	12	3	60	4	193
Northwood, 671—Grand Forks	Gen	NPAssn	25	25	4	54	17	447
Northwood Deaconess Hospital.....	Gen	NPAssn	25	25	4	54	17	447
Oakes, 1,709—Dickey	Gen	Church	..	30	5	26	4	163
St. Anthony's Hospital.....	Gen	Church	..	30	5	26	4	163
Rolette, 425—Rolette	Gen	NPAssn	20	18	6	60	10	395
Community Hospital.....	Gen	NPAssn	20	18	6	60	10	395
Rugby, 1,512—Pierce	Gen	Church	50	50	12	225	50	2,523
Good Samaritan Hosp. <sup>o</sup> Gen	Gen	Church	50	50	12	225	50	2,523
San Haven, Rolette	Gen	Church	50	50	12	225	50	2,523
North Dakota State Tu- berculosis Sanatorium.....	TB	State	237	305	..	..	235	155
Valley City, 5,293—Barnes	Gen	Church	100	87	13	150	55	1,758
Way Hospital.....	Gen	Church	100	87	13	150	55	1,758
Way Hospital.....	Gen	Church	100	87	13	150	55	1,758
Wahpeton, 3,176—Richland	Gen	Part	..	21	6	62	14	421
Wahpeton Hospital.....	Gen	Part	..	21	6	62	14	421
Mersey Hospital.....	Gen	Church	43	43	7	145	34	1,080
Mersey Hospital.....	Gen	Church	100	75	13	97	30	1,488
Related Institutions								
Ambrose, 334—Divide	Gen	Church	15	15	4	51	10	303
Lutheran Good Samaritan Hospital.....	Gen	Church	15	15	4	51	10	303
Bismarck, 11,090—Burlingame	Gen	State	65	65	..	..	20	256
North Dakota State Peni- tentiary Hospital.....	Inst	State	65	65	..	..	20	256
Downing, 888—Bowman	Gen	Indiv	8	8	6	17	3	125
Bowman Hospital.....	Gen	Indiv	8	8	6	17	3	125
Elbowoods, 139—McLean	Gen	IA	20	20	5	46	16	449
Ft. Berthold Indian Hosp. Gen	Gen	IA	20	20	5	46	16	449
Elgin, 505—Grant	Gen	City	7	7	2	15	3	107
Elgin Hospital.....	Gen	City	7	7	2	15	3	107
Fargo, 25,619—Cass	Gen	Indiv	15	15	10	69	4	69
Camp	Gen	County	30	23	4	51	15	295
Cass	Gen	County	30	23	4	51	15	295
Floren	Gen	NPAssn	..	55	35	67	35	71
Grafton, 3,136—Walsh	Gen	State	793	782	..	..	753	208
Gratton State School.....	McDe	State	793	782	..	..	753	208
Grand Forks, 17,112—Grand Forks	City	City	19	19	3	..	1	34
Grand Forks City Hosp. Iso	City	City	19	19	3	..	1	34
Jamestown, 8,187—Stutsman	Gen	CyCo	..	19	..	1	3	49
Isolation Hospital.....	Iso	CyCo	..	19	..	1	3	49
Jamestown Hospital.....	Gen	NPAssn	40	37	12	72	22	732
Mayville, 1,199—Traill	Gen	NPAssn	8	16	6	61	8	439
Union Hospital.....	Gen	NPAssn	8	16	6	61	8	439
Summary for North Dakota:								
Hospitals and sanatoriums....	Number	Beds	Average Patients	Patients Admitted				
Related Institutions.....	13	4,471	3,545	45,943				
Totals.....	52	5,515	4,429	49,083				
Refused registration.....	3	55						

## OHIO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Akron, 25,010—Summit	Chil	NPAssn	..	110	..	..	73	2,566
Children's Hospital.....	Chil	NPAssn	..	110	..	..	73	2,566
City Hospital.....	Gen	NPAssn	312	312	33	1,141	238	8,211
Peoples Hospital.....	Gen	NPAssn	156	156	20	570	78	3,740
St. Thomas Hospital.....	Gen	Church	143	145	29	589	111	4,614
Alliance, 23,047—Stark	Gen	City	100	85	15	239	34	1,504
Alliance City Hospital.....	Gen	City	100	85	15	239	34	1,504
Amblerst, 2,814—Lorain	County	County	75	82	..	..	86	114
Pleasant View Sanatorium TB	County	County	75	82	..	..	86	114
Ashland, 11,141—Ashland	Gen	NPAssn	26	26	7	178	16	674
Samuritan Hospital.....	Gen	NPAssn	26	26	7	178	16	674
Ashtabula, 23,301—Ashtabula	Gen	NPAssn	90	70	14	124	34	1,142
Ashtabula General Hosp. <sup>o</sup> Gen	Gen	NPAssn	90	70	14	124	34	1,142
Athens, 7,252—Athens	Ment	State	1,672	1,672	..	..	1,634	313
Athens State Hospital.....	Ment	State	1,672	1,672	..	..	1,634	313
Sheltering Arms Hospital Gen	Gen	Indiv	30	30	7	47	12	550
Burton, 23,934—Summit	Gen	Corp	50	50	10	174	28	1,100
Citizens Hospital.....	Gen	Corp	50	50	10	174	28	1,100
Burnsville, 4,602—Belmont	Gen	Corp	..	18	4	21	5	265
Burnsville General Hosp. Gen	Gen	Corp	..	18	4	21	5	265
Bedford, 6,814—Cuyahoga	Gen	City	33	27	9	91	14	506
Bedford Municipal Hosp. Gen	Gen	City	33	27	9	91	14	506
Bellevue, 12,327—Belmont	Gen	NPAssn	50	48	5	125	29	867
City Hospital.....	Gen	NPAssn	50	48	5	125	29	867
Bellevue, 6,256—Huron	Gen	NPAssn	35	29	6	67	10	397
Bellevue Hospital.....	Gen	NPAssn	35	29	6	67	10	397
Beren, 5,697—Cuyahoga	Gen	NPAssn	32	32	9	146	23	820
Community Hospital.....	Gen	NPAssn	32	32	9	146	23	820
Bryan, 4,689—Williams	Gen	Indiv	..	18	5	..	..	Estab. 1926
Cameron Hospital.....	Gen	Indiv	..	18	5	..	..	Estab. 1926
Bueyrus, 10,027—Crawford	Gen	City	37	37	6	89	18	699
Bueyrus City Hospital.....	Gen	City	37	37	6	89	18	699
Cambridge, 14,613—Guernsey	Gen	Indiv	23	25	3	2	8	42
St. Francis Hospital.....	Gen	Indiv	23	25	3	2	8	42
Canton, 10,496—Stark	Gen	NPAssn	161	147	24	427	93	3,242
Aultman Hospital.....	Gen	NPAssn	161	147	24	427	93	3,242
Mersey Hospital.....	Gen	Church	218	186	32	876	142	5,814
Molly Stark Sanatorium TB	Gen	County	166	167	..	..	137	279
Celina, 4,664—Mercer	Gen	Indiv	25	25	4	19	9	336
Otis Hospital.....	Gen	Indiv	25	25	4	19	9	336
Chillicothe, 18,340—Ross	Gen	NPAssn	60	60	6	30	31	678
Chillicothe Hospital.....	Gen	NPAssn	60	60	6	30	31	678
U. S. Industrial Reformatory	Inst	USPHS	66	80	..	..	37	970
Veterans Admin. Facility Ment	Ment	Vet	941	944	..	..	1,027	260
Cincinnati, 45,160—Hamilton	Gen	Church	239	199	40	825	162	7,637
Bethesda Hospital.....	Gen	Church	239	199	40	825	162	7,637
Children's Hospital.....	Chil	Church	211	211	5	..	131	4,850
Christ Hospital.....	Gen	Church	321	321	43	625	186	6,882
Christ St. Holmes Hosp. Gen	Gen	City	52	50	..	..	30	928
Cincinnati Gen. Hosp. Gen	Gen	City	860	860	65	1,883	755	16,618
Cincinnati Sanitarium.....	N&M	Corp	..	75	..	..	63	174
Deaconess Hospital.....	Gen	Church	175	150	25	537	114	4,261
Good Samaritan Hosp. <sup>o</sup> Gen	Gen	Church	530	488	62	1,921	350	12,519
Hamilton County Tubercu- losis Sanatorium.....	TB	County	639	639	..	..	618	617
Jewish Hospital.....	Gen	NPAssn	225	225	37	791	150	5,593
Longview State Hospital.....	Ment	State	1,816	2,521	..	..	2,472	491
St. Mary Hospital.....	Gen	Church	220	220	20	457	153	4,597
Cleveland, 7,369—Pickaway	Gen	City	25	25	4	49	9	457
Berger Hospital.....	Gen	City	25	25	4	49	9	457
Cleveland, 900,429—Cuyahoga	Unit of University Hospitals	City	1,626	1,521	53	1,532	1,299	14,314
Babies and Childrens Hosp. Unit	Unit of University Hospitals	City	1,626	1,521	53	1,532	1,299	14,314
City Hospital.....	Gen	City	1,626	1,521	53	1,532	1,299	14,314
City Psychopathic Hosp. Unit of City Hospital	Unit of City Hospital	City	1,626	1,521	53	1,532	1,299	14,314
Cleveland Clinic Founda- tion Hospital.....	Gen	NPAssn	229	229	..	..	119	4,637
Cleveland State Hosp. <sup>o</sup> Ment	Ment	State	2,058	2,739	..	..	2,727	302
East 55th Street Hospital Gen	Gen	Corp	60	60	12	3	16	118
Evangelical Deaconess Hospital.....	Gen	Church	144	109	35	639	84	1,928
Fairview Park Hospital.....	Gen	Church	..	95	18	439	76	2,599
Glenview Hospital.....	Gen	NPAssn	106	88	21	422	73	2,402
Grace Hospital.....	Gen	NPAssn	32	32	..	..	16	891
John H. Lowman Memo- rial Pavilion.....	Tuberculosis Unit of City Hospital	..	..	..	..	..	..	..
Lakeside Hospital.....	Unit of University Hospitals	..	..	..	..	..	..	..
Leonard C. Hanna House	Unit of University Hospitals	..	..	..	..	..	..	..
Lutheran Hospital.....	Gen	Church	169	169	23	718	79	3,764
Maternity Hospital.....	Unit of University Hospitals	..	..	..	..	..	..	..
St. Sinal Hospital.....	Gen	NPAssn	225	225	45	656	186	7,865
Polyclinic Hospital.....	Gen	NPAssn	105	80	15	259	75	2,301
Provident Hospital.....	Gen	NPAssn	..	25	12	..	..	..
St. Alexis Hospital.....	Gen	Church	..	220	..	..	149	4,411

## TENNESSEE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Davidson County Tuberculosis Hospital.....	TB	County	300	300	..	..	240	293
Geo. W. Hubbard Hospital of Meharry Medical College (col.).....	Gen	NPAssn	152	158	20	247	61	2,241
Hospital for the Criminal	Unit of Central State Hospital							
Gen	NPAssn	50	40	10	8	10	250	
Gen	City	303	281	24	1,051	200	7,380	
Gen	NPAssn	100	100	16	360	68	2,703	
Gen	Church	..	200	25	414	109	5,075	
Gen	NPAssn	105	105	15	260	158	4,680	
Newport, 2,689—Coeke	Gen	NPAssn	50	40	10	8	10	250
Dr. E. E. Northeatt In-	Gen	NPAssn	50	40	10	8	10	250
firmary.....	Gen	NPAssn	50	40	10	8	10	250
Oakville, 163—Shelby	Gen	NPAssn	50	40	10	8	10	250
Oakville Memorial Sanat.	TB	CyCo	..	300	..	..	201	274
Paris, 8,164—Henry	Gen	NPAssn	50	40	10	8	10	250
McSwain Clinic.....	Gen	NPAssn	50	40	10	8	10	250
Nobles Memorial Hospital	Gen	NPAssn	50	40	10	8	10	250
Pressmen's Home, 160—Hawkins	Gen	NPAssn	50	40	10	8	10	250
International Printing	Gen	NPAssn	50	40	10	8	10	250
Pressmen and Assistants'	Gen	NPAssn	50	40	10	8	10	250
Union Sanatorium.....	TB	NPAssn	60	60	..	..	25	8
Pulaski, 3,367—Giles	Gen	NPAssn	50	40	10	8	10	250
Pulaski Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Richard City, 622—Marion	Gen	NPAssn	50	40	10	8	10	250
Dixie Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Ridgetop, 195—Robertson	Gen	NPAssn	50	40	10	8	10	250
Watauga Sanitarium.....	TB	Corp	40	40	..	..	16	44
Rockwood, 3,598—Roane	Gen	NPAssn	50	40	10	8	10	250
Chamberlain Mem. Hosp.	Gen	NPAssn	50	40	10	8	10	250
Rogersville, 1,500—Hawkins	Gen	NPAssn	50	40	10	8	10	250
Lyons Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Sewanee, 530—Franklin	Gen	NPAssn	50	40	10	8	10	250
Emerald-Hodgeson Memo-	Gen	NPAssn	50	40	10	8	10	250
rial Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Shelbyville, 5,010—Bedford	Gen	NPAssn	50	40	10	8	10	250
Bedford County Hospital	Gen	NPAssn	50	40	10	8	10	250
Springfield, 5,577—Robertson	Gen	NPAssn	50	40	10	8	10	250
Robertson County Hosp.	Gen	NPAssn	50	40	10	8	10	250
Sweetwater, 2,271—Monroe	Gen	NPAssn	50	40	10	8	10	250
Sweetwater Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Western State Hospital—Hardeman	Gen	NPAssn	50	40	10	8	10	250
Western State Hospital—Ment	Gen	NPAssn	50	40	10	8	10	250
Woodbury, 602—Cannon	Gen	NPAssn	50	40	10	8	10	250
Good Samaritan Hospital	Gen	NPAssn	50	40	10	8	10	250
Related Institutions								
Chattanooga, 119,798—Hamilton	Gen	NPAssn	50	40	10	8	10	250
William L. Bork Memo-	Gen	NPAssn	50	40	10	8	10	250
rial Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Copperhill, 1,050—Polk	Gen	NPAssn	50	40	10	8	10	250
Tennessee Copper Com-	Gen	NPAssn	50	40	10	8	10	250
pany's Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Donelson, 110—Davidson	Gen	NPAssn	50	40	10	8	10	250
Tennessee Home and Train-	Gen	NPAssn	50	40	10	8	10	250
ing School for Feeble-	Gen	NPAssn	50	40	10	8	10	250
minded Persons.....	Gen	NPAssn	50	40	10	8	10	250
Etowah, 4,200—McMinn	Gen	NPAssn	50	40	10	8	10	250
Etowah Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Fay	Gen	NPAssn	50	40	10	8	10	250
Knoc	Gen	NPAssn	50	40	10	8	10	250
Tennessee School for Deaf Inst	Gen	NPAssn	50	40	10	8	10	250
University of Tennessee	Gen	NPAssn	50	40	10	8	10	250
Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Maryville, 4,958—Blount	Gen	NPAssn	50	40	10	8	10	250
Burchfield's Eye, Ear and	ENT	Indiv	..	5	..	..	2	347
Throat Hospital.....	ENT	Indiv	..	5	..	..	2	347
M	Gen	Indiv	10	10	3	15	3	154
M	Inst	County	804	800	..	..	609	412
N	Ment	County	..	650	..	..	653	535
Watson County Isolation	Gen	NPAssn	50	40	10	8	10	250
Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Junior League Home for	Gen	NPAssn	50	40	10	8	10	250
Crippled Children.....	Gen	NPAssn	50	40	10	8	10	250
Tennessee Industrial School Inst	Gen	NPAssn	50	40	10	8	10	250
Tennessee State Prison	Gen	NPAssn	50	40	10	8	10	250
Hospital.....	Gen	NPAssn	50	40	10	8	10	250
Pickwick Dam—Hardin	Gen	NPAssn	50	40	10	8	10	250
Pickwick Dam Infirmary.....	Gen	NPAssn	50	40	10	8	10	250
Releigh, 287—Shelby	Gen	NPAssn	50	40	10	8	10	250
Cheerfield Farm Preven-	Gen	NPAssn	50	40	10	8	10	250
torium.....	Gen	NPAssn	50	40	10	8	10	250
Summary for Tennessee:								
Hospitals and sanatoriums...	Number	Beds	Average Patients	Patients Admitted				
Related institutions.....	83	12,193	9,594	125,798				
Totals.....	101	14,913	11,673	131,231				
Refused registration.....	8	180						

## TEXAS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Ablene, 23,175—Taylor								
Ablene State Hospital...	Epil	State	1,056	1,175	..	..	1,409	219
Hendrick Mem. Hosp. o.	Gen	Church	100	100	20	303	52	2,795
Allee, 4,239—Jim Wells								
Allee Hospital.....	Gen	Part	12	12	3	19	6	371
Amarillo, 43,132—Potter								
Northwest Texas Hosp. o	Gen	County	75	65	10	210	55	1,977
St. Anthony's Hospital o	Gen	Church	100	100	12	246	65	2,320
Archer City, 1,512—Archer								
Archer Hospital.....	Gen	Indiv	14	14	4	26	4	230
Austin, 53,120—Travis								
Austin State Hospital...	Ment	State	2,301	2,301	..	..	2,317	396
Brackenridge Hospital...	Gen	City	150	135	15	585	90	3,900
St. David's Hospital o...	Gen	Church	44	44	8	110	28	...
Seton Infirmary o...	Gen	Church	100	100	12	260	74	3,417
Bastrop, 1,895—Bastrop								
F. A. Orgain Memorial								
Hospital.....	Gen	NPAasn	20	14	2	15	4	205
Bay City, 4,070—Matagorda								
Dr. Loos' Hospital.....	Gen	Indiv	16	16	6	45	4	283
Benumont, 57,732—Jefferson								
Hotel Dieu Hospital o...	Gen	Church	175	160	15	243	54	2,552
Jefferson County Tubercu-								
losis Hospital.....	TB	County	85	98	..	..	89	102
Jefferson County Tubercu-								
culosis Hosp. (col.).....	TB	County	20	22	..	..	21	40
St. Therese Hospital.....	Gen	Church	..	75	10	269	39	1,842
Beeville, 4,806—Bee								
Beeville Hospital.....	Gen	Indiv	30	30	4	35	18	375
Thomas Memorial Hosp.	Gen	Part	23	25	4	76	12	623
Belton, 3,779—Bell								
Belton General Hospital.	Gen	Part	12	12	3	26	4	...
Big Spring, 13,735—Howard								
Big Spring Hospital.....	Gen	Corp	..	35	6	87	13	1,061
Bivings Hospital.....	Gen	Indiv	25	19	6	35	10	327
Bonham, 5,655—Fannin								
S. B. Allen Mem. Hosp. o	Gen	NPAasn	40	32	4	25	10	542
Borger, 6,532—Hutchinson								
North Plains Hospital...	Gen	County	20	14	4	233	7	692
Bowie, 3,131—Montague								
Bowie Clinic Hospital...	Gen	Corp	20	15	3	20	7	365
Brackettville, 1,822—Kinney								
Station Hospital.....	Gen	Army	40	40	4	27	31	630
Brady, 3,983—McCulloch								
Brady Hospital o...	Gen	Part	45	45	5	98	22	1,019
.. ..	Gen	Church	30	30	5	26	8	435
Hospital.....	Gen	Corp	25	21	2	32	7	442
Brownsville, 22,021—Cameron								
Mersey Hospital.....	Gen	Church	..	50	6	107	12	703
Station Hospital.....	Gen	Army	50	50	1	22	14	621
Brownwood, 12,769—Brown								
Central Texas Hospital...	Gen	Corp	..	30	3	No data	supplied	
Medical Arts Hospital...	Gen	Corp	45	36	4	29	10	704
Stump General Hospital.	Gen	Indiv	13	13	2	45	4	312
Bryan, 7,814—Brazos								
St. Joseph Hospital.....	Gen	Church	50	30	3	38	10	562
Wilkinson Memorial Clinic	Gen	Indiv	19	19	2	81	4	565
Cameron, 4,565—Milan								
Cameron Hospital o...	Gen	Part	50	50	4	94	20	734
Canadian, 2,063—Hemphill								
Canadian Hospital.....	Gen	Indiv	10	10	2	20	3	177
Carthage, 1,651—Panola								
Carthage General Hosp..	Gen	Indiv	..	20	3	15	6	441
Center, 2,510—Shelby								
Center Sanitarium.....	Gen	Indiv	12	12	1	10	3	125
Warren Hospital.....	Gen	Part	12	12	1	5	2	81
Childress, 7,163—Childress								
Jeter-Townsend Hospital.	Gen	Part	..	30	2	22	10	1,022
Cisco, 6,027—Eastland								
Graham Sanitarium.....	Gen	Indiv	22	22	2	52	7	...
Cleburne, 11,839—Johnson								
Cleburne Sanitarium.....	Gen	Indiv	..	20	4	29	4	265
Coleman, 6,078—Coleman								
Overall Memorial Hosp..	Gen	CyCo	..	40	2	46	3	339
Colorado, 4,671—Mitchell								
C. L. Root Hospital....	Gen	Indiv	20	15	2	29	5	210
.. ..	Gen	Indiv	18	18	6	23	4	325
.. ..	Gen	NPAasn	65	65	10	68	32	1,037
.. ..	Gen	Church	32	32	4	31	15	1,011
.. ..	Gen	Church	50	50	12	236	41	2,129
Corpus Christi, 19,102—Harris								
Corpus Christi Hospital and								
Clinic.....	Gen	Corp	20	15	2	11	6	220
Navarro Clinic Hospital.	Gen	Part	30	20	6	36	7	540
Physicians and Surgeons								
Hospital.....	Gen	County	65	65	7	51	10	662
Crystal City, 6,609—Zavala								
Crystal Hospital.....	Gen	Corp	12	12	2	7	2	126
Cuero, 4,672—De Witt								
.. ..	Gen	Church	35	35	3	19	..	415
.. ..	Gen	Church	40	35	5	13	7	303
.. ..								
.. ..	Gen	Church	400	355	45	966	272	12,683
Beverly Hills Sanitarium	N&M	Corp	30	30	..	..	22	197
Brndford Memorial Hos-								
pital.....	Chil	NPAasn	65	60	6	..	10	776
.. ..	Orth	Part	..	25	..	..	12	395

## OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
St. Ann's Infant Asylum and Maternity Hospital	Gen	Church	..	25	25	440	10	478
St. Anthony's Hospital	Gen	Church	204	204	..	188	588	
St. Clair Hospital	Gen	NPAasn	..	27	3	20	10	322
St. Francis Hospital	Gen	State	158	158	..	126	3,185	
Starling-Loving University Hospital	Gen	State	235	255	32	537	167	5,067
Station Hospital	Gen	Army	197	192	5	20	123	1,726
White Cross Hospital	Gen	Church	243	243	28	685	145	5,857
Conneaut, 9,691—Ashtabula	Gen	NPAasn	..	30	5	95	18	680
Brown Memorial Hospital	Gen	NPAasn	..	30	5	95	18	680
Coshocton, 10,908—Coshocton	Gen	City	44	36	8	112	20	770
Coshocton City Hospital	Gen	City	44	36	8	112	20	770
Crestline, 4,425—Crawford	Gen	NPAasn	16	16	4	..	5	188
Crestline Emergency Hosp.	Gen	NPAasn	16	16	4	..	5	188
Cuyahoga Falls, 19,797—Summit	Gen	NPAasn	50	50	..	..	35	173
Fair Oaks Villa	N&M	NPAasn	50	50	..	..	35	173
Dayton, 200,982—Montgomery	Gen	State	1,415	1,720	..	..	1,649	508
Dayton State Hospital	Gen	State	1,415	1,720	..	..	1,649	508
Good Samaritan Hosp.	Gen	Church	250	200	50	591	128	3,549
Miami Valley Hospital	Gen	NPAasn	371	355	44	1,020	258	9,115
St. Ann's Maternity Hosp.	Unit of St. Elizabeth Hospital	Church	365	365	35	1,192	200	5,228
St. Elizabeth Hospital	Gen	Church	365	365	35	1,192	200	5,228
Stillwater Sanatorium	TB	County	100	94	..	..	93	95
Veterans Admin. Facility	Gen	Vet	1,114	1,114	..	..	807	5,033
Defiance, 8,818—Defiance	Gen	NPAasn	..	24	5	51	17	667
Defiance Hospital	Gen	NPAasn	..	24	5	51	17	667
Dennison, 4,529—Tuscarawas	Gen	NPAasn	..	30	5	No data supplied		
Twin City Hospital	Gen	NPAasn	..	30	5	No data supplied		
Dover, 9,716—Tuscarawas	Gen	NPAasn	75	75	10	89	39	1,083
Union Hospital	Gen	NPAasn	75	75	10	89	39	1,083
East Cleveland, 39,667—Cuyahoga	Gen	NPAasn	300	202	36	707	121	5,060
Huron Road Hospital	Gen	NPAasn	300	202	36	707	121	5,060
East Liverpool, 23,329—Columbiana	Gen	City	99	89	10	227	56	1,864
East Liverpool City Hosp.	Gen	City	99	89	10	227	56	1,864
Elyria, 25,633—Lorain	Gen	NPAasn	25	25	4	29	7	301
Elyria Clinic Hospital	Gen	NPAasn	..	154	19	621	63	2,898
Elyria Memorial Hosp.	Gen	NPAasn	..	154	19	621	63	2,898
Gates Hospital for Crippled Children	Unit of Elyria Memorial Hospital							
Findlay, 19,363—Hancock	Gen	City	63	63	12	188	27	1,136
Home and Hospital	Gen	City	63	63	12	188	27	1,136
Fremont, 13,422—Sandusky	Gen	Indiv	16	14	4	22	7	198
Community Hospital	Gen	Indiv	16	14	4	22	7	198
Memorial Hospital of Sandusky County	Gen	NPAasn	59	51	8	232	33	1,134
Gallion, 7,674—Crawford	Gen	NPAasn	12	12	4	65	7	284
Good Samaritan Hosp.	Gen	NPAasn	12	12	4	65	7	284
Gallipolis, 7,106—Gallia	Gen	Part	51	51	4	49	38	1,875
Holzer Hospital	Gen	Part	51	51	4	49	38	1,875
Ohio Hospital for Epileptics	Gen	State	1,082	2,131	..	..	2,152	288
Green Springs, 750—Sandusky and Seneca	Gen	Corp	100	100	..	..	55	70
Oak Ridge Sanatorium	TB	Corp	100	100	..	..	55	70
Greenville, 7,036—Darke	Gen	County	25	25	4	74	18	769
Greenville Hospital	Gen	County	25	25	4	74	18	769
Hamilton, 52,176—Butler	Gen	NPAasn	..	85	24	355	44	1,478
Fort Hamilton Hospital	Gen	NPAasn	..	85	24	355	44	1,478
Mersey Hospital	Gen	Church	200	275	25	491	96	3,410
Hillsboro, 4,040—Highland	Gen	NPAasn	15	15	4	27	8	391
Hillsboro Hospital	Gen	NPAasn	15	15	4	27	8	391
Ironton, 16,521—Lawrence	Gen	Church	25	32	5	80	15	635
Charles S. Gray Deaconess Hospital	Gen	Church	25	32	5	80	15	635
Martling Hospital	Gen	Corp	25	25	5	39	16	637
Kenton, 7,069—Hardin	Gen	NPAasn	21	25	5	43	22	613
McKittick Hospital	Gen	NPAasn	21	25	5	43	22	613
San Antonio Hospital	Gen	Church	22	21	5	30	12	274
Lakewood, 70,509—Cuyahoga	Gen	City	83	67	16	338	56	3,701
Lakewood City Hospital	Gen	City	83	67	16	338	56	3,701
Lima, 42,487—Allen	Gen	County	129	124	..	..	93	96
Distriet Tuberculosis Hosp.	TB	State	1,019	1,191	..	..	1,121	150
Lima State Hospital	Ment	State	1,019	1,191	..	..	1,121	150
Lodi, 1,273—Medina	Gen	NPAasn	20	20	5	87	12	524
Lodi Hospital	Gen	NPAasn	20	20	5	87	12	524
Logan, 6,080—Hocking	Gen	NPAasn	35	35	4	23	16	510
Cherrington Hospital	Gen	NPAasn	35	35	4	23	16	510
Lorain, 44,512—Lorain	Gen	Church	100	100	20	426	66	2,258
St. Joseph's Hospital	Gen	Church	100	100	20	426	66	2,258
Mansfield, 33,525—Richland	Gen	NPAasn	110	110	14	434	65	2,548
Mansfield General Hosp.	Gen	NPAasn	110	110	14	434	65	2,548
Marietta, 14,285—Washington	Gen	NPAasn	54	54	10	157	29	1,454
Marietta Memorial Hosp.	Gen	NPAasn	54	54	10	157	29	1,454
Marion, 31,054—Marion	Gen	City	50	47	10	145	28	1,060
Marion City Hospital	Gen	City	50	47	10	145	28	1,060
Sawyer Sanatorium	N&M	Part	50	40	..	..	31	138
Martins Ferry, 14,525—Belmont	Gen	NPAasn	90	80	10	194	65	2,710
Martins Ferry Hospital	Gen	NPAasn	90	80	10	194	65	2,710
Massillon, 26,400—Stark	Gen	NPAasn	..	92	14	No data supplied		
Massillon City Hospital	Gen	NPAasn	..	92	14	No data supplied		
Massillon State Hospital	Ment	State	2,015	3,010	..	..	2,932	676
McConnelville, 1,754—Morgan	Gen	Corp	150	141	..	..	128	177
Rocky Glen Sanatorium	TB	Corp	150	141	..	..	128	177
Mentor, 1,589—Lake	Gen	Corp	160	160	..	..	90	139
Dellhurst Sanatorium	N&M	Corp	160	160	..	..	90	139
Middletown, 26,992—Butler	Gen	NPAasn	86	96	14	433	62	2,187
Middletown Hospital	Gen	NPAasn	86	96	14	433	62	2,187
Mt. Vernon, 9,370—Knox	Gen	Church	..	32	8	163	27	1,572
Mersey Hospital	Gen	Church	..	32	8	163	27	1,572
Mt. Vernon Hospital-Sanatorium	Gen	NPAasn	50	42	8	78	25	960
Ohio State Sanatorium	TB	State	165	240	..	..	220	412

## OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Newark, 30,596—Licking								
Licking County Tuberculosis Sanatorium.....	TB	County	50	57	..	..	46	72
Newark Hospital.....	Gen	NPAasn	100	88	16	282	41	1,583
North Royalton (Brecksville P. O.), 1,397—Cuyahoga		Corp	92	92	..	..	92	142
Mount Royal Sanatorium TB								
Norwalk, 7,776—Huron	Gen	NPAasn	28	28	7	121	15	550
Norwalk Memorial Hosp.	Gen	NPAasn	28	28	7	121	15	550
Oberlin, 4,292—Lorain								
Allen Hospital, Oberlin								
College .....	Gen	NPAasn	36	36	5	67	17	1,046
Perryshurg, 3,182—Wood								
Community Hospital.....	Gen	Indiv	..	13	3	35	5	250
Rheinfrank Hospital.....	Goiter	Indiv	..	13	..	..	..	222
Piqua, 16,009—Miami								
Memorial Hospital.....	Gen	NPAasn	54	54	6	171	37	1,439
Pt. Clinton, 4,408—Ottawa								
Pool Hospital.....	Gen	Indiv	16	16	3	30	11	286
Portsmouth, 42,500—Scioto								
Mersey Hospital.....	Gen	Church	75	66	9	195	48	1,849
Portsmouth Gen. Hosp. ....	Gen	City	100	90	10	171	44	1,496
Schirrmann Hospital.....	Gen	NPAasn	50	50	6	36	28	783
Ravenna, 8,019—Portage								
Robinson Memorial Hosp.	Gen	County	..	49	11	172	37	1,700
St. Clairsville, 2,440—Belmont								
Belmont Sanatorium.....	TB	County	52	56	..	..	45	51
Salem, 10,622—Columbiana								
Central Clinic and Hosp. ....	Gen	NPAasn	30	30	6	50	17	590
Salem City Hospital.....	Gen	NPAasn	55	55	10	145	32	1,018
Sandusky, 24,622—Erie								
Good Samaritan Hosp. ....	Gen	NPAasn	55	54	10	257	36	827
Providencia Hospital.....	Gen	Church	60	60	15	212	33	1,363
Shelby, 6,193—Richland								
Shelby Memorial Hosp. ....	Gen	NPAasn	32	27	5	93	13	554
Sidney, 9,301—Shelby								
Wilson Memorial Hosp. ....	Gen	NPAasn	28	28	5	63	12	386
South Euclid, 4,399—Cuyahoga								
Rainbow Hospital for Crippled and Convalescent Children .....	Unit of University Hospitals, Cleveland							
Springfield, 63,743—Clark								
Clark County Tuberculosis Sanatorium.....	TB	County	120	120	..	..	98	124
Springfield City Hosp. ....	Gen	City	298	258	40	627	139	4,989
Springfield Lake—Summit								
Edwin Shaw Sanatorium TB		County	208	208	..	..	203	204
Steubenville, 35,422—Jefferson								
Gill Memorial Hospital.....	Gen	Church	30	28	2	34	16	914
Ohio Valley Hospital.....	Gen	NPAasn	100	130	25	501	95	3,246
Tiffin, 16,428—Seneca								
Mersey Hospital.....	Gen	Church	35	35	8	79	24	804
Toledo, 200,718—Lucas								
East Side Hospital.....	Gen	NPAasn	..	87	4	34	18	670
Flower Hospital.....	Gen	Church	130	105	25	422	75	2,019
Lucas County General Hospital.....	Gen	County	232	278	33	413	199	4,291
Lucas County Tuberculosis Hospital.....	TB	County	190	190	..	..	158	165
Mersey Hospital.....	Gen	Church	101	115	25	385	82	2,922
Robinson Hospital.....	Gen	Church	01	91	13	211	41	1,533
St. Vincent's Hospital ..	Gen	Church	354	309	45	759	254	10,030
Toledo Hospital.....	Gen	NPAasn	275	250	25	438	68	3,185
Toledo Sanitarium.....	N&M	Corp	20	20	..	..	5	87
Toledo State Hospital.....	Ment	State	1,908	2,650	..	..	2,580	621
Women's and Children's Hospital.....	Gen	NPAasn	148	121	27	421	69	2,329
Troy, 8,675—Miami								
Stouder Memorial Hosp. ....	Gen	City	40	44	8	129	18	1,258
Urbana, 7,742—Champaign								
Champaign County Hosp.	Gen	County	..	28	6	73	..	423
Van Wert, 8,472—Van Wert								
Van Wert County Hosp. ....	Gen	NPAasn	44	44	6	46	28	670
Wadsworth, 5,930—Medina								
Wadsworth Municipal Hospital .....	Gen	City	25	25	5	100	13	561
Warren, 41,062—Trumhull								
St. Joseph's Riverside Hosp.	Gen	Church	50	40	10	251	34	1,627
Trumhull County Tuberculosis Sanatorium.....	TB	County	48	48	..	..	48	74
Warren City Hospital.....	Gen	NPAasn	..	107	18	276	63	2,238
Warrensville, 1,507—Cuyahoga								
Sunny Acres, Cleveland Tuberculosis Sanatorium.....	TB	City	460	451	..	..	421	468
Wauson, 2,889—Fulton								
De Ette Harrison Detwiler Memorial Hospital.....	Gen	NPAasn	53	46	7	107	29	1,296
Willard, 4,514—Huron								
Willard Municipal Hosp.	Gen	City	24	24	0	53	12	478
Wilmington, 5,332—Clinton								
Dr. Kelley Hale Surgical Hospital .....	Gen	Indiv	17	17	7	7	7	247
Wheaton, 10,749—Wayne								
.....	Gen	Corp	..	25	5	60	13	563
.....	Gen	Indiv	29	27	2	8	9	239
.....	N&M	Corp	40	40	..	..	32	368
Xenia, 10,507—Greene								
McClellan Hospital.....	Gen	Corp	..	22	4	29	13	477
Youngstown, 150,002—Mahoning								
Mahoning Tuberculosis Sanatorium .....	TB	County	116	116	..	..	115	168



## TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassineets	Number of Births	Average Census	Admissions
Dallas Medical and Surgical Clinic Hospital...	Gen	Part	27	27	..	..	19	1,057
Medical Arts Hospital...	Gen	Indiv	85	85	..	..	65	3,064
Methodist Hospital*	Gen	Church	100	101	24	528	61	3,363
Parkland Hospital*	Geo	CyCo	300	265	35	1,138	234	9,018
Pinkston Clinic (col.)	Gen	Indiv	18	15	2	9	6	280
Rushing Clinic and Sanit.	Geo	Indiv	25	25	3	15	19	652
St. Paul's Hospital*	Gen	Church	300	270	30	797	225	8,398
Texas Scottish Rite Hosp.								
for Crippled Childreo*	Orth	Frat	50	50	..	..	41	816
Timberlawn Sanatorium...	Meot	Corp	40	38	..	..	24	207
Woodlawn Hospital...	TB	CyCo	..	135	..	..	105	223
Decatur, 2,037—Wise								
Rogers Hospital...	Gen	Indiv	25	18	5	112	9	704
Denison, 13,850—Grayson								
Denison City Hospital...	Gen	NPAasn	30	25	3	92	10	519
M. K. T. Railroad Employees Hospital...	Indus	NPAasn	68	65	..	..	41	614
Denton, 9,587—Denton								
Deuton Hosp. and Clinic	Gen	Indiv	30	20	4	48	10	521
Edinburg, 4,821—Hidalgo								
City-County Hospital...	Gen	CyCn	60	48	12	31	..	578
Electra, 6,712—Wichita								
Electra Hospital...	Gen	Part	25	26	3	11	8	106
El Paso, 102,421—El Paso								
El Paso City-County Hospital*	Gen	CyCo	150	196	8	339	119	3,734
El Paso Masonic Hosp.*	Gen	Frat	..	82	20	..	62	..
Hendricks-Laws Sanat.	TB	Part	..	80	..	..	25	..
Homan Sanatorium...	TB	Corp	..	110	..	No data supplied	..	..
Hotel Dieu, Sisters' Hospital*	Gen	Church	..	100	22	471	70	2,416
Long Sanatorium...	TB	Indiv	50	30	..	..	16	48
Price Sanatorium...	TB	Indiv	20	20	..	..	12	..
Providence Hospital...	Gen	Indiv	40	40	3	52	25	1,220
St. Joseph's Sanatorium...	TB	Church	..	75	..	No data supplied	..	..
Southern Baptist Sanat.	TB	Church	..	80	..	..	40	100
William Beaumont General Hospital*	Gen	Army	602	602	6	38	341	4,466
Floresville, 1,581—Wilson								
Oxford-Archer Hospital...	Gen	Part	10	8	2	14	3	160
Ft. Worth, 163,477—Tarrant								
All Saints Episcopal Hosp.	Gen	Church	100	85	15	118	16	889
Baptist Hosp. and Clinic	Gen	Church	..	60	12	45	15	798
City and County Hosp.*	Gen	CyCo	96	96	15	588	90	3,318
W. I. Cook Mem. Hosp.	Gen	Corp	..	42	8	62	29	989
Ft. Worth Children's Hospital*	Chil	NPAasn	..	37	..	..	33	352
Harris' Clinic Hospital*	Gen	Indiv	..	60	10	52	31	1,333
Methodist Hospital...	Gen	Church	300	105	22	651	71	2,825
St. Joseph's Hospital*	Gen	Church	200	184	16	359	104	4,631
Freepot, 3,162—Brazoria								
Freepot Hospital...	Gen	Corp	14	14	6	48	10	830
Gulveston, 52,938—Galveston								
Gulveston State Psychopathic Hospital*	Ment	State	60	60	..	..	55	308
John Sealy Hospital*	Gen	City	382	382	24	511	280	6,033
St. Mary's Infirmary*	Gen	Church	250	205	20	317	128	3,700
Station Hospital...	Gen	Army	25	25	..	..	18	521
U. S. Marine Hospital...	Gen	USPHS	160	160	..	..	183	2,372
Georgetown, 3,589—Williamson								
Martin Hospital...	Gen	Indiv	20	20	4	19	3	211
Gilmer, 1,963—Upshur								
Elmwood Sanatorium...	Gen	Indiv	15	15	3	22	3	149
Oak Lawn Sanatorium...	Gen	Part	15	15	3	37	4	280
Ragland Clinic Hospital...	Gen	Part	15	15	2	..	6	440
Gladeview, 6,000—Gregg								
Patton Hospital...	Gen	Indiv	..	26	6	No data supplied	..	..
Gonzales, 3,859—Gonzales								
Holmes Hospital...	Gen	Corp	..	25	3	No data supplied	..	..
Gunnar, 1,154—Eastland								
Blackwell Sanatorium...	Gen	Part	30	25	3	..	..	..
Graham, 4,981—Young								
Graham Hospital...	Gen	NPAasn	16	16	2	86	9	620
Greenville, 12,407—Hunt								
Dr. E. P. Beeton's Hosp.	Surg	Indiv	16	16	..	..	3	130
Groesbeck, 2,059—Limestone								
Dr. Cox's Hospital...	Gen	Indiv	..	10	3	14	2	730
Gulf, 400—Matagorda								
Texas Gulf Sulphur Com.	Gen	Corp	..	14	2	No data supplied	..	..
	Gen	Indiv	..	15	0	23	6	188
	Gen	Corp	52	54	4	48	..	505
Parlingen, 12,124—Cameron								
Valley Baptist Hospital...	Gen	Church	50	35	4	78	10	625
Henderson, 2,932—Rusk								
Henderson Hospital...	Gen	NPAasn	25	25	4	79	16	910
Hereford, 2,458—Deaf Smith								
Deaf Smith County Hosp.	Gen	County	18	14	4	46	4	189
Hillsboro, 7,823—Hill								
Boyd Sanatorium...	Gen	Indiv	..	23	3	15	5	293
Houston, 292,353—Harris								
Avery Memorial Hospital...	Children's Unit	Corp	35	35	..	..	26	196
Dr. Greenwood's Sanit.	N&M	Corp	40	40	5	197	13	986
Heights Clinic Hospital...	Gen	NPAasn	..	176	20	384	120	4,539
Herman Hospital*	Gen	Corp	..	24	..	..	3	1,265
Houston Eye, Ear, Nose and Throat Hospital...	ENT	Corp	..	24	..	..	3	1,265
Houston Negro Hospital	Gen	NPAasn	50	50	4	46	15	500
Houston Tuberculosis Hospital...	TB	CyCo	172	172	..	..	160	384
Jefferson Davis Hosp.*	Gen	CyCo	233	233	17	1,150	204	8,591
Memorial Hospital*	Gen	Church	200	180	20	1,208	169	11,049

## TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Methodist Hospital.....	Gen	Church	110	100	10	409	81	3,564
Park View Hospital.....	Gen	Corp	21	21	4	89	..	636
St. Joseph's Infirmary.....	Gen	Church	235	207	18	1,061	132	9,678
Southern Pacific Hospital	Indus	NPAasn	165	140	..	..	49	2,605
	Urol	Part	..	16	..	No data supplied	..	..
	Gen	NPAasn	..	27	..	No data supplied	..	..
Jasper, 3,393—Jasper								
Hardy-Hancock Hospital.	Gen	Part	..	17	2	25	12	320
Kelly Field, Bexar								
Station Hospital.....	Gen	Army	52	30	..	..	17	1,036
Kenedy, 2,610—Karnes								
Kenedy Clinic and Hosp.	Gen	Cnry	16	16	2	25	..	338
Kerrville, 4,546—Kerr								
Kerrville Clinic and Secor								
Hospital .....	Gen	Indiv	35	25	2	7	8	296
Sunnyside Sanatorium.....	TB	Indiv	23	23	..	..	18	54
Thompson Sanatorium.....	TB	Indiv	86	86	..	..	35	119
Kingsville, 6,815—Kleberg								
Kleberg County Hospital	Gen	County	50	50	5	49	..	973
Knox City, 906—Knox								
Knox County Hospital...	Gen	County	..	25	4	61	5	702
La Grange, 2,354—Fayette								
La Grange Hospital.....	Gen	Corp	50	45	5	51	15	617
Lamesa, 3,523—Dawson								
Lamesa Sanitarium.....	Gen	Indiv	10	10	4	22	2	120
J. C. Lovell's Hospital...	Gen	Indiv	14	11	4	74	4	875
Lampasas, 2,709—Lampasas								
Rollins-Brook Hospital...	Gen	Part	16	15	3	86	12	722
Laredo, 32,618—Webb								
Mercy Hospital.....	Gen	Church	85	50	6	115	33	1,038
Station Hospital.....	Gen	Army	38	30	1	9	9	355
Legion, 100—Kerr								
Veterans Admin. Facility	G&TB Vet		433	433	..	..	406	1,434
Liberty, 2,187—Liberty								
Mercy Hospital.....	Gen	Church	..	15	3	..	..	Estab. 1926
Livingston, 1,165—Polk								
Bergman Hospital.....	Gen	Indiv	14	14	2	21	6	298
Livingston Hospital.....	Gen	Indiv	18	18	2	63	10	486
Lougreville, 5,036—Gregg								
Hurst Eye, Ear, Nose and								
Thro. Hospital.....	ENT	Indiv	..	12	..	..	3	800
Markham-McRee Memorial								
Hospital .....	Gen	Indiv	31	31	5	34	5	270
Lubbock, 20,520—Lubbock								
Lubbock Sanitarium.....	Gen	Corp	100	85	15	78	55	3,209
West Texas Hospital.....	Gen	Corp	..	60	10	125	28	1,953
Lufkin, 7,311—Angelina								
Angelina County Hospital	Gen	County	..	40	4	No data supplied	..	..
Madisonville, 1,294—Madison								
Heath Hosp. and Clinic	Gen	Indiv	15	15	2	16	4	320
Marfa, 3,998—Presidio								
Station Hospital.....	Gen	Army	50	50	..	..	20	833
Marlin, 5,338—Falls								
Buie-Allen Hospital.....	Gen	Indiv	..	24	2	..	15	..
Torbett Sanatorium and								
Diagnostic Clinic.....	Gen	Indiv	50	50	4	35	17	1,190
Marshall, 16,203—Harrison								
Kahn Memorial Hospital.	Gen	NPAasn	28	28	7	51	10	510
Texas and Pacific Railway								
Employees Hospital.....	Indus	NPAasn	105	105	..	..	62	2,683
McAllen, 9,074—Hidalgo								
McAllen Municipal Hosp.*	Gen	City	60	57	8	60	19	744
McKinney, 7,207—Collin								
McKinney City Hospital*	Gen	City	46	46	4	32	18	670
Memphis, 4,237—Hall								
Memphis Hospital.....	Gen	Indiv	15	15	2	11	5	216
Mercedes, 6,608—Hidalgo								
Mercedes General Hospital	Gen	NPAasn	23	22	6	32	3	188
Mexia, 6,579—Limestone								
Brown Hospital.....	Gen	Indiv	20	15	4	24	8	324
Midland, 5,484—Midland								
Midland Clinic Hospital...	Gen	Indiv	20	20	1	38	..	270
Mineral Wells, 5,986—Palo Pinto								
Nazareth Hospital.....	Gen	Church	40	40	4	20	6	561
Nacogdoches, 5,687—Nacogdoches								
City Memorial Hospital..	Gen	City	30	27	4	45	12	745
Navasota, 5,125—Grimes								
Brazos Valley Sanitarium	Gen	Cnry	22	22	4	51	8	632
New Braunfels, 6,242—Comal								
Comal Sanitarium.....	Gen	Indiv	..	20	..	No data supplied	..	..
New Braunfels Hospital...	Geo	City	25	20	3	15	5	234
Newgulf, Wharton								
Texas Gulf Sulphur Com-								
pany Hospital.....	Gen	NPAasn	22	22	2	54	5	327
Odessa, 2,407—Ector								
Headlee Hospital .....	Gen	Indiv	18	18	5	91	6	406
Olney, 4,138—Young								
Hamilton Hospital.....	Gen	City	..	20	8	No data supplied	..	..
Orange, 7,913—Orange								
Frances Ann Luther Hosp.	Gen	Indiv	60	40	10	43	12	445
Paducah, 2,802—Cottle								
W. Q. Richards Memorial								
Hospital .....	Gen	Indiv	30	30	12	12	5	1,174
Palestine, 11,445—Anderson								
Missouri Pacific Lines								
Hospital .....	Indus	NPAasn	75	75	2	..	33	577
Palestine Sanitarium.....	Gen	Corp	25	20	2	61	6	410
Spiegel-DuPuy Memorial								
Hospital .....	Gen	NPAasn	25	12	2	No data supplied	..	..
Pampa, 10,470—Gray								
Worley Memorial Hospital	Gen	Indiv	..	35	7	No data supplied	..	..

## OHIO—Continued

Hospitals and Sanitariums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions	
.....	Gen	Church	..	231	28	702	102	5,462	
.....	Gen	NPAssn	450	370	74	873	298	8,582	
.....	Gen	NPAssn	150	110	20	270	73	2,862	
.....	Gen	Church	..	125	20	277	69	2,031	
Related Institutions									
Akron, 255,040—Summit	Gen	Part	..	10	..	..	5	230	
Akron Clinle.....	Gen	Part	..	10	..	..	5	230	
Goodyear Hospital and Dispensary.....	Indus	Corp	25	25	..	..	4	120	
Apple Creek, 450—Wayne	McDe	State	473	473	..	..	450	22	
Institution for Feeble-minded .....	McDe	State	473	473	..	..	450	22	
Barnesville, 4,602—Belmont	Gen	NPAssn	..	15	2	18	7	337	
Community Hospital.....	Gen	NPAssn	..	15	2	18	7	337	
Bay Village, 2,294—Cuyahoga	N&M	Corp	100	00	..	..	85	37	
Cedarcrest Sanitarium.....	N&M	Corp	100	00	..	..	85	37	
Bellevue, 9,543—Logan	ENT	Indlv	6	6	..	..	..	00	
Harbert Hospital.....	ENT	Indlv	6	6	..	..	..	00	
Bluffton, 2,635—Allen	Gen	NPAssn	0	0	3	49	7	201	
Bluffton Community Hosp.	Gen	NPAssn	0	0	3	49	7	201	
Cambridge, 14,612—Guernsey	ChilMnt	Corp	..	14	8	31	6	153	
Children and Maternity	Gen	NPAssn	35	35	4	22	14	477	
Swan Hospital.....	Gen	NPAssn	35	35	4	22	14	477	
Celina, 4,664—Mercer	Gen	Indlv	23	10	5	32	9	431	
Gilbous Hospital.....	Gen	Indlv	23	10	5	32	9	431	
Cincinnati, 431,160—Hamilton	Church	Church	..	10	10	84	6	148	
Catherine Booth Home and Hospital.....	McDe	NPAssn	15	15	..	..	11	131	
Children's Convalescent Home of the Cincinnati	Inst	NPAssn	100	100	..	..	72	286	
Orphan Asylum.....	Inst	NPAssn	40	38	..	..	7	445	
Children's Home.....	Inst	NPAssn	40	38	..	..	7	445	
Evangeline Home, Hospital and Nursery.....	Mnt	Church	35	22	4	20	3	78	
Hamilton County Home and Chronic Disease Hosp.	Chr	County	..	105	..	..	175	540	
Home for Incurables.....	Inc	NPAssn	75	75	..	..	70	0	
Jewish Convalescent and Foster Homes.....	Conv	NPAssn	..	75	..	..	..	525	
Maple Knoll Hospital and Home for the Friendless	Mat	NPAssn	85	85	15	150	65	196	
Ophthalmic Hospital.....	ENT	Indlv	15	15	..	..	..	193	
Ridge Rest Home.....	N&M	Corp	..	35	..	..	26	80	
St. Francis Hospital for Incurables.....	Inc	Church	..	300	..	..	300	181	
St. Joseph Maternity Hospital and Infant Asylum	Mat	Church	..	150	30	No data supplied	..	..	
.....	Mat	Church	..	150	30	No data supplied	..	..	
.....	Mat	Church	15	13	12	356	12	309	
Children's Fresh Air Camp and Hospital.....	Conv	NPAssn	60	60	..	..	60	227	
Convalescent Tuberculosis Hospital.....	TB	City	..	48	..	..	39	38	
Emergency Hospital.....	Emer	Part	20	20	..	..	9	396	
Florence Crittenton Home	Mat	NPAssn	15	15	13	23	12	23	
Jewish Orphan's Home.....	Inst	Frat	40	40	..	..	7	514	
Columbus, 290,564—Franklin	NPAssn	..	34	24	58	28	58	..	
Florence Crittenton Home	Mat	NPAssn	..	34	24	58	28	58	
Franklin County Home, Inst	County	..	125	..	..	..	124	135	
Institution for Feeble-minded.....	McDe	State	2,100	2,069	..	..	2,078	325	
Ohio Penitentiary Hosp.....	Inst	State	..	132	..	..	121	1,887	
.....	Gen	Indlv	5	5	1	9	1	68	
.....	Orth	NPAssn	24	24	..	..	12	43	
Delaware, 8,675—Delaware	Girls' Industrial School	Inst	..	32	..	..	27	295	
Enclid, 12,751—Cuyahoga	Conv	Corp	90	90	..	..	..	91	
.....	Orth	Church	24	24	..	..	..	10	
.....	Gen	Army	50	25	..	..	1	49	
Granville, 1,467—Licking	Whisper Hall Memorial	Inst	NPAssn	16	16	..	..	3	334
Greenfield, 3,871—Highland	Greenfield Hospital.....	Gen	NPAssn	13	13	3	3	13	100
Lancaster, 18,716—Fairfield	Boys' Industrial School	Inst	State	..	100	..	..	..	1,013
Lebanon, 3,222—Warren	Blair Brothers Hospital.	Gen	Part	..	9	3	19	5	277
Mansfield, 3,525—Richland	Ohio State Reformatory.	Inst	State	..	91	..	No data supplied	..	..
Thomas Sanatorium.....	N&M	Indlv	18	18	..	..	5	..	..
Marysville, 3,630—Union	Harmon Hospital.....	Inst	State	..	36	3	..	4	1,384
Mt. Vernon, 9,370—Knox	Avalon Sanatorium.....	TB	Indlv	40	36	..	..	..	45
Monroe Falls, 302—Summit	Summit County Hospital	Inst	County	125	125	..	..	86	407
Napoleon, 4,545—Henry	S. M. Heller Mem. Hosp.	Gen	City	13	13	4	30	7	400

## OHIO—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
New London, 1,527—Huron								
New London Hospital....	Gen	NPAssn	..	9	3	17	4	167
Orient, 255—Pleikaway								
Institution for Feeble-minded .....	MeDe	State	2,200	2,540	..	..	2,519	161
Oxford, 2,588—Butler								
Miami University Student Hospital .....	Inst	State	22	22	..	..	..	014
Reynoldsburg, 502—Franklin								
Nightingale Cottage.....	TbChil	NPAssn	40	40	..	..	23	62
Springfield, 68,743—Clark								
Ohlo Rebekah Hospital..	Inst	Frnt	65	65	..	..	47	316
Rieky Memorial Hospital	Inst	Frat	252	252	..	..	235	273
Springfield Eye, Ear, Nose and Throat Hospital...	ENT	Indiv	4	6	2	..	1	100
State Soldiers Home,—Eric								
Ohlo Soldiers and Sailors Home Hospital.....	Inst	State	250	220	..	..	110	500
Tiffin, 16,428—Seneca								
Kentucky Memorial Hosp.	Inst	Frat	..	50	..	..	22	1,173
Toledo, 290,718—Lucas								
Lucas County Hospital Annex .....	Chr	County	110	110	..	..	106	186
Municipal Hospital for Contagious Diseases....	Iso	City	44	44	8	..	9	203
Warrensville, 1,507—Cuynhoga								
Warrensville Chronic Hospital .....	MentInst	City	160	169	..	..	105	492
Wickliffe, 2,491—Lake								
Ridge Cliff Sanitarium....	N&M	Corp	110	110	..	..	74	53
Wooster, 10,742—Wayne								
Hygeia Hall.....	Inst	NPAssn	25	25	..	..	3	279
Xenia, 10,507—Greene								
Ohlo Soldiers' and Sailors' Orphan's Home Hosp..	Inst	State	63	63	..	..	22	915
Yellow Springs, 1,427—Greene								
Antioch College Infirmary	Inst	NPAssn	10	10	..	..	4	474
Youngstown, 170,002—Mahoning								
Youngstown Municipal Hospital .....	Iso	City	65	65	..	..	3	75
Summary for Ohio:								
		Number	Beds	Average Patients		Patients Admitted		
Hospitals and sanntoriums...		186	44,508	37,430		378,714		
Related Institutions.....		66	8,838	7,407		21,216		
Totals.....		252	53,361	44,927		399,930		
Refused registration.....		30	855					

## OKLAHOMA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Ada, 11,261—Pontotoc								
Ada Hospital.....	Gen	NPAssn	30	30	6	38	13	703
Breeo's Memorial Hosp..	Gen	Indiv	25	25	2	21	6	443
Sugg Clinle and Hospital	Gen	Prnt	..	14	2	94	5	1,826
Altus, 8,439—Jackson								
City Hospital.....	Gen	City	20	20	2	35	5	300
Alva, 5,121—Woods								
Alva General Hospital...	Gen	City	25	25	4	77	18	735
Anadarko, 5,036—Caddo								
Anadarko Hospital.....	Gen	Indiv	21	21	3	38	14	629
Ardmore, 15,741—Carter								
Hardy Sanitarium.....	Gen	Indiv	60	44	8	87	22	918
Von Keller Hospital and Clinic.....	Gen	NPAssn	25	25	2	31	12	446
Bartlesville, 14,703—Washington								
Washington County Memorial Hospital.....	Gen	County	65	55	10	164	20	1,129
Beaver, 1,028—Beaver								
Beaver Hospital.....	Gen	Prnt	25	21	4	14	5	385
.....	Gen	NPAssn	35	35	3	66	8	299
.....	Gen	Indiv	25	20	5	79	7	355
.....	Gen	Frat	..	50	6	No data supplied	..	..
.....	Gen	Part	50	46	6	44	21	1,016
.....	Gen	Indiv	10	10	5	25	0	381
.....	Gen	NPAssn	20	20	5	47	7	648
Clinton, 7,512—Custer								
Clinton Indian Hospital.	Gen	IA	38	38	8	141	37	705
West Oklahoma Baptist								
.....	Gen	Church	75	40	6	40	26	1,211
.....	TB	State	226	226	..	..	213	343
.....	Gen	IA	54	44	8	47	25	667
Cordell, 2,936—Washita								
Florence Hospital.....	Gen	Indiv	30	30	2	29	5	244
Cushing, 9,301—Payne								
Masonic Hospital.....	Gen	Frat	30	30	4	53	20	702
Duncan, 8,363—Stephens								
Patterson Hospital.....	Gen	Indiv	25	30	4	46	14	833
Weedn Hospital.....	Gen	Indiv	..	35	6	35	21	795

Key to symbols and abbreviations is on page 1060

## TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Paris, 15,619—Lamar								
Lamar County Hospital, Gen	County	Church	50	35	7	51	21	801
St. Joseph's Infirmary, Gen	Church	Church	51	60	6	53	12	602
Sanitarium of Paris, Gen	Corp	Corp	62	62	1	51	55	1,567
Pecos, 2,201—Reeves								
Camp and Camp Hospital, Gen	Part	Part	20	20	4	51	7	407
Plainview, 8,831—Hall								
Plainview Sanitarium and Clinic, Gen	Indiv	Indiv	50	45	6	136	28	1,117
Port Arthur, 50,902—Jefferson								
St. Mary's Hospital, Gen	Church	Church	168	150	17	250	60	2,000
Memorial, Gen	Church	Church	168	150	17	250	60	2,000
Prairie View, Waller								
Prairie View Hosp. (col.), Gen	State	State	50	50	2	9	25	909
Quannah, 4,461—Hardeman								
Memorial Hospital, Gen	County	County	40	40	8	68	11	824
	CyCo	CyCo	46	50	3	30	..	500
	Corp	Corp	..	18	2	31	6	429
	Army	Army	60	20	..	14	7	272
	Corp	Corp	..	14	4	..	..	Estab. 1936
Rusk, 2,839—Cherokee								
Rusk State Hospital, Ment	State	State	2,000	2,000	..	..	2,037	261
San Angelo, 25,308—Tom Green								
St. John's Hospital, Gen	Church	Church	35	25	5	56	15	753
Schulkey, Wall, Windham								
and Flaks Clinic-Hosp, Gen	Corp	Corp	25	25	5	122	11	1,033
Shannon West Texas Memorial Hospital, Gen	NPAAssn	NPAAssn	100	90	10	297	50	3,043
San Antonio, 231,542—Bexar								
Grace Lutheran Sanatorium for Tuberculosis, TB	Church	Church	50	50	..	..	27	76
Dr. Kenney's Sanatorium	Indiv	Indiv	100	75	12	50	..	353
Medical and Surgical Memorial Hospital, Gen	NPAAssn	NPAAssn	115	100	15	225	62	3,727
Dr. Moody's Sanitarium, N&M	Corp	Corp	..	50	..	..	36	221
Nix Hospital, Gen	Corp	Corp	145	145	24	455	..	4,407
Robert B. Green Memorial Hospital, Gen	County	County	225	150	20	553	125	4,725
San Antonio State Hosp., Ment	State	State	2,586	2,586	..	..	2,650	615
Santa Rosa Hospital, Gen	Church	Church	450	279	26	477	128	5,386
Station Hospital, Gen	Army	Army	638	638	16	292	571	8,640
Woodmen of the World War Memorial Hospital, TB	Part	Part	180	180	..	..	119	179
Sanatorium, 1,040—Tom Green								
State Tuberculosis Sanat. TB	State	State	796	796	..	..	731	2,126
So. Marcos, 5,134—Hays								
Soldiers' and Sailors' Memorial Hospital, Gen	CyCo	CyCo	20	15	2	16	3	237
Santa Anna, 1,833—Coleman								
Sealy Hospital, Gen	Indiv	Indiv	35	35	3	105	24	1,210
Sealy, 1,800—Austin								
Sealy Hospital, Gen	Indiv	Indiv	8	8	2	26	3	315
Segulo, 5,225—Guadalupe								
Seguin Hospital, Gen	Corp	Corp	..	20	2	..	..	No data supplied
Seymour, 2,629—Baylor								
Baylor County Hospital, Gen	County	County	24	18	4	61	7	415
Shamrock, 3,780—Wheeler								
Shamrock General Hosp., Gen	Indiv	Indiv	40	25	5	61	9	370
Sherman, 15,713—Grayson								
St. Vincent's Sanitarium, Gen	Church	Church	50	44	6	72	20	1,057
Wilsoo N. Jones Hosp., Gen	NPAAssn	NPAAssn	66	66	6	119	40	1,598
Shiner, 1,372—Lavaca								
Dr. Wagner's Hospital, Gen	Indiv	Indiv	20	18	2	20	7	348
Stanton, 3,876—Lubbock								
Stacy Hospital, Gen	Church	Church	50	40	6	20	..	200
Snyder, 3,008—Scurry								
Snyder General Hospital, Gen	Corp	Corp	12	12	4	26	6	460
Spur, 1,809—Dickens								
Nichols Sanitarium, Gen	Indiv	Indiv	..	20	4	..	..	No data supplied
Stamford, 4,093—Jones								
Stamford Sanitarium, Gen	Corp	Corp	40	40	5	180	25	1,217
Stephenville, 3,944—Erath								
Stephenville Hospital, Gen	Corp	Corp	..	35	1	35	14	773
Sugar Land, 2,019—Ft. Bend								
Laura Eldridge Hospital, Gen	NPAAssn	NPAAssn	30	30	4	36	2	674
	Gen	City	40	40	6	..	..	Estab. 1936
	Gen	Corp	16	16	4	35	8	2,929
	Gen	Indiv	..	20	1	62	13	533
Davidson Sanitarium, Gen	Indiv	Indiv	..	20	1	62	13	533
Temple, 15,345—Bell								
Gulf, Colorado and Santa Fe Hospital, Indus	NPAAssn	NPAAssn	150	150	..	..	40	1,201
Kings Daughters Clinic and Hospital, Gen	NPAAssn	NPAAssn	110	110	8	55	76	2,576
Scott and White Hosp., Gen	Corp	Corp	..	169	6	94	108	3,443
Woodson Eye, Ear, Nose and Throat Hospital, ENT	Part	Part	..	12	..	..	5	271
Terrell, 8,795—Kauffman								
Alexander-Holton Hosp., Gen	Part	Part	..	25	2	..	..	..
Terrell State Hospital, Ment	State	State	2,500	2,500	..	..	2,434	596
Texarkana, 16,602—Bowie								
Texarkana Hospital, Gen	NPAAssn	NPAAssn	..	40	5	52	25	957
Tyler, 17,113—Smith								
Dryden Clinic and Sanit., Gen	Indiv	Indiv	16	16	3	87	14	874
Vernon, 9,137—Wilbarger								
King Hospital and Maternity Home, Gen	Indiv	Indiv	23	25	3	21	12	375
Moore Brothers' Hospital, Gen	Part	Part	13	15	2	23	8	489
Verao Sanitarium, Gen	Indiv	Indiv	20	20	4	81	8	451

## TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Victoria, 7,121—Victoria								
De Tar Memorial Hosp., Gen	Indiv	Indiv	32	24	6	45	8	362
Victoria Hospital, Gen	Corp	Corp	..	22	6	46	9	458
Von Ormy, 350—Bexar								
Von Ormy Cottage Sanat. TB	Corp	Corp	..	40	..	..	22	18
Waco, 52,848—McLennan								
Central Texas Baptist Sanitarium, Gen	Church	Church	75	75	10	180	40	2,136
Colgin Hospital and Clinic	Corp	Corp	45	40	2	17	6	396
Providencia Sanitarium, Gen	Church	Church	..	150	12	378	85	5,136
Veterons Admin. Facility, Ment	Vet	Vet	308	308	..	..	343	226
Waxahatchie, 8,042—Ellis								
Waxahatchie Sanitarium, Gen	NPAAssn	NPAAssn	30	30	5	33	10	638
Wentworth, 4,912—Parker								
Medical and Surg. Clinic, Gen	Part	Part	..	10	4	..	..	Estab. 1926
Wellington, 3,570—Collingsworth								
Wellington Hospital, Gen	Indiv	Indiv	16	16	3	54	4	335
Wheeler, 931—Wheeler								
Wheeler Hospital, Gen	Part	Part	..	12	3	49	3	150
Whittenburg, Huttohson								
Pantex Hospital of the Phillips Petroleum Co., Gen	NPAAssn	NPAAssn	12	12	2	29	3	165
Wichita Falls, 43,690—Wichita								
Bethunia Hospital, Gen	Church	Church	32	32	8	235	12	829
Wichita Falls Hosp., Gen	Part	Part	80	70	5	98	47	2,306
Wichita Falls State Hosp., Ment	State	State	2,200	2,235	..	..	2,184	533
Wichita General Hosp., Gen	CyCo	CyCo	140	133	7	281	57	2,418
Yonkum, 5,656—Lavaca								
Yonkum Memorial Hospital, Gen	Church	Church	50	40	10	30	10	400
Yorktown, 1,832—De Witt								
Allen Hospital, Gen	Indiv	Indiv	..	19	4	..	..	No data supplied
Related Institutions								
..	Inst	Frat	25	25	..	..	18	156
Oaks Sanitarium, N&M	State	State	..	1,500	..	..	..	..
Texas Confederate Home Hospital, Inst	State	State	..	100	..	..	..	..
Texas Deaf, Dumb and Blind Institute, Inst	State	State	30	30	..	..	1	85
Bellville, 4,806—Bee								
Bellville Hospital, Gen	Part	Part	8	8	1	4	3	235
College Station, 1,300—Brazos								
Agricultural and Mechanical College Hospital, Inst	State	State	80	80	..	..	18	1,801
Crowell, 1,946—Foard								
Foard County Hospital, Gen	NPAAssn	NPAAssn	8	8	1	4	3	48
Dallas, 260,475—Dallas								
"The Cedars" Maternity Sanitarium, Mat	Indiv	Indiv	..	20	4	..	..	No data supplied
Virgino K. Johnson Home and School, Mat	Church	Church	..	35	10	18	..	19
Ennis, 7,069—Ellis								
Municipal Hospital, Gen	City	City	20	20	4	32	6	315
Floyd, 2,637—Floyd								
Dr. Smith & Smith Sanit. Surg	Part	Part	11	11	..	..	..	25
Forney, 1,216—Kaufmann								
Forney Sanitarium, Gen	NPAAssn	NPAAssn	25	25	7	2	..	38
Ft. Worth, 163,477—Tarrant								
Elmwood Sanatorium, TB	CyCo	CyCo	..	50	..	..	48	33
Howard Sanitarium, Conv	Part	Part	12	16	..	..	4	70
Greenville, 12,407—Hunt								
Dr. Joe Beeton's Hospital, Surg	Indiv	Indiv	17	17	2	7	..	152
Hollettsville, 1,406—Lavaca								
Dufner Hospital, Gen	Indiv	Indiv	..	8	1	..	..	No data supplied
Henderson, 2,932—Vance								
Scott Parker Sanatorium, TB	County	County	14	14	..	..	10	22
Huntsville, 5,028—Walker								
Sam Houston Hospital, Gen	Indiv	Indiv	..	15	3	..	..	No data supplied
Texas State Prison Hosp., Inst	State	State	105	108	..	..	90	2,400
Huntsville, 400—Dallas								
Convalescent Hospital, Inst	CyCo	CyCo	..	342	..	..	255	260
Luling, 5,970—Caldwell								
Luling Hospital, Gen	Part	Part	..	15	4	..	..	No data supplied
Marlin, 5,338—Falls								
Crippled Children Hosp., Orth	NPAAssn	NPAAssn	30	30	2	..	..	Estab. 1926
Marshall, 16,203—Harrison								
Sheppard Sanit. (col.), Gen	Indiv	Indiv	..	33	3	..	..	No data supplied
Midland, 5,484—Midland								
Mid-West Hospital-Clinic, Gen	Indiv	Indiv	8	8	3	62	4	296
Mt. Vernon, 1,222—Franklin								
Crutcher Hospital, Gen	NPAAssn	NPAAssn	10	10	2	7	..	76
Nixon, 1,057—Gonzales								
Crest View Hospital, Gen	Indiv	Indiv	8	8	2	12	3	120
Odesa, 2,407—Ector								
Wood Hospital, Gen	Indiv	Indiv	..	10	2	11	2	186
Pearsall, 2,536—Frio								
J. E. Beall's Day Hospital, Gen	Indiv	Indiv	10	10	4	20	4	124
Pecos, 3,304—Reeves								
Pecos Sanitarium, Gen	Indiv	Indiv	9	9	3	30	3	229
Poteet, 1,231—Atascosa								
Shotts Hosp. and Clinic, Gen	Indiv	Indiv	12	12	1	22	3	156
..	TB	TB	20	20	..	..	10	25
..	Gen	Corp	34	33	4	105	23	1,837
Physicians and Surgeons Hospital, Gen	Corp	Corp	65	65	12	106	26	989
Salvation Army Women's Home, Mat	Church	Church	50	41	13	51	33	63
Station Hospital, Gen	Army	Army	18	16	..	..	..	622
Southon, 89—Bexar								
Bexar County Tuberculosis Colony, TB	County	County	..	70	..	..	62	115

## OKLAHOMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Durant, 7,463—Brynn								
Bryan County Hospital..	Gen	Indiv	10	8	1	2	3	84
Coker Hospital.....	Gen	Indiv	8	8	12	28	4	284
Durant Hospital.....	Gen	Corp	..	25	12	34	15	662
Evergreen Sanitarium.....	Gen	Indiv	..	21	3	18	7	264
Elk City, 5,666—Beckham								
Fisdal Hospital.....	Gen	Indiv	30	30	3	39	10	406
El Reno, 0,384—Canadian								
Catto Hospital.....	Gen	Indiv	16	16	3	34	8	297
El Reno Sanitarium.....	Gen	Corp	55	55	3	23	16	640
Enid, 23,369—Garfield								
Baptist Hospital.....	Gen	Church	50	35	12	122	20	1,005
Enid General Hospital.....	Gen	NPAssn	..	75	10	127	52	1,620
Enid Springs Sanitarium and Hospital.....	Gen	Indiv	..	35	4	No data	supplied	
Erick, 2,231—Beckham								
Erick Hospital.....	Gen	NPAssn	20	20	2	25	10	200
Ft. Sill, 5,587—Comanche								
Station Hospital.....	Gen	Army	450	450	8	116	285	7,532
Frederick, 4,568—Tillman								
Frederick Clinic Hospital	Gen	Part	35	32	2	25	15	400
Springcon, Arrington and Allen Hosp. and Clinic	Gen	Corp	..	10	..	49	3	261
Grandfield, 1,416—Tillman								
Grandfield Hospital.....	Gen	Indiv	21	20	1	38	7	300
Guthrie, 9,582—Logan								
Channarron Valley Wesley Hospital.....	Gen	NPAssn	..	37	7	No data	supplied	
Duke Sanitarium.....	N&M	Corp	..	35	..	..	10	116
Henryetta, 7,694—Okmulgee								
Henryetta Hospital.....	Gen	Indiv	15	15	2	20	9	470
Hobart, 4,982—Klowa								
General Hospital.....	Gen	Part	30	22	5	107	7	576
Holdenville, 7,268—Hughes								
Holdenville Hospital.....	Gen	Indiv	30	28	4	..	..	...
Hollis, 2,914—Harrison								
Hollis Hospital.....	Gen	Indiv	20	20	4	36	8	618
Hominy, 3,485—Osage								
Hominy City Hospital..	Gen	Indiv	24	16	4	22	..	260
Lawton, 12,121—Comanche								
Klowa Indian Hospital..	Gen	IA	126	122	16	193	103	2,406
Southwestern Hospital..	Gen	Part	..	25	4	35	5	272
Mangum, 4,806—Greer								
Border Hosp. and Clinic	Gen	Part	60	50	6	8	14	506
Marlow, 3,084—Stephens								
Weedn Hospital.....	Gen	Indiv	25	25	4	10	..	177
Maud, 4,326—Seminole								
Maud Hospital.....	Gen	Indiv	18	10	2	15	5	300
McAlester, 11,804—Pittsburg								
Albert Pike Hospital....	Gen	Frat	75	63	6	73	28	1,199
St. Mary's Infirmary....	Gen	Church	20	20	3	32	8	500
Miami, 8,064—Ottawa								
Miami Baptist Hospital..	Gen	Church	80	50	8	31	15	797
Muskogee, 32,026—Muskogee								
Muskogee Provident Hospital (col.).....	Gen	City	30	20	2	5	8	150
Oklahoma Baptist Hosp.	Gen	Church	125	67	24	204	45	1,568
Veterans Admin. Facility	Gen	Vet	443	447	..	..	590	5,542
Norman, 9,663—Cleveland								
Central Oklahoma State Hospital.....	Ment	State	1,920	2,500	..	..	2,458	1,330
Okemah, 4,002—Okfuskee								
Clinic Hospital.....	Gen	Part	..	11	2	15	2	196
Oklahoma City, 185,389—Oklahoma								
Farm Sanatorium.....	TB	Indiv	60	25	..	..	13	99
Grant Western Hosp. (col.)	Gen	Corp	26	26	2	4	15	206
Oklahoma City General Hospital*o	Gen	Corp	100	88	12	216	77	3,493
" "								

Hospitals and Sanatariums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Supply, 230—Woodward Western Oklahoma Hosp.	Ment	State	1,300	1,478	..	..	1,888	674
Taft, 690—Muskogee State Hospital for Negro Insane .....	Nent	State	800	800	..	..	623	226
Tahlequah, 1,032—Le Flore Choctaw-Chickasaw Sanat.	TB	IA	75	75	..	..	64	156
Eastern Oklahoma State Tuberculosis Sanatorium	TB	State	260	265	..	..	251	443
Tonkawa, 3,311—Kay Tonkawa Hospital .....	Gen	Indiv	20	25	4	7	2	108
Tulsa, 141,258—Tulsa Flower Hospital.....	Gen	Corp	35	29	12	319	12	881
Morningside Hospital*o.	Gen	Corp	250	225	25	445	109	4,716
Municipal Hosp. No.2 (col.)	Gen	County	..	50	6	No data supplied	..	..
Oakwood Saultarkum....	N&M	Corp	45	45	..	..	24	280
St. John's Hospital*o....	Gen	Church	250	250	35	677	143	5,317
Sisler Hospital.....	G&Orth	Indiv	150	150	12	76	62	1,506
Vinita, 4,263—Cnrlg Eastern Oklahoma Hosp.	Ment	State	2,000	2,600	..	..	2,617	688
Vintu Hospital.....	Gen	Corp	14	14	3	36	8	435
Waurika, 2,368—Jefferson Waurika Hospital.....	Gen	Corp	35	25	3	28	15	236
Wewoka, 10,401—Seminole Knight Hospital.....	Gen	Corp	15	14	4	60	12	1,000
Wewoka Hospital.....	Gen	Corp	25	25	6	24	8	384
Woodward, 5,056—Woodward Woodward General Hosp.	Gen	Indiv	..	40	4	35	10	760
<b>Related Institutions</b>								
Chillicoce, 200—Kny Chillicoce Indian School Hospital .....	Gen	IA	45	47	1	3	3	231
El Reno, 9,384—Canadian U. S. Southwestern Refor- matory .....	Inst	USPHS	40	40	..	..	21	615
Enkl, 23,299—Garfield Northern Oklahoma Hosp.	McDe	State	900	1,000	..	..	220	162
Fairfax, 2,134—Osage Fairfax Hospital.....	Gen	Corp	12	10	3	23	6	257
Ft. Reno (El Reno P. O.), 150—Canadian Station Hospital.....	Gen	Army	12	12	..	..	1	63
Hobart, 4,082—Kiowa Hobart Hospital.....	Gen	Corp	25	19	2	40	11	468
Kingsfisher, 2,726—Kingsfisher Kingsfisher Hospital.....	Gen	Indiv	10	10	3	39	3	205
Lawton, 12,121—Comanche Angus Hospital.....	Gen	Part	10	10	2	25	5	240
McAlester, 11,804—Pittsburg Oklahoma State Prison Hospital .....	Inst	State	..	50	..	No data supplied	..	..
Okeene, 1,035—Blaine Okeene Hospital.....	Gen	Indiv	12	10	2	10	3	71
Oklahoma City, 183,389—Oklahoma Home of Redeeming Love Mut Ryan, 1,258—Jefferson Ryan Hospital.....	Gen	Indiv	10	10	3	52	8	420
Stillwater, 7,016—Payne Agriculture and Mechanical College Infirmary .....	Inst	State	50	50	..	..	12	870
Tahlequah, 2,945—Cherokee Sequoyah Training School Hospital .....	Inst	IA	10	..	..	..	4	221
Tulsa, 141,258—Tulsa Tulsa Junior League Home for Convalescent Crip- pled Children.....	Orth	NP Assn	..	30	..	..	Estab. 1926	..
Wintong, 2,228—Blaine Watonga Hospital.....	Gen	Indiv	15	10	1	19	3	113
Weatherford, 2,417—Custer Weatherford Sanitarium and Hospital.....	Gen	Indiv	50	17	6	..	..	...
<b>Summary for Oklahoma:</b>		<b>Number</b>	<b>Beds</b>	<b>Average Patients</b>		<b>Patients Admitted</b>		
Hospitals and sanatoriums...		101	13,448	11,147		100,412		
Related Institutions.....		15	1,303	1,049		4,684		
Totals.....		116	14,751	12,195		105,096		
Refused registration.....		18	393					

## OREGON

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Benches	Number of Births	Average Census	Admissions
Albany, 5,225—Linn								
Albany General Hospital	Gen	NPAssn	..	52	0	104	24	872
Ashland, 4,544—Jackson								
Community Hospital.....	Gen	City	..	25	4	29	8	325
Astoria, 10,340—Clatsop								
Columbia Hospital.....	Gen	Church	91	91	12	146	52	1,881
St. Mary's Hospital.....	Gen	Church	..	110	15	69	67	2,519
Baker, 7,858—Baker								
Baker General Hospital..	Gen	Corp	25	25	4	45	14	376
St. Elizabeth Hospital.....	Gen	Church	80	87	18	58	69	1,171
.....	Gen	Church	45	40	6	122	26	1,627
.....	Gen	Indiv	..	21	3	No data	supplied	
Corvallis, 7,585—Benton								
Corvallis General Hosp..	Gen	NPAssn	40	40	6	107	19	722

Key to symbols and abbreviations is on page 1060

## TEXAS—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Strawn, 1,429—Palo Pinto	Gen	Part	..	4	2	10	..	25
Strawn Hospital .....	Gen	Part	..	4	2	10	..	25
Ullia, 2,202—Swisher	Gen	County	10	10	4	18	4	223
Swisher County Hospital Gen	County	10	10	4	18	4	223	
Wichita Falls, 43,600—Wichita	N&M	Corp	18	18	..	..	7	93
Dr. White's Sanitarium... N&M	Corp	18	18	..	..	7	93	
Summary for Texas:								
Hospitals and sanatoriums...	Number	Beds	Average Patients	Patients Admitted				
Related institutions.....	257	28,627	22,352	306,074				
	39	2,543	1,942	13,166				
Totals.....	296	31,470	24,294	319,240				
Refused registration.....	23	534						

## UTAH

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Bingham Canyon, 3,248—Salt Lake	Indiv	40	21	7	28	14	453	
Bingham Canyon Hospital Gen	Indiv	40	21	7	28	14	453	
Brigham, 5,093—Box Elder	Gen	Indiv	50	20	12	146	11	473
Coolley Memorial Hospital Gen	Gen	Indiv	50	20	12	146	11	473
Cedar City, 3,615—Iron	Gen	County	50	50	14	216	20	...
Iron County Hospital..... Gen	County	50	50	14	216	20	...	
St. Douglas, 1,071—Salt Lake	Gen	Army	50	50	..	..	25	760
Station Hospital .....	Gen	Army	50	50	..	..	25	760
St. Duchesne, 104—Utah	Gen	IA	..	22	4	54	18	310
Utah and Ouray Agency	Gen	IA	..	22	4	54	18	310
Indian Hospital..... Gen	IA	..	22	4	54	18	310	
Heber, 2,477—Wasatch	Gen	Indiv	16	14	3	25	4	139
Heber Hospital .....	Gen	Indiv	16	14	3	25	4	139
Lehi, 2,826—Utah	Gen	Indiv	..	14	12	85	5	247
Lehi Hospital .....	Gen	Indiv	..	14	12	85	5	247
Logan, 0,979—Coeche	Gen	NPAasn	50	50	17	221	..	706
Coeche Valley Gen. Hosp.. Gen	Gen	NPAasn	50	50	17	221	..	706
William Budge Memorial	Gen	NPAasn	65	60	12	249	30	967
Hospital..... Gen	Gen	NPAasn	65	60	12	249	30	967
Moab, 853—Grand	Gen	County	16	16	4	52	6	283
Grand County Public Hos-	Gen	County	16	16	4	52	6	283
pital..... Gen	Gen	County	16	16	4	52	6	283
Ogden, 40,272—Weber	Gen	Chnrch	240	205	35	1,064	104	5,750
Thomas D. Dee Memorial	Gen	Chnrch	240	205	35	1,064	104	5,750
Hospital..... Gen	Gen	Chnrch	240	205	35	1,064	104	5,750
Park City, 4,281—Summit	Gen	NPAasn	..	50	5	48	30	475
Park City Miners' Hosp.. Gen	Gen	NPAasn	..	50	5	48	30	475
Payson, 3,045—Utah	Gen	Indiv	..	12	2	13	6	337
Payson General Hospital. Gen	Gen	Indiv	..	12	2	13	6	337
Price, 4,084—Carbon	Gen	City	50	50	10	60	..	532
Price City Hospital..... Gen	Gen	City	50	50	10	60	..	532
Provo, 14,766—Utah	Gen	Part	20	16	..	2	6	248
Ald Hospital .....	Gen	Part	20	16	..	2	6	248
Utah State Hospital..... Ment	State	1,060	1,060	..	..	1,010	318	
Richfield, 3,067—Sevier	Gen	Part	30	30	8	..	Estab. 1936	
Sevier Valley Hospital.... Gen	Gen	Part	30	30	8	..	Estab. 1936	
St. George, 2,434—Washington	Gen	Corp	..	32	5	74	9	415
Washington County Hosp. Gen	Gen	Corp	..	32	5	74	9	415
Salina, 1,383—Sevier	Gen	Corp	20	20	6	34	6	363
Salina Hospital .....	Gen	Corp	20	20	6	34	6	363
Salt Lake City, 140,267—Salt Lake	Gen	Church	403	370	60	1,324	279	6,836
Dr. W. H. Groves Latter-	Gen	Church	403	370	60	1,324	279	6,836
Day Saints Hospital*... Gen	Gen	Church	225	200	45	730	102	3,342
Holy Cross Hospital*... Gen	Gen	Church	225	200	45	730	102	3,342
Primary Children's Hosp. Chil	Gen	Church	35	35	..	..	28	58
St. Mark's Hospital*... Gen	Gen	Church	150	148	13	351	121	2,976
Salt Lake Gen. Hosp.*... Gen	Gen	Church	..	225	23	407	166	3,242
Shriners Hospital for	Orth	Frat	20	20	..	..	20	65
Crippled Children .....	Orth	Frat	20	20	..	..	20	65
Veterans Admin. Facility. Gen	Vet	104	104	..	..	..	95	837
Tremonton, 1,009—Box Elder	Gen	NPAasn	..	20	8	85	7	593
Valley Hospital .....	Gen	NPAasn	..	20	8	85	7	593

## Related institutions

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
American Fork, 3,047—Utah	State	336	373	..	..	363	100	
Utah State Training Sch. MeDe	State	336	373	..	..	363	100	
Fillmore, 1,374—Millard	Gen	Indiv	..	5	..	..	2	54
Fillmore Hospital .....	Gen	Indiv	..	5	..	..	2	54
Millard, 1,517—Beaver	Gen	Indiv	..	10	3	No data supplied		
Millard Hospital .....	Gen	Indiv	..	10	3	No data supplied		
Murray, 5,172—Salt Lake	Mat	Church	26	26	26	458	13	458
Cottonwood State Ma-	Mat	Church	26	26	26	458	13	458
ternity Hospital .....	Mat	Church	26	26	26	458	13	458
Provo, 14,766—Utah	Mat	Indiv	..	12	12	193	..	195
Crano Maternity Hospital Mat	Mat	Indiv	..	12	12	193	..	195
Spanish Fork, 3,727—Utah	Gen	Indiv	8	8	3	22	3	160
Hughes Memorial Hosp.. Gen	Gen	Indiv	8	8	3	22	3	160
Vernal, 1,744—Utah	Gen	Indiv	..	10	3	Estab. 1936		
Clark Hospital .....	Gen	Indiv	..	10	3	Estab. 1936		
Summary for Utah:								
Hospitals and sanatoriums...	Number	Beds	Average Patients	Patients Admitted				
Related institutions.....	26	2,644	2,188	29,815				
	7	446	390	1,347				
Totals.....	33	3,290	2,578	31,162				
Refused registration.....	0							

## VERMONT

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Barre, 11,307—Washington								
Barre City Hospital°....	Gen	NPAasn	62	50	12	214	34	1,427
Washington County Sanatorium .....	TB	State	47	47	..	..	43	54
Bellows Falls, 3,330—Windham								
Rockingham Gen. Hosp.°	Gen	NPAasn	..	36	7	117	29	1,197
Bennington, 7,390—Bennington								
Henry W. Putnam Memorial Hospital .....	Gen	NPAasn	106	86	20	172	41	1,187
Brattleboro, 8,709—Windham								
Brattleboro Mem. Hosp.°	Gen	NPAasn	50	56	5	37	35	1,005
Chittenden Hospital .....	Ment	NPAasn	800	800	..	..	694	369
Green Mountain Sanatorium .....	Gen	Church	112	112	10	223	86	3,137
Lakeview Sanatorium.....	N&M	Indiv	..	12	..	..	..	123
Mary Fletcher Hospital°	Gen	Corp	20	20	..	..	12	51
Ft. Ethan Allen, 106—Chittenden		NPAasn	..	135	15	423	115	6,791
Station Hospital .....	Gen	Army	87	157	..	..	104	2,194
Hardwick, 1,667—Caledonia								
Hardwick Hospital.....	Gen	NPAasn	12	12	6	23	5	182
Middlebury, 2,003—Addison								
Porter Memorial Hosp..	Gen	NPAasn	45	45	10	59	15	713
Montpelier, 7,537—Washington								
Heaton Hospital°.....	Gen	NPAasn	70	70	8	193	49	1,538
Morrisville, 1,822—Lamoille								
Copley Hospital.....	Gen	NPAasn	30	30	5	62	17	523
Newport, 5,694—Orleans								
Orleans County Memorial Hospital° .....	Gen	NPAasn	30	30	6	51	11	339
Pittsford, 673—Rutland								
Vermont Sanatorium.....	TB	State	80	80	..	..	70	105
Proctor, 2,515—Rutland								
Proctor Hospital.....	Gen	NPAasn	35	33	7	51	10	383
Randolph, 1,957—Orange								
Gifford Memorial Hosp.°	Gen	NPAasn	63	51	10	93	26	709
Rutland, 17,315—Rutland								
Rutland Hospital°.....	Gen	NPAasn	110	110	16	289	71	2,591
St. Albans, 8,020—Franklin								
St. Albans Hospital°.....	Gen	NPAasn	45	45	5	131	36	1,400
Sherwood Sanatorium.....	Gen	Indiv	10	10	..	5	6	80
St. Johnsbury, 7,920—Caledonia								
Brightlook Hospital°.....	Gen	NPAasn	55	55	10	80	36	933
St. Johnsbury Hospital..	Gen	Church	..	80	5	No data supplied		
Springfield, 4,943—Windsor								
Springfield Hospital.....	Gen	NPAasn	30	30	6	118	20	623
Waterbury, 1,776—Washington								
Vermont State Hospital for the Insane°.....	Ment	State	737	1,060	..	..	1,028	366
Winooski, 5,305—Chittenden								
Fanny Allen Hospital°....	Gen	Church	25	75	10	186	59	1,397
Related Institutions								
Bennington, 7,390—Bennington								
Vermont Soldiers' Home Hospital .....	Inst	State	28	28	..	..	3	41
Brandon, 2,891—Rutland								
Brandon State School....	MeDe	State	300	300	..	..	250	22
Pittsford, 637—Rutland								
Caverly Preventorium....	TB	NPAasn	44	44	..	..	43	118
Windsor, 3,689—Windsor								
Vermont State Prison Hospital .....	Inst	State	..	8	..	..	5	96
Windsor Hospital.....	Gen	NPAasn	9	13	4	31	8	203
Summary for Vermont:								
Hospitals and sanatoriums...		Number	27	3,197		Average Patients	2,643	27,911
Related institutions.....			5	393			349	456
Totals.....			32	3,590			2,992	28,367
Refused registration.....			1	13				

## Related institutions

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Bennington, 7,390—Bennington	Gen	State	28	28	..	..	3	41
Vermont Soldiers' Home	Inst	State	28	28	..	..	3	41
Brandon, 2,891—Rutland	State	300	300	..	..	290	29	
Brandon State School... MeDe	State	300	300	..	..	290	29	
Pittsford, 637—Rutland	TB	NPAasn	44	44	..	..	43	118
Caverly Preventorium.... TB	TB	NPAasn	44	44	..	..	43	118
Windsor, 3,639—Windsor	Inst	State	..	8	..	..	5	65
Vermont State Prison	Inst	State	..	8	..	..	5	65
Hospital .....	Inst	State	..	8	..	..	5	65
Windsor Hospital..... Gen	Gen	NPAasn	9	13	4	31	8	203

## Summary for Vermont:

Summary for Vermont:	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums...	27	3,197	2,643	27,911
Related institutions.....	5	393	349	496
Totals.....	32	3,590	2,992	28,407
Refused registration.....	1	13		

## VIRGINIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Arlington, 2,877—Washington	Gen	NPAasn	60	60	5	41	42	1,339
Johnston Mem. Hosp.* Gen	Gen	NPAasn	60	60	5	41	42	1,339
Alexandria, 24,149—Arlington	Gen	NPAasn	100	100	16	421	77	3,399
Alexandria Hospital..... Gen	Gen	NPAasn	100	100	16	421	77	3,399
Bedford, 3,713—Bedford	Gen	Corp	21	21	2	..	8	272



## OREGON—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Lebanon, 1,531—Linn	Gen	County	..	35	6	40	24	650
McMinnville, 2,917—Yamhill	Gen	County	..	35	6	40	24	650
Medford, 11,007—Jackson	Gen	County	..	35	6	40	24	650
Millwaukie, 1,767—Clackamas	Gen	County	..	35	6	40	24	650
Portland Open Air Sanat. TB	Gen	County	..	35	6	40	24	650
Mertle Point, 1,562—Cnns	Gen	County	..	35	6	40	24	650
North Bend, 4,012—Cnns	Gen	County	..	35	6	40	24	650
Keizer Brothers Hospital	Gen	County	..	35	6	40	24	650
Mersey Hospital	Gen	County	..	35	6	40	24	650
Ontario, 1,941—Multnomah	Gen	County	..	35	6	40	24	650
Holy Rosary Hospital	Gen	County	..	35	6	40	24	650
Oregon City, 3,761—Clackamas	Gen	County	..	35	6	40	24	650
Oregon City Hospital	Gen	County	..	35	6	40	24	650
Pendleton, 6,621—Umatilla	Gen	County	..	35	6	40	24	650
Eastern Oregon State Hospital	Gen	County	..	35	6	40	24	650
St. Anthony's Hospital	Gen	County	..	35	6	40	24	650
Portland, 301,515—Multnomah	Gen	County	..	35	6	40	24	650
Doernbecher Memorial Hospital for Children	Gen	County	..	35	6	40	24	650
Emanuel Hospital	Gen	County	..	35	6	40	24	650
Good Samaritan Hosp.	Gen	County	..	35	6	40	24	650
Juvenile Hosp. for Girls	Gen	County	..	35	6	40	24	650
Morningside Hospital	Gen	County	..	35	6	40	24	650
Mountain View Sanit.	Gen	County	..	35	6	40	24	650
Multnomah Hospital	Gen	County	..	35	6	40	24	650
Portland Convalescent Hospital	Gen	County	..	35	6	40	24	650
Portland Medical Hospital	Gen	County	..	35	6	40	24	650
Portland Sanitarium and Hospital	Gen	County	..	35	6	40	24	650
Dr. Robert C. Coffey Clinic and Hospital	Gen	County	..	35	6	40	24	650
St. Vincent's Hosp.	Gen	County	..	35	6	40	24	650
Shriners Hospital for Crippled Children	Gen	County	..	35	6	40	24	650
Theo. B. Wilens Memorial Hospital	Gen	County	..	35	6	40	24	650
Veterans Admin. Facility	Gen	County	..	35	6	40	24	650
Waverleigh Sanitarium	Gen	County	..	35	6	40	24	650
Roseburg, 4,362—Douglas	Gen	County	..	35	6	40	24	650
Mersey Hospital	Gen	County	..	35	6	40	24	650
Veterans Admin. Facility	Gen	County	..	35	6	40	24	650
St. Helens, 3,594—Columbia	Gen	County	..	35	6	40	24	650
St. Helens General Hosp.	Gen	County	..	35	6	40	24	650
Salem, 26,266—Marion	Gen	County	..	35	6	40	24	650
Oregon State Hospital	Gen	County	..	35	6	40	24	650
Oregon State Tuberculosis Hospital	Gen	County	..	35	6	40	24	650
Salem Deaconess Hospital	Gen	County	..	35	6	40	24	650
Salem General Hospital	Gen	County	..	35	6	40	24	650
Silverton, 2,402—Marion	Gen	County	..	35	6	40	24	650
Silverton Hospital	Gen	County	..	35	6	40	24	650
The Dalles, 5,883—Wasco	Gen	County	..	35	6	40	24	650
Eastern Oregon State Tuberculosis Hospital	Gen	County	..	35	6	40	24	650
Mid-Columbia Hospital	Gen	County	..	35	6	40	24	650
The Dalles Hospital	Gen	County	..	35	6	40	24	650
Tillamook, 2,540—Tillamook	Gen	County	..	35	6	40	24	650
Charlton Hospital	Gen	County	..	35	6	40	24	650
Toledo, 2,137—Lincoln	Gen	County	..	35	6	40	24	650
Lincoln Hospital	Gen	County	..	35	6	40	24	650
Related Institutions	Gen	County	..	35	6	40	24	650
Chemawa, 625—Marion	Gen	County	..	35	6	40	24	650
Salem Indian School Hosp.	Gen	County	..	35	6	40	24	650
Coquille, 2,732—Coos	Gen	County	..	35	6	40	24	650
Coquille Hospital	Gen	County	..	35	6	40	24	650
Corvallis, 7,555—Benton	Gen	County	..	35	6	40	24	650
Oregon State Agricultural College Hospital	Gen	County	..	35	6	40	24	650
Lakeview, 1,799—Lake	Gen	County	..	35	6	40	24	650
Lakeview Hospital	Gen	County	..	35	6	40	24	650
Portland, 301,515—Multnomah	Gen	County	..	35	6	40	24	650
E. Henry Wemmo White Shield	Gen	County	..	35	6	40	24	650
Isolation Hospital	Gen	County	..	35	6	40	24	650
Salvation Army White Shield Home	Gen	County	..	35	6	40	24	650

## OREGON—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Salem, 26,266—Marion	Gen	County	..	35	6	40	24	650
Oregon Fairview Home	Gen	County	..	35	6	40	24	650
Oregon State Penitentiary Hospital	Gen	County	..	35	6	40	24	650
Oregon State School for the Deaf	Gen	County	..	35	6	40	24	650
Waldport, 367—Lincoln	Gen	County	..	35	6	40	24	650
Waldport Community Hospital	Gen	County	..	35	6	40	24	650
Summary for Oregon:								
Hospitals and sanatoriums	58		8,667	7,362			83,798	
Related institutions	12		1,296	1,079			3,693	
Totals	70		9,963	8,441			87,491	
Refused registration	13		353					

## PENNSYLVANIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Abington, 3,200—Montgomery	Gen	County	..	35	6	40	24	650
Abington Mem. Hosp.	Gen	County	..	35	6	40	24	650
Allentown, 92,563—Lehigh	Gen	County	..	35	6	40	24	650
Allentown Hospital	Gen	County	..	35	6	40	24	650
Allentown State Hosp.	Gen	County	..	35	6	40	24	650
Baer Hospital	Gen	County	..	35	6	40	24	650
Sacred Heart Hospital	Gen	County	..	35	6	40	24	650
Allenwood, 400—Union	Gen	County	..	35	6	40	24	650
Devitt's Camp	Gen	County	..	35	6	40	24	650
Altoona, 82,054—Blair	Gen	County	..	35	6	40	24	650
Altoona Hospital	Gen	County	..	35	6	40	24	650
Ambler, 3,944—Montgomery	Gen	County	..	35	6	40	24	650
DuPont Hospital	Gen	County	..	35	6	40	24	650
Ashland, 7,164—Schuylkill	Gen	County	..	35	6	40	24	650
Ashland State Hospital	Gen	County	..	35	6	40	24	650
Aspenwall (Pittsburgh P. O.), 4,263—Allegheny	Gen	County	..	35	6	40	24	650
Veterans Admin. Facility G & T B	Gen	County	..	35	6	40	24	650
Beaver Falls, 17,147—Beaver	Gen	County	..	35	6	40	24	650
Providence Hospital	Gen	County	..	35	6	40	24	650
Bedford, 2,951—Bedford	Gen	County	..	35	6	40	24	650
Thimble's Hospital	Gen	County	..	35	6	40	24	650
Bellevue, 4,504—Center	Gen	County	..	35	6	40	24	650
Bellevue, 10,252—Allegheny	Gen	County	..	35	6	40	24	650
Sulzbach General Hosp.	Gen	County	..	35	6	40	24	650
Berwick, 12,660—Columbia	Gen	County	..	35	6	40	24	650
Berwick Hospital	Gen	County	..	35	6	40	24	650
Bethlehem, 57,592—Northampton	Gen	County	..	35	6	40	24	650
St. Luke's Hospital	Gen	County	..	35	6	40	24	650
Bloomsburg, 9,003—Columbia	Gen	County	..	35	6	40	24	650
Bloomsburg Hospital	Gen	County	..	35	6	40	24	650
Blossburg, 1,696—Tioga	Gen	County	..	35	6	40	24	650
Blossburg State Hospital	Gen	County	..	35	6	40	24	650
Braddock, 19,329—Allegheny	Gen	County	..	35	6	40	24	650
Braddock Gen. Hosp.	Gen	County	..	35	6	40	24	650
Bradford, 19,306—McKean	Gen	County	..	35	6	40	24	650
Bradford Hospital	Gen	County	..	35	6	40	24	650
Bronkville, 4,337—Jefferson	Gen	County	..	35	6	40	24	650
Brookville Hospital	Gen	County	..	35	6	40	24	650
Brownsville, 2,869—Fayette	Gen	County	..	35	6	40	24	650
Brownsville Gen. Hosp.	Gen	County	..	35	6	40	24	650
Butler County Memorial Hospital	Gen	County	..	35	6	40	24	650
Onionsburg, 12,553—Washington	Gen	County	..	35	6	40	24	650
Canonsburg Gen. Hosp.	Gen	County	..	35	6	40	24	650
Carlisle, 12,596—Cumberland	Gen	County	..	35	6	40	24	650
Carlisle Hospital	Gen	County	..	35	6	40	24	650
Station Hospital	Gen	County	..	35	6	40	24	650
Chambersburg, 13,788—Franklin	Gen	County	..	35	6	40	24	650
Chambersburg Hospital	Gen	County	..	35	6	40	24	650
Chester, 59,164—Delaware	Gen	County	..	35	6	40	24	650
Chester Hospital	Gen	County	..	35	6	40	24	650
J. Lewis Crozer Home for Incurables and Homeopathic Hospital	Gen	County	..	35	6	40	24	650
Sacred Heart Hospital	Gen	County	..	35	6	40	24	650
Clarks Summit, 2,604—Lackawanna	Gen	County	..	35	6	40	24	650
Hillside Home and Hospital for Mental Diseases	Gen	County	..	35	6	40	24	650
Clearfield, 9,221—Clearfield	Gen	County	..	35	6	40	24	650
Clearfield Hospital	Gen	County	..	35	6	40	24	650
Clifton, 50—Indiv	Gen	County	..	35	6	40	24	650
Condit	Gen	County	..	35	6	40	24	650
Condit	Gen	County	..	35	6	40	24	650
Conestoga Hospital	Gen	County	..	35	6	40	24	650
Veterans Admin. Facility	Gen	County	..	35	6	40	24	650
Columbia, 11,349—Lancaster	Gen	County	..	35	6	40	24	650
Columbia Hospital	Gen	County	..	35	6	40	24	650
Colver, 2,000—Cambria	Gen	County	..	35	6	40	24	650
Colver Hospital	Gen	County	..	35	6	40	24	650

## VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
		NPAssn	25	25	8	50	14	893
Way Hospital+ .....	Gen	NPAssn	140	130	8	63	88	3,096
Clinton, 729—Dickenson								
Dickenson County Hosp.,	Gen	Indiv	..	20	3	21	8	631
Coeburn, 784—Wise								
Coeburn Hospital, .....	Gen	Part	50	30	..	8	16	420
	Gen	Indiv	16	16	4	21	10	351
	Gen	Corp	25	25	2	..	12	649
Danville, 22,247—Pittsylvania								
Hilltop Sanatorium, .....	TB	NPAssn	60	60	..	..	50	75
Memorial Hospital, .....	Gen	NPAssn	115	116	10	377	82	4,278
Farmville, 3,153—Prince Edward								
Southside Community Hospital .....	Gen	NPAssn	50	50	10	80	30	1,213
Ft. Belvoir, Fairfax								
Station Hospital, .....	Gen	Army	35	35	..	..	15	680
Ft. Myer, 1,030—Arlington								
Station Hospital, .....	Gen	Army	65	65	..	..	43	794
Fortress Monroe, 1,265—Elizabeth City								
Station Hospital, .....	Gen	Army	90	115	10	67	66	1,593
Franklin, 2,920—Southampton								
Railford Hospital, .....	Gen	Indiv	25	25	3	35	16	436
Fredericksburg, 6,519—Spotsylvania								
Mary Washington Hosp.,	Gen	NPAssn	85	75	10	183	46	1,959
Galax, 2,541—Grayson								
Galax Hosp. and Clinic, Gen		Corp	..	31	3	19	19	575
Hampton, 6,582—Elizabeth City								
Dixie Hospital, .....	Gen	NPAssn	75	70	10	105	26	1,063
Harrisonburg, 7,232—Rockingham								
Rockingham Mem. Hosp., Gen		NPAssn	100	110	7	215	105	4,326
Hopewell, 11,827—Prince George								
John Randolph Hospital, Gen		Corp	..	22	3	26	4	208
Hot Springs, 1,500—Bath								
Community House, .....	Gen	NPAssn	13	14	4	10	5	181
Keokuk, 4,136—Elizabeth City								
Veterans Admin. Facility, Gen		Vet	810	620	..	..	571	1,293
Langley Field, Elizabeth City								
Station Hospital, .....	Gen	Army	50	50	..	..	25	744
Leesburg, 1,640—Loudoun								
Loudoun County Hospital, Gen		County	25	25	6	56	17	566
Lexington, 3,752—Rockbridge								
Stoewall Jackson Memorial Hospital, .....	Gen	NPAssn	50	45	6	54	24	1,318
Luray, 1,459—Page								
Page Memorial Hospital, Gen		NPAssn	15	12	3	16	3	177
Lyachburg, 40,661—Campbell								
Guggenheimer Memorial Hospital, .....	Children's	City of Marshall	112	102	10	238	77	2,322
Lyachburg Gen. Hosp., Gen		Unit	..	135	12	138	67	1,800
Marshall Lodge Memorial Hospital .....	Gen	Frat	..	100	16	217	42	1,545
Virginia Baptist Hosp., Gen		Church	100	100	16	217	42	1,545
Marion, 4,136—Smyth								
Southwestern State Hosp., Ment		State	..	1,241	..	..	1,145	402
Nassavadox, 1,000—Northampton								
Northampton Acemea Memorial Hospital .....	Gen	County	45	45	5	47	24	800
Newport News, 34,417—Warwick								
Elizabeth Buxton Hosp., Gen		Indiv	90	90	10	135	39	2,266
Riverside Hospital, .....	Gen	NPAssn	100	100	14	272	45	1,736
Whittaker Memorial Hospital (col.) .....	Gen	NPAssn	50	44	6	16	12	436
Norfolk, 129,710—Norfolk								
Charles R. Grandy Sanat., TB		City	86	90	..	..	85	70
Henry A. Wise Hospital for Contagious Diseases Iso		City	..	30	..	..	..	15
Hospital of St. Vincent de Paul, .....	Gen	Church	228	225	22	216	111	3,844
Norfolk Community Hospital (col.) .....	Gen	NPAssn	40	26	6	66	11	400
Norfolk General Hosp., +0	Gen	NPAssn	200	200	30	671	150	6,033
Norfolk Memorial Hosp., Gen		NPAssn	50	36	8	179	30	1,550
Sarah Leigh Hospital, ... Gen		NPAssn	50	50	10	38	20	1,144
U. S. Marine Hospital*, Gen		USPHS	300	300	..	..	263	3,144
Norton, 3,077—Wise								
Norton Hospital, .....	Gen	Indiv	30	30	2	6	7	514
Pennington Gap, 1,553—Lee								
Lee General Hospital, ... Gen		Corp	30	30	2	16	24	1,066
Petersburg, 25,564—Danville								
Central State Hosp. (col.)	Ment	State	3,432	2,654	..	..	3,276	822
Medical Center Hospital, Unit of Central State Hospital								
Petersburg Hospital, ... Gen		NPAssn	75	68	7	66	37	2,155
		NPAssn	100	92	8	194	61	1,844
		Navy	408	403	..	..	237	2,466
Pulaski Memorial Hospital, Gen		Corp	50	40	10	156	22	1,202
Pulaski Hospital, .....	Gen	Corp	35	35	6	73	24	795
Radford, 6,227—Montgomery								
St. Albans Sanatorium, ... N&M		Indiv	..	35	..	..	85	285
Richlands, 1,355—Tazewell								
Mattle Williams Hospital, Gen		Indiv	..	56	3	38	20	606
Richmond, 182,920—Henrico								
Crippled Children's Hosp., Unit of Medical College of Va. Hosp. Division								
Dooley Hospital, .....	Unit of Medical College of Va. Hosp. Division							
Grace Hospital, .....	Gen	Corp	80	80	10	209	54	3,195

## VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Johnston-Willis Hosp.*	Gen	Corp	125	125	16	379	60	3,481
Medical College of Virginia, Hosp. Division**	Gen	NPAssn	..	424	18	430	376	9,782
Memorial Hospital.....	Unit of Medical College of Va. Hosp. Division	Gen	NPAssn	100	90	10	197	41,176
Retreat for the Sick.....	Gen	Corp	50	50	..	..	36	1,839
St. Elizabeth's Hosp.*	Gen	Corp	..	75	16	212	57	1,654
St. Luke's Hospital.....	Gen	Corp	..	75	16	212	57	1,654
St. Philip Hosp. (col.)	Unit of Medical College of Va. Hosp. Division	Gen	NPAssn	63	68	7	126	62,137
Sheltering Arms Hospital	Gen	Corp	90	90	18	232	59	2,804
Stuart Circle Hospital*	Gen	Corp	62	52	..	..	27	391
Tucker Sanatorium.....	N&M	NPAssn	150	150	..	..	100	428
Westbrook Sanatorium.....	N&M	Corp	..	..	..	..	..	..
Ronoke, 69,206—Ronoke	Gen	NPAssn	44	33	3	22	16	634
Burrell Memorial Hospital (col.) .....	Gen	NPAssn	25	25	..	..	..	523
Gill Memorial Eye, Ear and Throat Hospital.....	ENT	NPAssn	100	100	10	161	70	2,671
Jefferson Hospital**	Gen	Corp	70	72	6	71	48	2,000
Lewis-Gale Hospital.....	Gen	NPAssn	110	97	13	205	42	1,790
Ronoke Hospital*	Gen	Corp	50	50	8	100	23	1,280
Shenandoah Hospital.....	Gen	Corp	472	472	..	..	466	280
Veterans Admin. Facility	Ment	Vet	20	20	..	..	19	43
Salem, 4,832—Ronoke	Gen	NPAssn	15	15	3	13	7	263
Mount Regis Sanatorium	TB	Corp	..	..	..	..	..	..
Saltville, 2,964—Smyth	Gen	NPAssn	40	40	4	37	21	843
Matheson Hospital.....	Gen	Indiv	..	82	10	121	45	1,322
South Boston, 4,341—Halifax	Gen	Indiv	..	20	4	10	10	330
South Boston Hospital.....	Gen	Indiv	..	20	4	10	10	330
Staunton, 11,990—Augusta	Gen	NPAssn	..	82	10	121	45	1,322
Kings Daughters Hosp..	Gen	NPAssn	..	82	10	121	45	1,322
Stuart, 588—Patrick	Gen	Indiv	..	20	4	10	10	330
Stuart Hospital.....	Gen	Indiv	..	20	4	10	10	330
Suffolk, 10,271—Nansemond	Gen	Corp	50	50	6	69	20	993
Lakeview Hospital.....	Gen	NPAssn	23	25	5	29	5	235
Virginia General Hospital	Gen	NPAssn	..	..	..	..	..	..
University,—Albemarle	Gen	State	325	338	40	559	238	7,761
Hospital**	Gen	State	30	30	5	121	20	761
Warrenton, 1,450—Fauquier	Gen	NPAssn	30	30	5	121	20	761
Fauquier County Hosp..	Gen	NPAssn	30	30	5	121	20	761
City	Gen	Indiv	17	17	3	18	4	245
Winchester, 10,855—Frederick	Gen	NPAssn	1,500	1,600	..	..	1,494	446
Winchester Mem. Hosp..	Gen	NPAssn	125	80	16	186	59	1,960
Related Institutions								
Beaumont,—Powhatan	Gen	State	24	20	..	..	5	407
Virginia Industrial School for Boys .....	Inst	State	24	20	..	..	5	407
Clover, 251—Halifax	Gen	Indiv	6	6	2	22	2	90
Little Retreat Hospital..	Gen	Indiv	6	6	2	22	2	90
Colony, 100—Amherst	Gen	Indiv	6	6	2	22	2	90
State Colony for Epileptics and Feeble-minded	MeDe	State	1,175	1,175	..	..	1,124	253
Danville, 22,247—Pittsylvania	Gen	Corp	23	23	2	14	10	443
Providence Hosp. (col.)	Gen	Corp	23	23	2	14	10	443
Falls Church, 2,019—Fairfax	Gen	Corp	23	23	2	14	10	443
Gundry Home and Training School for Feeble-minded .....	MeDe	Indiv	80	80	..	..	75	14
Lawrenceville, 1,629—Brunswick	Gen	Corp	23	23	2	14	10	443
Louisa Taylor Letcher Memorial Hospital (col.)	Inst	Church	..	24	..	..	2	88
Lebanon, 560—Russell	Gen	Indiv	..	15	2	No data supplied	..	..
Lebanon General Hospital	Gen	Indiv	..	15				

## PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
Confluence, 989—Somerset								
Frantz Hospital.....	Gen	Indiv	15	12	3	27	5	186
Connellsville, 13,290—Fayette								
Connellsville State Hosp. Gen	State	State	83	83	15	241	62	1,705
Corry, 7,152—Erie								
Corry Hospital.....	Gen	NPAssn	45	37	8	146	17	976
Coudersport, 2,740—Potter								
Coudersport Gen. Hosp. Gen	NPAssn	State	30	25	4	53	12	465
Danville, 7,165—Montour								
Danville State Hospital*o	Ment	State	1,947	2,064	..	..	1,984	766
George F. Gelsinger Memorial Hospital*o.....	Gen	NPAssn	..	161	20	407	124	4,220
Darby, 9,899—Delaware								
Fitzgerald-Mercy Hosp.*. Gen	Obureb	200	200	48	642	107	3,577	
Dixmont, 1,200—Allegheny								
Dixmont Hospital.....	N&M	NPAssn	964	964	..	..	1,130	118
Drexel Hill, 1,119—Delaware								
Delaware County Hosp.. Gen	NPAssn	56	56	14	318	51	2,332	
Du Bois, 11,595—Clearfield								
Du Bois Hospital.....	Gen	Church	50	50	7	106	26	660
Maple Avenue Hospital.. Gen	NPAssn	77	70	7	103	31	1,202	
Eagleview, 184—Montgomery								
Eagleview Sanatorium for Consumptives+.....	TB	NPAssn	200	188	..	..	174	162
Easton, 34,468—Northampton								
Betts' Private Hospital Gen	Indiv	..	40	8	111	22	878	
Easton Hospital*o.....	Gen	NPAssn	200	200	20	383	139	4,847
Easton Sanitarium.....	N&M	Indiv	..	30	..	..	13	54
East Stroudsburg, 6,099—Monroe								
General Hospital of Monroe County.....	Gen	NPAssn	50	50	9	117	29	575
Elizabeth, 3,940—Lancaster								
Philadelphia Freemasons' Memorial Hospital.....	Gen	Frat	180	180	..	..	160	644
State Hospital for Crippled Children+.....	Orth	State	125	125	..	..	121	195
Ellwood City, 12,323—Lawrence								
Ellwood City Hospital... Gen	NPAssn	55	55	13	153	25	883	
Erie, 115,967—Erie								
Hamot Hospital*o.....	Gen	NPAssn	255	224	31	768	170	5,763
Louise Home Sanatorium TB	NPAssa	20	21	..	..	18	35	
St. Vincent's Hospital*o. Gen	NPAssn	188	188	33	703	147	6,069	
Zem Zem Hospital for Crippled Children.....	Orth	Frat	50	50	..	..	33	60
Everett, 1,874—Bedford								
Everett Hospital.....	Gen	Indiv	25	25	5	46	17	399
Franklin, 10,254—Venango								
Franklin Hospital.....	Gen	NPAssa	60	47	10	106	26	829
Gettysburg, 5,584—Adams								
Annie M. Warner Hosp.. Gen	NPAssn	54	54	6	129	24	1,091	
Gladwyne, 1,236—Montgomery								
Gladwyne Colony.....	N&M	Indiv	80	80	..	..	72	120
Greensburg, 16,508—Westmoreland								
Westmoreland Hospital*o Gen	NPAssn	150	142	12	433	107	3,607	
Greenville, 6,828—Mercer								
Greenville Hospital.....	Gen	NPAssn	60	51	12	126	12	737
Grove City, 6,156—Mercer								
Grove City Hospital.....	Gen	NPAssn	26	26	5	64	13	417
Hamburg, 3,637—Berks								
Hamburg State Sanatorium for Tuberculosis.. TB	State	540	540	..	..	497	513	
Hanover, 11,805—York								
Hanover General Hosp.. Gen	NPAssn	55	55	10	242	31	1,113	
Harrisburg, 11,805—York								
Harrisburg General Hosp.. Gen	NPAssn	235	235	25	554	192	6,044	
Harrisburg Hospital*o.....	Gen	NPAssn	150	150	32	491	100	3,479
Harrisburg State Hosp.. Ment	State	1,921	2,043	..	..	1,950	394	
Keystone Hospital.....	Gen	Indiv	27	27	6	61	16	443
Hazleton, 36,765—Luzerne								
Corrigan Maternity Hosp. Mat	Part	16	16	16	325	14	325	
Hazleton State Hospital*o Gen	State	140	141	14	412	130	5,225	
Holidaysburg, 5,969—Blair								
Blair County Hospital for Mental Diseases.....	Ment	County	250	350	..	..	306	144
Homestead, 20,141—Allegheny								
Homestead Hospital*o.....	Gen	Corp	150	86	20	245	54	1,730
Honesdale, 5,490—Wayne								
Wayne County Memorial Hospital.....	Gen	NPAssn	..	29	7	53	13	477
Huntingdon, 7,558—Huntingdon								
J. C. Blair Memorial Hospital*o.....	Gen	NPAssn	50	70	14	170	50	1,920
Indiana, 9,569—Indiana								
Indiana Hospital*o.....	Gen	NPAssn	154	139	15	157	107	3,545
Jersey Shore, 5,781—Lycoming								
Jersey Shore Hospital.....	Gen	NPAssn	..	20	3	24	..	291
Sanford Hospital.....	Gen	Indiv	20	20	5	31	9	365
Johnstown, 66,993—Cambria								
Conemaugh Valley Memorial Hospital*o.....	Gen	NPAssn	300	250	28	321	250	5,711
Lee Homeopathic Hosp.. Gen	NPAssn	69	54	15	172	34	1,195	
Mendenhall Mater. Hosp. Mat	Indiv	12	16	16	150	10	240	
Mercy Hospital*o.....	Gen	Church	100	86	14	327	65	1,838
South Hills Sanitarium.. N&M	Indiv	..	15	..	..	..	Estab. 1936	
Kane, 6,232—McKean								
Community Hospital.....	Gen	NPAssn	55	55	10	123	41	1,420
Kane Summit Hospital.. Gen	NPAssn	87	34	6	56	12	434	
Kingston, 21,000—Luzerne								
Nesbitt Memorial Hosp.*o Gen	NPAssn	120	120	10	258	69	2,458	
Kittanning, 7,568—Armstrong								
Armstrong County Hosp. Gen	NPAssn	..	65	5	..	..	New building	
Lancaster, 59,940—Lancaster								
Lancaster General Hospital*o.....	Gen	NPAssn	250	233	32	648	178	5,456

## PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinsets	Number of Births	Average Census	Admissions
Rossmere Sanatorium..... TB		CyCo	50	55	..	..	50	113
St. Joseph's Hospital*o. Gen		Church	210	180	30	331	99	3,223
Lansdale, 8,379—Montgomery								
Elm Terrace Hospital..... Gen		NPAssn	20	20	4	59	18	418
Latrobe, 10,644—Westmoreland								
Latrobe Hospital*o..... Gen		NPAssn	60	65	10	224	36	1,313
Lebanon, 25,561—Lebanon								
Good Samaritan Hosp.*o Gen		NPAssn	100	80	20	242	66	2,077
Lebanon Sanatorium..... Gen		NPAssn	30	30	6	56	20	456
Leetsdale, 2,774—Allegheny								
D. T. Watson Home for Crippled Children.....	Orth	NPAssn	..	100	..	..	87	118
Lewistown, 13,357—Mifflin								
Lewistown Hospital*o..... Gen		USPHS	105	84	..	..	31	1,139
Lock Haven, 9,668—Clinton								
Lock Haven Hospital.... Gen		NPAssn	..	78	10	318	50	1,670
Teah Private Hospital... Gen		Indiv	25	16	4	22	6	292
Lock No. 4, 618—Washington								
Charleoi Monessen Hosp. Gen		NPAssn	85	81	18	183	52	1,351
Mayview, 420—Allegheny								
Pittsburgh City Home and Hospitals..... Gen		City	1,000	1,000	8	11	812	1,051
Pittsburgh City Home and Hospitals..... N&M		City	2,193	2,646	..	..	2,701	621
McKeesport, 54,632—Allegheny								
McKeesport Hospital*o... Gen		NPAssn	223	223	40	734	171	4,782
McKees Rocks, 18,116—Allegheny								
Ohio Valley General Hospital*o..... Gen		NPAssn	70	53	17	245	43	1,422
Meadville, 16,698—Crawford								
Meadville City Hospital*o Gen		NPAssn	90	90	14	256	55	1,762
Spencer Hospital*o..... Gen		NPAssn	120	107	13	227	65	2,030
Media, 5,372—Delaware								
Media Hospital..... Gen		Indiv	25	17	4	9	11	160
Mercer, 2,125—Mercer								
Mercer Cottage Hospital. Gen		Corp	50	50	5	25	30	1,113
Mercer Sanitarium..... N&M		Corp	43	43	..	..	33	114
Meyersdale, 3,065—Somerset								
Hazel McGilvery Hosp.. Gen		Part	14	14	5	33	7	235
Meyersdale Wenzel Hosp. Gen		Indiv	14	14	3	3	3	132
Monaca, 1,641—Beaver								
Beaver County Sanat.... TB		County	63	63	..	..	63	81
Monessen, 20,268—Westmoreland								
Gemmill Hospital..... ENT		Part	15	12	..	..	3	493
Monongahela, 8,675—Washington								
Memorial Hospital..... Gen		NPAssn	66	66	6	90	31	943
Mt. Pleasant, 5,868—Westmoreland								
Henry Clay Frick Memorial Hospital*o..... Gen		NPAssn	..	62	10	146	30	1,155
Nanticoke, 26,043—Luzerne								
Nanticoke State Hospital Gen		State	120	120	10	241	95	2,745
New Brighton, 9,950—Beaver								
Beaver Valley General Hospital*o..... Gen		NPAssn	..	70	10	143	36	1,032
New Castle, 48,674—Lawrence								
Jameson Memorial Hospital*o..... Gen		NPAssn	130	144	24	401	74	3,462
New Castle Hospital*o.... Gen		Church	113	105	20	243	63	2,332
New Kensington, 16,762—Westmoreland								
Citizens General Hosp.*o Gen		NPAssn	86	86	12	245	81	2,307
Norristown, 33,853—Montgomery								
Montgomery Hospital*o. Gen		NPAssn	90	90	20	381	76	3,207
Norristown State Hosp.* Ment		State	3,243	3,624	..	..	3,547	883
Riverview Hospital.....		NPAssn	35	35	10	..	15	..
Northampton, 9,839—Northampton								
Haff Hospital..... Gen		Indiv	30	32	3	21	17	405
Oil City, 22,075—Venango								
Grand View Sanatorium.. TB		NPAssn	50	50	..	..	10	27
Oil City General Hosp.*o Gen		NPAssn	95	75	20	322	58	1,662
Palmerton, 7,678—Carbon								
Palmerton Hospital*o..... Gen		Corp	65	57	8	113	50	1,671
Peckville, 3,915—Lackawanna								
Mid-Valley Hospital..... Gen		NPAssn	62	62	8	214	48	1,832
Philadelphia, 1,950,961—Philadelphia								
American Hospital for Diseases of the Stomach.. Gen		NPAssn	..	39	3	61	18	833
American Oncologic Hosp. SkCa		NPAssn	45	45	..	..	20	300
Anderson Hospital.....		Corp	75	73	26	204	18	1,741
Broad Street Hospital.... Gen		NPAssn	110	80	20	245	29	1,193
Chestnut Hill Hospital*o Gen		NPAssn	89	89	25	338	63	1,957
Children's Heart Hospital Card		NPAssn	..	50	..	..	32	33
Children's Hospital*o..... Chll		NPAssn	130	130	..	..	91	2,292
Children's Hospital of the Mary J. Drexel Home* Chll		Church	..	53	..	..	21	862
Fairmount Farm..... N&M		Corp	..	41	..	..	25	175
Frankford Hospital*o..... Gen		NPAssn	119	119	23	446	90	3,433
Frederick Douglass Memorial Hospital (col.).. Gen		NPAssn	75	56	6	60	21	623
Friends Hospital..... N&M		NPAssn	..	100	..	..	125	93
Garretton Hospital..... Unit of Temple University Hospital								
Germanatown Dispensary and Hospital*o..... Gen		NPAssn	310	340	56	1,530	214	7,066
Graduate Hospital of the University of Pennsylvania*o..... Gen		NPAssn	475	306	..	..	220	6,099
Hahnemann Hospital*o*o Gen		NPAssn	592	515	77	1,488	372	12,125
Home for Consumptives. TB		Church	104	104	..	..	96	147
Hospital of the Protestant Episcopal Church*o..... Gen		Church	450	430	50	920	314	7,531
Hospital of the University of Pennsylvania*o..... Gen		State	..	565	52	870	337	10,431

WASHINGTON

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Aberdeen, 21,725—Grays Harbor								
Aberdeen General Hosp.	Gen	Corp	60	60	..	54	1,542	
St. Joseph's Hospital	Gen	Church	63	63	16	281	..	1,332
American Lake, 800—Pierce								
Veterans Admin. Facility	Ment	Vet	676	676	..	676	151	
Anacortes, 6,564—Skagit								
Anacortes Hospital	Gen	Corp	..	24	4	51	11	478
Auburn, 3,906—King								
Suburban Hospital	Gen	Corp	40	40	6	49	8	449
Bellingham, 30,823—Whatcom								
St. Frances Hospital	Gen	Indiv	17	17	4	60	6	240
St. Joseph's Hospital	Gen	Church	100	100	10	288	63	1,637
St. Luke's General Hosp.	Gen	NPAasn	70	70	12	260	50	1,990
Bremerton, 10,170—Kitsap								
U. S. Naval Hospital	Gen	Navy	255	255	..	150	2,702	
	Gen	Indiv	..	30	7	No data supplied		
	Gen	Corp	50	25	7	125	12	293
	Gen	Church	45	35	6	107	12	542
Chenoweth, 1,310—Stevens								
St. Joseph's Hospital	Gen	Church	24	21	6	52	14	376
	Gen	Church	65	60	10	155	58	1,837
	Gen	Part	30	25	6	45	14	537
John Brining Memorial Hospital	Gen	Indiv	18	18	4	55	30	414
Ellensburg, 4,631—Kittitas								
Ellensburg General Hosp.	Gen	Corp	32	26	10	101	19	655
Elma, 1,545—Grays Harbor								
Conway Hospital	Gen	Indiv	20	14	6	4	6	160
Oakhurst Sanatorium	Gen	County	65	70	..	..	67	108
	Gen	NPAasn	84	84	16	242	47	2,223
	Gen	Church	100	100	14	234	37	1,682
	Gen	Indiv	19	19	4	31	7	570
Ft. Lewis, Pierce	Gen	Army	100	150	6	89	81	2,416
Ft. W.	Gen	State	2,384	2,416	..	..	2,338	697
Ft. ..	Gen	Army	..	40	..	..	15	296
	Gen	Corp	60	30	8	48	22	876
Kirkland Hospital	Gen	Indiv	12	12	4	36	5	207
Lakeview, 300—Pierce								
Mountain View Sanat.	TB	County	142	142	..	..	127	416
	Gen	NPAasn	50	35	6	53	18	1,280
Longview Memorial Hosp.	Gen	Corp	..	80	16	No data supplied		
Mason City, Okanogan								
Washington Hospital	Gen	NPAasn	60	60	11	156	40	1,805
Medical Lake, 1,671—Spokane								
Eastern State Hospital	Ment	State	1,650	1,650	..	..	1,632	433
Mt. Vernon, 3,690—Skagit								
Mt. Vernon General Hosp.	Gen	Indiv	30	30	6	72	..	533
Nespelem, 125—Okanogan								
	Gen	IA	..	38	5	..	Estab. 1936	
	Gen	NPAasn	20	20	4	72	8	250
Olympia, 11,733—Thurston								
St. Peter's Hospital	Gen	Church	..	100	14	144	53	1,972
	Gen	Indiv	15	15	6	42	5	351
	Gen	Church	65	56	9	180	35	1,115
Port Angeles, 10,188—Callam								
Davidson and Hay Hosp.	Gen	Part	50	50	8	81	20	971
Port Angeles General Hosp.	Gen	NPAasn	90	85	5	117	52	2,502
Port I.	Gen	Church	..	95	9	94	37	559
Puyallup	Gen	Church	..	95	9	94	37	559
Puget Sound Sanatorium	N&M	Corp	28	28	..	..	18	83
Renton, 4,062—King								
Renton Hospital	Gen	Indiv	28	28	6	65	7	294
Richmond Highlands, 600—King								
Firland Sanatorium and Isolation Hospital	TB Iso	City	250	250	..	..	226	353
Seattle, 365,583—Klag								
Ballard Accident and General Hospital	Gen	NPAasn	30	30	12	128	12	930
Children's Orthopedic Hospital	Orth	NPAasn	132	132	..	..	113	1,326
Columbus Hospital	Gen	Church	..	200	30	346	91	2,981
King County Hosp., Unit No. 1 (Harborview)	Gen	County	..	394	51	808	332	9,756
King County Tuberculosis Hospital	TB	County	..	170	..	..	150	..
Laurel Beach Sanatorium	TB	Part	..	60	..	..	46	134
Maynard Hospital	Gen	NPAasn	96	91	30	560	82	3,070
Meadows Sanatorium	N&M	Corp	35	35	..	..	17	114
Providence Hospital	Gen	Church	400	335	45	725	248	7,237
Riverton Sanatorium	TB	NPAasn	..	60	..	..	30	60
St. Luke's Hospital	Gen	Corp	..	46	18	128	20	679
Seattle General Hosp.	Gen	NPAasn	100	100	20	297	80	3,655
Station Hospital	Gen	Army	30	30	..	..	6	211
Swedish Hospital	Gen	NPAasn	197	195	65	825	151	5,403

WASHINGTON—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
U. S. Marina Hospital	Gen	USPHS	300	401	..	..	338	3,272
Virginia Mason Hosp.	Gen	NPAasn	150	150	30	352	91	3,626
Sedro Woolley, 2,719—Skagit								
Memorial Hospital	Gen	NPAasn	35	27	6	68	..	465
Northern State Hospital and State Narcotic Farm Colony	Ment Drug State		1,250	1,687	..	..	1,605	504
Shelton, 3,091—Mason								
Shelton General Hospital	Gen	NPAasn	34	34	5	110	24	921
Snohomish, 2,688—Snohomish								
Aldercrest Sanatorium	TB	County	..	57	..	..	39	..
Snohomish General Hosp.	Gen	Indiv	15	15	3	41	7	289
South Bend, 1,708—Pacific								
South Bend Gen. Hosp.	Gen	Part	35	35	5	35	10	235
Spokane, 115,514—Spokane								
Deaconess Hospital	Gen	Church	227	227	30	141	115	4,483
Edgecliff Sanatorium	TB	County	..	141	..	..	112	111
Sacred Heart Hospital	Gen	Church	365	294	40	939	241	8,407
St. Luke's Hospital	Gen	NPAasn	175	175	20	224	108	3,002
Shriners Hospital for Crippled Children	Orth	Frat	20	20	..	..	20	109
Station Hospital	Gen	Army	95	95	2	10	45	1,072
Tacoma, 106,817—Pierce								
Northern Pacific Beneficial Association Hospital	Gen	NPAasn	120	111	9	32	53	2,064
Pierce County Hospital	Gen	County	160	168	22	294	175	8,029
St. Joseph's Hospital	Gen	Church	300	300	50	552	80	3,851
Theoma General Hosp.	Gen	NPAasn	185	185	35	663	99	3,840
Tacoma Hospital	G&TB IA		283	280	..	..	247	1,082
Toppenish, 2,774—Yakima								
Yakima Sanatorium	TB	IA	37	37	..	..	40	123
Vancouver, 15,700—Clark								
Clark County Hospital	Gen	County	35	35	8	41	27	453
Clark General Hospital	Gen	NPAasn	50	40	12	140	28	1,019
St. Joseph's Hospital	Gen	Church	95	65	12	114	50	1,810
Stanton Hospital	Gen	Army	114	98	..	..	51	1,336
Walla Walla, 15,976—Walla Walla								
St. Mary's Hospital	Gen	Church	100	85	15	157	57	2,068
Veterans Admin. Facility	G&TB Vet		400	400	..	..	322	1,380
Walla Walla Sanatorium and Hospital	Gen	Church	50	50	9	142	36	..
Wenatchee, 11,627—Chelan								
Central Washington Deaconess Hospital	Gen	Church	50	50	14	219	40	1,568
St. Anthony's Hospital	Gen	Church	75	75	12	204	37	1,183
Yakima, 22,101—Yakima								
St. Elizabeth's Hospital	Gen	Church	166	146	20	503	120	3,677
Yakima County Hospital	Gen	County	60	50	7	47	30	586
Related Institutions								
Chenahis, 4,907—Lewis								
State Training School for Boys	Inst	State	..	20	..	..	6	214
Cle Elum, 2,508—Kittitas								
Roslyn Cle Elum Benevolent Company Hospital	Gen	NPAasn	21	21	1	1	11	550
Ione, 594—Pend Oreille								
Ione Hospital	Gen	Indiv	11	11	3	18	4	180
Medical Lake, 1,671—Spokane								
State Custodial School	MeDe	State	1,200	1,530	..	..	1,499	115
Monroe, 1,570—Snohomish								
Monroe General Hospital	Gen	Indiv	..	12	4	20	..	260
Snohomish County Hospital and Farm	Inst Gen	County	32	32	6	5	29	172
Mt. Vernon, 3,690—Skagit								
Rowley General Hospital	Gen	Indiv	..	30	8	96	10	583
Seattle, 985,500—King								
	Mat Conv	NPAasn	25	27	15	42	15	55
		Indiv	11	11	..	..	7	72
Branch)	Inst	County	..	275	..	..	960	732
Mason Sanatorium	Coav	Corp	25	17	..	..	48	..
Mt. Baker Sanatorium	Conv	Indiv	15	15	..	..	9	49
University of Washington Health Service Infirmary	Inst	State	..	75	..	..	10	1,250
Spangle, 218—Spokane								
Spokane County Hospital	Inst	County	100	100	..	..	..	..
Spokane, 115,514—Spokane								
Florence Crittenton Home	Mat	NPAasn	20	20	5	26	30	57
Rivercrest Hospital	Iso	City	100	100	..	..	19	348
Salvation Army Women's Hospital and Home	Mat	Church	36	36	19	77	25	167
Sprague, 639—Lincoln								
Sprague Hospital	Gen	Indiv	10	10	5	10	1	50
Stellaecum, 722—Pierce								
United States Penitentiary Hospital	Inst	Fed	86	72	..	..	77	823
Sumas, 647—Whatcom								
Merrilyn Cottage Hosp.	Gen	Indiv	..	7	3	11	1	71
Sumas General Hospital	Gen	Indiv	12	12	2	12	1	43
Tacoma, 106,817—Pierce								
City Contagious Hospital	Iso	City	30	30	1	..	3	82
White Shield Home	Mat	NPAasn	..	20	10	36	10	45
Tulalip								
Tulal	IA		..	14	4	53	12	411
Walla								
Blue	County		40	32	..	..	27	27
Summary for Washington:								
	Number	Beds	Average Patients	Patients Admitted				
Hospitals and sanatoriums	89	14,701	11,671	130,612				
Related institutions	26	2,548	2,153	6,334				
Totals	115	17,249	13,824	136,946				
Refused registration	21	477	..	..				

## PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Hospital of the Woman's Medical College.....	Gen	NPAAssn	173	152	21	518	78	2,070
Institute of the Pennsylvania Hospital*.....	N&M	NPAAssn	60	60	..	..	20	473
Jefferies Hospital*.....	Ch	NPAAssn	72	72	..	..	41	579
Jefferson Medical College Hospital*.....	Gen	NPAAssn	688	631	57	858	486	12,680
Jewish Hospital*.....	Gen	NPAAssn	426	376	70	1,161	272	7,312
Joseph Price Memorial Hospital.....	Gen	NPAAssn	60	60	10	44	25	478
Kensington Hospital for Women.....	Gen	NPAAssn	66	66	35	1,072	77	2,753
Lanken Memorial Hospital.....	Gen	NPAAssn	265	261	35	389	187	3,955
Mercy Hospital.....	Gen	NPAAssn	115	71	10	251	60	1,705
Methodist Hospital.....	Gen	NPAAssn	110	100	10	163	81	2,044
Northeastern Hospital*.....	Gen	Church	260	234	45	519	110	3,826
Northern Liberties Hosp. Gen.	Gen	Chnrp	10	10	6	91	7	540
Northern Western Gen. Hosp. Unit of Temple University Hospital	Gen	Church	215	195	35	772	136	4,436
Pennsylvania Hospital*.....	Gen	NPAAssn	310	261	55	1,050	230	7,770
Pennsylvania Hosp., Dept. for Mental and Nervous Diseases*.....	N&M	NPAAssn	102	87	15	482	59	2,731
Philadelphia General Hospital*.....	Gen	NPAAssn	..	59	11	72	41	1,619
Philadelphia Hospital for Contagious Diseases.....	Iso	City	2,310	2,340	60	1,541	2,012	21,175
Philadelphia Hospital for Mental Diseases.....	N&M	City	1,000	1,000	..	..	216	3,153
Philadelphia Orthopaedic Hosp. and Infirmary for Nervous Diseases*.....	Orth&Neur	NPAAssn	3,500	6,050	..	..	5,501	390
Presbyterian Hospital*.....	Gen	Church	140	140	..	..	59	569
Preston Retreat.....	Mat	NPAAssn	356	314	42	492	194	4,771
Rush Hospital for Consumption and Allied Diseases.....	TB	NPAAssn	50	50	35	411	31	441
St. Agnes Hospital*.....	Gen	Church	159	159	..	..	120	341
St. Christopher's Hospital for Children*.....	Chil	NPAAssn	450	346	60	1,147	258	6,460
St. Joseph's Hospital*.....	Gen	Church	..	75	..	..	54	2,165
St. Luke's and Children's Hospital*.....	Gen	NPAAssn	160	160	20	351	100	3,007
St. Mary's Hospital*.....	Gen	NPAAssn	400	210	40	725	154	4,958
St. Vincent's Hospital*.....	Gen	Church	265	237	35	081	140	6,086
Shriners Hospital for Crippled Children.....	Orth	Frnt	..	168	33	343	50	589
Skin and Cancer Hosp.*.....	SKCa	NPAAssn	120	120	..	..	103	356
Stetson Hospital.....	Gen	NPAAssn	31	31	..	..	28	180
Temple University Hosp.*.....	Gen	NPAAssn	63	63	10	92	30	1,500
U. S. Naval Hospital*.....	Navy	NPAAssn	451	397	54	925	307	9,444
Urologic Clinic.....	Urol	Part	650	650	..	..	406	4,556
Wills Hospital*.....	Eye	NPAAssn	..	15	..	..	7	185
Woman's Hospital*.....	Gen	NPAAssn	200	200	..	..	109	3,603
Woman's Homoeopathic Hospital*.....	Gen	NPAAssn	125	109	41	830	74	3,261
Phillipsburg, 3,000—Centre Dr. McGirk Sanitarium....	Indiv	State	..	100	40	776	100	2,904
Phillipsburg State Hosp.*.....	Gen	State	20	20	6	25	2	154
Phoenixville, 12,029—Chester Phoenixville Hospital.....	Gen	NPAAssn	100	108	12	274	86	2,570
Pittsburgh, 609,817—Allegheny Allegheny General Hospital*.....	Gen	NPAAssn	60	60	9	162	30	1,106
Belvedere General Hosp.*.....	Gen	NPAAssn	600	538	62	551	267	6,545
Children's Hospital*.....	Chil	NPAAssn	..	40	8	66	2	538
Elizabeth Steel Marge Hospital*.....	Gen	NPAAssn	196	196	..	..	104	2,023
Eye and Ear Hospital*.....	ENT	NPAAssn	304	288	132	2,432	188	7,300
Haddon Maternity Hosp. Mat Homoeopathic Medical and Surgical Hospital and Dispensary*.....	Gen	NPAAssn	101	95	6	..	49	3,818
Leech Farm Sanatorium.....	TB	City	..	20	15	173	12	469
Mersey Hospital*.....	Gen	Church	312	225	45	628	133	4,872
Montefiore Hospital*.....	Gen	NPAAssn	295	295	..	..	259	389
Municipal Hospital for Contagious Diseases.....	Iso	City	..	622	48	577	530	11,466
Passavant Hospital*.....	Gen	NPAAssn	206	206	32	671	175	6,083
Pittsburgh Hospital*.....	Gen	NPAAssn	200	168	24	585	158	4,128
Presbyterian Hospital*.....	Gen	NPAAssn	200	168	5	45	97	2,567
St. John's Gen. Hosp.*.....	Gen	NPAAssn	170	154	16	243	114	412
St. Joseph's Hospital and Dispensary*.....	Gen	Church	..	550	37	674	466	8,318
St. Margaret Memorial Hospital*.....	Gen	Church	202	180	22	522	109	3,523
South Side Hospital*.....	Gen	Church	128	128	12	289	76	2,273
Tuberculosis League Hosp. TB	Gen	NPAAssn	150	129	21	222	72	2,404
U. S. Marine Hospital.....	USPHS	NPAAssn	207	207	18	394	138	4,783
Western Pennsylvania Hospital*.....	Gen	NPAAssn	150	150	..	..	144	175
Pittston, 18,246—Luzerne Pittston Hospital*.....	Gen	NPAAssn	..	73	..	..	60	756
Pottstown, 19,430—Montgomery Homoeopathic Hospital*.....	Gen	NPAAssn	600	600	61	1,169	354	10,690
Pottstown Hospital*.....	Gen	NPAAssn	120	102	18	288	75	3,492
Pottstown Hospital*.....	Gen	NPAAssn	60	50	10	111	20	791
Pottstown Hospital*.....	Gen	NPAAssn	75	64	11	195	42	1,515

## PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Pottsville, 24,300—Schuylkill Lenox B. Warne Hospital.....	Gen	Indiv	75	78	12	101	31	1,161
A. C. Milliken Hospital.....	Gen	NPAAssn	56	40	10	152	32	1,160
Pottsville Hospital*.....	Gen	NPAAssn	140	128	12	318	106	3,100
Punxsutawney, 9,266—Jefferson Adrian Hospital.....	Gen	NPAAssn	73	73	11	215	58	1,939
Quakertown, 4,883—Bucks Quakertown Hospital.....	Gen	NPAAssn	56	44	12	133	25	865
Ransom, 150—Lackawanna Ransom Home and Mental Hospital.....	Ment	County	400	374	..	..	374	37
Reading, 111,171—Berks Berks County Tuberculo-..	TB	County	110	134	..	..	133	140
St. Joseph's Hospital*.....	Gen	NPAAssn	96	96	19	325	74	2,386
Renovo, 3,047—Clinton Renovo Hospital.....	Gen	NPAAssn	253	222	31	722	192	6,133
Retreat, 2,000—Luzerne Retreat Mental Hospital.....	Ment	County	205	180	25	517	136	4,225
Ridgway, 6,313—Elk Elk County Gen. Hosp. Gen.	Gen	NPAAssn	30	26	4	93	10	542
Ridley Park, 3,356—Delaware Taylor Hospital.....	Gen	NPAAssn	60	62	9	134	32	1,206
Roaring Spring, 2,724—Blair Nason Hospital.....	Gen	NPAAssn	125	64	15	186	39	1,218
Rochester, 7,726—Deaver Rochester General Hosp. Gen.	Gen	NPAAssn	..	48	12	148	31	1,370
St. Marys, 7,433—Elk Andrew Kaul Mem. Hosp. Gen.	Church	NPAAssn	..	91	8	No data supplied	..	..
Sayre, 7,902—Bradford Robert Packer Hosp.*.....	Gen	NPAAssn	55	45	12	134	20	808
Schuylkill Haven, 6,514—Schuylkill Schuylkill County Hosp. for Mental Diseases.....	Ment	County	325	304	21	431	210	6,589
Seranton, 143,433—Lackawanna Hahnemann Hospital*.....	Gen	NPAAssn	500	511	..	..	542	134
Lackawanna County Tuberculosis Hospital.....	TB	County	109	109	16	418	97	3,041
Mersey Moses ..	Ch	Church	150	150	..	..	145	105
St. J. and Maternity Hosp.*.....	MatCh	Church	104	84	20	406	66	1,036
St. Mary's Mater Misericordiae Hospital*.....	Gen	NPAAssn	125	125	..	..	79	2,030
Seranton Private Hosp.*.....	Gen	Corp	..	185	24	28	92	210
Seranton State Hosp.*.....	Gen	State	80	68	12	237	46	1,297
West Side Hospital*.....	Gen	NPAAssn	42	35	6	11	12	998
Sellersville, 2,003—Bucks Grand View Hospital*.....	Gen	NPAAssn	188	180	8	340	189	4,340
Sharon, 25,908—Mercer Christian H. Bull Hosp.*.....	Gen	NPAAssn	65	65	8	151	33	871
Shenandoah, 21,782—Schuylkill Loenst Mountain State Hospital.....	Gen	State	109	113	27	347	76	2,181
Somerset, 4,395—Somerset Somerset Community ..	Gen	NPAAssn	85	85	8	128	79	2,769
Spangler, 2,701—Cambria Miners' Hospital of North-ern Cambria ..	Gen	NPAAssn	124	107	17	334	66	2,566
State, —Cambria Pennsylvania State Sanatorium for Tuberculosis No. 2 ..	TB	State	73	73	10	242	68	2,148
Sunbury, 15,620—Northumberland Mary M. Packer Hospital Gen	Gen	NPAAssn	..	30	6	No data supplied	..	..
Spangler, 2,701—Cambria Miners' Hospital of North-ern Cambria ..	Gen	NPAAssn	1,035	1,035	..	..	1,017	1,325
State, —Cambria Pennsylvania State Sanatorium for Tuberculosis No. 2 ..	TB	State	75	65	10	86	55	1,472
Sunbury, 15,620—Northumberland Mary M. Packer Hospital Gen	Gen	NPAAssn	640	890	..	..	811	652
Uniontown, 14,852—Warren Warren General Hospital*.....	Gen	NPAAssn	70	61	9	160	47	1,744
Washington, 21,545—Washington Hillsview Farms Sanit. Gen	Gen	NPAAssn	48	41	7	139	35	1,412
Waymart, 902—Wayne Farview State Hospital.....	Ment	State	50	50	..	..	29	212
Waynesboro, 10,167—Franklin Wayneboro Hospital.....	Gen	NPAAssn	166	138	28	259	91	3,152
Waynesburg, 4,915—Greene Greene County Memorial Hospital ..	Gen	NPAAssn	708	835	..	..	816	89
Wernersville, 1,696—Berks Wernersville State Hosp. Ment	Ment	State	34	34	6	39	21	830
Wernersville State Hosp. Ment	Ment	State	1,466	1,466	..	..	1,443	341

Key to symbols and abbreviations is on page 1060



## WEST VIRGINIA—Continued

Continued								
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Wheeling, 61,650—Ohio								
Ohio Valley Gen. Hosp.*	Gen	NPAssn	276	254	22	494	174	5,259
Wheeling Hospital*	Gen	Church	300	300	30	472	125	3,253
Williamson, 9,410—Mingo								
Williamson Mem. Hosp.	Gen	Corp	58	54	4	36	50	2,213
Related Institutions								
Berkeley Springs, 1,039—Morgan								
"The Pines" West Virginia Foundation for Crippled Children	Orth	NPAssn	20	20	..	..	17	29
C								
TbChil	NPAssn		40	40	..	..	33	26
E								
Huntington State Hosp.	Ment	State	920	920	..	..	860	451
Milton, 1,305—Cabell								
Morris Memorial Hospital for Crippled Children	Conv	NPAssn	..	35	..	..	29	150
Monkdsville, 14,411—Marshall								
Grandview Sanatorium	TB	County	..	80	..	..	21	46
West Virginia Penitentiary Hospital	Inst	State	60	74	..	..	50	532
St. Marys, 2,182—Pleasants								
West Virginia Training School	McDe	State	80	85	..	..	81	7
Spencer, 2,493—Roane								
Gen	Indiv		24	20	2	18	9	408
Ment	State		800	906	..	..	838	338
Ment	State		1,278	1,502	..	..	1,383	407
Wheeling, 61,650—Ohio								
Florence Crittenton Home	Mat	NPAssn	..	48	2	24	..	24
Ohio County Tuberculosis Sanatorium	TB	County	40	40	..	..	..	33
Summary for West Virginia:								
	Number	Beds	Average Patients	Admitted				
Hospitals and sanatoriums	65	5,019	3,610	111,116				
Related institutions	12	3,780	3,542	2,459				
Totals	77	9,899	7,152	113,575				
Revised registration	2	42						
. WISCONSIN								
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Gen	NPAssn		10	10	4	18	4	182
Gen	Indiv		15	15	5	21	6	189
ria Hospital	Gen	Church	..	48	10	135	39	1,414
Appleton, 25,267—Outagamie								
St. Elizabeth Hospital*	Gen	Church	200	150	30	572	95	6,300
Ashland, 10,622—Ashland								
Ashland General Hosp.	Gen	NPAssn	..	67	8	134	42	1,176
St. Joseph's Hospital	Gen	Church	150	135	15	187	62	2,001
Barnes, 5,545—Sauk								
St. Mary's Ringling Hosp.	Gen	Church	35	35	10	140	13	872
Beaver Dam, 9,867—Dodge								
Lutheran Deaconess Hosp.	Gen	Church	28	28	10	151	21	983
Beloit, 23,617—Rock								
Beloit Municipal Hospital	Gen	City	100	80	15	293	38	2,177
Berlin, 4,106—Green Lake								
Yates Memorial Hospital	Gen	NPAssn	14	14	3	39	..	233
Black River Falls, 1,550—Jackson								
Krohn Clinic and Hospital	Gen	Part	21	21	6	161	20	665
Boscobel, 1,762—Grant								
Brookside-Parker Hosp.	Gen	Part	..	22	4	No data	supplied	
Burlington, 4,114—Raine								
Memorial Hospital	Gen	NPAssn	25	27	10	126	11	589
Chippewa Falls, 9,339—Chippewa								
St. Joseph's Hospital	Gen	Church	165	145	15	222	82	2,103
Columbus, 2,514—Columbia								
St. Mary's Hospital	Gen	Church	..	40	6	101	28	734
Cumberland, 1,532—Barron								
Cumberland Hospital	Gen	Part	26	26	6	55	11	351
Darlington, 1,764—Lafayette								
Dr. Quinn and McConnell Hospital	Gen	Part	10	10	3	25	4	146
Delavan, 3,301—Walworth								
Delavan Sanitarium	N&M	Part	..	11	..	..	11	3
Dodgeville, 1,937—Iowa								
Dodgeville General Hosp.	Gen	NPAssn	..	22	5	98	12	846
St. Joseph's Hospital	Gen	Church	35	45	15	109	34	1,278
Eau Claire, 26,267—Eau Claire								
Luther Hospital	Gen	NPAssn	155	135	20	336	61	2,736
Mt. Washington Sanat.	TB	County	58	58	..	..	60	68
Sacred Heart Hospital	Gen	Church	..	150	25	356	85	3,084
Edgerton, 2,906—Rock								
Edgerton Memorial Hosp.	Gen	NPAssn	15	16	6	72	9	468
Eikhorn, 2,340—Walworth								
Walworth County Hosp.	Gen	County	50	40	11	236	31	1,237
Fond du Lac, 26,449—Fond du Lac								
St. Agnes Hospital	Gen	Church	220	220	30	560	182	5,073
Ft. Atkinson, 5,793—Jefferson								
Ft. Atkinson Gen. Hosp.	Gen	Indiv	15	15	3	..	5	..
Frederic, 680—Polk								
Frederic Hospital	Gen	Indiv	12	12	4	49	9	462

## PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions	
West Chester, 12,325—Chester	Gen	NPAssn	157	137	22	339	77	2,838	
Chester County Hosp.*	Gen	NPAssn	67	67	10	182	40	1,230	
Homeopathic Hospital of Chester County	Gen	NPAssn	67	67	10	182	40	1,230	
West Grove, 1,375—Chester	Gen	Indiv	..	20	12	No data supplied	..	..	
White Haven, 1,537—Luzerne	Gen	NPAssn	250	250	..	..	236	304	
White Haven Sanat.*	TB	NPAssn	250	250	..	..	236	304	
Wilkes-Barre, 80,626—Luzerne	Gen	Church	..	196	26	339	120	4,203	
Mercy Hospital*	Gen	Church	..	196	26	339	120	4,203	
Wilkes-Barre General Hos- pital*	Gen	NPAssn	415	364	41	770	242	8,537	
Wyoming Valley Homeo- pathic Hospital*	Gen	NPAssn	80	80	20	235	56	2,010	
Wilkesburg, 29,539—Allegheny	Gen	Church	186	187	26	492	85	3,396	
Columbia Hospital*	Gen	Church	186	187	26	492	85	3,396	
Williamsport, 45,729—Lycoming	osp. Gen	Indiv	..	23	6	60	5	320	
osp. Gen	NPAssn	231	231	44	591	126	4,657	..	
Woodville, 4,000—Allegheny	Gen	NPAssn	117	107	10	240	81	2,633	
Allegheny County Home and Hosp. for the Insane	Ment	County	3,500	3,460	..	..	3,163	1,409	
York, 55,254—York	Gen	Indiv	52	50	10	38	21	782	
West Side Sanitarium	Gen	NPAssn	..	184	25	638	148	4,651	
York Hospital*	Gen	NPAssn	..	184	25	638	148	4,651	
Related Institutions									
Bellevue, 10,252—Allegheny	Salvation Army Woman's Home and Hospital	Mat	Church	10	10	13	52	3	73
Broomall, 1,200—Delaware	Convalescent Hospital	Conv	Frat	..	30	..	20	305	..
Bryn Mawr, 3,056—Montgomery	Bryn Mawr College Infr- mary	Inst	NPAssn	..	16	..	3	238	..
Chester, 50,164—Delaware	Mercy Hospital	Gen	Indiv	..	25	6	35	20	512
Clifton Heights, 5,057—Delaware	Erie Sanitarium	N&M	Indiv	14	6	..	5	4	..
Darby, 9,899—Delaware	St. Francis' Country House for Convalescents and St. Francis Hall for In- curables	Conv	Church	..	60	4	..	56	300
Devon, 136—Chester	Alecyd Hospital	N&M	Part	..	25	..	..	19	..
Ebensburg, 3,663—Cambria	Cambria County Hospital	Inst	County	120	117	..	83	151	..
Elwyn, 200—Delaware	Elwyn Training School	McDe	NPAssn	1,045	1,015	..	950	50	..
Embsville, 500—Chester	Chester County Hospital for Insane	Ment	County	..	325	..	315	60	..
Erie, 115,967—Erie	Lakeview Hospital	Iso	City	84	74	..	15	205	..
Gibsonia, 250—Allegheny	St. Barnabas Free Home	Inc	Church	100	100	..	100	55	..
Girard, 1,554—Erie	Erie County Home, Tu- berculosis Annex	TB	County	..	32	..	No data supplied	..	..
Harmarville, 786—Allegheny	Harmarville Convalescent Home	Conv	NPAssn	45	45	30	..	40	322
Huntingdon, 7,558—Huntingdon	Pennsylvania Industrial School	Inst	State	36	36	..	8	163	..
Johnstown, 66,993—Cambria	Municipal Hospital	Iso	City	65	65	10	..	120	..
Lancaster, 59,949—Lancaster	Lancaster County Home and Hosp. for Insane	Ment	County	..	403	..	..	..	..
..	Orth	Iodiv	35	39	..	..	18	18	..
..	McDe	State	665	704	..	..	677	60	..
Media, 5,372—Delaware	Brookwood Farm	N&M	Indiv	..	30	..	10	..	..
Mercer, 2,125—Mercer	Mercer County Home and Hospital	Ment	County	250	345	..	335	101	..
Middletown, 6,085—Dauphin	Odd Fellows' Home	Inst	Frat	35	35	..	35	65	..
Moot Clare, 900—Montgomery	River Crest Preceptorium	TB	NPAssn	..	100	..	80	290	..
Morganza, 1,500—Washington	Pennsylvania Training School	Inst	State	23	23	..	8	497	..
Muncy, 2,413—Lycoming	Muncy Valley Private Hosp.	Gen	NPAssn	20	20	7	21	6	203
Newtown Square, 168—Delaware	Dunwoody Home	Conv	NPAssn	45	45	..	40	497	..
New Wilmington, 907—Lawrence	Overlook Sanitarium	Conv	Part	30	30	..	18	173	..
North East, 3,670—Erie	St. Barnabas' House by the Lake	Inc	Church	..	30	..	30	21	..
Oakbourne (West Chester P. O.)—Chester	James C. Smith Memorial Home	Conv	Church	23	23	..	18	292	..
Pennsylvania Epileptic Hos- pital and Colony Farm	Epil	NPAssn	118	118	..	105	12	..	..
Oliphant, 10,743—Lackawanna	Blackely Home	Meot	County	140	144	..	123	8	..

## PENNSYLVANIA—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basinets	Number of Births	Average Census	Admissions
Pennhurst (Spring City P. O.),—Chester		State	1,746	1,800	..	..	1,765	104
Pennhurst State School, McDe								
Philadelphia, 1,930,961—Philadelphia								
Babies' Hospital .....	Chil	NPAasn	..	15	..	..	9	418
Belmont Hospital, Salva- tion Army Home and Hospital .....	Mat	Church	10	10	10	126	6	184
Chester Avenue Private Hospital .....	Gen	Indiv	22	9	0	129	5	233
Eastern State Penitentiary Hospital .....	Inst	State	80	80	..	..	50	1,209
Florence Crittenton Home Home of the Merciful Saviour for Crippled Children .....	Mat	NPAasn	15	15	15	39	12	37
Homewood School .....	Inst	NPAasn	150	140	12	..	140	65
Kenwood Sanitarium.....	Conv	Corp	40	40	..	..	25	200
Logan Private Nursing Home .....	Conv	Indiv	..	15	..	..	12	26
Philadelphia County Prison Hospital (Holmesburg). Inst		CyCo	58	58	..	..	30	385
Philadelphia County Prison Hosp. (Reed St. Prison) Inst		County	40	40	..	..	20	763
Philadelphia Home for Incurables .....	Inc	NPAasn	207	207	..	..	207	34
Sharon Hall .....	Conv	Corp	..	33	..	..	..	103
Widener Memorial Indus- trial Training School for Crippled Children..	Orth	NPAasn	100	100	..	..	75	8
Pittsburgh, 699,517—Allegheny Fairview Sanitarium.....	Ment	Corp	..	12	..	..	7	5
Industrial Home for Crip- pled Children.....	Orth	NPAasn	80	80	..	..	75	100
Jewish Home for the Aged Inst		NPAasn	..	55	..	..	55	56
Western Penitentiary Hospital .....	Inst	State	..	27	..	No data supplied		
Polk, 3,337—Venango Polk State School+.....	McDe	State	3,000	3,000	..	..	2,936	166
Pottstown, 19,430—Montgomery Hill School Infirmary....	Inst	NPAasn	20	20	..	..	8	434
Retreat, 2,606—Luzerne Retreat Home and Hosp. for Chronic Diseases...	Inst	County	600	700	..	..	580	203
Rochester, 7,726—Beaver Passavant Men. Homes for the Care of Epi- leptics .....	Epil	Church	..	150	..	..	105	30
Schuylkill Haven, 6,514—Schuylkill Schuylkill County Alms- house Hospital.....	Inst	County	..	165	..	No data supplied		
Seranton, 143,433—Lackawanna Municipal Hospital for Epileptics .....	Epil	State	461	464	..	..	431	67
Somerset, 4,395—Somerset Somerset County Home for Epileptics .....	Ment	County	500	544	..	..	417	64
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## RHODE ISLAND

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassineks	Number of Births	Average Census	Admissions
Central Falls, 25,898—Providence								
Notre Dame Hospital...	Gen	NPAssn	50	50	7	75	29	1,157
East Greenwich, 3,656—Kent								
Crawford Allen Memorial Hospital .....	Unt of Rhode Island Hospital, Providence							
East Providence, 23,895—Providence								
Emmott Pendleton Bradley Home .....	NervCh	NPAssn	50	50	..	..	46	73
Hillsgrove, 1,000—Kent								
St. Joseph's Sanatorium	TB	Church	63	63	..	..	42	25
Howard, 5,000—Providence								
State Hospital for Mental Diseases+0 .....	Ment	State	1,550	2,373	..	..	2,402	481
State Infirmary .....	Gen	State	..	1,026	64	42	662	1,003

Key to symbols and abbreviations is on page 1060

## WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
Friendship, 438—Adams	Gen	Part	10	10	2	7	6	160
Friendship Hospital.....	Gen	Part	10	10	2	7	6	160
Grantsburg, 777—Burnett	Gen	Corp	19	19	4	37	10	558
Community Hospital.....	Gen	Corp	19	19	4	37	10	558
Green Bay, 37,415—Brown	Gen	Church	100	89	10	203	52	2,149
Bellin Memorial Hospital.....	Gen	Church	100	100	24	410	56	2,815
St. Mary's Hospital.....	Gen	Church	200	203	25	449	175	6,233
St. Vincent's Hospital.....	Gen	Church	200	203	25	449	175	6,233
Hartford, 3,754—Washington	Gen	Church	..	50	9	65	12	606
St. Joseph's Hospital.....	Gen	Church	..	50	9	65	12	606
Hawthorne, 75—Douglas	TB	County	141	141	..	..	134	81
Middle River Sanatorium	TB	County	141	141	..	..	134	81
Hayward, 1,207—Sawyer	Gen	IA	45	51	6	117	40	890
Hayward Indian Hospital	Gen	IA	45	51	6	117	40	890
Hillsboro, 972—Vernon	Gen	Indiv	..	25	5	No data supplied	..	..
Hansberry Hospital.....	Gen	Indiv	..	25	5	No data supplied	..	..
Iola, 763—Waupaca	Gen	Corp	18	18	5	21	8	180
Iola Hospital.....	Gen	Corp	18	18	5	21	8	180
Janesville, 21,628—Rock	Gen	Church	120	120	30	389	65	1,020
Mercy Hospital.....	Gen	Church	120	120	30	389	65	1,020
Pinchurst Sanatorium.....	TB	County	68	68	..	..	62	96
Jefferson, 2,639—Jefferson	TB	County	52	52	..	..	50	63
Forest Lawn Sanatorium.....	TB	County	52	52	..	..	50	63
Kaukauna, 7,581—Outagamie	TB	County	65	65	..	..	56	62
Riverview Sanatorium.....	TB	County	65	65	..	..	56	62
Kenosha, 50,262—Kenosha	Gen	NPAasn	150	150	30	258	54	1,747
Kenosha Hospital.....	Gen	NPAasn	150	150	30	258	54	1,747
St. Catharine's Hospital and Sanatorium.....	Gen	Church	50	50	18	323	45	1,785
Willowbrook Sanatorium.....	TB	County	..	38	..	..	..	37
Keshena, 500—Shavano	Gen	Church	..	65	6	96	34	934
St. Joseph's Indian Hosp. Gen	Gen	Church	..	65	6	96	34	934
La Crosse, 39,614—La Crosse	Gen	NPAasn	106	106	10	98	44	941
Grandview Hospital.....	Gen	NPAasn	..	40	12	138	27	1,488
La Crosse Hospital.....	Gen	NPAasn	..	40	12	138	27	1,488
La Crosse Lutheran Hospital.....	Gen	Church	140	120	9	152	73	2,553
St. Francis Hospital.....	Gen	Church	315	270	40	514	194	4,750
Ladysmith, 3,493—Rusk	Gen	Church	35	35	8	137	22	877
St. Mary's Hospital.....	Gen	Church	35	35	8	137	22	877
Lancaster, 2,432—Grant	Gen	Indiv	12	12	6	16	3	50
Godfrey Hospital.....	Gen	Indiv	12	12	6	16	3	50
Laona, 1,500—Forest	Gen	Indiv	16	18	4	34	7	285
Orvis Hospital.....	Gen	Indiv	16	18	4	34	7	285
Madison, 57,899—Dane	TB	County	124	140	..	..	136	121
Lake View Sanatorium.....	TB	County	124	140	..	..	136	121
Madison General Hosp.*	Gen	NPAasn	182	140	25	444	110	4,670
Methodist Hospital.....	Gen	Church	120	110	10	104	50	2,278
Morningside Sanatorium.....	TB	NPAasn	..	50	..	..	48	43
Normanville.....	N&M	Corp	40	35	..	..	11	..
St. Mary's Hospital.....	Gen	Church	200	150	30	894	107	4,282
State of Wisconsin General Hospital.....	Gen	State	..	650	22	170	641	11,253
Wisconsin Orthopedic Hospital for Children.....	Unit of State of Wisconsin General Hospital	Unit of State of Wisconsin General Hospital	..	..	..	..	..	..
Wisconsin Psychiatric Institute.....	Unit of State of Wisconsin General Hospital	Unit of State of Wisconsin General Hospital	..	..	..	..	..	..
Manitowoc, 22,963—Manitowoc	Gen	Church	125	125	20	270	68	2,159
Holy Family Hospital.....	Gen	Church	125	125	20	270	68	2,159
Marquette, 13,734—Marquette	Gen	Corp	55	50	12	215	35	1,429
Marquette and Menominee Hospital.....	Gen	Corp	55	50	12	215	35	1,429
Marshfield, 8,778—Wood	Gen	Church	165	157	18	305	83	3,533
St. Joseph's Hospital.....	Gen	Church	165	157	18	305	83	3,533
Mauston, 2,107—Juneau	Gen	Corp	40	35	7	72	18	650
Mauston Hospital.....	Gen	Corp	40	35	7	72	18	650
Medford, 1,918—Taylor	Gen	Corp	35	35	8	66	24	942
Medford Clinic.....	Gen	Corp	35	35	8	66	24	942
Mendota, 400—Dane	State	State	871	871	..	..	876	1,125
Mendota State Hospital.....	State	State	871	871	..	..	876	1,125
Wisconsin Memorial Hosp. Ment	State	State	..	300	..	..	88	14
Menomonie, 5,595—Dunn	Gen	City	25	25	7	55	19	604
Menomonie City Hospital.....	Gen	City	25	25	7	55	19	604
Merrill, 8,453—Lincoln	Gen	Church	50	50	11	118	24	907
Holy Cross Hospital.....	Gen	Church	50	50	11	118	24	907
Lincoln County Hospital.....	Gen	County	30	30	4	43	27	330
Milwaukee, 578,249—Milwaukee	Gen	NPAasn	160	125	25	279	62	2,826
Columbia Hospital.....	Gen	NPAasn	160	125	25	279	62	2,826
Evangelical Deaconess Hospital.....	Gen	Church	150	135	27	649	87	3,950
Johnston Emerg. Hosp.....	Emerg	City	..	27	4	5	..	..
Milwaukee Children's Hospital.....	Chil	NPAasn	..	205	..	..	134	3,277
Milwaukee County General Hospital.....	Gen	NPAasn	..	205	..	..	134	3,277
Emergency Unit.....	Unit of Milwaukee Co. Gen. Hosp., Wauwatosa	Unit of Milwaukee Co. Gen. Hosp., Wauwatosa	..	..	..	..	..	..
Milwaukee General Hosp.	Gen	NPAasn	200	125	31	43	50	2,281
Milwaukee Hospital, "The Passavant".....	Gen	Church	251	215	36	835	107	6,845
Misericordia Hospital.....	Gen	Church	110	110	40	583	62	3,335
Mt. Sinai Hospital.....	Gen	NPAasn	172	144	28	757	131	5,051
Sacred Heart Sanit.....	Gen	Church	..	300	..	..	160	1,991
St. Anthony Hospital.....	Gen	Church	52	40	12	243	27	1,299
St. Joseph's Hospital.....	Gen	Church	325	325	70	1,060	145	6,442
St. Luke's Hospital.....	Gen	Church	100	100	20	427	58	2,792
St. Mary's Hill.....	N&M	Church	..	110	..	..	69	474
St. Mary's Hospital.....	Gen	Church	217	187	30	475	125	4,418
Shorewood Hosp.-Sanit.....	N&M	Corp	50	50	..	..	31	271
South View Hospital.....	Iso	City	250	250	..	..	164	2,085
Stark Hospital.....	Unit of Milwaukee Children's Hospital	Unit of Milwaukee Children's Hospital	..	..	..	..	..	..
Veterans Admin. Facility.....	G&TB Vet	..	1,304	1,304	..	..	868	4,244
West Side Hospital.....	Gen	Corp	25	20	5	23	5	243

## WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathrooms	Number of Births	Average Census	Admissions
Monroe, 5,015—Green Evangelical Deaconess Hospital .....	Gen	Church	40	35	12	107	28	664
Mt. Horeb, 1,425—Dane Buckner Hospital .....	Gen	Indiv	12	12	6	17	3	390
Neenah, 9,151—Winnebago Theda Clark Mem. Hosp. ....	Gen	NPAasn	55	55	17	297	32	1,109
New London, 4,661—Waupaca Community Hospital.....	Gen	Church	50	34	8	113	21	674
Memorial Hospital.....	Gen	Indiv	18	15	7	16	4	194
Oconomowoc, 4,190—Waukesha Rogers Memorial Sanit... N&M	N&M	NPAasn	..	65	..	..	35	96
Summit Hospital .....	Gen	Corp	35	35	6	42	25	436
Oconto Falls, 1,921—Oconto Oconto Falls Hospital....	Gen	NPAasn	10	11	5	34	7	299
Onalaska, 1,403—La Crosse Oak Forest Sanatorium..	TB	County	60	65	..	..	..	56
Oscola, 607—Polk Ladd Memorial Hospital. Gen	Gen	Indiv	8	10	2	20	4	176
Oshkosh, 40,108—Winnebago Mercy Hospital*o .....	Gen	Church	130	130	20	318	80	2,933
Park Falls, 3,036—Price Park Falls Hospital.....	Gen	Indiv	25	25	4	41	12	597
Pewaukee, 1,067—Waukesha Onk Sanatorium .....	TB	County	42	42	..	..	..	51
Platteville, 4,047—Grant Andrew Hospital .....	Gen	Indiv	20	16	4	21	5	186
Wilson Cunningham Hosp. Gen	Gen	Corp	..	25	5	No data supplied	..	..
Plymouth, 3,882—Sheboygan Plymouth Hospital .....	Gen	Church	36	25	7	77	16	483
Rocky Knoll Sanatorium. TB	TB	County	00	00	..	..	91	66
Portage, 6,308—Columbia St. Saviour's General Hosp. Gen	Gen	Church	65	65	13	140	27	1,045
Poynette, 672—Columbia Poynette Hospital .....	Gen	Indiv	..	11	2	No data supplied	..	..
Prairie du Chien, 3,043—Crawford Prairie du Chien Sanatorium-Hospital .....	Gen	Corp	60	60	6	91	20	1,231
Prescott, 753—Pierce St. Croix Falls Sanat..... G-N&M	G-N&M	Indiv	50	46	4	7	35	154
Pureair (Bayfield P. O.),—Bayfield Pureair Sanatorium .....	TB	County	70	70	..	..	67	60
Racine, 67,542—Racine St. Luke's Hospital*o.....	Gen	Church	120	120	38	511	47	2,421
St. Mary's Hospital*.....	Gen	Church	250	162	33	534	77	3,883
Sunny Rest Sanatorium..	TB	County	53	53	..	..	40	45
Reedsburg, 2,967—Sauk Reedsburg Municipal Hos- pital .....	Gen	City	31	31	8	71	16	581
Rhinelander, 8,010—Oneida St. Mary's Hospital.....	Gen	Church	75	75	10	126	30	1,250
Rice Lake, 5,177—Barron Lakeside Methodist Hosp. Gen	Gen	Church	50	50	0	..	..	..
St. Joseph's Hospital.....	Gen	Church	40	40	6	45	17	1,001
Richland Center, 3,632—Richland Richland Hospital .....	Gen	NPAasn	..	50	8	63	27	1,408
Ripon, 3,084—Fond du Lac Ripon Municipal Hospital Gen	Gen	City	..	19	6	..	..	Estab. 1936
St. Croix Falls, 952—Polk St. Croix Falls Hosp.....	Gen	Indiv	25	25	8	30	10	386
Shawano, 4,188—Shawano Shawano Municipal Hosp. Gen	Gen	CoCo	35	33	8	125	28	1,171
Shullsburg, 1,041—Lafayette Dr. Ennis' Hospital.....	Gen	Indiv	10	8	2	7	4	135
South Milwaukee, 10,700—Milwaukee South Milwaukee Hospital Gen	Gen	Indiv	13	13	5	72	3	314
Spartan, 4,949—Monroe St. Mary's Hospital.....	Gen	Church	70	70	12	145	40	1,177
Stanley, 1,988—Chippewa Victory Hospital .....	Gen	NPAasn	16	16	4	56	9	661
Statesan, 121—Waukesha Wisconsin State Sanat.*. TB	TB	State	240	210	..	..	192	94
Stevens Point, 13,623—Portage River Pines Sanatorium..	TB	NPAasn	52	60	..	..	58	54
St. Michael's Hospital....	Gen	Church	110	75	15	148	44	1,378
Stoughton, 4,407—Dane Stoughton Community Hospital .....	Gen	Corp	20	20	0	102	14	463
Sturgeon Bay, 4,983—Door Eggland Hospital .....	Gen	Indiv	25	25	5	71	11	619
Leasum Hospital .....	Gen	Indiv	15	15	..	..	7	332
Superior, 36,113—Douglas Good Samaritan Hosp....	Gen	Church	..	12	8	93	7	200
St. Francis Hospital.....	Gen	Church	..	50	12	163	35	632
St. Mary's Hospital*o.....	Gen	Church	125	115	17	220	60	2,070
Tonah, 3,354—Monroe Tomah Indian Hospital..	Gen	IA	42	42	5	33	30	400
Tomahawk, 2,919—Lincoln Sacred Heart Hospital....	Gen	Church	..	42	0	31	10	468
Two Rivers, 10,083—Manitowoc Two Rivers Municipal Hospital .....	Gen	City	50	37	10	127	25	976
Washburn, 2,238—Bayfield Washburn Hospital .....	Gen	NPAasn	18	14	6	19	6	103
Watertown, 10,613—Jefferson St. Mary's Hospital.....	Gen	Church	75	75	10	193	26	1,220
Waukesha, 17,716—Waukesha The Spa .....	IntMed	Corp	..	80	..	..	25	1,400
Waukesha Municipal Hosp. Gen	Gen	City	96	72	24	367	60	1,567
Waukesha Springs Sanit.. N&M	N&M	Corp	60	..	..	No data supplied	..	..

## SOUTH - CAROLINA—Continued.

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Dr. Jervey's Private Hosp., ENT	Gen	Indiv	15	15	..	..	3	217
St. Francis Hospital.....	Gen	Church	100	100	15	305	61	2,580
Shriners Hospital for Crip- pled Children.....	Orth	Frat	60	60	..	..	61	332
Working Benevolent Hos- pital (col.).....	Gen	Frat	25	22	1	20	13	226
Greenwood, 11,020—Greenwood								
Brewer Hospital (col.).....	Gen	CyCo	25	25	3	16	12	567
Greenwood Hospital.....	Gen	NPAasn	50	53	8	85	35	1,435
Kingstree, 2,392—Williamsburg								
Kelley Sanatorium.....	Gen	Indiv	..	25	6	45	15	501
Lancaster, 3,543—Lancaster								
Lancaster Hospital.....	Gen	Indiv	25	25	4	15	20	470
Moueks Corner, 623—Berkeley								
Berkeley County Hospital G & TB		NPAasn	52	52	6	20	25	519
Moultrieville, 515—Charleston								
Station Hospital.....	Gen	Army	50	80	4	19	60	881
Mullins, 3,158—Marion								
Mullins Hospital.....	Gen	NPAasn	35	37	7	72	31	1,446
Navy Yard, 1,025—Charleston								
Pinchaven Sanatorium....	TB	County	..	60	..	..	60	83
Newberry, 7,298—Newberry								
Newberry County Hosp., 9	Gen	NPAasn	25	25	5	46	14	690
Orangeburg, 8,276—Orangeburg								

Tri-County Hospital  
Parris Island, 250—Reynolds

U. S. Naval Hospital.....	Gen	Navy	155	151	4	17	34	492
Ridgewood (Columbia P.O.).....	600—Riehlend							
Ridgewood Tuberculosis Camp .....	TB	NPAssn	74	70	..	..	43	64
Rock Hill, 11,322—York								
St. Philip's Mercy Hosp., Gen	Church		60	60	3	90	45	1,794
Six Mile, 150—Pickens								
Dr. Peck's Hospital.....	Gen	Indiv	32	32	..	25	20	516
Spartanburg, 23,723—Spartanburg								
Mary Black Mein. Hosp., Gen	NPAssn		50	40	4	40	30	1,687
Spartanburg Gen. Hosp., Gen	County		240	304	16	375	184	5,111
State Park,—Riehlend								
Palmetto Sanat. (col.)... Unit	of South Carolina Sanatorium							
South Carolina Sanat....	TB	State	..	276	..	No data supplied		
Sumter, 11,780—Sumter								
Tuomey Hospital.....	Gen	NPAssn	92	92	8	122	62	1,795
Waterboro, 2,592—Colleton								
Charles Es'Dorn Hospital Gen	Indiv		..	35	4	58	18	1,374

## SOUTH DAKOTA

Related Institutions									
Charleston, 62,265—Charleston	City	..	21	..	..	5	435		
Charleston Orphan House Inst	City	..	..	..	..	..	..		
Clinton, 5,643—Laurens	..	..	..	..	..	..	..		
Lesh Infirmary of Thorn-	Church	..	40	..	..	No data supplied			
well Orphanage..... Inst	State	709	700	..	..	524	53		
State Training School... MeDe	State	709	700	..	..	524	53		
Georgetown, 5,082—Georgetown	..	..	..	..	..	..	..		
Florence Williams Hos-	Indiv	15	15	2	2	..	53		
pital (col.)..... Geo	Indiv	15	15	2	2	..	53		
Greenville, 20,154—Greenville	NPAssn	42	42	..	..	4	250		
Webb Memorial Infirmary Inst	NPAssn	42	42	..	..	4	250		
Ridgeland, 715—Jasper	..	..	..	..	..	..	..		
Evelyn Rutter Hospital . Gen	Indiv	17	17	3	14	12	239		
Summerville, 2,579—Dorchester	..	..	..	..	..	..	..		
Arthur B. Lee Hospital	NPAssn	18	12	2	12	5	127		
(enl.)..... Gen	NPAssn	18	12	2	12	5	127		
Summerville Infirmary... Gen	NPAssn	3	10	5	20	5	215		
Sumter, 11,780—Sumter	..	..	..	..	..	..	..		
Camp Alice, Sumter County	CyCo	..	26	..	..	22	46		
Tuberculosis Sanitarium TB	CyCo	..	26	..	..	22	46		
Union, 7,419—Union	County	20	20	2	32	12	427		
Wallace Thomson Hosp.. Gen	County	20	20	2	32	12	427		
<b>Summary for South Carolina:</b>									
	Number	Beds	Average Patients	Patients Admitted					
Hospitals and sanatoriums...	47	7,670	6,937	64,288					
Related institutions.....	10	724	563	2,119					
Totals.....	57	8,404	6,945	66,407					
Refused registration.....	3	67							

SOUTH DAKOTA								
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassioets	Number of Births	Average Census	Admissions
Aberdeen, 16,465—Brown								
Aberdeen Good Samaritan Hospital .....	Gen	Church	35	25	6	55	12	462
St. Luke's Hospital.....	Gen	Church	125	125	25	283	60	2,886
Belle Fourche, 2,012—Butte								
John Burns Mem. Hosp.	Gen	NPAssn	30	25	10	58	9	402
B.....	Gen	NPAssn	11	10	..	25	..	112
B.....	Gen	City	50	40	12	95	13	657
Canova, 364—Miner								
Canova Hospital.....	Gen	Corp	13	13	4	21	5	187
.....	Gen	NPAssn	50	87	8	54	26	1,156
Cheyenne Agency, 121—Dewey								
Cheyenne River Indian Hospital .....	Geo	IA	34	34	6	67	31	717
Deadwood, 2,559—Lawrence								
St. Joseph's Hospital...	Gen	Church	50	52	6	156	39	1,679

## WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathsets	Number of Births	Average Census	Admissions
Waupun, 5,768—Fond du Lac Central State Hospital for Insane	Ment	Stato	204	300	..	..	295	62
Wausau Memorial Hosp.	TB	County	60	66	..	..	64	64
Wauwatosa, 21,194—Milwaukee Blue Mound Preventorium	Gen	Church	..	130	18	269	73	2,207
Milwaukee County General Hospital	NPAssn	05	95	15	282	56	2,002	
Milwaukee County General Hospital	Unit of Muirsdale Sanatorium	County	1,575	1,575	..	..	1,520	182
Milwaukee County General Hospital	Gen	County	..	1,050	75	1,189	670	17,040
Milwaukee County Hospital for Mental Diseases	Ment	County	1,015	1,032	..	..	999	517
Milwaukee Sanatorium	N&M	Corp	130	130	..	..	121	236
Muirsdale Sanatorium	TB	County	500	454	..	..	439	672
West Bend, 4,760—Washington St. Joseph's Hospital	Gen	Church	25	25	8	75	13	710
West De Pere, 4,300—Brown Hickory Grove Sanat.	TB	County	..	92	..	..	90	87
Whitehall, 915—Trempealeau Whitehall Community Hospital	Gen	NPAssn	40	26	4	40	12	509
Whitefish, 269—Manitowish Maple Crest Sanatorium	TB	County	50	50	..	..	47	57
Winnebago, 150—Winnebago Sunny View Sanatorium	TB	County	93	93	..	..	93	169
Winnebago State Hosp.	Ment	State	905	727	..	..	765	809
Wisconsin Rapids, 8,726—Wood Riverview Hospital	Gen	NPAssn	30	35	10	206	33	1,553
Related Institutions								
Appleton, 25,267—Outagamie Outagamie County Asylum for Chronic Insane	Ment	County	183	190	..	..	184	20
Barron, 1,863—Barron Barron City Hospital	Gen	Indiv	15	15	8	35	9	370
Chippewa Falls, 9,539—Chippewa Chippewa County Chronic Insane Asylum	Ment	County	167	276	..	..	207	30
Northern Wisconsin Colony and Training Sch.	McDe	State	1,273	1,539	..	..	1,540	200
Dodgeville, 1,937—Iowa Iowa County Insane Asylum	Ment	County	150	150	..	..	139	26
Dousman, 256—Waukesha Wisconsin Masonic Home and O. E. S. Hospital	Inst	Frat	20	20	..	..	..	23
Eau Claire, 26,237—Eau Claire Eau Claire County Insane Asylum	Ment	County	240	240	..	..	225	24
Elkhorn, 2,340—Walworth Walworth County Asylum for the Insane	Ment	County	..	160	..	..	151	19
Fond du Lac, 26,449—Fond du Lac Fond du Lac County Insane Asylum	Ment	County	268	268	..	..	265	18
Green Bay, 37,415—Brown Brown County Insane Asylum	Ment	County	265	265	..	..	266	65
Wisconsin State Reformatory Hospital	Inst	State	18	18	..	..	5	168
Itasca, 315—Douglas Douglas County Asylum, Home and Sanatorium	Meot	County	..	298	..	..	290	105
Parkland Sanatorium	Unit of	Douglas County Asylum						
Janesville, 21,628—Rock Rock County Hospital	Meot	County	330	330	..	..	315	79
Jefferson, 2,639—Jefferson Jefferson County Asylum for Chronic Insane	Meot	County	195	191	..	..	185	44
Juneau, 1,154—Dodge Dodge County Insane Asylum and Poor House	Ment	County	200	200	..	..	..	14
Kewaunee, 2,409—Kewaunee Dana and Dockery Hosp.	Gen	Part	10	10	2	7	2	80
Lake Geneva, 3,073—Walworth Crane Farms Sanatorium	Coov	Corp	16	16	..	..	7	92
Lake Tomahawk, 60—Oceola Lake Tomahawk State Camp	TB	State	42	42	..	..	41	54
Lancaster, 2,432—Grant Grant County Asylum	Meot	County	250	230	..	..	225	10
Madison, 57,899—Dane East Washington Arcene Hospital	Iso	City	..	50	..	..	36	573
Manitowish, 22,963—Manitowish Manitowish County Insane Asylum	Meot	County	200	200	..	..	200	18
Marshfield, 8,778—Wood Wood County Asylum for Chronic Insane	Meot	County	215	225	..	..	214	10
Menomonie, 5,595—Dunn Dunn County Asylum	Ment	County	146	160	..	..	157	16
Milwaukee, 578,249—Milwaukee Layton Home	Inc	Church	33	33	..	..	33	6
Marquette University Eye, Ear, Nose and Throat	ENT	NPAssn	45	45	..	..	12	960

## WISCONSIN—Continued

Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bathsets	Number of Births	Average Census	Admissions
Monroe, 5,015—Green Green County Asylum	Ment	County	206	206	..	..	188	52
Nellsville, 2,118—Clark Nellsville Hospital	Gen	Indiv	16	16	4	40	3	256
New Richmond, 2,112—St. Croix St. Croix County Asylum for Chronic Insane	Ment	County	172	172	..	..	151	15
Oconto, 5,030—Oconto Oconto County and City Hospital	Gen	NPAsso	..	20	6	No data supplied		
Oshkosh, 49,108—Winnebago Alexian Brothers Hosp.	N&M	Church	..	85	..	..	..	..
Owen, 1,102—Clark Clark County Asylum	Meot	County	325	325	..	..	314	42
Peshigo, 1,579—Marquette Marquette County Insane Asylum	Ment	County	215	215	..	..	210	28
Prairie du Chien, 3,043—Crawford Beaumont Hospital	Gen	Indiv	20	20	8	64	10	168
Racine, 67,542—Racine Lincoln Mem. Hosp. for Communal Diseases	Tbiso	City	50	50	4	..	47	637
Racine County Asylum	Ment	County	276	276	..	..	264	56
Racine County Hospital	Iso	County	46	46	..	..	40	80
Reedsburg, 2,967—Sauk Sauk County Asylum	Ment	County	..	191	..	..	..	23
Richland Center, 3,632—Richland Richland County Asylum for Chronic Insane	Ment	County	151	151	..	..	133	..
Shawano, 4,188—Shawano Shawano County Insane Asylum	Ment	County	..	179	..	..	181	11
Sheboygan, 39,251—Sheboygan Sheboygan County Asylum for Chronic Insane	Ment	County	209	206	..	..	..	..
Spartan, 4,040—Monroe Monroe County Insane Asylum	Ment	County	..	151	..	..	134	59
Union Grove, 755—Racine Southern Wisconsin Colony and Training School	McDe	State	458	807	..	..	749	85
Verona, 453—Dane Dane County Asylum for Chronic Insane	Ment	County	..	281	..	..	280	31
Viroqua, 2,702—Vernon Vernon County Asylum	Ment	County	136	136	..	..	123	16
Viroqua Hospital	Gen	Indiv	..	25	7	44	8	551
Watertown, 10,613—Jefferson Bethesda Lutheran Home for Feeble-minded and Epileptics	McDe	Church	..	370	..	..	360	35
Waukesha, 17,176—Waukesha Waukesha County Asylum for Chronic Insane	Ment	County	215	215	..	..	213	71
Wisconsin Industrial School for Boys	Inst	State	17	17	..	..	5	..
Waupaca, 3,131—Waupaca Waupaca Hospital and Clinic	Gen	Part	12	12	..	..	7	327
Waupun, 5,768—Fond du Lac Clark and Swartz Hosp.	Gen	Part	8	8	2	30	4	146
Wisconsin State Prison Hospital	Inst	State	..	21	..	..	14	314
Wausau, 23,758—Marathon Marathon County Asylum for Chronic Insane	Ment	County	200	200	..	..	208	18
Marathon County Home and Hospital	Iso	County	150	150	..	..	50	138
Wauwatosa, 21,194—Milwaukee Milwaukee County Home for Dependent Children	Inst	County	..	60	..	..	52	1,003
St. Camillus Hospital	Iso	Church	65	65	..	..	55	148
Salvatio Army Martha Washington Womeo's Home and Hospital	Mat	Church	59	59	35	..	..	127
West Bend, 4,760—Washington Washington County Asylum for Chronic Insane	Ment	County	..	150	..	..	151	12
West Salem, 1,011—La Crosse La Crosse County Asylum for Insane	Meot	County	300	269	..	..	259	22
Weyauwega, 1,067—Waupaca Waupaca County Insane Asylum	Ment	County	174	174	..	..	178	19
Whitehall, 915—Trempealeau Trempealeau County Asylum for Chronic Insane	Meot	County	..	140	..	..	130	14
Winnebago, 1,120—Winnebago Winnebago County Asylum	Ment	County	249	249	..	..	244	22
Wyocena, 499—Columbia Columbia County Asylum	Meot	County	200	200	..	..	195	..
Summary for Wisconsin:								
Hospitals and sanatoriums		Number	Beds	Average Patients	Patients Admitted			
Related institutions		60	10,078	14,053	226,260			
Totals		221	20,955	24,349	233,992			
Refused registration		11	757					



## SOUTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Dell Rapids, 1,637—Minnehaha	Gen	Corp	30	30	6	33	10	273
Dell Rapids Hospital.....	Gen	Corp	30	30	6	33	10	273
Edgemont, 1,103—Fall River	Gen	Indiv	9	9	2	13	4	148
Edgemont Hospital.....	Gen	Indiv	9	9	2	13	4	148
Eureka, 1,308—McPherson	Gen	NPAasn	20	20	4	54	12	402
Eureka Community Hosp. Gen	Gen	NPAasn	20	20	4	54	12	402
Faulkton, 739—Faulk	Gen	County	14	18	5	48	10	...
Faulk County Hospital.. Gen	Gen	County	14	18	5	48	10	...
Ft. Meade, 850—Meade	Gen	Army	130	130	2	31	71	1,307
Station Hospital..... Gen	Gen	Army	130	130	2	31	71	1,307
Ft. Thompson, 180—Buffalo	Gen	IA	12	12	5	39	12	458
Mareo Indian Hospital. Gen	Gen	IA	12	12	5	39	12	458
Hot Springs, 2,908—Fall River	Gen	Church	35	35	6	53	..	374
Lutheran Sanatorium and Hospital..... Gen	Gen	Church	35	35	6	53	..	374
Our Lady of Lourdes Hospital and Sanatorium. Gen	Gen	Church	75	63	6	69	38	1,031
Veterans Admin. Facility Gen	Gen	Vet	607	607	..	..	445	1,130
Huron, 10,946—Beadle	Gen	Corp	54	54	8	115	27	1,307
Sprague Hospital..... Gen	Gen	Corp	54	54	8	115	27	1,307
Lead, 5,733—Lawrence	Gen	NPAasn	25	25	5	..	15	580
Homestake Hospital..... Gen	Gen	NPAasn	25	25	5	..	15	580
Lemmon, 1,308—Perkins	Gen	Indiv	..	12	5	16	5	...
Lemmon Hospital..... Gen	Gen	Indiv	..	12	5	16	5	...
Madison, 4,289—Lake	Gen	NPAasn	..	50	10	102	17	773
Madison Community Hosp. Gen	Gen	NPAasn	..	50	10	102	17	773
Milbank, 2,389—Grant	Gen	Church	50	25	8	47	6	354
St. Bernard Providence Hospital..... Gen	Gen	Church	50	25	8	47	6	354
Miller, 1,447—Hand	Gen	Indiv	..	18	5	36	8	324
Miller Hosp. and Clinle. Gen	Gen	Indiv	..	18	5	36	8	324
Mitchell, 10,942—Davison	Gen	Church	100	100	12	175	52	1,800
Methodist State Hosp. Gen	Gen	Church	100	100	12	175	52	1,800
St. Joseph Hospital..... Gen	Gen	Church	125	112	13	205	53	2,332
Mobridge, 3,404—Walworth	Gen	Indiv	25	20	6	32	7	271
Lowe Hospital..... Gen	Gen	Indiv	25	20	6	32	7	271
Mobridge Hospital..... Gen	Gen	NPAasn	30	24	11	45	15	559
New Underwood, 311—Pennington	Gen	NPAasn	13	13	6	34	3	157
New Underwood Community Hospital..... Gen	Gen	NPAasn	13	13	6	34	3	157
Pierre, 3,659—Hughes	Gen	Church	100	102	18	198	41	1,597
St. Mary's Hospital..... Gen	Gen	Church	100	102	18	198	41	1,597
Pine Ridge, 618—Shannon	Gen	IA	46	46	11	126	44	1,301
Pine Ridge Hospital..... Gen	Gen	IA	46	46	11	126	44	1,301
Rapid City, 10,404—Pennington	Gen	Church	62	56	6	125	35	1,207
Black Hills Methodist Hospital..... Gen	Gen	Church	62	56	6	125	35	1,207
St. John's McNamee Hospital..... Gen	Gen	Church	66	66	12	202	50	1,653
Redfield, 2,664—Spink	Gen	City	21	15	5	6	6	282
Baldwin Community Hosp. Gen	Gen	City	21	15	5	6	6	282
Rosebud, 120—Todd	Gen	IA	40	40	7	98	40	1,100
Rosebud Agency Indian Hospital..... Gen	Gen	IA	40	40	7	98	40	1,100
Sanator, 10—Custer	Gen	State	192	192	..	..	172	153
South Dakota State Sanatorium for Tuberculosis TB	Gen	State	192	192	..	..	172	153
Sioux Falls, 33,382—Minnehaha	Gen	Church	118	100	18	307	73	2,516
McKenna Hospital..... Gen	Gen	Church	118	100	18	307	73	2,516
Moore Hospital and Clinic. Gen	Gen	Indiv	50	50	8	20	20	935
Sioux Valley Hospital..... Gen	Gen	NPAasn	116	116	20	274	69	2,147
Volga, 604—Brookings	Gen	Corp	20	16	4	35	10	400
Volga Hospital..... Gen	Gen	Corp	20	16	4	35	10	400
Watertown, 10,214—Codington	Gen	Corp	75	65	8	84	59	1,724
Barton Hospital..... Gen	Gen	Corp	75	65	8	84	59	1,724
Luther Hospital..... Gen	Gen	Church	65	60	10	130	38	1,206
Webster, 1,502—Day	Gen	Indiv	..	50	7	123	32	1,105
Peabody Hospital..... Gen	Gen	Indiv	..	50	7	123	32	1,105
Winner, 2,220—Tripp	Gen	Indiv	8	8	2	22	..	186
Wilson Hospital..... Gen	Gen	Indiv	8	8	2	22	..	186
Winner General Hospital Gen	Gen	Part	12	13	6	45	5	240
Yankton, 6,072—Yankton	Gen	Church	150	130	20	140	73	1,925
Sacred Heart Hospital..... Gen	Gen	Church	150	130	20	140	73	1,925
Yankton State Hospital.. Ment	Gen	State	1,285	1,625	..	..	1,608	330
Related Institutions								
Avon, 670—Bon Homme	Gen	Indiv	6	6	..	..	1	78
Hollingsworth Hospital.. Gen	Gen	Indiv	6	6	..	..	1	78
Flandreau, 1,934—Moody	Gen	IA	35	35	1	10	16	535
Flandreau Indian School Hospital..... Gen	Gen	IA	35	35	1	10	16	535
Garretson, 655—Minnehaha	Gen	Indiv	10	10	2	10	2	58
De Valls Hospital..... Gen	Gen	Indiv	10	10	2	10	2	58
Hot Springs, 2,908—Fall River	Gen	State	40	35	..	..	22	212
State Soldiers' Home Hosp. Inst	Gen	State	40	35	..	..	22	212
Onida, 636—Sully	Gen	Indiv	..	8	2	26	..	104
Onida Hospital..... Gen	Gen	Indiv	..	8	2	26	..	104
Pierre, 3,659—Hughes	Gen	IA	8	8	..	..	7	159
Pierre Indian School Hosp. Gen	Gen	IA	8	8	..	..	7	159
Platte, 1,207—Charles Mix	Gen	Indiv	10	10	4	30	4	150
Platte Hospital..... Gen	Gen	Indiv	10	10	4	30	4	150
Redfield, 2,664—Spink	Gen	State	825	650	..	..	635	63
State School and Home for Feeble-minded..... MeDe	Gen	State	825	650	..	..	635	63
Wagner, 1,420—Charles Mix	Gen	Indiv	10	10	3	24	4	160
Duggan Hospital..... Gen	Gen	Indiv	10	10	3	24	4	160
Summary for South Dakota:								
Hospitals and sanatoriums...	Number	Beds	Average Patients	Patients Admitted				
Related Institutions.....	47	4,555	3,393	42,213				
Totals.....	9	772	694	1,519				
Refused registration.....	56	5,327	4,087	43,732				
	4	124						

## TENNESSEE

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Athens, 5,385—McMinn	Gen	Part	10	10	3	29	4	130
Foree Hospital.....	Gen	Part	10	10	3	29	4	130
Brownsville, 3,204—Haywood	Gen	NPAasn	35	35	4	31	16	600
Haywood County Memorial Hospital.....	Gen	NPAasn	35	35	4	31	16	600
Chattanooga, 119,798—Hamilton	Gen	CyCo	225	225	22	947	183	7,111
Baroness Erlanger Hospital*o	Gen	CyCo	90	73	11	211	50	1,638
Children's Hospital*o	Match	CyCo	75	65	2	21	29	1,230
Newell and Newell Sanit.o	Gen	Part	235	235	..	..	227	441
Pine Breeze Sanatorium+TB	Gen	NPAasn	235	235	..	..	227	441
Clarksville, 9,242—Montgomery	Gen	Indiv	25	25	..	2	4	480
Clarksville Home Infrmary (col.).....	Gen	Indiv	25	25	..	2	4	480
Clarksville Hospital.....	Gen	NPAasn	30	40	6	49	15	606
Cleveland, 9,136—Bradley	Gen	NPAasn	..	30	2	No data supplied		
Speck Hospital.....	Gen	NPAasn	..	30	2	No data supplied		
Columbia, 7,882—Maury	Gen	NPAasn	..	50	6	No data supplied		
Kings Daughters Hosp.o	Gen	NPAasn	..	50	6	No data supplied		
Dayton, 2,006—Rhea	Gen	Indiv	12	12	2	11	5	192
Broyles Private Hospital	Gen	Indiv	12	12	2	11	5	192
Dyersburg, 8,733—Dyer	Gen	Corp	50	50	6	48	10	715
Baird-Brewer Gen. Hosp.o	Gen	Corp	50	50	6	48	10	715
Elizabethton, 8,093—Carter	Gen	Corp	..	25	5	49	6	463
St. Elizabeth Gen. Hosp.	Gen	Corp	..	25	5	49	6	463
Erwin, 3,623—Union	Gen	Corp	15	15	4	35	4	241
Legion Memorial Hospital	Gen	Corp	15	15	4	35	4	241
Greeneville, 5,544—Greene	Gen	Corp	40	60	3	16	19	818
Greeneville Sanatorium and Hospital.....	Gen	Corp	40	60	3	16	19	818
Takoma Hosp. and Sanit.o	Gen	Corp	40	60	3	16	19	818
Humboldt, 4,613—Gibson	Gen	Indiv	..	10	3	50	4	305
Oursler Clinic.....	Gen	Indiv	..	10	3	50	4	305
Jefferson.....	Gen	Part	40	40	6	54	12	470
Jefferson.....	Gen	NPAasn	25	30	6	44	12	605
Jefferson.....	Gen	Corp	36	24	6	39	14	...
Jefferson.....	Gen	Indiv	..	25	2	23	2	720
Johnson (Appalachee).....	Gen	Corp	..	50	10	108	24	1,070
Campbell's Eye, Ear, Nose and Throat Hospital.....	ENT	Indiv	..	10	..	..	3	925
Jones Eye, Ear, Nose and Throat Hospital.....	ENT	Indiv	17	17	..	..	8	760
Parker-Budd Clinic and Hospital.....	Gen	Part	20	20	2	14	7	334
Kingsport, 11,914—Sullivan	Gen	NPAasn	53	53	8	124	32	1,506
Holston Valley Community Hospital.....	Gen	NPAasn	53	53	8	124	32	1,506
Knoxville, 105,802—Knox	Gen	CyCo	162	162	..	..	133	129
Beverly Hills Sanatorium TB	Gen	CyCo	162	162	..	..	133	129
Dr. H. E. Christenberry Eye, Ear, Nose and Throat Infrmary.....	ENT	Indiv	12	12	..	..	1,362	397
Eastern State Hospital.....	Ment	State	1,250	1,445	..	..	1,362	397
Pt. Sanders Hospital.....	Gen	NPAasn	150	160	16	413	92	5,560
Knoxville Gen. Hosp.*o	Gen	City	300	250	24	802	130	7,681
St. Mary's Mem. Hosp.o	Gen	Church	63	63	12	179	37	1,436
Lawrenceburg, 3,102—Lawrence	Gen	NPAasn	25	20	3	32	6	301
Lawrenceburg Sanatorium and Hospital.....	Gen	NPAasn	25	20	3	32	6	301
Lebanon, 4,656—Wilson	Gen	Indiv	25	25	2	16	9	492
Martha Gaston Hospital Gen	Gen	Indiv	12	12	1	47	10	515
McFarland Hospital.....	Gen	Indiv	12	12	1	47	10	515
Loudon, 2,578—Loudon	Gen	Part	12	12	..	..	3	85
Harrison Memorial Hosp.	Gen	Part	12	12	..	..	3	85
Madison College—Davidson	Gen	NPAasn	100	100	6	67	68	1,398
Madison Rural Sanatorium and Hospital.....	Gen	NPAasn	100	100	6	67	68	1,398
Maryville, 4,958—Blount	Gen	Indiv	20	20	..	15	9	256
Carson's Hospital.....	Gen	Indiv	20	20	..	15	9	256
Memphis, 253,143—Shelby	Gen	Church	400	380	20	671	325	14,695
Baptist Mem. Hosp.*o	Gen	Church	400	380	20	671	325	14,695
Collins Chapel Connectional Hospital (col.)o	Gen	NPAasn	..	50	10	2	25	341
Crippled Children's Hospital School.....	Orth	NPAasn	36	36	..	..	34	121
Dr. Edwin W. Cooke Sanatorium and Clinic.....	N&M	Indiv	20	20	..	..	Estab. 1906	
Gartly-Ramsay Hospitalo	Gen	Corp	..	42	8	64	24	1,007
Hosp. for Crippled Adults Orth	Gen	NPAasn	60	60	..	..	271	
John Gaston Hospital*o	Gen	City	550	500	60	1,165	460	14,851
Lynchburg Sanatorium.....	N&M	Indiv	20	20	..	..	9	39
Memphis Eye, Ear, Nose and Throat Hospital+ENT	ENT	NPAasn	..	69	..	..	18	1,694
Metbodist Hospital*o.....	Gen	Church	155	155	30	736	128	6,454
St. Joseph's Hospital*o	Gen	Church	155	155	30	736	128	6,454
U. S. Marina Hospital.....	Gen	USPHS	105	105	..	..	110	1,711
Veterans Admin. Facility	Gen	Vet	450	450	..	..	345	3,423
Wallace Sanatorium.....	N&M	Part	80	75	..	..	26	557
Willis C. Campbell Clinic Orth	Orth	Part	47	47	..	..	40	896
Morrisston, 7,305—Hamblen	Gen	NPAasn	..	25	2	No data supplied		
Morrisstown Gen. Hosp.o	Gen	NPAasn	..	25	2	No data supplied		
Mountain Home, Washington	Gen	Vet	365	365	..	..	375	2,824
Veterans Admin. Facility	Gen	Vet	365	365	..	..	375	2,824
Murfreesboro, 7,993—Rutherford	Gen	NPAasn	42	42	8	149	21	299
Rutherford Hospital.....	Gen	NPAasn	42	42	8	149	21	299
Nashville, 153,866—Davidson	Gen	Indiv	..	25	2	No data supplied		
Barr Infrmary.....	Gen	Indiv	..	25	2	No data supplied		
Central State Hospital.....	Ment	State	1,700	1,700	..	..	1,640	576
City View Sanatorium....	N&M	Indiv	50	50	..	..	31	272

## WYOMING

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Basin, 903—Big Horn Tuberculosis Sanatorium	TB	State	33	33	..	..	27	42
Baros, 216—Laramie Burns Hospital	Gen	Indiv	10	10	4	..	4	...
Casper, 16,619—Natrona Memorial Hospital of Natrona County	Gen	County	100	89	14	227	44	1,538
Cheyenne, 17,361—Laramie Memorial Hospital of Laramie County	Gen	County	132	100	13	231	59	2,112
Veterans Admin. Facility	Gen	Vet	103	103	..	..	90	836
Douglas, 1,917—Converse Douglas Hospital	Gen	Indiv	..	19	4	20	9	233
Evanston, 3,075—Uinta Wyoming State Hospital	Ment	State	635	635	..	..	543	134
Ft. Warren, 22—Laramie Station Hospital	Gen	Army	198	156	6	50	112	3,547
Ft. Washakie, 62—Fremont Shoshone Indian Hosp.	Gen	IA	38	42	6	65	23	673
Jackson, 533—Teton St. John's Hospital	Gen	Church	..	25	4	No data supplied	..	..
Kemmerer, 1,884—Lincoln Hospital	Gen	NPAssn	..	35	8	45	..	429
Lander, 1,826—Fremont Bishop Randall Hospital	Gen	Church	20	20	6	36	15	534
Lovell, 1,857—Big Horn Lovell Hospital	Gen	Indiv	21	21	8	102	11	516
Powell, 1,156—Park Whitlock Hospital	Gen	Corp	20	20	4	24	6	222
Rock Springs, 8,440—Sweetwater Wyoming General Hosp.	Gen	State	80	100	14	232	56	2,937
Sheridan, 8,536—Sheridan Memorial Hospital	Gen	County	70	70	12	192	48	2,102
Veterans Admin. Facility	Ment	Vet	..	508	..	..	577	459
Wheatland, 1,997—Platte Wheatland General Hosp.	Gen	NPAssn	60	41	7	66	24	960

## Related Institutions

Basin, 903—Big Horn Basin Hospital	Gen	Corp	10	10	2	20	1	129
Evanston, 3,075—Uinta Legion Memorial Hosp.	Gen	Indiv	10	10	3	6	4	236
Gelbo, 894—Hot Springs Gebo Hospital	Gen	NPAssn	10	8	2	21	3	119
Gillette, 1,340—Campbell Rooney Hospital	Gen	Part	20	16	4	17	4	201
Greybull, 1,806—Big Horn St. Luke's Hospital	Gen	Indiv	8	8	2	10	2	113
Hanna, 1,500—Carbon Hanna Hospital	Gen	NPAssn	13	11	3	41	5	301
Lander, 1,826—Fremont Wyoming State Training School	McDe	State	269	349	..	..	301	125
Thermopolis, 2,129—Hot Springs General Hospital	Gen	Indiv	35	14	5	35	8	247
Worland, 1,461—Washakie Dr. Gray's Hospital	Gen	Indiv	12	12	2	..	2	...
Yellowstone Park, 200—Yellowstone Mammoth Hospital	Gen	National Park	..	45	..	..	23	366

## Summary for Wyoming:

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums...	18	1,223	1,679	17,226
Related institutions.....	10	483	553	1,962
Totals.....	28	2,606	2,032	19,188
Refused registration.....	4	111	..	..

## ALASKA

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Anchorage, 2,277 Anchorage Base Hospital	Gen	Fed	50	35	6	41	17	1,239
Cordova, 980 Cordova General Hospital	Gen	Indiv	20	18	3	16	7	152
Fairbanks, 2,101 St. Joseph's Hospital	Gen	Church	..	30	4	..	..	...
Ft. Yukon, 304 Hudson Stueck Mem. Hosp.	Gen	Church	..	40	2	10	23	129
Haines, 344 Station Hospital	Gen	Army	15	15	1	4	6	241
Juneau, 4,043 St. An's Hospital	Gen	Church	70	64	9	85	22	662
U. S. Hosp. for Natives	G&TB	IA	..	58	4	36	54	368
Kanikakanak, 177 Kanikakanak Native Hosp.	Gen	IA	14	14	1	25	13	163
Kennercott, 217 Kennercott Copper Corporation Hospital	Gen	NPAssn	16	16	1	2	4	96
Ketchikan, 3,796 Ketchikan General Hosp.	Gen	Church	..	45	8	..	..	...

## ALASKA—Continued

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Kotzebue, 291 Government Hospital for Natives	Gen	IA	..	16	3	..	..	...
Mountain Village, 76 U. S. Hosp. for Natives	Gen	IA	..	20	2	14	19	132
Nome, 1,213 Mynard-Columbus Hosp.	Gen	Church	..	20	5	..	..	...
Petersburg, 1,232 Petersburg General Hosp.	Gen	City	..	9	3	22	4	207
Point Barrow (Barrow P. O.), 82 Presbyterian Hospital of Point Barrow	Gen	Church	..	12	3	..	..	...
Seward, 835 Seward General Hospital	Gen	Church	..	22	3	29	13	262
Sitka, 1,050 Pioneers' Home	Hospital	Inst	Ter	52	52	..	35	154
Tanana, 183 Tanana Hospital	Gen	IA	..	30	1	..	..	...
Wrangell, 948 Bishop Rowe Gen. Hosp.	Gen	Church	20	14	3	21	..	161

## CANAL ZONE

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Ancon, 1,140 Gorgas Hospital	Gen	Fed	880	836	36	515	447	11,723
Balboa, 2,962 Palo Seco Leper Colony	Lepro	Fed	110	110	..	..	..	7
Corozul, 1,790 Corozul Hospital	Gen	Army	..	35	..	..	..	...
Stanton Hospital	Ment	Fed	350	350	..	..	234	227
Cristobal, 599 Colon Hospital	Gen	Fed	..	54	..	..	29	1,189
Ft. Davis, 293 Stanton Hospital	Gen	Army	120	120	16	360	89	4,323
Ft. Randolph (Coco Solo P. O.), 524 Stanton Hospital	Gen	Army	37	37	..	13	..	2,169
Ft. Sherman, 786 Stanton Hospital	Gen	Army	14	14	..	..	12	824
France Field, 764 Stanton Hospital	Gen	Army	64	47	..	..	30	1,400
Station Hospital	Gen	Army	..	14	..	..	..	...

## GUAM

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Agana Susana Hospital for Natives of Guam	Unit of U. S. Naval Hospital	Gen	..	90	..	..	..	...
U. S. Naval Hospital	Navy	..	..	..	..	..	..	...

## HAWAII

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Aiea, 3,021—Honolulu Honolulu Plantation Hosp.	Gen	NPAssn	..	42	4	47	9	702
Eleke, 312—Kauai McBryde Sugar Company Hospital	Gen	NPAssn	..	41	4	20	26	79
Hakala, 523—Hawaii Hakala Plantation Hosp.	Gen	NPAssa	25	25	2	12	10	354
Hilo, 19,463—Hawaii Hilo Memorial Hospital	Gen	County	125	125	16	158	116	2,323
Punahoa Home for Tuberculosis	TB	County	100	100	..	..	92	129
Honokaa, 1,069—Hawaii Honokaa Sugar Company and Pacific Sugar Mill Plantation Hospital	Indus	NPAssn	..	25	..	..	..	...
Honolulu, 137,532—Honolulu Japanese Hospital	Gen	NPAssn	120	120	5	52	59	2,352
Kalihi Receiving Station	Lepro	Ter	..	200	..	..	..	...
Kapiolani Maternity and Gynecological Hosp.	GynMat	NPAssn	50	50	36	747	29	1,552
Kaukoelani Children's Hospital	Chil	NPAssn	75	75	..	..	42	1,981
Leahi Home	TB	NPAssa	440	440	..	..	406	1,234
Queen's Hospital	Gen	NPAssn	..	254	18	..	..	...
St. Francis Hospital	Gen	Church	65	60	10	120	50	1,429
Shriners Hospital for Crippled Children	Orth	Frat	30	30	..	..	25	97
Tripler General Hospital	Gen	Army	300	400	6	107	201	2,247

Key to symbols and abbreviations is on page 1060

Interrupted sutures of horsehair may also be used for skin approximation. Stitch marks will be avoided if only the first double twist is used in tying the surgical knot.

#### FRACTURES

**Nasal Fractures.**—Simple nasal deviations can often be corrected by thumb pressure under local anesthesia. Nasal bones torn loose from the frontal bone must be brought back to their normal position and wired to the frontal bone through drill holes placed in each bone. In crushing nasal injuries I prefer to raise the nasal bones under local anesthesia and apply a plaster head cast and a special splint which holds the nasal bones in place, shapes them by lateral pressure and, at the same time, permits nasal drainage (figs. 3, 5 and 6).

**Malar Bone Fractures.**—Fractures of the malar bone, if left untreated, leave very conspicuous deformities. Hence every effort should be made to restore and main-



Fig. 6.—Profile view six months after patient was treated for crushed nose and maxilla. The teeth are in excellent occlusion and the nose is well formed.

tain proper elevation. This can be accomplished by several methods: 1. Grasping and elevating the bone by means of a large towel clip inserted through an incision in the lower eyelid and cheek (Gill<sup>4</sup>). 2. Opening the canine fossa and elevating the malar bone through the antrum; if necessary to maintain elevation, the antrum may be packed. 3. Elevating the malar bone by means of an antrum trocar inserted into the antrum through the nose (Shea<sup>5</sup>). 4 (author's method). Passing an antrum trocar or a heavy curved instrument through the mucous membrane behind the last upper molar up and beneath the malar bone behind the maxilla. Upward pressure against the depressed portion usually suffices to elevate it satisfactorily (fig. 7). If this fails to maintain proper elevation, the antrum may be packed or the fragments may be wired in place through drill holes at the frontal attachment (Gill<sup>4</sup>).

**Maxillary Fractures.**—The preparation, adjustment and proper fitting of jaw splints for maxillary fractures requires a special technic and equipment not always available. For the surgeon not versed in this method. Federspiel's<sup>6</sup> technic provides a simple and

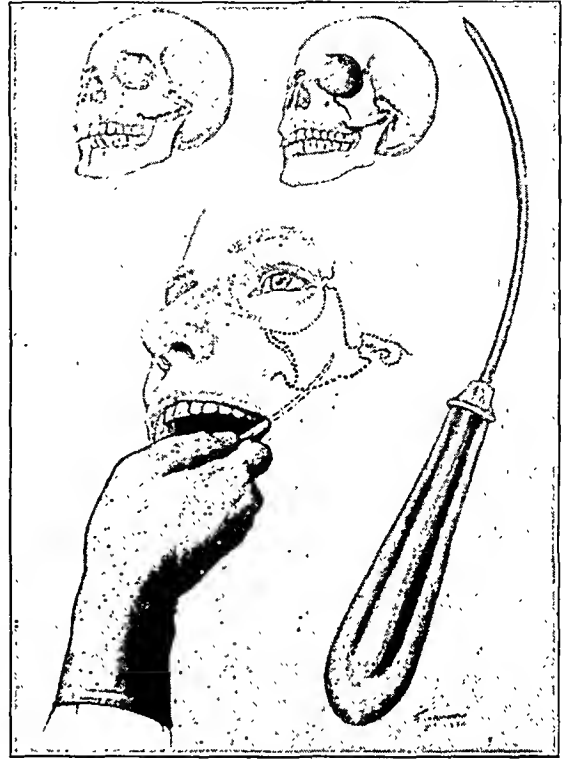


Fig. 7.—Author's method of elevating depressed malar by means of antrum trocar or other strong curved instrument. This method is simple and efficient in most cases.

satisfactory alternative. A No. 12 gage, preferably half-round, steel wire is firmly attached to the teeth of the upper arch. Brass fracture wire is then looped around

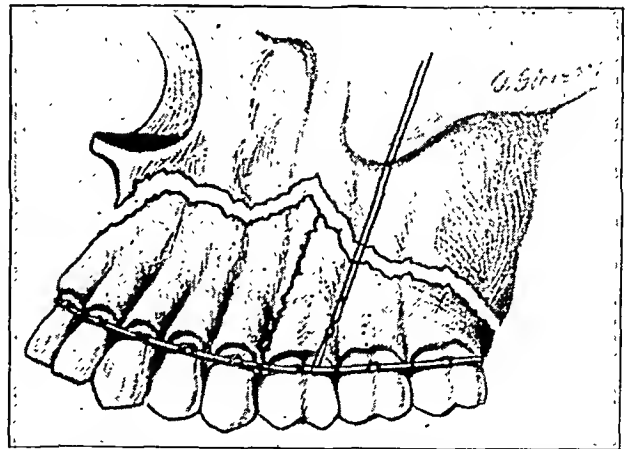


Fig. 8.—Federspiel's method of elevating fractured maxillae. Arch bar wired firmly to the upper teeth and traction wires attached in the bicuspid region and then passed through the cheek to head band. (Courtesy of Dr. Federspiel.)

this wire in the bicuspid region on each side (fig. 8). The ends of these wires are then threaded on a large curved needle and passed through the cheek just above the malar bone on each side. A plaster head cast with

4. Gill, W. D.: Fractures of Facial Bones, South. M. J. 27:197 (March) 1934.

5. Shea, J. J.: The Management of Fractures Involving the Paranasal Sinuses, J. A. M. A. 96:418 (Feb. 7) 1931.

6. Federspiel, M. N.: Treatment of Fractured Maxillae, Wisconsin M. J. 33:561 (Aug.) 1934.

coat-hanger wire attachments embedded in the plaster is next applied. The maxillae are then forced upward into proper position and maintained there by joining the ends of the brass wire to the attachments on the head cap. This method permits cleansing of the mouth and an accurate adjustment of the upward traction on the maxilla. This method obviates the necessity of



Fig. 9.—Guest-passenger injury. Fractured nose deviated to left. Fractured right malar bone, maxilla and mandible. Typical treatment. Head cast with forehead binding post and coat-hanger side wires; nasal fracture held over to right by author's nasal splint; maxillae held up by wires through cheeks to arch bar on teeth; malar bone elevated by author's method and held up by lateral pad held on by coat-hanger wire spring from anterior binding post. Arch bar on lower teeth; elastic traction to upper arch.

applying side arm splints, which may become dislodged. The small puncture marks through the skin of the cheek are scarcely discernible after a few weeks. I have never encountered serious infection around these wires (figs. 9 and 10).

Risdon<sup>7</sup> has suggested a simple method of applying an arch wire: A long wire is twisted firmly around each last molar. The wires from each side are then brought to the front and twisted together. These arch wires are then firmly wired to all teeth of the upper jaw. The traction wires are then attached to this wire arch as described.

Edentulous fractured maxillae may be treated in the same manner by drilling holes between the teeth of the denture and attaching traction wires to the artificial teeth.

**Mandibular Fractures.**—The intermaxillary loop method of wiring is the best method in the absence, of course, of associated maxillary fracture. When both jaws have been fractured, the maxilla is treated by Federspiel's method. After fixation of the maxilla, an arch bar is wired to the mandible; elastic traction is then applied between them. Bands cut from a quarter inch gum rubber tube serve the purpose nicely.

In fractures of the necks of the condyles associated with serious respiratory difficulties, traction wires are fixed to the cuspid region of the lower arch bar and passed through the lower lip. The jaw is held forward by attaching these traction wires to an arch of wire extending from a plaster head cast or to some apparatus on the bed (fig. 1).

Anterior displacements of the mandibular angle or the posterior fragment are held back by silver wire looped through drill holes in the angle of the mandible. These wires are then attached to hooks embedded in a plaster head cast (Ivy) (fig. 10).

#### SEQUELAE

In spite of every precaution, infections as well as other complications may supervene and make immediate surgical treatment impossible. Scars, crushed facial bones, loss of eyebrows, ears and nose—all such disfigurements require subsequent correction if the victim is to take his place again in society. Plastic procedures should not be undertaken, however, until the lapse of two months after every vestige of infection has disappeared. To intervene prematurely in these cases is to court disaster.

Old scars should be excised and resutured with subcuticular stitches as described (fig. 4). Depressions of the nose, forehead or malar prominences should be built up with rib cartilage transplants. Before applying the cartilage transplant, one should make a lead model made from a plaster impression of the face. At the operation, the cartilage should be trimmed to fit the depression on the sterilized lead model. This insures greater accuracy in restoring the normal contour.

Severed noses may be replaced by one of several well known plastic procedures. It is important that the skin to be transplanted should match the integument of the face in both color and texture. In women, the forehead flap method is most satisfactory. The resultant forehead scar can easily be concealed by the hair dress. In man, I prefer to use the skin beneath



Fig. 10.—Fractured malar bone, maxilla and left angle of mandible with marked overriding of posterior fragment of mandible. Treatment: Malar raised; arch bar and wires on maxilla; drill hole through angle of mandible and wire loop through bone; elastic traction from wire to hook on head cast to correct the overriding of posterior fragment.

the ear and overlying the sternocleidomastoid muscle.<sup>8</sup> This is brought to the face by way of a tube pedicle. Skin derived from this source is thin, flexible and practically hairless; in color and texture it closely matches the skin of the face.

8. Straith, C. L.: A Method of Rhinoplasty, *Rev. de chir. Plast.* August 1933.

7. Risdon, F.: Personal communication to the author.

## HAWAII—Continued

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Hoolahua, —Maul								
Robert W. Shingle, Jr., Memorial Hospital.....	Gen	Church	..	16	4	56	..	398
Kahuku, 1,505—Honolulu								
Kahuku Plantation Company's Hospital.....	Gen	NPAasn	28	28	6	80	20	654
Kalaupapa, —Kalaupapa								
Kalaupapa Hospital.....	Lepro	Ter	..	50	6	..	..	..
Kaneohe (Heela P. O.), 112—Honolulu								
Territorial Hospital.....	Ment	Ter	704	816	..	..	807	250
Kealahou, 350—Hawaii								
Kona County Hospital..	Gen	County	..	30	6	..	..	..
Kealia, 100—Kauai								
Kealia Hospital.....	Gen	NPAasn	..	26	3	49	12	427
Samuel Mahelona Memorial Hospital.....	TB	County	150	150	..	..	136	81
Kilauea, 1,232—Kauai								
Kilauea Hospital.....	Gen	Corp	25	25	3	32	9	350
Kohala, 720—Hawaii								
Kohala County Hospital, Gen		County	38	38	6	70	19	893
Koloa, 1,844—Kauai								
Koloa Sugar Company's Hospital.....	Gen	NPAasn	..	22	3	28	8	383
Kula (Waikoa P. O.), 25—Maul								
Maul County Farm and Sanitarium.....	G&TB	Ter Co	..	180	3	46	139	808
Lahaina, 2,730—Maul								
Pioneer Mill Company's Hospital.....	Gen	NPAasn	57	57	9	98	45	1,941
Lanai City, —Maul								
Lanai Hospital.....	Gen	Corp	..	20	4	..	..	..
Lihue, 2,399—Kauai								
Lihue Hospital.....	Gen	Corp	..	35	6	40	25	927
Makaweli, 914—Kauai								
Hawaiian Sugar Company's Hospital.....	Gen	NPAasn	30	40	6	50	28	798
Olaa, 597—Hawaii								
Olaa Hospital.....	Gen	NPAasn	48	43	10	11	29	697
Ookala, 526—Hawaii								
Hospital of Kalawiki Sugar Company.....	Gen	NPAasn	10	10	4	23	4	234
Paauhau, 536—Hawaii								
Paauhau Plantation Company Ltd. Hospital....	Gen	Corp	..	15	2	..	..	..
Paaullo, 1,233—Hawaii								
Paaullo Hospital.....	Gen	NPAasn	12	12	3	38	..	1,267
Pahala, 290—Hawaii								
Hawaiian Agricultural Company Hospital.....	Gen	Corp	45	38	6	107	15	620
Pala, 4,171—Maul								
Maul Agricultural Company's Pala Hospital..	Gen	Corp	103	103	10	185	46	2,507
Pearl City, 1,071—Honolulu								
Waimano Home for Feeble-minded Persons.....	MeDe	Ter	..	368	..	..	271	113
Pearl Harbor, 200—Honolulu								
U. S. Naval Hospital.....	Gen	Navy	178	178	..	..	143	1,724
Pepeekeo, 520—Hawaii								
Pepeekeo Central Hosp..	Gen	NPAasn	40	85	5	113	20	933
Puunene, 4,080—Maul								
Puunene Hospital.....	Gen	Corp	100	100	24	242	70	2,762
Schofield Barracks (Honolulu P. O.), 4,250—Honolulu								
Station Hospital.....	Gen	Army	350	350	12	75	257	5,023
Waialua, 4,511—Honolulu								
Waialua Agricultural Company, Ltd. Hospital....	Gen	NPAasn	38	38	10	90	22	904
Wailuku, 6,998—Maul								
Maluluani Hospital.....	Gen	County	..	78	9	130	51	1,236
Waimanalo, 1,008—Honolulu								
Waimanalo Hospital.....	Gen	NPAasn	..	16	..	..	..	..
Waimua, 2,091—Kauai								
Waimua Hospital.....	Gen	NPAasn	36	36	5	68	27	1,014
Waipahu, 5,874—Honolulu								
Oahu Sugar Company Ltd. Hospital.....	Gen	NPAasn	85	65	8	132	54	1,168

## PHILIPPINE ISLANDS

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Bacolod, 19,350—Occidental Negros								
Occidental Negros Provincial Hospital.....	Gen	Gov't	..	77	4	..	..	..
Provincial Maternity and Children's Hospital.....	MatChil	Gov't	..	60	18	..	..	..
Baguio, 5,464—Benguet								
Baguio Hospital.....	Gen	Gov't	80	80	10	193	82	2,459
Station Hospital.....	Gen	Army	50	50	..	58	11	277
Barili, 33,481—Cebu								
Hospital de San Jose....	Inc	Gov't	..	23	..	..	..	..
Batangas, 41,182—Batangas								
.....		Gov't	..	30	4	..	..	..
E								
.....		Gov't	..	20	..	..	..	..
B								
Binaibagan Estate Hosp..	Gen	Corp	..	15	..	..	..	..
Bontoc, 600—Mountain								
Bontoc Hospital.....	Gen	Gov't	..	33	3	36	21	946

## PHILIPPINE ISLANDS—Continued

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Basins	Number of Births	Average Census	Admissions
Butuan, 9,790—Agusan								
Butuan Public Hospital... Gen		Gov't	42	30	..	20	24	1,237
Cabanatuan, 15,282—Nueva Ecija								
Nueva Ecija Provincial Hospital.....	Gen	Gov't	75	95	10	52	56	2,618
Cagayan, 28,164—Misamis Oriental								
Cagayan Mission Hospital Gen		Church	..	40	6	..	..	..
Misamis Oriental Provincial Hospital.....	Gen	Gov't	..	25	..	..	..	..
Calamba, 18,062—Laguna								
Calamba Sugar Estate Hospital.....	Gen	Corp	..	24	1	..	..	..
Calvo, 13,895—Capiz								
Capiz Provincial Hospital Gen		Gov't	..	30	5	..	..	..
Capiz, 21,996—Capiz								
Emmanuel Hospital.....	Gen	Church	70	70	5	31	43	1,759
Cavite, 22,163—Cavite								
U. S. Naval Hospital.....	Gen	Navy	..	185	..	..	166	1,514
Cebu, 65,300—Cebu								
Cebu General Clinic.....	Gen	Part	32	24	4	22	15	582
Cebu Maternity House... Mat		NPAasn	30	30	30	1,038	21	1,110
Chong Hoa Chinese Hosp. Gen		NPAasn	..	20	..	..	..	..
Southern Islands Hosp. Gen		Gov't	110	110	6	97	100	3,654
Corregidor, —Cavite								
Station Hospital.....	Gen	Army	150	150	2	178	67	2,447
Cotabato, 410—Cotabato								
Cotabato Public Hospital Gen		Gov't	..	40	2	..	..	..
Culion, —Palawan								
Culion Leprosy Colony Hospitals.....	GenLepro	Gov't	634	618	16	128	423	3,217
Emergency Hospital No. 1 Unit of Culion Leprosy Colony Hospitals								
Cuyo, 14,766—Palawan								
Cuyo Public Hospital.. Gen		Gov't	20	20	3	21	10	558
Dagupan, 22,612—Pangasinan								
Pangasinan Provincial Hospital.....	Gen	Gov't	..	30	10	..	..	..
Dansalan, 5,988—Lanao								
Lanao Public Hospital.. Gen		Gov't	..	30	..	..	..	..
Dapitan, 12,865—Zamboanga								
Rizal Memorial Hospital. Gen		Gov't	..	30	..	..	..	..
Davao, 13,046—Davao								
Davao Mission Hospital.. Gen		Church	..	40	1	..	..	..
Davao Public Hospital.. Gen		Gov't	..	40	6	..	..	..
Del Carmen, —Pampanga								
Del Carmen Hospital.... Gen		Corp	32	32	3	28	13	772
Dipolog, 15,982—Zamboanga								
Dipolog Emergency Hosp. Gen		Gov't	..	12	..	..	..	..
Dumaguete, 16,227—Oriental Negros								
Dumaguete Mission Hosp. Gen		Church	60	60	6	38	33	1,273
F								
.....		Corp	30	30	..	46	36	1,259
F								
.....		Army	75	133	6	280	39	2,148
Ft. William McKinley, —Rizal								
Station Hospital.....	Gen	Army	300	87	..	..	27	1,127
Guinayangan, 4,055—Tayabas								
Philippine Lumber Company Hospital.....	Indus	Corp	..	10	..	..	..	..
Iloilo, 49,114—Iloilo								
Iloilo Mission Hospital.. Gen		Church	86	86	12	112	60	1,900
St. Paul's Mission Hosp.. Gen		Church	..	100	..	..	..	..
Isabela, 2,281—Zamboanga								
Basilan Lumber Hospital Indus		Corp	..	24	..	..	..	..
Jolo, 5,796—Sulu								
Sulu Public Hospital.....	Gen	Gov't	42	42	10	38	17	715
Kabasaran, —Zamboanga								
Pathfinder Estate Hosp.. Gen		NPAasn	..	24	..	..	..	..
Kiangan, 276—Ifugao								
Kiangan Hospital.....	Gen	Gov't	..	15	..	..	..	..
Kolambagan, 1,260—Lanao								
Kolambagan Hospital.... Gen		Corp	..	15	2	..	..	..
Laos, 38,469—Ilocos Norte								
Salie Long Read Memorial Hospital.....	Gen	Church	..	40	2	..	..	..
San Antonio Hospital... Gen		Indiv	18	18	1	8	8	280
Legaspi, 52,756—Albay								
Albay Provincial Hospital Gen		Gov't	35	35	2	13	20	648
Milwaukee Hospital..... Gen		Church	..	29	6	..	..	..
Los Banos, 6,335—Laguna								
University of the Philippines Los Banos Infirmary.....	Gen	Gov't	..	20	2	..	..	..
Lubungan, 226—Kalinga								
Lubungan Hospital.....	Gen	Gov't	..	8	..	4	7	310
Lucena, 11,939—Tayabas								
Tayabas Provincial Hosp. Gen		Gov't	80	80	3	54	65	2,516
Makati, 12,470—Rizal								
Hospital Espanol de Santiago.....	Gen	NPAasn	..	54	..	87	8	1,070
Malaybalay, 9,868—Bukidnon								
Bukidnon Public Hospital Gen		Gov't	8	14	..	13	13	496
Maroloes, 26,444—Bulacan								
Bulacan Provincial Hosp. Gen		Gov't	..	30	6	..	..	..
Mandaluyong, —Rizal								
Insular Psychopathic Hospital.....	Ment	Gov't	..	800	..	..	1,247	1,077
Mandaue, 21,464—Cebu								
Eversley Childs Treatment Station.....	Lepro	Gov't	760	780	..	4	683	303
.....	Gen	Gov't	..	300	..	..	..	..
.....	Gen	NPAasn	..	150	18	..	..	..
Dioso.....	Gen	Church	..	229	12	..	..	..

Key to symbols and abbreviations is on page 1080



address at each visit, states the probable duration of the illness, and whether the insured can work or not. At the final visit the physician must note the date at which work can be resumed. The diagnosis should never be written on the illness certificate and the latter must never be retained by the physician. No illness blank is required in emergency cases, but the insured must apply to the *caisse* for one as soon as possible after the first visit.

A special form of illness blank must be filled out by a surgeon or other specialist who will note the services rendered and the fees paid by the insured.

The insured can be hospitalized only in an institution that has a contract with the social insurance organization, and notice of such hospitalization must be immediately sent to the local *caisse* or disbursing bureau. If the hospital is one that has not made a contract, the *per diem* allowance to the insured will be equal only to that granted for care at the patient's domicile. A convalescent period shall not exceed seven days and can be paid for by the *caisse* only after written notice has been sent by the attending physician and after the medical controller of the local *caisse* has confirmed the necessity of such a period of convalescence. If a medical consultant is needed, the attending physician must specify this in a letter to the *caisse*.

The insured must pay the physician directly before the former can receive any remuneration from the *caisse*. The attending physician, specialist or surgeon must specify on the illness certificate that all fees have been paid and that all services have been rendered personally. On presentation of such a blank, duly signed by the medical attendant at the termination of the illness, to the *caisse*, the insured will be reimbursed. In case the insured cannot pay for medical services before being paid by the *caisse*, the latter can arrange to advance the fees if it considers that the individual merits such an advance.

5. A "treatment blank" is to be filled out by the attending physician and sent to the *caisses* with the "illness certificate" whenever therapeutic measures are necessary involving (a) a costly series of treatments, (b) consultations or numerous visits by the attending physician, (c) minor surgical procedures, (d) services of surgeons, specialists and orthopedic or dental apparatus, (e) hospitalization, (f) stay at watering places or (g) unusually expensive medication. Whenever ordinary prescriptions are given to the insured, a copy of each must be written on special forms.

6. The *caisses* have the rights through their medical supervisors to control the treatment of the insured, it being understood that professional secrecy, so far as the *caisse* is concerned, shall be maintained by the supervisor. The latter must examine the insured in the presence of the attending physician, except in cases in which the insured must be sent away from his own community. The supervisor is supposed not to criticize the treatment in the presence of the patient, but neglect of this requirement has resulted in a number of complaints being made to the *caisses* through the medium of the syndicates, who act as guardians of the interests of their members. The insured can refuse to be examined except in presence of the physician. The expense of all control examinations is paid by the *caisses*. The insured has the right to appeal from the decision of a medical supervisor.

7. The fees charged for medical services to the insured are those which were current in July 1930. Various attempts to raise these have been unsuccessful. If the attending physician is obliged to treat several members of the same family, each one must have a sickness certificate filled out, even for a single consultation. A visit to more than one sick insured person in a single family is considered as being entitled to payment for only one visit, the remainder being marked on the sickness blank as "gratuitous service."

8. The insured has the privilege of changing his medical attendant without notifying the *caisse* or asking for another

illness certificate, the second and subsequent attending physicians being obliged to use the same form. The insured must notify the local *caisse* before leaving the community in which the illness has occurred.

If a given illness lasts more than six months, the reimbursements cease automatically unless the insured is given an invalidity pension or is unable to obtain it. Any relapse that takes place within the two months subsequent to apparent recovery is considered as a part of the original illness, but the six months indemnity applies to both the latter and any relapse.

In case of a relapse after two months of apparent recovery, such relapse can benefit from the six months period granted the primary illness, but the apparent recovery must have been noted on the illness certificate.

In the case of an illness occurring which is different from that for which the original illness certificate was granted, the six months period of indemnity begins from the date of notification (to the *caisse*) of such an independent illness.

9. All pensioned individuals, if they receive salaries within the limits referred to in paragraph 2, have the right to receive indemnity from the *caisse* for every illness or injury not related to that for which they are receiving a pension. Indigents are cared for at the expense of the *caisses* at an average of 16 francs (80 cents) a visit. The attending physician must notify the *caisse* within three days after his first visit.

10. In the majority of the *caisses* in the department of the Seine the insured is reimbursed at the rate of 12 francs (60 cents) for each office visit to the physician and 2 francs additional for each house visit. Minor and major surgical procedures, for normal and pathologic deliveries, are reimbursed according to a fee table arranged between the syndicates and the departmental *caisses*. There has been much complaint as to the inadequacy of such fees. As to prescriptions for which the insured has paid less than 25 francs, the *caisses* allow 80 per cent, and for those above such sum only 60 per cent. All special drugs are paid for at the rate of 80 per cent. The same is true of all laboratory examinations.

#### Treatment of Hypochloremia and Preoperative Rechloridation

The effort to bring the sodium chloride content of the blood to its normal percentage is now termed "rechloridation." A contribution to the question appears in the September 1936 *Journal de chirurgie* by two Geneva surgeons, Drs. Mach and Sciclounoff. They emphasize the necessity of treating a hypochloremia before operation, because it increases after any intervention to such an extent as to give rise to alarming symptoms. The treatment of a hypochloremia preoperatively is not so simple a task as it would appear, because it is difficult to evaluate the degree of dechloridation, to know how much sodium chloride to give and its effect on the hypochloremia, on the percentage of chlorine in the tissues, on renal function and on the power of concentration. The authors first studied the variations of the normal chloremia during the minutes following the intravenous injection of the saline solution. When 8 Gm. of sodium chloride is given in a 20 per cent solution intravenously, the percentage of chlorine in the blood is raised to 0.5 Gm. per hundred cubic centimeters during the first minute following the injection and returns to the normal percentage at the end of an hour. A hydremia does not explain the drop of the transitory hyperchloremia. The same is true of the slight elimination of sodium chloride in the urine, bile and gastric juice; hence the authors, as the result of their previous studies, believe that the salt must be fixed by the tissues.

In the second part of this research, the variation of the chloremia when saline solutions are injected daily was studied. Instead of an 8 Gm. dose of sodium chloride, a larger amount, 12 Gm., was given daily to four patients who had a marked sodium chloride deficiency in the blood; i. e., a hypochloremia.

## PHILIPPINE ISLANDS—Continued

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Mary Chiles Hospital.....	Gen	Church	..	70	12	80	34	1,339
Mary Johnston Hospital.....	Gen	Church	120	80	34	444	47	1,512
Maternity and Children's Hospital.....	MatCh	Gov't	..	77	63	..	..	..
Philippine General Hosp.*..	Gen	Gov't	1,000	663	64	4,647	634	21,079
St. Joseph's Hospital.....	Gen	Corp	75	75	12	300	68	2,300
St. Luke's Hospital.....	Gen	Church	135	125	10	198	..	2,924
St. Paul's Hospital.....	Gen	Church	120	90	12	172	45	1,889
St. Theresita's Hospital.....	Gen	Indiv	..	63	10	..	..	..
San Lazaro Hospital.....	Tblso	Gov't	..	769	..	..	..	..
Sternberg General Hosp..	Gen	Army	315	315	8	101	195	3,169
Margosatubig, Zamboanga								
Margosatubig Emergency Hospital.....	Gen	Gov't	..	18	..	..	..	..
Mati, 6,440—Davao								
Mati Emergency Hospital	Gen	Gov't	..	6	..	..	..	..
Naga, 9,396—Camarines Sur								
Naga Hospital.....	Gen	Gov't	..	22	..	..	..	..
Olongapo, Zamboanga								
Camilla Simpson Hospital	Gen	NPAasn	10	10	7	27	6	306
Psaray, 18,823—Rizal								
Harrison Hospital.....	Gen	Indiv	..	23	..	..	..	..
Mercy Hospital.....	Gen	Indiv	20	20	8	54	6	263
Puerto Princesa Hospital	Gen	Gov't	..	16	..	..	..	..
Puerto Princesa, 5,827—Palawan								
Sagrada, 167—Mountain								
St. Theodore's Hospital..	Gen	Church	..	50	6	15	21	1,150
San Carlos, 41,820—Occidental Negros								
San Carlos Milling Company Ltd., 8835—La Union	Gen	NPAasn	..	15	5	40	3	500
Bethany Hospital.....	Gen	Church	..	34	4	..	..	..
Pampanga Provincial Hospital.....	Gen	Gov't	..	50	8	..	..	..
San Jose, Antique								
Antique Provincial Hosp.	Gen	Gov't	..	16	7	..	..	..
San Juan del Monte, 6,618—Rizal								
Manila Heights Hospital	Gen	Indiv	..	100	..	..	..	..
San Miguel, 18,147—Bulacan								
Elindia Memorial Hospital	Gen	City	12	12	3	32	3	206
San Pablo, 31,214—Laguna								
San Pablo Hospital.....	Gen	City	..	20	..	..	..	..
San Roque, Cavite								
San Ramon Maternity and Children's Hospital.....	MatCh	Indiv	..	14	10	..	..	..
Santa Barbara, 30,913—Iloilo								
Western Visayas Treatment Station.....	Lepro	Gov't	..	230	..	..	..	..
Santa Cruz, 14,151—Laguna								
Laguna Provincial Hosp.	Gen	Gov't	55	57	9	29	27	1,103
Santol, Rizal								
Santol Tuberculosis Sanat. TB	TB	NPAasn	..	271	..	..	..	..
Silay, 23,065—Occidental Negros								
Silay Maternity and Children's Hospital.....	Gen	City	..	21	6	..	..	..
Sorsogon, 17,049—Sorsogon								
Sorsogon Provincial Hosp.	Gen	Gov't	30	14	1	9	10	474
Tacloban, 15,478—Leyte								
Bethany Hospital.....	Gen	Church	36	36	2	18	11	631
Leyte Provincial Hospital	Gen	Gov't	..	21	2	..	..	..
Tagbilaran, 12,500—Bohol								
Bohol Provincial Hospital	Gen	Gov't	35	43	7	75	27	1,186
Presbyterian Mission Hosp.	Gen	Church	40	27	3	30	16	1,538
Tanauan, 19,074—Leyte								
Maternity Hospital.....	Gen	NPAasn	..	15	6	..	..	..
Tarlac, 23,886—Tarlac								
Tarlac Provincial Hosp..	Gen	Gov't	..	30	2	..	..	..
Vigan, 17,764—Ilocos Sur								
Ilocos Sur Provincial Hosp.	Gen	Gov't	8	10	1	12	10	566
Philippine Christian Institute Hospital.....	Gen	Church	..	30	5	..	..	..
Zamboanga, 30,798—Zamboanga								
Brent Hospital.....	Gen	Church	..	30	6	..	..	..
San Ramon Prison Hosp. Inst	Gen	Gov't	..	45	..	..	..	..
Station Hospital.....	Gen	Army	..	10	..	..	..	..
Zamboanga Gen. Hosp. Gen	Gen	Gov't	..	80	8	..	..	..

## PUERTO RICO

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Aguadilla, 10,952—Aguadilla								
Hospital Municipal.....	Gen	City	..	24	4	..	..	..
Anaseo, 3,064—Aguadilla								
Municipal Hosp. of Anaseo	Gen	City	..	16	3	..	..	..
Bayamon, 12,986—San Juan								
Hospital Municipal de Bayamon.....	Gen	City	..	30	..	30	..	..
Cabo Rojo, 4,605—Mayaguez								
Hospital Municipal.....	Gen	City	24	24	..	23	4	187
Cayey, 5,953—Guayama								
Clinica Dr. Villeneuve....	Gen	Indiv	..	18	6	..	..	..
Fajardo, 7,322—Humacao								
Luis Manuel Hospital....	Gen	City	32	32	4	145	30	1,331

## PUERTO RICO—Continued

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Guayama, 10,953—Guayama								
Hospital de Tuberculosos TB	Gen	Gov't	100	100	..	..	90	219
Gurabo, 3,468—Humacao								
Municipal Hospital.....	Gen	City	..	20	4	..	..	..
Hato Rey, San Juan								
Clinica Dr. M. Julia.....	N&M	Indiv	125	125	..	..	..	..
Sanatorio de la Sociedad Espanola de Auxilio Mutuo y Beneficencia de Puerto Rico.....	Gen	Frat	150	150	20	61	85	1,518
Humacao, 7,937—Humacao								
Ryder Memorial Hospital	Gen	Church	50	50	8	78	44	1,824
Juana Diaz, 2,466—Ponce								
Hospital Municipal.....	Gen	City	33	33	8	..	25	..
Juncos, 5,297—Humacao								
Gen	City	..	18	..	..	..	..	..
Gen	Indiv	..	8	2	..	..	..	..
Las Piedras Municipal Hospital.....	Gen	City	..	16	..	..	..	..
Loiza, 1,606—Humacao								
Loiza Municipal Hospital	Gen	City	18	18	..	45	12	400
Manati, 7,449—Arecibo								
Hosp. Municipal Manati.	Gen	City	50	50	5	25	32	420
Maunabo, 1,117—Guayama								
Hospital "San Jose"....	Gen	City	..	9	2	..	..	..
Mayaguez, 37,060—Mayaguez								
Clinica Betances.....	Gen	Indiv	70	70	6	2	22	423
Mayaguez and Western Polyclinic.....	Gen	Indiv	100	100	6	26	62	1,800
Mayaguez Sanatorium....	Gen	Part	..	30	..	..	..	..
Sanatorio Antituberculosis.....	TB	Gov't	..	200	..	..	200	227
Naguabo, 4,087—Humacao								
Municipal Hospital.....	Gen	City	..	16	1	..	..	..
Ponce, 53,430—Ponce								
Antituberculosis Hospital and Center.....	TB	Gov't	..	227	..	..	200	742
Clinica Quirurgica del Dr. Pila.....	Gen	Indiv	..	198	10	..	83	..
Hospital de Ninos.....	Gen	Chureb	20	16	3	..	10	140
Hospital Municipal Valentin Tricoche.....	Gen	City	150	143	17	233	..	1,360
St. Luke's Memorial Hospital.....	Gen	Church	75	65	8	62	30	912
Santo Asilo de Damas Hospital.....	Gen	Church	..	110	..	..	..	..
Quebradillas, 1,755—Aguadilla								
Hospital Municipal de Quebradillas.....	Gen	City	8	12	1	4	2	120
Rio Piedras, 13,408—San Juan								
Insular Lepor Colony....	Lepro	Gov't	80	80	..	..	58	60
Psychiatric Hospital of Puerto Rico.....	Ment	Gov't	..	1,000	..	..	..	..
Salinas, 2,232—Guayama								
Hospital de Salinas.....	Gen	City	40	33	5	96	33	800
San Juan, 114,715—San Juan								
Capital City Hospitals....	Gen	City	200	360	60	2,470	205	7,500
Children's Hospital.....	Unit of Capital City Hospitals	..	..	38	20	..	..	..
Hospital de la Penitencia.....	InstGen	Gov't	..	..	..	..	..	..
Mental and Chronic Hosp. Unit of Capital City Hospitals	Unit of Capital City Hospitals	..	..	..	..	..	..	..
Presbyterian Hospital....	Gen	Church	100	104	20	265	75	1,513
Puerto Rico Sanatorium....	Mat	Indiv	16	16	16	213	8	375
Quarantine Hospital.....	Iso	Gov't	..	50	..	..	..	..
Station Hospital.....	Gen	Army	166	66	3	4	43	1,058
University Hospital of the School of Tropical Medicine.....	Gen	Gov't	..	50	..	..	38	475
Santurce, San Juan								
Hospital Mimiyu.....	Gen	Indiv	100	100	12	70	62	761
Santa Rosa Clinic.....	Gen	NPAasn	..	15	2	..	..	..
Vega Baja, 4,784—Arecibo								
Vega Baja Municipal Hosp.	Gen	City	30	40	4	13	20	210
Yabucoa, 3,841—Humacao								
Yabucoa City Hospital..	Gen	City	..	24	2	..	..	..
Yauco, 8,607—Mayaguez								
Clinica "El Amparo".....	Gen	Indiv	22	22	1	2	1	52
Yauco Hospital.....	Gen	City	..	30	..	..	..	..

## VIRGIN ISLANDS

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Rated Capacity	Beds	Bassinets	Number of Births	Average Census	Admissions
Christiansted, 3,767—St. Croix Island								
Christiansted Municipal Hospital.....	Gen	City	56	56	8	196	45	1,153
Richmond Hospital.....	Ment	City	50	50	..	..	42	18
St. Croix Hospital for Leprosy.....	Lepro	City	92	92	..	..	85	5
Frederiksted, 2,698—St. Croix Island								
Frederiksted Municipal Hospital.....	Gen	City	..	42	11	93	28	1,229
St. Thomas, 7,036—St. Thomas Island								
Municipal Hospital.....	Gen	City	..	90	10	..	..	..

Key to symbols and abbreviations is on page 1060

The resultant artificially produced hyperchloremia required a longer period before returning to the normal percentage of sodium chloride in the blood. This shows that a preoperative rechloridation necessitates the daily slow intravenous administration of sodium chloride over a number of days (from ten to twelve).

### BERLIN

(From Our Regular Correspondent)

Feb. 23, 1937.

#### The Development of the Influenza Wave in Germany

The onset of an influenza epidemic took place in Germany during November 1936. The disease spread rapidly from the beginning of December, reached its highest point shortly before Christmas and subsequently subsided. From observation of statistics for the last ten years the influenza epidemic would not have been expected before the end of this winter. The next few weeks will disclose whether a second eruption of the disease is to take place or whether the anticipated late winter peak will be lacking following this unusual early winter peak. The highest influenza mortality of any large city was reported from Berlin; there from the end of November to the end of December 1936 the rate was 3.2 fatal cases weekly per hundred thousand of population. The age distribution of the Berlin population, particularly unfavorable from the standpoint of health, must be considered responsible for this high figure. Moreover, special statistical reports from a large proportion of the hospitals indicate that virtually every city had its own particular type of epidemic. The general impression conveyed by the sum total of data is that the influenza was less prevalent in the northwestern section of the reich than in Berlin and northern Germany. So far as the epidemic may be said to have taken a certain direction, it seemed to move from the north and northeast toward the south and southwest.

#### Further Investigation of the Klein Cancer Reaction

In a recent account of experimentation with the Klein cancer reaction at various clinics (*THE JOURNAL* Oct. 17, 1936, p. 1315) it was stated that, pending further investigation and discussion, any final evaluation of the procedure should be withheld. To the previously mentioned favorable opinions only those emanating from the medical and surgical clinics at Marburg may be added. Klapp, professor of surgery, reports that the "blind" test showed itself 96 per cent accurate when applied to a group of fifty-two cases. Those "disturbing factors" mentioned in the previous letter were present among these cases. Klapp believes, nevertheless, that detection of latent carcinoma and introduction of early treatment are made possible by the Klein test. As the result of experimentation at the Marburg medical clinic, six of seven patients presenting certain cancer showed positive reactions; the blood of ninety out of ninety-eight patients who presented no malignant neoplasms reacted negatively; namely, eight of the ninety-eight results were incorrect. The proportion of correct results was accordingly in this instance 91.2 per cent, a figure that corresponds with the norm of accuracy as determined by Klein himself. The test yielded incorrect, that is, negative, results when applied to seven cancer patients whose condition was complicated by disturbing factors. The reactions of forty cancer-free patients in whom disturbing factors were present were correct (negative) in seventeen cases and incorrect (positive) in twenty-three cases. In this instance the percentage of accurate results was only 42.5, yet despite this poor showing the Marburg people decided on the basis of these figures that the Klein reaction should be regarded as of incontestable clinical worth.

Another recent development, however, has been an increase in the number of unfavorable reports on the Klein test. The surgical clinic at Göttingen regards a ratio of 56 per cent correct to 44 per cent incorrect results as distinctly unsatisfactory. At the Heidelberg surgical clinic, 88 per cent of the

reactions of an open group were correct, but for a "blind" group only 68 per cent of the reactions were consistent. The surgical clinic of Freiburg-in-Breisgau reports that 60 per cent of the reactions were correct if no disturbing factors were present. Professor Simon, director of the surgical section of the big hospital at Ludwigshafen-on-Rhine, has recently pointed out that the number of those disturbing factors which play so decisive a part in the evaluation of the Klein reaction, far from being reducible, has rather tended steadily to increase. Among these factors are now included such conditions as obstipation, hernias and subacidity. The latest investigation of the test has been undertaken at the surgical clinic of Zurich, Switzerland. Dr. Fehr, head physician there, determined correct reactions in only 64.6 per cent of 274 utilizable patients tested. Even worse were the results when cases presenting tumors of histologically proved malignancy were tested; in only 30 per cent was the Klein diagnosis correct.

#### When Is Tonsillectomy Indicated?

Dr. Vogel, head physician of the Berlin University throat clinic, recently defined his position before the Berlin Medical Society with regard to the question When is tonsillectomy indicated? He emphasized that the much criticized performance of tonsillectomy was nevertheless clearly justifiable in the absence of any better means of treating chronically diseased tonsils. The operation must of course be unequivocally indicated. Tonsillectomies should be performed in chronic tonsillitis if the patient is an adult and if the masses of bacteria in the lacunae, having no free outlet, cause a retention of pus within the organism. Besides the squeezing out and drainage of the tonsils, subjection of the throat to light baths should be considered in the first rank of conservative procedures. Clinically, one frequently observes in chronic tonsillitis the picture of general fatigability, depressive ill humor, tendency to cardiac palpitations, general rheumatic complaints, digestive disturbances and above all a persisting susceptibility to colds. Other foci of infection, dental granulomas for example, should be carefully excluded. If repeated angina simplex and abscess have appeared, a timely removal is unconditionally indicated. If the tonsils are to be removed, a radical extirpation is necessary; no certain success is to be expected from mere incision or partial removal.

Dr. Vogel considers roentgen irradiation of the tonsils a useless procedure, as tonsillitis does not represent a hypertrophy of the glandular tissue but chiefly an atrophy of the lymphatic tissue and a hyperplasia of the connective tissue. Tonsillectomy should be less quickly resorted to if the patient is a child. A tonsillar abscess should only be incised, for in this condition, on account of the danger of septic bacterial invasion of the lymphatic and blood streams, tonsillectomy cannot be regarded as a harmless intervention. Dr. Vogel has seldom observed complications following tonsillectomy; genuine impairments of function are unknown and an increased susceptibility to infections has not been proved to exist. Most of the collected data on the subject sound favorable.

### Marriages

JOHN K. STALVEY JR., Conway, S. C., to Miss Charlotte Barbara Reynolds of Charleston, in December 1936.

WILLIAM ALLISON STEM, Chattanooga, Tenn., to Miss Mary Lucille Converse of Memphis, Tenn., Dec. 26, 1936.

GUS ADOLPHUS RUSH JR., Meridian, Miss., to Miss Helen Virginia Arline of Atlanta, Ga., in January.

BERNARD E. MALSTROM to Miss Opal Gordon, both of Decatur, Ill., in Canton, Nov. 19, 1936.

THURLOW HEMSWORTH PELTON to Miss Virginia Noble, both of Westfield, N. J., Dec. 20, 1936.

DIEDRICH L. OLTMAN, East Moline, Ill., to Miss Myrtle A. Kenney, Dec. 19, 1936.

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# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 27, 1937

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## HOSPITALS OF THE UNITED STATES

Again, for the twenty-seventh consecutive year, a net increase of more than 20,000 hospital beds has occurred. The average annual increase in hospital facilities over that period has been 25,024 beds. The total number of patients treated in hospitals in 1936 reached 8,646,885, and the total patient days 332,516,856. Patients were received for hospital care at the rate of sixteen to the minute, and 831,500 babies were born in hospitals during the year. These figures make us realize the extent to which the practice of medicine is being transferred to hospitals.

Ninety-seven per cent of all the registered hospitals in the United States responded to the census, and the information which they supplied gave evidences of a degree of completeness and accuracy never before obtained in such a survey. The response represented more than 99.5 per cent of the hospital capacity in the United States.

Acknowledgment is made here of the fine cooperation which most of the hospitals expressed by promptly and efficiently filling out and returning the questionnaire.

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## TUBERCULOSIS OF THE SPINE

The gradual disappearance of the "hunchback" has been one of the most obvious signs that the education of the public with regard to tuberculosis, combined with modern preventive and therapeutic measures, has borne precious fruit. Earlier diagnosis and improved surgical methods of treatment have assisted in reducing the number of permanent cripples. Schneider and Van Hecke<sup>1</sup> estimated that one third of the cases of bone tuberculosis are situated in the spine. They noted the poor general physical condition of these patients and the high incidence of complications, such as pulmonary tuberculosis, abscesses, draining sinuses, paraplegia, and

involvement of other bones. The general symptoms were anorexia, anemia, rapid pulse, loss of weight and evening rise of temperature, the local ones pain (local or referred), tenderness, rigidity (muscle spasm), deformity and symptoms due to pressure on the spinal nerves. A recent pathologic and roentgenologic study<sup>2</sup> of tuberculous spines emphasizes that the primary site of the infection is in the body of the vertebra and that the intervertebral disk is relatively resistant to involvement early in the course of the disease. The structure of the disk varies with age but, in the adult, blood vessels are not present. The vertebral bodies are richly supplied with nutrient arteries and thus afford a suitable nidus for the hematogenous implant from a pulmonary or alimentary lesion, the common primary foci. Necrosis of the spongiosa and cortex occurs, with collapse and partial absorption of the bone. Microscopic sections may or may not show typical tubercles. The narrowing of the disk line sometimes seen roentgenologically in early tuberculous spondylitis is considered by the authors to be due to escape of all or part of the semi-fluid nuclear material of the nucleus pulposus, the result of damage to the cartilage plate by trauma or disease. The investigators found no instance of direct spread of the tuberculous process through the intervertebral disks, but extension beneath the paravertebral ligament occurred frequently.

In contrast to tuberculosis of the spine, pyogenic vertebral osteomyelitis is often primary in the arch or vertebral appendages, and early destruction of the intervertebral disk occurs. Extension of the process takes place directly through the intervertebral disk from centrum to centrum, and regeneration of bone begins when the acute infection subsides. When vertebral tuberculosis is complicated by pyogenic infection, the patient's chances of recovery are greatly lessened. The cold abscess does not heal, and amyloidosis and death frequently follow. The pathologic changes in the mixed infection may be typical of tuberculosis, of pyogenic osteomyelitis or of a combination of the two.

The mode of extension of the tuberculous process by infiltration of pus beneath the paravertebral ligament has been observed by Dubrow,<sup>3</sup> Sever<sup>4</sup> and Rigler, Ude and Hanson,<sup>5</sup> who have noted the frequent occurrence of paravertebral abscess as a complication in tuberculous spondylitis. In roentgenologic appearance it is a bilateral, fusiform or spindle-shaped area of increased density in the vicinity of the spine, which is often obscured by the shadow of the heart. Its detection is of the greatest importance in making an early diagnosis, before disease of the bone can be demonstrated roentgenologically, and in determining the extent of the tuberculous process and the prognosis.

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2. Compere, E. L., and Garrison, Monroe: *Ann. Surg.* **104**: 1038 (Dec.) 1936.

3. Dubrow, J. L.: Changes in the Roentgen-Ray Cardiac Shadow, *J. A. M. A.* **88**: 696 (March 5) 1927.

4. Sever, J. W.: Abscesses in Tuberculosis of the Spine, *J. A. M. A.* **92**: 1822 (June 1) 1929.

5. Rigler, L. G.; Ude, W. H., and Hanson, M. B.: *Radiology* **15**: 471 (Oct.) 1930.

1. Schneider, C. C., and Van Hecke, Leander: Tuberculosis of the Spine, *Wisconsin M. J.* **34**: 618 (Sept.) 1935.

## Deaths

Charles Evelyn Rynd, Brooklyn; Johns Hopkins University School of Medicine, Baltimore, 1911; formerly clinical professor of obstetrics and gynecology at the Long Island College Hospital; fellow of the American College of Surgeons; served during the World War; aged 53; attending gynecologist and obstetrician and director of gynecology and obstetrics, Kings County Hospital; on the staff of the Midwood Hospital, where he died, January 12, of chronic nephritis, hypertension and uremia.

Francis Joseph Nash @ Boston; Tufts College Medical School, Boston, 1919; member of the New England Obstetrical and Gynecological Society; fellow of the American College of Surgeons; visiting surgeon to the Carney Hospital; on the staffs of the Faulkner and St. Margaret's hospitals and the New England Hospital for Women and Children; aged 41; died, January 11, of cardiorenal disease.

Peter Herman Schroeder, Davenport, Iowa; State University of Iowa College of Medicine, Iowa City, 1904; member of the Iowa State Medical Society; for many years medical inspector for local schools; served during the World War; member of the Associated Anesthetists of the United States and Canada; aged 57; on the staff of St. Luke's Hospital, where he died, January 19, of coronary occlusion.

Edward Henry Trowbridge @ Worcester, Mass.; Medical School of Maine, Portland, 1884; fellow of the American College of Surgeons; member of the American Urological Association; formerly chairman of the health department and member of the school board; aged 80; on the staffs of the Worcester City Hospital and the Harvard Private Hospital, where he died, January 20.

Henry Earl Fraser @ Major, M. C., U. S. Army, Fort Davis, Canal Zone; Vanderbilt University School of Medicine, Nashville, Tenn., 1915; member of the Medical Association of Georgia; served during the World War; was commissioned a first lieutenant in the medical corps of the regular army in 1918 and was made a major in 1929; aged 49; died, January 16, of coronary occlusion.

Marcus Lunsford Dillon, Lewisburg, W. Va.; Maryland Medical College, Baltimore, 1908; member of the West Virginia State Medical Association; fellow of the American College of Surgeons; served during the World War; formerly on the staffs of the Kanawha Valley, McMillan, Mountain State and New Charleston General hospitals, Charleston; aged 56; died, January 31.

Frank Jesse Otis Jr., Boston; Harvard University Medical School, Boston, 1931; aged 31; flight surgeon, U. S. Army Reserve, first lieutenant 101st Observation Squadron, Quiet Birdmen 2085 A; intern at the Boston City Hospital; died, January 11, when the plane he was piloting fell in the Illinois River near Hennepin, Ill., as he was en route to visit his parents in Moline, Ill.

Albert Hawes Cordier, Kansas City, Mo.; University of Louisville (Ky.) Medical Department, 1881; Bellevue Hospital Medical College, New York, 1884; an affiliate Fellow of the American Medical Association; formerly professor of principles and practice of surgery and clinical surgery at the University Medical College, Kansas City; aged 78; died, January 23, of pneumonia.

George Charles Diekman, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; formerly instructor, professor and head of the department of pharmacy and associate dean, Columbia University College of Pharmacy; member of the state board of pharmacy, and for three years its president; aged 74; died, January 30.

John Henry Stearns, Delaware Water Gap, Pa.; Medico-Chirurgical College of Philadelphia, 1896; member of the Medical Society of the State of Pennsylvania; served during the World War; for many years county medical director; on the staff of the Easton (Pa.) Hospital; aged 64; died, January 17, of coronary thrombosis.

James Thomas Tibbetts, Mineola, N. Y.; Long Island College Hospital, Brooklyn, 1890; member of the Medical Society of the State of New York; examining physician for the public schools of Mineola; on the staff of the Nassau Hospital; aged 82; died, January 16, of chronic myocarditis and cerebral thrombosis.

Leonard Hart @ Meridian, Miss.; Columbia University College of Physicians and Surgeons, New York, 1906; served

during the World War; on the staff of Rush Infirmary; medical consultant in tuberculosis for the Lauderdale County Health Department; aged 54; died, January 19, of angina pectoris.

Clarence Eugene Ordway @ Winchester, Mass.; Harvard University Medical School, Boston, 1904; member of the New England Obstetrical and Gynecological Society; for some years had been chief of the staff of the Winchester Hospital; aged 58; died, January 5, of coronary thrombosis.

David Ewing Evans, Harrison, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1896; member of the Arkansas Medical Society; city and county health officer; formerly county coroner and mayor of Harrison; aged 81; died, January 10, of cerebral hemorrhage.

Ferd De Forrest Streeter @ Rochester, N. Y.; University of Vermont College of Medicine, Burlington, 1912; member of the American Psychiatric Association; on the staff of the Rochester State Hospital; aged 52; died, January 20, in the Strong Memorial Hospital, of cellulitis.

Earl Wadsworth Wilcox @ Norwich, N. Y.; Albany Medical College, 1894; past president of the Chenango County Medical Society; county coroner; aged 65; on the staff of the Chenango Memorial Hospital, where he died, January 6, of chronic nephritis and heart disease.

Frank Edward Schubmehl, Lynn, Mass.; Boston University School of Medicine, 1898; member of the Massachusetts Medical Society; aged 69; died, January 5, in the New England Deaconess Hospital, Boston, of cerebral hemorrhage, diabetes mellitus and auricular fibrillation.

John Rainey Parker @ Berryville, Ark.; University College of Medicine, Richmond, Va., 1901; past president and secretary of the Carroll County Medical Society; owner of the Berryville Hospital; aged 59; died, January 12, of complications resulting from bronchopneumonia.

James Joseph Lynch, Boston; Harvard University Medical School, Boston, 1919; member of the New England Obstetrical and Gynecological Society; on the staff of St. Elizabeth's Hospital; aged 42; died, January 9, in the Boston City Hospital, of acute dilatation of the heart.

John Adams Mather @ Greenfield, Mass.; Baltimore Medical College, 1902; member of the New England Roentgen Ray Society; served during the World War; on the staff of the Franklin County Hospital; aged 60; died, January 16, of angina pectoris and arteriosclerosis.

Albert Edward Bower, Camp Hill, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Medical Society of the State of Pennsylvania; aged 64; died, January 24, in a hospital at Harrisburg, of carcinoma of the rectum.

Lawrence Kilpatrick Dugan, Delanson, N. Y.; Albany Medical College, 1900; medical inspector of the Delanson high school, health officer of the town of Duaneburg; aged 62; died, January 23, of suffocation and burns received when his home caught fire.

Drury Orestes McCrary, Mobile, Ala.; Pulte Medical College, Cincinnati, 1896; member of the Medical Association of the State of Alabama; on the staff of the Providence Infirmary; aged 67; died, January 22, of hypertrophy of the prostate.

Frederick Reynolds Ford @ Utica, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1905; on the staffs of the Masonic Soldiers and Sailors Memorial Hospital and St. Luke's Hospital; aged 57; died, January 25, of angina pectoris.

William Floyd Shaw, Voorheesville, N. Y.; University of the City of New York Medical Department, 1885; member of the Medical Society of the State of New York; aged 73; died, January 10, of coronary sclerosis and cerebral hemorrhage.

Horace Ware Given, Philadelphia; Medico-Chirurgical College of Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; aged 61; died January 22, in the Cooper Hospital, Camden, N. J., of coronary thrombosis.

Bascomb B. Dawson @ Ada, Okla.; Gate City Medical College, Dallas, Texas, 1908; formerly secretary of the Pontotoc County Medical Society; on the staff of Breco's Memorial Hospital; aged 62; died, Dec. 24, 1936.

Duncan Andrew Murray, River John, N. S., Canada; McGill University Faculty of Medicine, Montreal, Que., Canada, 1889; aged 73; died, Dec. 28, 1936.

Leon Herbert Dudley @ Morris, N. Y.; Syracuse University College of Medicine, 1925; aged 38; died, January 14, in the Parshall Private Hospital, Onondaga.



## OVERCROWDING AND OVERBUILDING OF HOSPITALS

This year hospitals in the United States were asked to state their rated capacity, meaning the number of patients which the hospital was intended to accommodate. One of the conditions revealed was overcrowding in some state mental hospitals. Owing to lack of funds to provide quarters and room for equipment and facilities, there has been overcrowding of the living space and particularly of sleeping quarters. Beds are placed in corridors, on porches and in passageways. Beds are found touching head to head or even side to side where there is not sufficient space.

The statistical data on page 1035 in this issue of *THE JOURNAL* tell how many hospitals have been found in each relative degree of overcrowding. The information is presented for those who may make use of it to hasten relief of the discomfort and retardation that result from overcrowding. Letters from state hospital commissions, welfare departments and superintendents have pointed out the higher rate of recovery and discharge of patients from state mental hospitals where overcrowded conditions have been relieved. Some states are receiving appropriations annually sufficient to cope with the number of new patients added to the population of the institution each year. Other states are in process of building sufficient structures to achieve that desirable purpose, and still other states have not yet established appropriations sufficient to cope with their responsibilities to the increasing number of their mentally ill citizens.

The general hospitals responded with surprising completeness to the question added this year as to their rated capacity, or the number of patients which their buildings were intended to accommodate. Conditions there, however, are exactly opposite to those in the state mental hospitals. An analysis of the situation in general hospitals has not been possible. A cursory examination of the reported rated capacity shown in the list of registered hospitals readily demonstrates a general condition of overbuilding rather than overcrowding. General hospitals have been found with from 30 to 50 per cent of their beds unoccupied, but actually many of them have large spaces, whole floors, sometimes entire buildings that have never been occupied or even furnished; and this is observed quite often in communities where ambitious building campaigns are now under way.

The high rate of overbuilding of general hospitals has been reported by voluntary organizations, including churches and a good many city general hospitals. The overbuilding of hospitals in any community is a tax on that community whether the hospital is supported by taxes, by endowments, by contributions or, in fact, by patients. However, the cost of overbuilding in dollars is not the greatest concern. Provision of more hospital facilities than are really needed for

the sick and injured encourages an effort to make use of them—in other words, of overhospitalization of patients.

The proper accommodation of some patients with mental disease and of some with tuberculosis in general hospitals may aid in economic utilization of the oversupply of beds. Figures presented in this issue of *THE JOURNAL* would seem to encourage this movement.

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## THE SEARCH FOR NEW INSECTICIDES

Lead arsenate has been for years the main reliance in the control of insects that prey on food crops. As the product is poisonous a significant amount of residue from its use on fruits and vegetables is deleterious to health. The United States Department of Agriculture has been endeavoring to discover a more nearly ideal insecticide. According to the chief of the Bureau of Entomology and Plant Quarantine, Lee A. Strong, the most promising discovery which the department has made is a sulfur compound called phenothiazine. This new product, which is easily prepared by combining sulfur and diphenylamine, has been tested in large scale field tests, which, although highly encouraging, showed the need for more study. Phenothiazine will control the codling moth, the chief insect pest affecting the apples in the Northwest, much better than will lead arsenate, and it leaves a residue that is less likely than lead arsenate to injure the consumers of the treated food products. The main objection to using phenothiazine in the orchards is its effect on the skin of those who handle it. The orchard men who work with it are afflicted with what looks and feels like a severe sunburn; and sometimes the apples are paler than the untreated fruit. Phenothiazine has given rather disappointing results in the Middle West and in the East, but sufficient satisfactory control work has been reported to justify a continuation of the study.

Nicotine has also been tried as a substitute for lead arsenate. The research has been directed chiefly toward the combination of nicotine with some other substance to produce a product that will remain poisonous for some time. A combination of nicotine with soap or lime sulfur mixture is effective against soft-bodied insects, but not so against the codling moth, which must be made to swallow the poison. Bentonite, a natural clay found in the Far West, will unite with nicotine when mixed with a salt of nicotine dissolved in water. When nicotine-bentonite combinations are sprayed on foliage, the material dries to a fine dust which kills the larvae of the codling moth. This combination would seem to be especially useful in spraying early apples. The Department of Agriculture has been testing a combination of nicotine with peat. Nicotine-peat contains up to 13 per cent of nicotine in a form that will not wash off sprayed apples or foliage. What this new material will do under practical orchard conditions, however, remains to be seen.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### FRACTURE OF NECK OF FEMUR

To the Editor:—I have applied a double plaster-of-paris spica on a woman, aged 62, with an intracapsular fracture of the neck of the left femur and would like you to answer the following questions: 1. How long should the cast be left on? 2. If x-ray examination shows nonunion after this period, what is the next procedure? 3. What can be done to facilitate union? 4. After a sufficient period has elapsed with nonunion, what orthopedic appliances, if any, are used? Kindly omit name.

M.D., New York.

ANSWER.—Intracapsular fractures of the neck of the femur have been designated as the "unsolved fracture" by Speed and the "problem fracture" by Moorhead. These terms are suggestive of the unsatisfactory results that have been obtained, regardless of the method of treatment. Accurate reduction is essential. The position of the fragments should be checked by lateral as well as by anteroposterior roentgenograms of the femoral neck. The direction of the fracture line in its relation to the long axis of the femur and the vitality of the proximal fragment are most important factors to be considered in giving a prognosis.

Fractures of the femoral neck heal by endosteal callus formation rather than by subperiosteal deposition of new bone. Because of this, bony union cannot be demonstrated at the site of fracture until trabeculation has been reestablished.

1. The cast should remain in place from four to five months. This should be followed by the prolonged use of a caliper brace.

2. If definite nonunion is demonstrable by roentgenograms with the push and pull technic, several courses are open to the surgeon. Fixation of the fragments by the insertion of metal pins or wire, or autogenous bone grafting may be indicated, depending on the facilities available and the skill of the operator. Subtrochanteric osteotomy is employed to correct the line of weight bearing. Reconstruction operations of the Brackett or Whitman type are useful in the reestablishment of bone to bone weight bearing.

3. Measures directed toward the maintenance of the patient's general health are indicated. A good general diet rich in calcium is indicated even though the relationship between calcium intake and fracture healing is indefinite. Passive flexion of the knee made possible by bivalving the lower portion of the cast will prevent troublesome contractures of the quadriceps femoris.

4. External appliances in cases of nonunion are of but little aid in reestablishing weight bearing in this type of fracture.

### SAFETY AND UTILITY OF FLUOROSCOPY

To the Editor:—Can fluoroscopy be made absolutely safe for the examining physician? If so, under what conditions? Is there any danger from the fluoroscope when the apparatus is in the same room in which the physician remains continuously for several hours daily, assuring that the machine is not in use? And is there any danger, if used for about two minutes (from five to ten times) each examination, daily? Kindly suggest one or two elementary books on fluoroscopy. Please omit name.

M.D., New York.

ANSWER.—Fluoroscopy cannot be made absolutely safe for anybody without elaborate apparatus. Such apparatus has been devised in a few institutions. Belot of Paris has described apparatus for fluoroscopy that is as nearly safe as it is possible to make such an instrument. The patient is completely shut off from the physician by lead-protected walls. Literally, the patient stands in another room, the only communication being the fluoroscopic screen, which is incorporated into one of the walls. Such apparatus completely prohibits the use of screen-guided manipulation with the gloved hand or wood palpator, a type of palpation that is necessary to satisfactory fluoroscopic examination.

Of course, there is no danger from the fluoroscope when the apparatus is not in use.

No one can suppose for a moment that fluoroscopy gives adequate information except in a rather limited field, as for instance in the examination of the chest. The fluoroscope gives

information regarding the excursion of the diaphragm, the relative height of the diaphragm, the condition of the phrenic angles, the mobility of the heart in relation to the diaphragm, the esophagus and gross lesions of the chest. It is impossible for even the most expert and the most experienced to see as much tissue detail in the fluoroscope as can be seen on the films. The fluoroscope can never take the place of the films. It does, however, supplement the film study in an indispensable manner. Fluoroscopy gives information as regards the size of the heart and the movements of the walls of the different chambers of the heart. Pulsations of the aorta or vascular tumors can sometimes be noted; although the absence of pulsations does not mean that a certain shadow is not due to a vascular tumor, and the presence of a pulsation does not mean that the tumor is of the aorta; for transmitted pulsations are difficult to differentiate from intrinsic pulsations.

In English, elementary books are those by Holmes and Rugles (Roentgen Interpretation, published by Lea & Febiger) and Harrison's recent Textbook of Roentgenology. There are no classic works on fluoroscopy alone, since fluoroscopy is only one phase of the roentgen study and the textbooks all deal with the full subject.

### TOXIC EFFECTS OF ERGOTAMINE TARTRATE USED IN MIGRAINE

To the Editor:—A white woman, aged 32, otherwise in good health, suffers from severe migraine. For the past six months she has been taking ergotamine tartrate 0.25 mg. subcutaneously, aborting the attacks completely. These sometimes come as often as twice a week. She has always suffered from cold hands and feet. For the past two months she has noticed mild numbness in her hands, particularly on awakening. Could there be any possibility of peripheral circulatory disturbance from the long continued use of the drug in this dosage, never more than two doses a week being given? Please omit name.

M.D., Alabama.

ANSWER.—There is a possibility of the production of ergotism from ergotamine. Substitution of some other therapy until the numbness has subsided, followed by cautious resumption of the ergotamine treatment and watching for recurrence of the symptom might clear up the question. Care must, of course, be taken to eliminate the disturbing influence of suggestion.

### INTRAMUSCULAR INJECTION INTO BUTTOCK

To the Editor:—I frequently have occasion to use intramuscular injections into the buttock, giving bismuth preparations in the treatment of syphilis, mercurials or liver. It seems that I have an unusual number of complaints of soreness for days and pain radiating down the leg, indicating some irritation of the sciatic nerve. I have conscientiously attempted to avoid this, without great success. I would appreciate it if you would advise me whether a proper technic renders these injections painless. If so, mine must be faulty. I would therefore request that you give me explicit directions for intramuscular injections into the buttocks with definite care as to the landmarks so that there may be no question as to the described area. Please omit name.

M.D., Washington.

ANSWER.—A certain amount of pain and the soreness following the giving of intramuscular injections in the hip may be due to the preparation employed. There are certain salts of mercury and bismuth that are rather irritating, for example mercuric salicylate or any one of the soluble mercurials such as biniodide, binbromide or bichloride. With most of the bismuth preparations there is little or no discomfort if the injection is made into the muscles, and there should be no difficulty in making this injection. One should simply divide the buttock into four quadrants and give the injection in the upper and outer quadrant always, being careful to palpate the area before the injection to see that one is not injecting an area that shows some induration. Employ a needle  $1\frac{1}{4}$  inches long and of 22 gage for an aqueous solution or 21 gage for an oily suspension. A record syringe kept in alcohol may be employed, or a glass Luer syringe that may be sterilized is also suitable.

Have the patient stand on the leg opposite to the side to be injected, in order to have the muscles perfectly relaxed. It is sufficient for sterilization purposes to scrub the area thoroughly with some cotton and alcohol and then pull the skin downward from the area you wish to inject. Taking the syringe between the first two fingers and the thumb, with a wrist motion only, one should plunge the needle boldly into the muscles, not slowly push it in. All it requires is a stroke motion of the hand backward and then boldly forward from the wrist. Before the injection one should aspirate on the barrel of the syringe to be sure one has not penetrated an artery or vein. This is preferable to removing the syringe to see whether the blood will run from the needle, for with a negative suction of the syringe one has a better chance of discovering whether one has

A disadvantage of nicotine sprays is that they are expensive; furthermore, too many applications may injure foliage, and lead arsenate residues cannot be removed as readily if nicotine and oil have been used during part of the season.

The Department of Agriculture is investigating also the possibilities of pyrethrum as an insecticide. It is endeavoring to synthesize the insecticidal principles of pyrethrum, which now has to be imported into the United States from the Far East. The chemical formulas heretofore accepted for these insecticidal principles have recently been found to be incorrect, and the discovery of that mistake has given a turn to the research which may produce the results desired.

Out of these varied investigations by the Department of Agriculture probably will come a practical and efficient new insecticide. As yet, however, not one of the numerous products studied is recommended for general use.

## *Current Comment*

### EDUCATION OF HOSPITAL PERSONNEL

Managing hospitals is a complicated business, rendering a service to sick and injured persons. As the preparation of physicians involves education and practical training under supervision, so, one by one, the other types of personnel in the hospital will tend to be employed on the basis of schooling, experience and other measured qualifications. The public is gradually learning what to expect of hospitals. The best that is known in medical skill, technical aid and personal comfort should be available in every institution that calls itself a hospital. The encroachment of politics and greed in public hospitals is being rebuffed. The gradual improvement of hospital service will depend largely on the extent to which education of hospital executives and personnel approaches higher standards.

### ASSIGNMENT OF CREDIT FOR INTERNSHIPS AND RESIDENCIES

For a number of years the American Medical Association has assigned credit in its biographic files to all physicians serving appointments on the house staffs of approved hospitals. Blanks are forwarded to these institutions as a convenient means of submitting the names of interns and residents currently employed and those who have completed services during the previous twelve months period. Data are also included which state the medical school and date of graduation and the dates of commencement and termination of service. The importance of such a central registration system increases year by year, not only as a means of contributing to the value of the American Medical Directory but as a convenient means of reference to various agencies such as licensing boards, hospitals making appointments or promotions to higher house staff positions, and examining boards for specialty certification. In all such instances, additional recognition or credit depends on previous completion of an internship

in an approved hospital. Importance attaches especially to the receipt of accurate information from the hospitals. Verifying correspondence is necessary in many instances when claims of physicians and statements from institutions are at variance. There is, however, general appreciation of the value of such credit to house officers, and requests for confirmation or additional statements are cheerfully supplied. An additional advantage arises from the ability of the Association to follow up in all cases of incomplete services in an effort to determine whether these represent broken internship contracts. This procedure, with excellent cooperation from the deans of medical schools, has served to reduce the number of these troublesome episodes materially. If it is understood that an intern should make his investigation of an appointment before and not after he has accepted it, the problem will largely disappear.

### THE LEAGUE OF NATIONS AND WORLD HEALTH

Dr. Victor Heiser, author of "An American Doctor's Odyssey," in the course of his travels had ample opportunity to observe the development of the health activities of the League of Nations. The Health Organization of the League of Nations, he states in a recently published bulletin,<sup>1</sup> is not a superhealth agency nor does it undertake to apply health measures directly through its own agents, as does the Red Cross. It acts more as a clearing house, bringing together international groups that can deal effectively with a particular problem. Its specific benefits are already numerous and include material aid rendered in such problems as that facing Greece in 1928 resulting from war, pestilence and the influx of thousands of refugees. The work of the Health Organization of the League of Nations has been singularly free from many of the difficulties that have confronted other activities of the league. It has been able, therefore, to work effectively toward the following objectives: (1) the control of epidemics and other diseases and the collection and dissemination of epidemiologic data, (2) standardization of serums and biologic products, (3) unification of health statistics, (4) publication of health information, (5) interchanges of health officers, (6) cooperation with other League of Nations groups and international organizations, and (7) technical cooperation with health administrations of various countries. The part played by the league in the prevention of smallpox, cholera, typhoid, malaria, leprosy and syphilis is briefly touched on in Heiser's discussion. The necessity for epidemiologic intelligence to aid in the prompt suppression of epidemics was early demonstrated in the Russian-Polish situation of 1922. Further evidence of the importance of this assistance has since been shown on numerous occasions. The various and preferred methods of ship fumigation have been studied exhaustively by the league, and reviews of this subject have been prepared and distributed. One division of the Health Organization concerns the coordination of biologic research. The principal aim of this division is to

1. Heiser, Victor: Millions of Patients: What the League is Doing for the World's Health, League of Nations Association, Mid-West Office, Chicago, 1937.

entered a vessel. Following this the medication is slowly injected into the area. The needle and syringe as one, with one stroke, are removed and the area is well massaged with the cotton and alcohol that were previously employed for sterilizing purposes.

With this technic one should have no difficulty with the average preparation employed, but there are certain mercurial preparations especially that may cause some irritation, which cannot be attributed to the technic of the physician.

#### UNUSUAL INFECTION OF LEGS

*To the Editor:*—A woman, aged 34, always in good health, went to China as a missionary in 1923 and remained there almost continuously until 1932. During this time, in 1926, she developed what was called blood poisoning. Her temperature fluctuated between 103 and 105 F. for about six weeks. Among the first things noticed at that time was a red to purple slightly elevated ring about half an inch wide encircling the left ankle. This area ascended the leg from 1 to 2 inches a day until it reached her thigh and then descended on the right leg, disappearing again at the ankle. In 1931 she developed "malignant malaria," although as far as can be determined no positive laboratory examinations of any sort were made. Symptoms consisted of headaches, dizziness and backaches and a temperature fluctuation between 99 and 99.6 F. She states that the best relief she obtained was with intravenous injections of arsphenamine. She was sent back to her home in this country because of her poor health. She has been weak and tired since then. Frequent small superficial abscesses have developed which require about two weeks to heal, but she has not had one to obtain a culture from since I have seen her. The temperature fluctuates between 97 and 99.6. In 1932 she had a cholecystectomy; the gallbladder was stated to contain many stones and pus. Physical examination does not show anything of significance except the tenderness in the right upper quadrant, where she occasionally complains of pain. Her weight has remained between 116 and 124 pounds (53-56 Kg.), which is good for her size. The pulse varies between 80 and 116. Hemoglobin is 80 per cent; lymphocytes number 31 per cent, transitionals 1 per cent, eosinophils 2.5 per cent, neutrophils 65.5 per cent and basophils 0. The urine shows only an occasional pus cell; the reaction is alkaline; the specific gravity varies between 1.001 and 1.020. The Wassermann reaction and agglutination with *Brucella abortus* are negative. Blood smears are negative for malaria. The stools and urine have repeatedly been negative for typhoid and paratyphoid. The blood gave a flocculant but not granular sediment. The agglutination test with the typhoid bacillus was done on two occasions during the past month. She received typhoid-paratyphoid vaccine in 1923, 1928 and 1931. She is anxious to return to China but cannot until her health improves. I would appreciate any suggestions as to diagnosis, further laboratory procedures, and treatment. Please omit name and address. M.D., New York.

*ANSWER:*—Without more information about the conditions in this patient when the so-called blood poisoning developed in 1926, it would be useless to speculate as to the nature of the skin lesion on the legs. It is certainly not characteristic of filarial infections and, more likely, represented a streptococcal or staphylococcal infection; furthermore, the history of malaria in 1931 is unsupported by the positive identification of malarial organisms in the blood. Without such identification, the diagnosis is more than questionable. It is not stated at what city she lived in China, which might throw some light on this question of the nature of the malaria, if any. Arsphenamine and arsenic preparations would not have cured malaria. There is certainly a strong suspicion that the original bacterial infection of 1926 is still present. To settle this, a series of blood cultures ought to be taken daily for at least five days at a time when the temperature is at its maximum for the day. Such cultures should be taken on a variety of mediums, including brain broth, and should be kept for at least ten days before being discarded as negative. A careful gastro-intestinal x-ray series should be taken, together with visualization of the gallbladder and roentgenograms of the kidneys after the injection of a dye. A meticulous examination for foci of infection should be made, including very scrupulously the teeth, pelvis and rectum. Urine cultures of a catheterized specimen should be made at least twice, as a bacterial infection might not result in pus cells in the urine, except intermittently. Blood agglutination is hardly enough in this case to exclude *brucella* infection. Intradermal skin tests should be done with a mixed *Brucella* antigen, which, together with the results of the blood cultures, should give conclusive evidence as to the presence of undulant fever. Nothing is said about the blood pressure. If it tends to run low, it would be advisable to examine the blood salt and to determine the blood sugar tolerance. Certainly an exhaustive and authoritative examination of at least six daily stool specimens should be made with reference to protozoa. Malaria cannot be fully excluded until blood smears have been taken twice daily by both thick and thin methods for at least five days. If all procedures as suggested are negative, it would be well to use a tuberculin reaction as a means at least of excluding a low grade tuberculous process.

#### PERIURETHRAL ABSCESS IN GONORRHEA

*To the Editor:*—A white man, aged 29, contracted gonorrhea Jan. 19, 1936. It has been confined to the anterior urethra and there is no prostatic or testicular involvement. About four weeks after infection he developed a periurethral abscess about 1½ inches from the glans, on the under surface, which was opened and drained. It gradually healed and three weeks later flared up again. It was reopened and then again gradually healed over after a period of about two weeks. There have been no more flare-ups, but since that time he has never been free from a urethral discharge. It varies, at times completely stopping, but at other times there is as much discharge as there was at the onset. The abscess has gradually decreased in size until now it is about the size of a small pea and is hard, indurated and nonfluctuant. For the past six weeks I have been massaging it twice weekly over a sound and then instilling 10 per cent neosilvol, but the discharge still alternates worse and better, with positive organisms. He has had gonococcus filtrate in gradually increasing doses since the onset. Would it be wise to try and dissect the whole abscess or what is left of it? If so, and the urethra was punctured, would this fistula heal or be permanent? There is no doubt in my mind that he is getting a reinfection from this abscess. Would hyperpyrexia in an electrical cabinet, as reported recently by some authors, effect a cure, in your opinion? If this is published, please omit name.

M.D., Alabama.

*ANSWER:*—One of the objections to excision of a periurethral infiltration is the fact that every so often the operation is followed by a fistula and it is because of this possibility that surgery should be used as a last resort. It might be advisable to soak the part in a pitcher of hot water twice a day for fifteen minutes. After the hot soaks, the small nodule or nodules should be massaged.

The passage of sounds and massage of the nodules on the sounds should be continued. If gonococci are found, it might be well to change from neosilvol to strong protein silver or mild protein silver. Hyperpyrexia is rather heroic treatment for this condition.

If the program, as outlined—soaking the part in hot water followed by massage, massage of the infiltration on sounds in the urethra with injections of silver salts—do not render the discharge free from gonococci, it might be well to examine the urethra with a urethroscope and through the urethroscope fulgurate the infected follicle.

#### CHRONIC ULCERATIVE COLITIS

*To the Editor:*—A white youth, aged 18 years, a college student, over a year ago following an acute pharyngitis developed a severe diarrhea consisting of from eight to twelve movements each day. With bismuth therapy evacuations became normal. Two months later, when he was suffering from an emotional experience, the diarrhea returned. Since then there have been persistent symptoms of colitis: diarrhea, loss of weight, pallor, irritability, and occasional streaks of blood in stools. There have been periods lasting several weeks without any diarrhea, and with weight increase. Diet, drugs and mixed vaccines have been used without permanent results. Kindly suggest further therapeutic and diagnostic procedures. Please omit name.

M.D., New York.

*ANSWER:*—The story strongly suggests the presence of chronic ulcerative colitis, which commonly appears following an intercurrent infection. It tends to flare up with such infections and it is often made worse by an emotional upset. The diagnosis can be made positively by sigmoidoscopic examination, which will probably show either actual ulceration or else swelling and reddening and fragility of the mucous membrane. X-ray examination may show also that the distal end of the colon is beginning to be scarred and narrowed, with haustration lost.

The disease is a chronic one which, unless checked, will lead to the death of the patient. It is helpful to look on it much as one has to look on pulmonary tuberculosis; unless the patient and his physician will face the situation promptly and seriously as they do now in cases of tuberculosis, and unless the treatment is long continued, involving rest in bed and mental peace, the disease will continue to advance. The time for strenuous treatment is at the beginning before the colon is converted into scar tissue.

J. A. Barga reports cures or arrests with his methods in about 70 per cent of the cases. These methods will be found described in "Management of Ulcerative Colitis," New York, National Medical Book Company, in "The Colon, Rectum and Anus," by Drs. Rankin, Barga and Buie, Philadelphia, W. B. Saunders Company, in the third volume of Oxford Medicine and in many articles. His treatment consists largely of rest in bed, a low residue diet, and what he believes is a specific vaccine and serum.

Two points need emphasis: One, that since the disease is a chronic one that may take months or years to cure, any diet used must be sufficient to maintain good health; it must contain all substances necessary for nutrition. Many patients with

standardize serums and biologic products. The unification of health statistics, the publication of health information and the interchange of health officers between different countries have all proved further fruitful fields of activity. The Health Organization has cooperated extensively with other League of Nations groups and international organizations. This has been especially noteworthy with regard to the league commissions on opium traffic, mandates, transit and economics and with the Red Cross, the International Labor Office and the Pan-American Sanitary Bureau. Not the least of its contributions has been its aid in supplying technical cooperation with the health administrations of various countries. Thus, for example, China, Greece and Bolivia all made requests for cooperation in the reorganization of their health services in the same year. The Health Organization of the League carries on a number of miscellaneous activities through commissions and subcommissions, including the Committee of Health Experts on Infant Welfare, the Cancer Commission, Expert Commission on Plague and the International Sleeping Sickness Commission. To the large majority of American physicians who are unaware of the widespread activity of the Health Organization of the League of Nations, this discussion by Heiser is a revealing document.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ALABAMA

**Lecture on Medical Ethics.**—Dr. Thomas Herbert Patton, Tuscaloosa, lectured, March 5, on medical ethics and economics at the University of Alabama School of Medicine. The lecture was the first in a recently established annual lectureship on this subject. Following the lecture, copies of the "Principles of Medical Ethics," published by the American Medical Association, were presented to the students.

### CALIFORNIA

**County Hobby Show.**—The Alameda County Medical Association will hold its first annual hobby show at the California College of Arts and Crafts, Oakland, March 27-29. Dr. Paul Michael is chairman of the hobby committee.

**Library Memorial Fund.**—The Los Angeles County Medical Association has created a library memorial fund in commemoration of deceased members. In the future, instead of sending flowers on the death of a member, the association will contribute to a fund which will be used to increase the educational facilities of the library. Friends of the deceased member may also give to the fund. According to the bulletin of the society, the fund was established at the death of Dr. David G. Ghrist, February 2, with donations from his friends.

**Society News.**—A symposium on splenic disease was presented before the San Francisco County Medical Society, February 9, by Drs. Stacy R. Mettier, Salvatore P. Lucia, H. Brodie Stephens, Robert S. Stone and Zera E. Bolin. —The Alameda County Medical Association was addressed, March 15, by Drs. William H. Strietmann on "Medical Aspects of Renal Disease"; Emil B. Leland, "Earlier Diagnosis of Upper Urinary Tract Lesions"; Albert M. Meads, "The Acute Symptoms of Chronic Hydronephrosis," and Paul P. E. Michael, "Laboratory Procedure in Kidney Disease." —Dr. Douglas R. Drury, Los Angeles, addressed the Hollywood Academy of Medicine, March 18, on "Recent Advances in Physiology and Their Application to Clinical Medicine." —Dr. Joseph B. DeLee, Chicago, addressed the San Diego County Medical Society, February 9, on "Fetal Birth Injuries."

### CONNECTICUT

**Changes in Health Officers.**—The *Connecticut Health Bulletin* announces the following changes in health officers:

Dr. Howard G. Stevens, of New Milford to succeed Dr. Frederick E. King, resigned, and of Bridgewater to succeed the late Dr. Mary G. Haskins.

Dr. John D. Donohue, health officer of the town of Montville to succeed the late Dr. Morton E. Fox.

Dr. Joseph Magnano, health officer of Middlesex County to fill the unexpired term of Dr. Jacob E. Waldman.

**Commission to Study Mental Patients.**—A special commission has been appointed by the governor for a scientific study of mental defectives in Connecticut, to work in cooperation with the Carnegie Institution of Washington. The study, financed by the institution, will be based on the population and waiting list of the Mansfield State Training School and Hospital and will cover types of cases of mental defectives, number, family backgrounds and treatment.

### ILLINOIS

**Dinner to Honor Dr. Black.**—Dr. Carl E. Black Sr. will be guest of honor at a dinner, April 29, when the Morgan County Medical Society will present a special program commemorating his fifty years in the practice of medicine in Jacksonville. The speakers will include Drs. Rolland L. Green, Peoria; Fred W. Bailey, St. Louis; William Allen Pusey, Arthur D. Black, Loyal Davis and Kellogg Speed, Chicago; Clifford U. Collins, Peoria, and Edmund B. Montgomery, Quincy. Dr. Black graduated from Northwestern University Medical School in 1887. He is 75 years of age. He was president of the Illinois State Medical Society in 1904, of the Morgan County Medical Society in 1927 and of the Western Surgical Association in 1930.

### Chicago

**Goodwill Industries' Report.**—During 1936 the Goodwill Industries employed 192 handicapped persons, who received \$53,203 in wages. Sixty-four handicapped persons were enrolled in courses on lip reading, weaving, tailoring, sewing, hat cleaning, household appliances, furniture repair, hand crafts. Because of lack of funds it was necessary to close the curative work department, and as a result only fifteen persons were served in this phase of the program. According to a report, the Goodwill Industries is 85 per cent self supporting through the sale of finished products.

**Dr. Ranson to Lecture.**—Dr. Stephen W. Ranson, professor of neurology and director of the Neurological Institute, Northwestern University Medical School, will deliver the first annual Alpha Omega Alpha Lecture April 2 in the Medical and Dental Laboratories Building of the University of Illinois College of Medicine. His subject will be "The Functional Significance of the Hypothalamus." The lectureship has been established to commemorate the thirty-fifth anniversary of the founding of Alpha Omega Alpha and will be given annually in the future. The medical fraternity, with chapters in fifty-six class A medical schools, was founded at the University of Illinois College of Medicine in 1902.

**Compilation of Data on Maternal Deaths Completed.**—The Maternal Welfare Committee of the Chicago Gynecological Society has completed its self-assigned work of securing case reports on maternal deaths in Chicago but announces that the report will not be available for some time. For 1936 a record of every maternal death in the hospital and the home was obtained. Personal interviews are being made to obtain the few that are missing for 1934 and 1935. The forms adopted by the committee, to be filled out by the hospital, were considered so satisfactory that the city board of health put them into use January 1 for recording similar information, making the report mandatory. The study was instituted in 1934 with a view to considering controllable factors in maternal mortality; it was financed by the Chicago Gynecological Society. Dr. Fred L. Adair is chairman of the maternal welfare committee, which will not be disbanded but will serve in an advisory capacity to the board of health on questions involving policy in the maternal welfare work in Chicago.

### INDIANA

**University News.**—A bronze medallion portrait of the late Dr. Edward Francis Hodges, the work of the late Ikko Matsumoto, was recently presented to the Indiana University Medical Center, Indianapolis, by Mrs. Matsumoto, Indianapolis. Dr. Hodges died in 1916; he had been a member of the faculty of Indiana Dental College, now the Indiana University School of Dentistry, and for more than twenty-five years was on the faculty of the Indiana University School of Medicine.



this disease go down hill because their diet is too restricted. Another point that is often forgotten is that since the disease is an infectious one, involving all the coats of the colon and commonly the lymphatics in the mesentery, the use of medicated enemas is illogical; they cannot possibly reach the disease and, what is more, they commonly make the patient worse.

#### PNEUMOCOCCIC MENINGITIS OR BRAIN ABSCESS

*To the Editor:*—I have a patient in the hospital who was diagnosed as having a pneumococcal meningitis and who presented the following history: A white, married woman, about 35 years of age, was seized with a chill and fever one week ago. She went to bed immediately and soon became irrational, complaining of a headache, and had vomited once during the night and also the following morning. The temperature ranged from 100 to 103 F. She was hospitalized the following day and remained in a somnolent state but could be aroused. The deep reflexes were exaggerated for the first three days, later becoming somewhat decreased. Spinal puncture was done on the fourth, fifth and sixth days. On the fourth day there was no increase in pressure, sugar was decreased, there was increased globulin, the fluid was slightly turbid, the cell count was 191, chiefly polymorphonuclears, and occasional pneumococci were found. On the fifth day there was no increase in pressure, slight turbidity was noted, globulin was increased, the cell count was 141 polymorphonuclears, and there was decreased sugar. On the sixth day there was a slight increase in pressure, the fluid was clear, the cell count in the first test tube was 110, in the second test tube 39, and no pneumococci were found. I would appreciate an outline of treatment and also the prognosis. Antipneumococcus serum is being used with general supportive treatment. Please omit name.

M.D., Indiana.

*ANSWER.*—From the evidence submitted, it is difficult to make a diagnosis of a pneumococcal leptomeningitis. This type of disease usually results in the most abundant amount of turbid fluid and excessive polynucleosis (predominance of polymorphonuclear leukocytes) of all the acute purulent leptomeningitides. The number of polymorphonuclear leukocytes is in the thousands. The treatment, however, should be that of any acute meningitis: spinal drainage every twelve hours until the fluid is clear and no cells are found; 100 cc. daily of 50 per cent dextrose solution intravenously for relief of the increased intracranial pressure; replacement of fluid either by copious amounts of water by mouth or from 1,000 to 2,000 cc. of physiologic solution of sodium chloride and 5 per cent dextrose solution intramuscularly every day if needed. Antipneumococcus serum should be given intravenously if it is positively determined that the organism observed is a gram-positive diplococcus; if the organism is a gram-negative diplococcus, antipneumococcus serum should be given intravenously. Supportive treatment should be directed to the cardiorenal, respiratory and gastrointestinal systems. The prognosis cannot be given with the evidence supplied. A true pneumococcal leptomeningitis is invariably fatal, while a meningismus or epidemic cerebrospinal meningitis offers a more favorable outcome. It is suggested that this patient be observed for a possible cerebral abscess. If the latter is found, neurosurgical intervention will be necessary.

#### CHRONIC PAIN AT SECOND METATARSAL HEAD

*To the Editor:*—For the past fifteen years a patient of mine has had trouble with her feet, the head of the second metatarsal of each foot being much depressed, the right more so than the left. There is no pain in any other part of the foot, and the patient is not relieved by arch supports. The patient stoops in an effort to lessen the pain of this area while walking. Also her activities are much curtailed because of pain due to pressure of the bone. What might one expect for the patient's future activities if the metatarsal head is removed? Any information concerning this condition will be appreciated. Please omit name.

M.D., Massachusetts.

*ANSWER.*—Pain in the region of the second metatarsal head is usually due to excessive pressure on this area followed by pathologic changes such as callus formation, bursitis, tenosynovitis, arthritis (traumatic) or periostitis. All these changes may be present in varying degrees at the same time. Excessive pressure beneath the head of the second metatarsal bone is produced by a variety of conditions, such as excessive length of the metatarsal as compared to that of the first and third metatarsal bones, abnormal depression of the metatarsal head secondary to hammer toe deformity, the increased vertical thrusts found in cavus (hollow foot) deformity, and restricted dorsiflexion at the ankle. The use of flexible shank shoes may contribute to this picture of increased pressure. Infracture of the metatarsal head (Freiberg's disease), which is an aseptic necrosis of the head, may be present.

The bilateral character of this symptom associated with poor general posture points toward a long standing static defect rather than primary bone disease. Roentgenograms of both feet should be made. Treatment is directed toward the distribution of weight over as large an area as possible, thus lessen-

ing the weight per unit of area. Felt pads of generous size may be strapped to the foot or glued to the inner sole of the shoe, just behind the metatarsal area. Metatarsal bars, curved or straight, made of leather and about three-sixteenths inch thick may be fastened to the outer surface of the posterior portion of the sole. The shoe should be of sufficient length, with rigid shank and medium height heel. The stockings must be of a length that will not restrict toe motion. Active and passive stretching of the toes into a position of flexion as well as calf stretching exercises are indicated. Excision of the metatarsal head is seldom indicated and, if done, may fail to give relief unless the basic maldistribution of weight is corrected.

#### CARBOHYDRATE INTAKE IN DIABETES

*To the Editor:*—1. A man, aged 48, diabetic, 10 pounds (4.5 Kg.) underweight, shows a trace (less than 0.1 per cent) of dextrose in the urine when he takes 50 Gm. of carbohydrate at each of three meals. When he reduces the carbohydrate intake at meals to 40 Gm. and adds 25 Gm. of carbohydrate three times a day (bread and milk) between meals and before retiring, he shows no glycosuria. He is not taking insulin and needs the additional carbohydrate. Shall he continue to take his carbohydrate in this manner? 2. In a diabetic patient with a high carbohydrate tolerance, is it wise to give carbohydrate to the limit of his capacity, giving less of proteins and fats, especially the latter? 3. A patient with diabetes shows traces (less than 0.1 per cent) of dextrose in the urine after taking certain fruits (cantaloup, honeydew melon, bananas) even though the amount he takes is within his carbohydrate tolerance when he takes other foods. Can this be explained by supposing that carbohydrates of certain foods are absorbed more quickly than others? Please omit name.

M.D., New York.

*ANSWER.*—1. Unquestionably the luncheons of 25 Gm. of carbohydrate should be given between meals and before retiring; but one should not expect that the results will always be the same when the glycosuria is so slight. Very likely the patient might tolerate 40 Gm. of carbohydrate at breakfast, 50 Gm. at noon and 60 Gm. at the late evening meal, and in addition small quantities of food at other times.

2. Theoretically a bridge might sustain 10 tons, but would one strengthen it by loading it to the limit? Carbohydrate does stimulate insulin production but even the advocates of the high carbohydrate diet do not favor the administration of carbohydrate when the blood sugar is rising.

3. It is quite possible that carbohydrate in one form may be absorbed more quickly than in another. Thus, with protamine zinc insulin one likes to give a slowly absorbable carbohydrate in preference to a quickly absorbable carbohydrate which is appropriate in the treatment of reactions due to regular insulin.

One should be sure that the sugar in the urine is dextrose and not levulose or pentose. An investigation of this point might solve the whole situation.

#### EPHEDRINE SALTS INTERNALLY

*To the Editor:*—What are the objections, when clinical relief is obtained, to large doses of ephedrine internally; e. g., 15 grains (1 Gm.) daily in divided doses, for several days, in the severe exacerbations of asthma? I have tried this in many asthmatic patients and found no elevation of blood pressure. What are the incompatibilities of ephedrine internally, particularly when given with iodides, tincture of hyoscyamus and solution of potassium arsenite? Please omit name.

M.D., New York.

*ANSWER.*—There would be no objection to giving 1 Gm. daily in divided doses, provided the untoward manifestations, such as insomnia and palpitation, are looked out for and antagonized by appropriate means, such as the simultaneous administration of phenobarbital, should they arise. The observation that this dose does not produce definite elevation of blood pressure is in line with the opinion generally held. Ephedrine is not incompatible with any of the medicaments mentioned.

#### URTICARIA AND ABSCESS

*To the Editor:*—I am considering reporting a case of lung abscess the initial symptom of which was generalized urticaria (hives). This symptom at the onset of the illness before the coughing up of any purulent material seems quite unusual to me, and I am writing to inquire whether this is a rare symptom before the drainage of the abscess cavity starts. How often has a case like this been reported in the literature and where?

THOMAS V. Z. GUDEX, M.D., Louisville, Ky.

*ANSWER.*—It is well known that infections anywhere in the body may cause urticaria. No specific cases of urticaria associated with lung abscess are found in a search of the literature. However, this would not be an unusual association. Urticaria accompanying a parasitic abscess would probably be more common than in a bacterial abscess.

**Course in Public Speaking at Medical School.**—Establishment of a course in public speaking at Indiana University School of Medicine, Indianapolis, has been recommended by a committee appointed by the dean, Dr. Willis D. Gatch, to study the subject. It was further suggested that a committee be appointed to confer with a committee from the faculty at Bloomington to explore ways and means to arrange such a course harmoniously, according to the state medical journal. The primary purpose of the course, which would include training in the use of both the written and the spoken word, would be to produce physicians able to write and speak properly before assemblies of physicians or laymen. The committee is composed of Drs. Maurice Joseph Barry, chairman, Thurman B. Rice and Edgar F. Kiser.

### KANSAS

**Dr. Jackson Will Give Porter Lectures.**—Dr. Chevalier Jackson, professor of bronchoscopy and esophagoscopy, Temple University School of Medicine, Philadelphia, will present the Porter Lectureship in Medicine at the University of Kansas School of Medicine, Lawrence and Kansas City. Following is the schedule:

March 30, Kansas City, Cancer of the Larynx.  
March 31, Lawrence, The Larynx and Its Care.  
March 31, Kansas City, Bronchoscopy in the Diagnosis and Treatment of Disease.

**Personal.**—Dr. Leo V. Turgcon, Wilson, has been appointed a member of the state board of administration for a four year term, and Dr. James M. Scott, Topeka, has been reappointed to a temporary term. State hospitals, the state sanatorium for tuberculosis at Norton and similar institutions are under the jurisdiction of the board.—Dr. James E. Henshall, Osborne, was recently appointed to a four year term on the Kansas State Board of Medical Registration and Examination; Dr. Henry E. Haskins, Kingman, has been reappointed to a four year term.—Dr. Clinton C. Fuller, Columbus, has been appointed health officer of Cherokee County.

### MARYLAND

**Dr. Gamble to Give the Thayer Lectures.**—Dr. James L. Gamble, professor of pediatrics, Harvard University Medical School, Boston, will deliver the William Sydney Thayer and Susan Read Thayer Lectureship in Clinical Medicine at Johns Hopkins University School of Medicine, March 30-31. His subjects will be "Extracellular Fluid in Health and Disease" and "Renal Defense of Extracellular Fluid."

**Annual Banquet of Health Department.**—The Baltimore City Health Department held its thirty-fourth annual banquet, February 2, with Dr. Adolph Weinzirl, then director of the bureau of communicable diseases, as toastmaster. Dr. Weinzirl is now health officer of Portland, Ore. The speakers included Mayor Howard W. Jackson; Dr. Thomas S. Cullen, a member of the state board of health; Dr. John L. Rice, commissioner of health of New York City; Dr. William H. F. Warthen, assistant commissioner of health of Baltimore, and Dr. Huntington Williams, health commissioner.

**Medical-Dental Service Bureau Discontinued.**—The Medical and Chirurgical Faculty of Maryland recently discontinued the Medical-Dental Service Bureau, which began operation April 1. The board of directors of the bureau felt that the medical and dental professions had not displayed sufficient interest to justify its continuance. According to the faculty's bulletin, the fact that only about 10 per cent of the physicians and a little larger percentage of the dentists availed themselves of the services was most discouraging. The board arranged for the liquidation of outstanding debts and retained the charter of incorporation so that operation might be resumed if there is a sufficient demand at any time in the future.

### MASSACHUSETTS

**Medical Adviser to Industrial Board.**—Dr. Matthew V. Norton, Jamaica Plain, has been appointed medical adviser of the Industrial Accident Board of Massachusetts, succeeding the late Dr. Francis D. Donoghue, it is reported. Dr. Norton graduated from Tufts College Medical School in 1929.

**Hospital Bequests.**—Massachusetts General Hospital, Boston, is to receive \$100,000 to establish free beds in the women's department, under the will of William A. Sargent of Brookline. A similar bequest will go to the New England Deaconess Hospital. Both gifts will be memorials to Mr. Sargent's mother, Martha Sargent.

**New Marine Hospital.**—A site has been selected in Boston for a new U. S. Marine Hospital, replacing the antiquated one at Chelsea, built about 1860. According to the *Health*

*Officer* the plans call for a 350 bed hospital on a tract of land covering about 579,000 square feet, which is in Commonwealth Heights, Brighton, overlooking the Charles River Basin and Boston Harbor. The title of the site was held in the name of the Massachusetts Memorial Hospital, whose trustees purchased it in 1929.

### MICHIGAN

**Glee Club and Orchestra Hold Joint Concert.**—The doctors' symphony orchestra and the glee club of the Wayne County Medical Society are rehearsing for a concert to be given jointly, April 26. Georges Miquelle is director of the orchestra and Marcus Kellerman of the glee club.

**New Health Directors.**—Dr. Clifton E. Merritt, Coldwater, has been appointed in charge of the newly established health department in Dickinson County, and Dr. Lloyd H. Gaston, Gladwin, formerly director of health district number 7, has been chosen to direct the new department in Sanilac County. Dr. Edwin Vanderslice, Lansing, has been placed in charge of health district number 7, comprising Clare, Gladwin and Arenac counties.

### MISSOURI

**New Hospital for Negroes Dedicated.**—The new \$3,160,000 Homer G. Phillips Hospital for Negroes, St. Louis, was dedicated and opened for patients February 22. Replacing city hospital number 2, the building formerly used by the old Barnes Medical College, the new hospital occupies all but one corner of two city blocks and consists of an administrative building with two ward wings to care for 600 patients, a service building and a nurses' and superintendent's home. The speakers at the dedicatory exercises included Governor Starck, Mayor Dickmann, Secretary of the Interior Harold L. Ickes; Father Alphonse M. Schwitalla; Dr. Earle Williams, Lovejoy, Ill., president of the Mound City Medical Association; Dr. Midian O. Bousfield, Chicago, of the Rosenwald Fund; Dr. Roscoe C. Giles, Chicago, president of the National Medical Association, and Dr. Numa P. G. Adams, dean, Howard University School of Medicine, Washington, D. C. Dr. Orval S. McClellan is superintendent of the institution. PWA grants supplied \$625,000 of the building cost.

### NEW YORK

**Prize for Reports on Pneumonia.**—The advisory committee of the New York State Department of Health will award a prize of \$100 to the physician in New York outside New York City who submits the best report of a series of cases of pneumonia. If the writer desires, the report may be documented by clinical histories and laboratory reports; but the report itself should not be longer than 5,000 words and should be in a form suitable for publication in the *New York State Journal of Medicine*. Reports should be in the hands of the committee not later than August 15 and the award will be made October 1.

### New York City

**Dr. Healy to Give Salmon Lectures.**—Dr. William Healy, director of the Judge Baker Guidance Center, Boston, will deliver the fifth series of Thomas William Salmon Memorial Lectures at the New York Academy of Medicine Friday evenings, April 9, 16 and 23. Dr. Healy's subjects will be "Foundations of the Personality Structure," "The Developing and Emerging Personality" and "Personality in Widening Human Relationships." Dr. Healy has been director of the Judge Baker Foundation since 1917. Previously he was director of the psychopathic institute of the juvenile court of Chicago. He was graduated from Rush Medical College, Chicago, in 1900.

**Dr. Russell Retires.**—Dr. William L. Russell, general psychiatric director of the Society of the New York Hospital since 1926, retired January 1 and was appointed consulting psychiatrist of the hospital and medical director emeritus of the Westchester Division (formerly Bloomingdale Hospital), White Plains. Dr. Russell, a native of Canada, was graduated from University Medical College, New York University, in 1885. After several years of private practice in New York he was appointed assistant physician at the Willard State Hospital, serving from 1897 to 1903, when he became medical inspector for the New York State Hospital Commission. In 1910 he was appointed medical superintendent of the Long Island State Hospital and in 1911 went to Bloomingdale Hospital as medical director, remaining until his appointment as general psychiatric director in 1926. Dr. Russell is professor of psychiatry emeritus at Cornell University Medical College. He is 73 years old.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *THE JOURNAL*, March 20, page 998.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lanc, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical examination* will be given in St. Louis, April 23, and at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. *Applications must be received at least sixty days prior to the examination dates*. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7 and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination*. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. *Applications must be sent to the Secretary prior to April 1*. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. *To be considered for this meeting, applications must be in the hands of the Secretary before April 2*. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Written examinations* will be held in various cities in the United States, April 3. *Oral examination*. Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

### Connecticut November Examinations

Dr. Thomas P. Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, Nov. 10-11, 1936. The examination covered 9 subjects and included 70 questions. An average of 75 per cent was required to pass. Thirty-six candidates were examined, 28 of whom passed and 8 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
George Washington University School of Medicine.....	(1935)	76.9*	75.
Georgetown University School of Medicine.....	(1935)		75.2
Rush Medical College.....	(1933) 75, (1934)		76.1*
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1936)		80.9*
Boston University School of Medicine.....	(1935)		77.8*
Harvard University Medical School.....	(1929) 83.3, (1935)		84.8
Tufts College Medical School.....	(1933)		82.7.
University of Michigan Medical School.....	(1934)	75, (1935) 75, 75.3, (1936) 83.3*	78.2
St. Louis University School of Medicine.....	(1936)		79.1
Columbia Univ. College of Physicians and Surgeons.....	(1935)		76.7
Long Island College of.....	(1936)		75.3*
New York University.....	(1936)		80.6
University of Rochester.....	(1934)		80.1.
University of Oregon Medical School.....	(1932)		89.9
University of Pennsylvania School of Medicine.....	(1933)	75, 83.2	
University of Vermont College of Medicine.....	(1935)		76.7
Queen's University Faculty of Medicine.....	(1929)		75.9
McGill University Faculty of Medicine.....	(1934)		84.8

School	FAILED	Year Grad.	Per Cent
University of Illinois College of Medicine.....	(1936)		73.3
St. Louis University School of Medicine.....	(1935)		72
Long Island College of Medicine.....	(1935)		71.9
Laval University Faculty of Medicine.....	(1933)		66.8
Regia Università degli Studi di Roma. Facoltà de Medicina e Chirurgia.....	(1935)		73.6†
Osteopaths, 3†			

Twenty-six physicians were successful in the oral examination for endorsement applicants given in Hartford, November 24. The following schools were represented:

School	PASSED	Year Grad.	Endorsement of
Yale University School of Medicine.....	(1934)* (1934), (1935) N. B. M. Ex.		
Emory University School of Medicine.....	(1933)		Georgia
Johns Hopkins University School of Medicine.....	(1933)*		Maryland
Harvard University Medical School.....	(1903)*		
(1927)* Massachusetts, (1924), (1930, 2),* (1932), (1934) N. B. M. Ex.			
Tufts College Medical School.....	(1934) N. B. M. Ex.		
University of Michigan Medical School.....	(1929)* Michigan		

Columbia Univ. College of Physicians and Surgeons... (1933) New York, (1934)\* N. B. M. Ex.  
Cornell University Medical College..... (1923) New York (1930), (1932) N. B. M. Ex.  
New York University, University and Bellevue Hospital Medical College..... (1933)\* New York  
University of Rochester School of Medicine..... (1933) New York  
Duke University School of Medicine..... (1933), (1934)\* N. B. M. Ex.  
University of Vermont College of Medicine..... (1925)\* New York, (1932) N. B. M. Ex.  
Queen's University Faculty of Medicine..... (1926) Minnesota  
\* License has not been issued.  
† Verification of graduation in process.  
‡ Examined in medicine and surgery. Average grade not reported.

## Book Notices

**Allergic Diseases: Their Diagnosis and Treatment.** By Ray M. Balyeat, M.A., M.D., F.A.C.P., Associate Professor of Medicine, University of Oklahoma Medical School, Oklahoma City. Assisted by Ralph Bowen, B.A., M.D., F.A.A.P., Chief of Pediatric Section, Balyeat Hay Fever and Asthma Clinic, Oklahoma City, Oklahoma. Fourth edition. Cloth. Price, \$6. Pp. 516, with 132 illustrations. Philadelphia: F. A. Davis Company, 1936.

This edition is similar in many ways to the three previous ones. There is considerable new material; the chapter on the allergic phases of dermatology has been given a great deal of space and is well written; the differential diagnosis between contact dermatitis and allergic eczema is likewise well done. The use of iodized oil in the treatment of chronic bronchial asthma is fully discussed and the technic is easily understandable. However, other investigators have not obtained such brilliant results by its use as has the author of this book; the photographs and tables deserve much commendation; the language is lacking in medical phraseology and seems to be written for the public and medical students rather than for the trained physician. The book is to be strongly criticized because of its lack of editing and the amount of repetition. For example, the subject of heredity is dealt with over and over again and the relationship of rabbit hair to mattresses is repeated with almost identical words in several parts of the book. The size of the book could be materially reduced by careful attention to such details. The percentage of positive skin tests in cases of migraine and urticaria seems too high. Most other workers find few such patients with positive skin tests. The author is also to be criticized for applying the term "sensitive" to an antigen when he implies that the patient has given a positive skin test. The word "sensitive" should mean "clinically sensitive" and not skin test positive. The writer also uses the term "perennial hay fever" for cases of rhinitis due to animal dander, orris root and dust. It would seem best to restrict the term "hay fever" to patients hypersensitive to pollen and only to pollen. The perennial allergic type could be included under the term "allergic" or "hypersensitive rhinitis."

**Le développement psychique de l'enfant et de l'adolescent. Évolution normale.—Pathologie.—Traitement.** Manuel d'étude. Par Edouard Piehon, médecin des hôpitaux de Paris. Pp. 45. Price, 45 francs. Pp. 374. Paris: Masson & Cie, 1936.

This book is written in a concise, clear style and is easy to understand. Although definitely psychoanalytic in his approach, the author displays an excellent knowledge of neuropsychiatry and psychology. The book is divided into five parts. Part one has to do with the methods of child psychology, intelligence testing, observing and questioning of children and case history taking. Part two traces the normal mental development of children, including speech, motor ability, thought processes and emotional development. Part three concerns the disturbances of mental development, including mental deficiency, endocrine dysfunctions, neuropathologic conditions, perversions, psychoses, epilepsies and emotional instability. Part four discusses education from an academic, familial and social point of view. Part five discusses therapy both psychologic and pharmacologic. The author does not attempt to present the entire field of any subject but reviews briefly the important problems of child psychology and develops many valuable ideas and criticisms. Some of the modern psychologists will be disappointed to find that the author in his consideration of intelligence adopts a nativistic point of view and quotes Leibnitz's famous reply to Locke. This view is in striking contrast to the rest of the book. Many educators may take issue with his insistence on the importance of the reality principle in all forms of educa-

**Columbia to Enlarge Laboratory Facilities.**—Columbia University College of Physicians and Surgeons will add eight floors to the west wing of its building at Broadway and One Hundred and Sixty-Eighth Street to enlarge its laboratory facilities for graduate medical education, Dr. Willard C. Rappleye, dean of the college, recently announced. The expansion is made possible by gifts amounting to \$500,000, half of which was a grant from the Commonwealth Fund. There will be laboratories for anatomy, pathology, biologic chemistry, physiology and bacteriology. The new facilities will be a further advance in the program of graduate medical education which Columbia has been developing for several years. A variety of short courses has been organized in the hospitals and clinics associated with the college: some for the general practitioner who wishes to keep abreast of medical knowledge; some for the specialist already practicing, and others for those who need only a short period of training to qualify for certification by one of the national specialty boards. Affiliations with leading hospitals of the metropolitan area make available ample clinical facilities; key men on the staffs of these hospitals have been or will be appointed to the teaching staff of the university. In addition to the short courses, for which university credit is not given, Columbia has offered since 1932 the degree of doctor of medical science to identify those who complete a program of study on a university level in one of the specialized fields of clinical medicine. Only residents appointed in one of the affiliated hospitals may register for this degree. With the new extensions the university can now provide a wide variety of opportunities for every phase of medical education under a flexible plan of study at a university level and with adequate laboratory and clinical facilities to meet every educational need, the dean's announcement states.

### PENNSYLVANIA

**Hospital Appointments.**—The Delaware County Hospital, Upper Darby, has appointed Dr. Thomas A. Shallow, professor of surgery, Jefferson Medical College, Philadelphia, director of the department of surgery to succeed the late Dr. Edward J. Klopp. Dr. Frederick J. Kalteyer, clinical professor of medicine at Jefferson, was appointed director of the medical department, and Dr. Howard S. Busler, Lansdowne, director of the department of otolaryngology.

### Philadelphia

**Potter Lecture.**—The William Potter Memorial Lecture at Jefferson Medical College was delivered, February 11, by Dr. Henry A. Christian, Hersey professor of the theory and practice of physic, Harvard University Medical School, Boston. His subject was "The Fruition of a Clinician."

**Dr. Clerf Appointed to New Position.**—Dr. Louis H. Clerf, formerly professor of bronchoscopy and esophagoscopy at Jefferson Medical College, has been elected professor of laryngology and bronchoscopy. In addition to his present duties, Dr. Clerf will assume the duties formerly discharged by Dr. Fielding O. Lewis, who has been made emeritus professor of laryngology and consulting laryngologist to Jefferson Hospital.

**Radio Talks on Venereal Disease.**—Through its committee on venereal and cutaneous diseases, the Philadelphia County Medical Society is presenting a series of radio talks on venereal disease. The titles used are as follows:

- Why the Public Should Know About Syphilis and Gonorrhea.
- The United States Public Health Service and Syphilis.
- How Does Syphilis Spread?
- What Is Syphilis?
- Syphilis in the Expectant Mother and Her Offspring.
- What Price Syphilis (Community and Industry)?
- The Need for Intelligent Treatment of Syphilis.
- Syphilis Is Curable.
- What Is Gonorrhea?
- Gonorrhea Is Curable.

**John Scott Medals Awarded.**—The city of Philadelphia through its board of city trusts conferred the John Scott Awards for 1937 at a ceremony March 5 on Dr. Everts Ambrose Graham, Bixby professor of surgery, Washington University School of Medicine, St. Louis; William D. Coolidge, Ph.D., director of the research laboratory of the General Electric Company, Schenectady, N. Y., and Irving Langmuir, Ph.D., associate director of the same laboratory. Dr. Graham was honored for his application of x-rays to the study and diagnosis of diseases of the gallbladder; Dr. Coolidge for his development of the modern x-ray tube, and Dr. Langmuir for his invention of the tungsten filament incandescent electric bulb. The awards are \$1,000, a copper medal and a certificate. The Scott awards were given to Philadelphia by a Scotch chemist in 1816 to reward persons whose work "adds to the comfort, welfare and happiness of mankind." The original gift was \$4,000, but in the 120 years of its existence the fund has grown

to more than \$100,000. Why John Scott chose Philadelphia to administer it has never been known, the Philadelphia *Inquirer* says: he never came to the city and was not known there except for a possible acquaintance with Benjamin Franklin.

### WASHINGTON

**Obstetric Society Organized.**—A group of physicians interested in obstetrics met in Tacoma January 30 to form the Washington State Obstetrical Society. Dr. Henry H. Skinner, Yakima, was elected president; Dr. Robert N. Hamblen, Spokane, vice president, and Dr. Philip C. Kyle, Tacoma, secretary. Meetings are to be held the first Saturdays of April and October.

**Personal.**—Dr. Frank W. Maier, Wilbur, has been appointed house physician at the State Custodial School at Medical Lake. —Dr. William A. Mitchell, Colfax, has been appointed health officer of Whitman County to succeed Dr. Robert J. Skaife. —Dr. Sanford P. Lehman, formerly of Wooster, Ohio, has been appointed health officer of Olympia and of Thurston County to succeed Dr. Beverly D. Holland, who has been appointed to the Army Medical Corps.

**Surgical Meetings.**—Dr. Curle Latimer Callander, associate clinical professor of surgery and topographical anatomy at the University of California School of Medicine, San Francisco, was the guest speaker at the annual meeting of the Spokane Surgical Society, February 20. Dr. Callander made three addresses: "Gastro-Intestinal Embryological Principles as Applied to (a) Splenectomy, (b) Resection of Major Portion of the Duodenum and Head of the Pancreas for Carcinoma, and (c) Sliding Hernia of the Cecum and Sigmoid," "New Amputation Through the Femur at the Knee" and "New Methods of Diagnosis and Treatment of Gas Bacillus Infection." —The annual clinics of the Seattle Surgical Society were held January 22-23 at King County Hospital Unit No. 1 (Harborview), with Dr. Harry M. Richter, professor of surgery, Northwestern University Medical School, Chicago, as the guest speaker. —Dr. John M. T. Finney Jr., associate in surgery, Johns Hopkins University School of Medicine, Baltimore, was the guest speaker at the annual meeting of the Puget Sound Surgical Society in Seattle, March 13. Dr. Finney conducted clinics during the day at King County Hospital and addressed a banquet meeting in the evening at the Rainier Club on "Pyloroplasty and Duodenostomy."

### GENERAL

**Orthopedic Examination.**—The American Board of Orthopaedic Surgery will hold its next examination in Atlantic City June 8. Applications must be sent before April 1 to the secretary, Dr. Fremont A. Chandler, 6 North Michigan Avenue, Chicago.

**Golf Tournament at Atlantic City.**—The American Medical Golfing Association will hold its annual tournament at Seaview Country Club in Atlantic City Monday June 7. The directory of the association is being revised and members are asked to send their correct addresses to the secretary, William J. Burns, 2020 Olds Tower, Lansing, Mich.

**Cooperation by Commissioner of Narcotics with State Licensing Agencies.**—Information as to the narcotic addiction of any applicant for a license or permit of any kind, or of any licensee or permittee, and as to the conviction of the violation of any law relating to narcotic drugs by any such applicant, licensee or permittee, may now be furnished by the United States Commissioner of Narcotics to any state licensing agency, whenever such addiction or conviction may have a material bearing on the granting, withholding, suspension or revocation of a license or permit. Prior to the promulgation of Treasury Decision 25, March 2, 1937, such information could be disclosed only with respect to licenses relating to professions and trades in the course of which narcotic drugs are possessed, controlled or dispensed.

**Radiology Societies Employ Field Secretary.**—Mr. Mac Cabal, since 1931 executive secretary of the Sedgwick County Medical Society, Wichita, Kan., has been employed as field secretary to represent the American Roentgen Ray Society, the Radiological Society of North America, the American Radium Society and the American College of Radiology. Mr. Cabal was selected by an interlocking committee recently appointed to represent the four societies. Members of the committee are Drs. Arthur C. Christie, Washington, D. C., chairman; Edward H. Skinner, Kansas City, and Lowell S. Goin, Los Angeles. Beginning April 1 Mr. Cabal will maintain headquarters in Chicago at 2561 North Clark Street but will travel throughout the country. He will be concerned primarily with improving

tion. Others may feel that he is a bit too moralistic. However, it is one of the few books that deal with some of the practical aspects of the handling of atypical children. It is directed to the general physician to whom children are brought needing psychiatric care and whose duty it becomes to counsel the parents of these children. For this purpose it is excellent and is recommended to those engaged in child guidance work.

**Treatment in General Practice: The Management of Some Major Medical Disorders. Volume II.** Articles republished from the *British Medical Journal*. Cloth. Price, 10s. 6d. Pp. 426, with illustrations. London: H. K. Lewis & Co., Ltd., 1936.

To those who have profited by volume I of this series, which included a discussion of diseases of the respiratory tract, acute specific fevers and cardiovascular diseases, this volume will be welcome. It deals with diseases of the nervous system, of the digestive system and of the blood and blood forming organs, rheumatic diseases, metabolic diseases and diseases of the kidney. As with the previous volume, this is a reprint of articles that appeared in the *British Medical Journal* during the past year. As the articles were written on invitation by eminent clinical teachers, each of them might be considered to represent the voice of British authority on the subject. If a certain degree of conservatism is manifest, characterized by a tendency to keep alive certain therapeutic measures that might well be permitted to lapse into oblivion, this must be credited to the habitual attitude of our British confrères.

**Diseases of Infancy and Childhood.** By Wilfrid Sheldon, M.D., F.R.C.P., Physician for Diseases of Children, King's College Hospital, London. With a foreword by G. F. Still, M.A., M.D., LL.D. Cloth. Price, \$7. Pp. 738, with 137 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

There seem to be so many books dealing with the diseases of children that this one must be examined regarding its justification. It is neither a handbook nor a large reference work. According to the author it represents the clinical teaching and lectures on pediatrics given in the children's department and postgraduate courses at King's College Hospital. As stated by Dr. G. F. Still in the foreword, "It carries not merely the stock-in-trade of every medical textbook but the fruit of personal experience; so that opinions expressed have been checked by clinical observation, and as such are of solid worth." He further states "It is the function of such a book as this to keep us abreast of recent developments and particularly of the latest methods available for helping children in their time of sickness." The book is unusually well illustrated for one of its size, which alone should commend it. Occasional bibliographic references are given at the bottom of the pages, most of them being from the British literature. Conditions such as tuberculosis of the bones and joints, osteomyelitis and cleft palate have been intentionally omitted because of their surgical nature, although they belong in a pediatric textbook as much as does intussusception. The book is thoroughly down to date, as evidenced by the mention of mandelic acid in the treatment of urinary infections and convalescent serum in poliomyelitis. The book is a well composed, well illustrated, fairly complete, concise pediatric textbook written in the English manner and from an English pediatrician's point of view.

**Anatomy of the Human Body.** By Henry Gray, F.R.S., Fellow of the Royal College of Surgeons, Lecturer on Anatomy at St. George's Hospital Medical School, London. Twenty-third edition thoroughly revised and re-edited by Warren H. Lewis, B.S., M.D., Professor of Physiological Anatomy, Johns Hopkins University, Baltimore. Cloth. Price, \$10. Pp. 1,381, with 1,216 illustrations. Philadelphia: Lea & Febiger, 1936.

Twenty-three editions of Gray's Anatomy, a medical classic, have appeared since the publication of the first English edition in 1858. The volume has had several editors but throughout the course of its development has maintained a constant approach to this fundamental medical book. In the present edition the various sections have been brought down to date by the incorporation of new additions to anatomic knowledge, particularly in the sections on embryology and on the ductless glands, where research has centered in the last few years. In the revision of the text of the section on the central nervous system, Dr. David McK. Rioch of Harvard University Medical School has carried the responsibility. Some new illustrations have been added and older ones replaced. The Basle anatomical nomenclature in English is followed. The current volume is prefaced by a portrait and a brief biography of Henry Gray, author of the first edition.

**Lane Medical Lectures: Studies in Cardiovascular Regulation.** By G. V. Anrep, M.D., D.Sc., F.R.S., Professor of Physiology, Medical Faculty, Egyptian University, Cairo. Stanford University Publications, University Series. Medical Sciences, Volume III, Number 3. Paper. Price, \$1.50. Pp. 118, with 38 illustrations. Stanford University, California: Stanford University Press; London: Oxford University Press, 1936.

In this series of five lectures, Professor Anrep takes a well deserved place among a group of brilliant and distinguished men who have delivered the Lane medical lectures since 1896. His contribution provides additional distinction for the series. The subject is discussed under the topics proprioceptive mechanism of cardiovascular regulation, respiratory regulation of the heart rate, dynamics of the coronary circulation, coronary blood flow and blood flow through the skeletal and plain muscles. The work is almost entirely that of Professor Anrep and his colleagues, although there is liberal reference to similar work in other laboratories. The tasks have been carried out with meticulous care and attention to detail. No statement is made that is not proved to the satisfaction of the author; and the author is a severe critic. To the clinician he offers much material for careful thought and not a little opportunity for clinical investigation. The clinical picture of shock and asphyxia is at once adorned with new significance after one has read the lecture on the proprioceptive mechanism. The coronary circulation is dealt with from a wholly physiologic standpoint but the clinical implications cannot be missed. The work on human heart-lung preparations is especially interesting and subsequent reports will be awaited with interest. In the preface the author states that he has succeeded in answering only a few questions but that he hopes he has been able to raise many more. He has succeeded in answering enough questions to make it profitable for all who are interested to read the answers and he has succeeded in raising enough questions to provide much opportunity for research, both clinical and physiologic.

**Food and the Principles of Dietetics.** By Robert Hutchison, M.D., LL.D., F.R.C.P., Consulting Physician to the London Hospital, and V. H. Mottram, M.A., Professor of Physiology at King's College of Household and Social Science, University of London. Eighth edition. Cloth. Price, \$6.75. Pp. 634, with 3 illustrations. Baltimore: William Wood & Company, 1936.

In some respects a review of such a work as this might be likened to gilding the lily. The chronological progress of the editions dates from 1900, when the textbook was first published. It appears as though a lot of the material contained in the original edition is still retained, thirty-six years later. This should be of greater interest to the bibliophile than to the practitioner, as it presents clearly in both quotation and paraphrase a summary of the properly endorsed bibliographic references of nutrition in the nineties. A close perusal of the total material reveals few, but some, misconceptions with reference to modern views concerning food. As the book devotes only about 140 pages to the large field of infant and adult feeding in disease, as a textbook for immediate institution of diet therapy it may be considered somewhat inadequate. The volume is heartily recommended as a source of physiologic food principles as well as a mine of information relative to the reactions to food of the body when in a pathologic state.

**Seventy Years of It: An Autobiography.** By Edward Alsworth Ross, Ph.D., LL.D., Professor of Sociology, University of Wisconsin. Cloth. Price, \$3. Pp. 341, with 9 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

Edward A. Ross, for many years professor of sociology in the University of Wisconsin, records here the story of his life, a career noted for its independence, its effect on the world and his contribution to American scholarship. He writes in a personal reflective manner and he supplements his book with innumerable quotations from magazines, newspapers, personal correspondence and other sources, which he has selected with fine editorial judgment. One of the most interesting and humorous chapters is a section of some twelve pages of quotations from his personal correspondence without any other note than a single headline for each. Like many another university professor, Ross was subject during his career to investigation by a state legislature, and his account of these investigations has at present a highly journalistic interest. The book will well repay lovers of autobiography.



the relations of all radiologists with organized medicine. The appointment is for three years and will be financed by the four societies.

**Council Formed to Coordinate Cancer Activities.**—At the request of the National Association of Science Writers, the American Society for the Control of Cancer has sponsored the formation of a council to act as a clearing house for information and to integrate and coordinate the activities of the major cancer organizations in the United States. The following were appointed members of the council: Drs. Frank E. Adair, New York, and the late Robert B. Greenough, Boston, to represent the American College of Surgeons; Karl Kornblum, Philadelphia, the American Roentgen Ray Society; James B. Murphy, New York, and Clarence C. Little, Sc.D., Bar Harbor, Maine, the American Association for Cancer Research; Drs. James Ewing, New York, and Burton T. Simpson, Buffalo, the American Society for the Control of Cancer. It is believed that unwise or premature publicity may be forestalled or its effects minimized by the council's work, claims of successful treatments or cures may receive prompt and authentic criticism, and abuse of public confidence may be prevented.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Children's Hospital of Philadelphia and Babies' Hospital of Philadelphia, \$5,000 each by the will of William E. Sellers.  
The following hospitals receive \$5,000 each by the will of the late Samuel Hahnemann Medical Church, Hahnemann Medical: Protestant Episcopal, Methodist, Presbyterian, St. Temple University, Women's Southern, St. Children's hospitals and St. Christopher's.  
American Oncol \$5,000 from the estate of Miss Mary Edmunds, in recognition of cancer research work done by Dr. George M. Dorrance.  
Episcopal Hospital, Philadelphia, \$2,000 from the estate of Charlotte C. McCreight.  
Northeastern Hospital, Philadelphia, \$1,000 by the will of William Wiseman.  
Hahnemann Hospital, Philadelphia, about \$3,000 to establish three beds in memory of her parents, by Mrs. Kate Van Alen.  
Frederick Douglas Memorial Hospital, Philadelphia, \$1,000 by the will of Clifford Phillips.  
Brooklyn Hospital, Brooklyn, N. Y., \$10,000 by the will of the late William Gilman Love.  
Hunt Memorial Hospital, Danvers, Mass., \$100,000 by the will of the late William C. Endicott.  
Presbyterian Hospital, Philadelphia, \$5,000 by the will of George Miller.  
Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, \$20,000 from Mrs. Irma Straus in memory of her husband, the late Jesse Isidor Straus, ambassador to France.

## Government Services

### Examination for Appointment to Public Health Service

The U. S. Public Health Service announces an examination for eligibility to appointment in the regular corps of the service in the grade of assistant surgeon (medical only). Examiners will be in the following places to make physical examinations and to conduct the oral and general fitness portion of the examination:

- U. S. Veterans' Facility, Atlanta, Ga., April 12.
- U. S. Marine Hospital, New Orleans, April 13.
- U. S. Veterans' Facility, Kansas City, Mo., April 16.
- Psychopathic Hospital, Denver, April 17.
- U. S. Marine Hospital, San Francisco, April 19.
- U. S. Marine Hospital, Seattle, April 22.
- U. S. Veterans' Facility, Minneapolis, April 26.
- U. S. Marine Hospital, Chicago, April 27.
- U. S. Marine Hospital, Cleveland, April 28.
- U. S. Public Health Service Hospital, Lexington, Ky., April 29.
- U. S. Public Health Service Building, Washington, D. C., May 3.

Applicants who pass these preliminary examinations may participate in the written examination May 3, either at the place where the physical examination is conducted or at some nearer point; or they may come to Washington to take the entire examination May 3. The oral and physical fitness portion of the examination will consume one or two days, while the written and clinical portions will consume not less than five days. Travel expenses are to be paid by the candidates. Applicants must not have passed their thirty-second birthday, must be citizens of the United States, must be graduates of class A medical colleges and must have completed at least one year of internship or its equivalent since graduation. The compensation of officers in the grade of assistant surgeon is \$3,158 per annum with dependents and \$2,699 without dependents. If time will permit, application blanks may be obtained from the surgeon general, Washington, D. C.; otherwise they may be obtained from the board of examiners at the time of examination. Applicants will be required to present their diplomas to the board.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb. 27, 1937.

### A Dietary Survey

The Medical Research Council has published a survey of the food eaten by representative communities in England and Scotland, which is the third of three reports by Prof. E. P. Cathcart and Mrs. A. M. T. Murray. A point brought out in the earlier investigations was the relative constancy in the distribution of calories between protein, fat and carbohydrate eaten by people in different towns. In particular the constancy of the percentage of protein eaten was remarkable: 11.03 in St. Andrews, 10.16 in Cardiff and 10.32 in Reading. Yet the foods eaten in these towns differed widely. Throughout the past fifty years, discussions of food and nutrition have largely centered round the calory value of the diet, and 3,000 calories a day per man for many became a standard. More recently the figure has been raised to 3,400 calories. But according to Professor Cathcart and Mrs. Murray the daily diet of 109 women students averaging 21 years of age contained 2,035 calories. The physique and health of these women was good and the question arises whether misplaced trust has not been put in the standard of 3,000 calories. The technical commission set up by the Health Committee of the League of Nations gave an allowance of 2,400 calories a day as adequate for an adult male or female living an everyday life in a temperate climate and not engaged in manual work. The observations of Cathcart and Murray are in closer agreement with this figure than with the much quoted 3,000 calories. Their main conclusion is that few of the diets examined in these various towns, when considered from the point of view of energy, protein, fat, percentage of first class protein and mineral salts, can be regarded as poor. But many of them leave much to be desired in their content of "protective" foodstuffs, such as milk, green vegetables and fruit. The authors therefore stress the need of educating the housewife in the relative value of different foodstuffs. Ignorance and stupidity, even when there is abundant money for food, often prevent the best nutrition from being obtained. Valuable results could be obtained, even among families with small incomes, by educational means. The main causal factor of inadequate diets in many households is ignorance of how to buy, what to buy and how to use to the best advantage the material bought. There was often an excessive expenditure at the beginning of the week on tasty foodstuffs that gave a poor return for money spent and a period of bare maintenance later. Balance of expenditure was an art ignored by many and, despite narrow means, the waste on days of plenty was often high. Lack of means of course plays a part in defective diets, but the authors hold that, though improved economic conditions may play a part in the amelioration of diets, the greater good will be attained by educational means.

### Committee of Medical Association and the Trades Union Congress

An important new departure has taken place by the agreement of the council of the British Medical Association and the general council of the Trades Union Congress to set up a joint committee on medical questions. The terms of reference will be as wide as possible, each side being free to bring forward for the consideration of the committee (which will be purely advisory) any question on which it desires advice. The questions likely to be considered are such general ones as the provision of a general medical service, contractual arrangements between physicians and workmen, and the developments of industrial medicine. The joint committee will also provide, either directly or through a subcommittee, arbitration machinery

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

#### Workmen's Compensation Acts: Medical Services Supplied by Incorporated Clinic Formed by Employers.

—The medical aid law of Washington permits certain employers, with the consent of a majority of their employees, to enter into contracts with "physicians, surgeons and owners of hospitals operating the same, or with hospital associations" for medical, surgical and hospital care for injured workmen. Eight employers formed a corporation, the Lumbermen's Clinic, to provide this care for employees of the incorporators of the clinic. Medical aid contracts were entered into between the clinic and corporations with which one or more of the incorporators of the clinic were interested. The clinic also entered into so-called "nonincidental" contracts with employees, providing for care during sickness and injury not received in the course of extra hazardous employment. These "nonincidental contracts" were paid for by the workmen at the rate of 25 cents a day for the first four days of the month during which they were employed. An information in the nature of quo warranto was filed by the state against the clinic, charging, among other things, that it was not a hospital association and could not therefore make contracts to supply medical services to injured workmen, that it was unlawfully engaged in the practice of medicine, and that it was carrying on the business of insurance without having obtained a license so to do. The trial court held that the clinic was not a hospital association within the meaning of the medical aid statute and that its medical aid contracts were illegal. The clinic was restrained from making further contracts until it had reorganized in such a manner as to bring itself within the provisions of the medical aid law. A period of ninety-days was allowed within which the clinic could take such action. Both the clinic and the state appealed to the Supreme Court of Washington.

The Supreme Court did not pass on whether the clinic had violated the medical practice act or the insurance laws of the state. But, in the opinion of the court, the clinic was operating beyond the scope of the statute under which it was formed, and exercising franchises or privileges not conferred by law. The clinic was organized, according to the preamble to the articles of incorporation, "in conformity with the laws of the state of Washington relative to corporations and associations formed for religious, social and for charitable purposes." The court could find no trace of any religious, social or charitable activities carried on by the clinic. On the contrary, the incorporators were motivated by the idea that they or the corporations in which they were interested would receive some advantage from the operation of the clinic. Profit does not necessarily mean a direct return by way of dividends, interest, capital accounts or salaries. The saving of expense which would otherwise necessarily be incurred is also a profit to the person benefited. If the clinic rendered to its incorporators or members, or to businesses in which they were interested and in whose profits they shared, a service at a cost lower than that which would otherwise be paid for such service, then the clinic's operations result in a profit to its members. The employers were obligated, under the law, to pay for medical aid for which the state made a certain charge. The setting up by a group of employers of this clinic to furnish medical aid at a less cost than that charged by the state certainly resulted in a profit to the members of the clinic. Furthermore, the trial court was clearly correct, said the Supreme Court, in holding that the clinic was not such a hospital association as met the requirements of the medical aid statute. The judgment of the trial court, subject to certain modifications, was affirmed.

In separate opinions two justices expressed the view that the clinic was clearly conducting a health and accident insurance business without having complied with the insurance code. Furthermore, the obvious purpose of the provisions of the medical aid statute under consideration, in the opinion of one of these justices, was to relieve the employer and workmen from contributing to the state medical aid fund. It was equally

clear that the provisions relating to contracts contemplated that such contracts should be made with operators of hospitals—persons or corporations engaged in the business of hospitalization and treatment of patients brought in for their medical and surgical care. The clinic operated no such hospital. It was a perversion of the statute, in the opinion of this justice, to permit a group of employers to band together for the sole purpose of "farming out" their injured employees to such surgeons and hospitals as they might choose.—*State ex rel. Troy v. Lumbermen's Clinic (Wash.)*, 58 P. (2d) 812.

## Society Proceedings

### COMING MEETINGS

- Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Pediatric Society, University, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.
- American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Geiling, 947 East 58th St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brookshier, 602 Garrison Ave., Ft. Smith, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- District of Columbia, Medical Society of the, Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.
- Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.
- Georgia, Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.
- Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.
- Nebraska State Medical Association, Omaha, May 11-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.
- New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
- North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
- Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
- Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, 203 Ainsworth Bldg., McAlester, Secretary.
- South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
- Tennessee State Medical Association, Knoxville, April 13-15. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.
- Texas, State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
- Western Branch of American Public Health Association, Phoenix, Ariz., April 13-15. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.

in industrial disputes. It will consist of seven representatives from each side. It is claimed that interchange of views between the medical profession and trade unionists can result only in mutual good in the public interest.

### Better Factory Conditions

In a previous letter the factories bill was described. A campaign has been instituted to improve it by a committee which admits that in the main the provisions for the health, safety and welfare of the workers are good but says that those concerning hours of work and overtime are disappointing. They suggest the following amendments: Washing facilities should be provided in all factories, not only in those of dirty or offensive trades. Accommodation for outdoor clothing should be available in all factories and not only by regulation in dirty, dusty and offensive trades. Other demands are seats for all workers whose work is done standing and a statement that their use, when the opportunities for resting occur, shall not be restricted; hours of work for young persons to be limited to forty instead of to forty-eight per week and their work not to start before 7 a. m. or continue after 6 p. m.; no overtime to be allowed for young persons; the period of employment for women to be between 7 a. m. and 8 p. m., instead of between 6 a. m. and 9 p. m.; certificates of fitness to be required for all young persons, not merely up to the age of 16. The committee also asks that the age of entry into factories should be 15, or the school-leaving age, whichever is the higher; that an hour be allowed for the midday meal; that a mess room be provided with the means of heating food, where more than twenty persons are employed, and that the provision of the Washington Convention, giving six weeks' cessation of work before and after childbirth with benefit for maintenance of mother and child, be ratified in the bill.

### Precautions Against Gas Attacks

Precautions for the defense of the country against air attacks are being rapidly made on a large scale. Those against gas attacks are particularly of medical interest. Masks of three main types are being made. The first is the standard army service type and can be worn for forty-eight hours without adjustment. This will enable men engaged in decontamination work, casualty evacuation or the control of any of the essential services in areas where the concentration is heavy and the hours of service long and continuous to carry on with perfect confidence. The construction of the mask is simple and it is guaranteed effective against any of the poison gases at present known to the government, excepting such vesicants as liquid mustard and lewisite, for which special protective clothing must be worn. The gas masks for the civilian population are of a different type and are designed to cause less resistance to breathing. For this and other reasons they can be worn without discomfort by elderly persons and by children over the age of 4 or 5 years. These masks are of two kinds, one good for from six to eight hours, the other for three or four hours. The former mask, called the service type, is intended for those on special duties, such as stretcher bearing, point duty and shifts in factories and public works. The latter type, called the standard civilian mask, which is being produced in large quantities, gives sufficient protection for the civilian to take cover in a gas-proof shelter or to escape altogether from the danger zone. Students are being trained in the use of these masks as well as in antigas preparations in general.

#### GAS MASKS FOR BABIES

The government is experimenting with three types of gas mask for small children. One is a portable cradle with a complete cover; the second is a special hood which completely envelops an ordinary perambulator; the third is a box in which a baby can sleep soundly. One or all of these types may be adopted and issued to the public free.

### REFUGEES AGAINST GAS ATTACKS

Simple devices by which people can provide their own safeguards against gas poisoning and injury during air raids have been shown at an exhibition at Kensington town hall. Maps and models explained the plans which the borough council had prepared for the protection of the people in such an emergency. The plan involves the conversion of swimming baths into a large first aid station. There will be four main self-contained depots for decontamination and first aid work. It was shown how a house could be made proof against poison gas. Paper and paste are all that are required for casement windows, with a damp blanket ready to be pulled down like a blind. For sash windows an old carpet or blanket can be placed over the whole surface and secured round the sides by laths and tacks.

### Nurses in Hospitals in 1762

Florence Nightingale is generally credited with the introduction of nurses into military hospitals (during the Crimean War), but in a lecture delivered at the Royal College of Surgeons on "John Hunter in the Campaign in Portugal" Prof. G. E. Gask cited earlier examples. In 1762 Hunter went to Portugal to serve on the only military hospital at Lisbon. Female nurses were included in this expeditionary force and were attached to the staff of the hospital. The matron was Mrs. Sullivan and there were two head nurses and three cooks. But female nurses were employed even earlier—in the wars in Ireland in the time of William and Mary and in "the Seven Years War" in Germany. But there was no evidence of the training of these women. However, Professor Gask thought that the appointment of a matron and two head nurses in control suggested that they were specially picked, perhaps from nurses in the civil hospitals.

### PARIS

(From Our Regular Correspondent)

Feb. 27, 1937.

### Social Insurance Guide for Physicians in France

In France, syndicates or unions composed of almost all the licensed physicians in each department (county) take charge of the public relations of the profession. The Syndicate of the Department of the Seine is the largest in France. In one of its monthly bulletins the details of the contract made with the social insurance authorities by the syndicate are given. The following principles, which should guide the members of the syndicate in their daily dealings with the insured, are of interest as showing the amount of "paper" work and "red tape" which the execution of such a law requires:

1. The general principle of the law is that every physician takes care of an insured individual as if that person were a patient in his ordinary practice.

2. Every worker whose annual salary does not exceed 18,000 francs (about \$900 since devaluation) is obliged to be insured. If the worker has one dependent child less than 16 years old, the limit is raised to 20,000 francs; if there are two dependent children the limit becomes 22,000 francs, and if there are three dependents it becomes 25,000 francs. The beneficiaries are the insured (male or female), the husband or wife of the insured and dependent children less than 16 years old.

3. The insured has the right to select his or her physician for all services rendered either at the domicile of the assured or in the office of the physician but not at public hospitals. The caisses or disbursing agency of the social insurance organization cannot exclude any physician from treating the insured because he is not a member of the syndicate. The underlying principle which guides the caisses is that the insured should be treated by the local practitioner; hence no allowance is granted for mileage or similar expenses in case a physician is called who does not practice in the given community.

4. The insured is obliged to ask the caisses for a special blank on which the attending physician writes the person's name and

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Medical Sciences, Philadelphia

193: 149-296 (Feb.) 1937

- \*Intensive Collapse Therapy in Pulmonary Tuberculosis: I. Study of Extent and Results of Such a Program in a Group of 1,124 Patients. G. L. Leslie and R. S. Anderson, Howell, Mich.—p. 149.  
Diagnosis of Diseases of Stomach by Gastroscopic and X-Ray Relief Studies. J. Schloss, A. Ettinger and J. H. Pratt, Boston.—p. 171.  
Bone Marrow in Anemia: Red Blood Cells. R. Isaacs, Ann Arbor, Mich.—p. 181.  
Hereditary Pseudothrombophilia. W. M. Fowler, Iowa City.—p. 191.  
Physiologic Effects of Acetyl-Beta-Methylcholine (Mechoyl) and Its Relationship to Other Drugs Affecting Autonomic Nervous System. A. Myerson, J. Loman and W. Dameshek, Boston.—p. 198.  
\*Iodine-Resistant Hyperthyroidism. E. E. Blanck, Chicago.—p. 214.  
Study of Osseous Remains of Primitive Race Who Once Inhabited Shelters of Bluffs of Ozark Mountains. E. G. Wakefield, S. C. Dellinger and J. D. Camp, Rochester, Minn.—p. 223.  
Atrophic Arthritis Among Pima Indians of Arizona. C. L. Dunham, Tucson, Ariz., and H. E. Montross, Sacaton, Ariz.—p. 229.  
Intestinal Bacteria in Chronic Arthritis: Note. Sarah H. Stabler, Abington, Pa., and R. Pemberton, Philadelphia.—p. 233.  
Tyrosinemia and Its Relation to Pathology of Liver. I. R. Jankelson, M. S. Segal and M. Aisner, Boston.—p. 241.  
Repeated Administration of Amytal. E. E. Swanson, M. M. Weaver and K. K. Chen, Indianapolis.—p. 246.  
Peritoneal Cytologic Response: Experimental Study. W. C. Corwin, Rochester, Minn.—p. 251.  
Effect of Encephalography on Blood Sugar Level of Children. C. Bradley, with technical assistance of Ruth V. Hess and Ruth M. Cary, East Providence, R. I.—p. 259.  
Failure of Calcium Therapy to Diminish Sugar Excretion in Renal Glycosuria. M. Bruger and S. E. King, New York.—p. 264.

**Collapse Therapy in Pulmonary Tuberculosis.**—Leslie and Anderson give the final results of an intensive collapse therapy program for 1,124 patients of a single large sanatorium, including 823 discharged and 301 resident patients. Collapse therapy in some form was instituted in 72.3 per cent of the discharged patients. It was recommended in 81 per cent of the entire series and was actually used in 78.8 per cent. Of 823 discharged patients, arrest or apparent arrest of the tuberculosis was secured in 47.3 per cent, favorable results in 67.1 per cent, cavity closure in 57 per cent of cavity cases, closure or decrease in the size of cavities in 69.6 per cent, sputum conversion in 59 per cent of the positive cases and negative sputum in 70.7 per cent of the discharged patients, of whom only 28.6 per cent had negative sputum throughout the entire period of treatment. Of 595 discharged patients who received collapse therapy, the figures for similar results were invariably much higher, being respectively 55.4, 77.8, 71.3, 84.2, 72.7 and 79.3 per cent. Corresponding figures for cavity and sputum results for the entire series of patients were usually slightly higher than the foregoing figures for the discharged group alone. A comparison of these results with those of a large number of sanatoriums using relatively little collapse therapy as an average clearly shows that the former are vastly superior from every point of view. The results presented constitute an overwhelming argument in favor of a definite policy of early and intensive collapse therapy for approximately three fourths of the patients with the adult type of tuberculosis in the civilian sanatoriums of this country.

**Iodine-Resistant Hyperthyroidism.**—In his study of thirty-nine patients who had hyperthyroidism and who were iodine resistant, Blanck observed that the noteworthy characteristic was the relatively short duration of symptoms. It appears that the previous ingestion of iodine is not instrumental in effecting the iodine-resistant state. In attempting to correlate this relatively short duration of symptoms, a more logical interpretation may be found in the contention of Means, who believes that the iodine-resistant state may be explained on the basis that the medication is given at a time when the disease

is rapidly increasing in severity and that the effect of the iodine is merely to hold the status constant. Following the relatively short duration of symptoms, the next principal feature is the preoperative period of iodization. Closely associated with changes in metabolism are the changes in the pulse, weight and clinical picture. There was an average rise in metabolism of 4.4 per cent. Taken alone this would suggest an intensification of the existing thyrotoxicosis. However, notwithstanding this average rise in metabolism there was an associated depression of 3.7 beats per minute in the average pulse rate and an average weight gain of 2½ pounds (1.1 Kg.). Further, 81 per cent of these patients experienced definite clinical improvement. Although these changes are not as striking as those noted in the cases making an average response to preoperative medication, they suggest that, despite the rise in metabolism, these patients are in a measure definitely improved by preoperative iodization. The immediate response of these patients to surgical intervention (one-stage operation of Richter) is reflected in the relatively mild postoperative course and in the fact that there did not occur a single operative fatality in this series. The results, however, are in only partial agreement with other discussions on the iodine-resistant thyroid. To clarify this apparent discrepancy the author reviewed, for additional evidence, the last 1,500 consecutive thyroidectomies for primary, secondary and recurrent hyperthyroidism in the services of Richter. There were nine fatalities, in each of which there was wanting evidence of the iodine-resistant state. In 16 per cent there was a persistent mild hypothyroidism and in 82 per cent there was no hypothyroidism at the end of 24.3 and 27.3 months, respectively. These figures are in accordance with similar observations made in large series of cases having an average response to iodine. In this series the important feature was the uniform presence of persistently hyperplastic areas. Persistent focal areas of hyperplasia distributed throughout the gland may be sufficient to elevate or maintain a constant basal metabolic rate. On the other hand, that some improvement does occur following iodization can be reconciled in that the gland does undergo partial involution, and hence the degree of preternatural activity is reduced but not completely controlled. What appears to be of greater importance is that a complete uniform involution does not always follow iodization. Why focal areas of hyperplasia should persist that have resisted the involution produced by iodine is a matter of conjecture.

#### American Journal of Physiology, Baltimore

118: 207-422 (Feb.) 1937. Partial Index

- Comparison of Oral Administration versus Intraperitoneal Injection of Colloidal Iron on Blood Regeneration in Nutritional Anemia of Rat. H. H. Beard and T. S. Boggess, New Orleans.—p. 211.  
Acid Production in Functioning Heart Under Conditions of Ischemia and of Congestion. R. M. Moore and M. M. Greenberg, Galveston, Texas.—p. 217.  
Oxygen and Carbon Dioxide Content of Arterial and Venous Blood of Normal Subjects. J. M. Looney and E. M. Jellinek, Worcester, Mass.—p. 225.  
Pituitrin Anemia. A. Gilman and L. Goodman, New Haven, Conn.—p. 241.  
\*Effect of Environmental Temperature on Emptying Time of Stomach. C. K. Sleeth and E. J. Van Liere, Morgantown, W. Va.—p. 272.  
Salt Economy in Humid Heat. C. Daly and D. B. Dill, Boston.—p. 285.  
Blood Sugar Level After Administration of Physostigmine and Atropine. M. Caroline Hrubetz, New York.—p. 300.  
Study of Augmentation of Ovarian Weights as Affected by Zinc Sulfate, Antitritin S and Thyroid Implants. F. E. Emery, Buffalo.—p. 316.  
Experimental Studies on Vagal Control of Functions of Liver. C. D. Snyder, Baltimore.—p. 345.  
Sounds Due to Muscular Contraction and Their Importance in Auscultatory Qualities of First Heart Sound. R. W. Eckstein, Cleveland.—p. 359.  
Effect of Artificial Radiant Energy on Tissue Temperature Gradient in Men of Different Skin Colors and After Artificial Pigmentation. H. Laurens and P. C. Foster, New Orleans.—p. 372.

**Effect of Temperature on Emptying Time of Stomach.**—The work done by Sleeth and Van Liere on the emptying time of the stomach in five normal dogs shows that low environmental temperature decreases the emptying time of the stomach, while high environmental temperature increases the gastric emptying time. Four animals exposed to temperature averaging 15 F. showed an average decrease of 17 per cent in the emptying time of the stomach, while the same number

## SUMMARY AND CONCLUSIONS

1. Motor accidents are occurring with increasing frequency, so that severe facial injuries necessitating surgical treatment are becoming more numerous.

2. Facial disfigurements are a source of great mental anguish and not infrequently engender psychologic handicaps that ruin social and business careers. The ranks of the unemployed and unemployable are already large enough in these days of keen competition without adding unnecessarily to their numbers persons physically and mentally handicapped by preventable and curable facial defects.

3. Proper attention to details of diagnosis and treatment at the time of first aid treatment is necessary if good results are to be obtained.

4. When infections and other complications prevent proper care soon after the accident, plastic procedures should be deferred to a later date.

5. No surgical treatment should be attempted until it can be done properly. Every effort from start to finish should be directed toward minimizing scar formation and restoring the patient to society with the least deformity in the shortest possible time.

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## CHRONIC THYROIDITIS

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In recent years attention has been called to a peculiar disease of the thyroid gland which is characterized by extensive lymphocytic infiltrations, marked reduction of the parenchyma and fibrosis. This disease, which occurs almost exclusively in women, starts insidiously and takes a very chronic course. The clinical manifestations are chiefly due to the pressure of the hardened gland on the trachea, and in the majority of the cases no symptoms of a disturbed thyroid function are encountered. The basal metabolic rate is often within normal range. In a few instances it is increased or diminished. After radical operation myxedema has been observed in about 40 per cent of the reported cases. Since the lymphocytic infiltrations frequently cause an enlargement of the gland, the disease has been classified among the goiters and the misleading adjective "lymphomatous" has been used. Hashimoto has been credited as being the first author to describe this type of goiter, and the term Hashimoto's goiter is often found in the literature (Graham and McCullagh,<sup>1</sup> Clute, Eckerson and Warren,<sup>2</sup> Lee<sup>3</sup> and Emerson<sup>4</sup>). The etiology and pathogenesis of Hashimoto's goiter are still matters of much discussion and there is also considerable controversy as to the relations between Hashimoto's goiter and Riedel's goiter. Many investi-

gators (Boyden, Coller and Bugher,<sup>5</sup> Ewing,<sup>6</sup> Heineke,<sup>7</sup> Heyd,<sup>8</sup> Perman and Wahlgren,<sup>9</sup> Reist,<sup>10</sup> Shaw and Smith<sup>11</sup> and others) see no reason for separating the two types of goiter, and indeed the histologic pictures of the two are so similar that in a given case it may be difficult to decide whether one is dealing with Riedel's type or Hashimoto's type. The differences that are found are quantitative rather than qualitative in nature. Clinically and macroscopically there are sufficient dissimilarities to warrant, at least for the present time, the differentiation of the two types (Graham and McCullagh<sup>1</sup> and Lee<sup>3</sup>), although the two are unquestionably closely related to each other. Wegelin<sup>12</sup> includes both under the general term chronic thyroiditis.

It has been repeatedly regretted that the knowledge of Hashimoto's goiter is based mainly on the material removed at operation and that studies of autopsic material are wanting. It has also been stated that nothing is known about the changes into which the lymphocytic infiltrations of the thyroid gland may terminate. I have observed at the autopsy table lesions of the thyroid which in every respect are identical with those given as characteristic of Hashimoto's goiter, except that the gland is not enlarged but is either of normal size or is smaller than normal. Since, put together, these cases form a continuous line of progressing changes which lead to a well defined pathologic condition that is rarely recognized during life, I have thought it worth while to report briefly on my studies.

EXTENSIVE LYMPHOCYTIC INFILTRATION AND  
FIBROSIS OF THE THYROID GLAND

Four cases belonging to the group in which there was extensive lymphocytic infiltration and fibrosis of the thyroid gland came under my observation and all of these were in women. The thyroid had retained its normal shape, could be easily dissected out and varied in weight between 14 and 25 Gm. The consistency was firm and scarlike, the capsule was thickened and the surfaces made by cutting presented a pale pink gray to a light yellow tan with fine, branched, whitish lines. No structures resembling normal thyroid tissue could be made out with the naked eye. Histologically dense lymphocytic infiltrations and a varying degree of fibrosis were the most striking manifestations. The infiltrations surrounded, invaded and replaced the follicles; the colloid of which had disappeared, while the lining epithelium was desquamated, degenerated and shrunken. In many places the lymphocytes formed nodules with centers that were composed of larger lymphoid cells and swollen reticular cells. Plasma cells were scanty and no giant cells could be found. The wall of the arterioles and small arteries was thickened, and in one of the cases this thickening was very marked. The interlobular and intralobular connective tissue was increased, and in some instances the fibrotic areas predominated over the lymphocytic infiltrations. Three cases showed small islands of fairly intact follicles, which

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Read before the Section on Pathology and Physiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Graham, Allen, and McCullagh, E. P.: Atrophy and Fibrosis Associated with Lymphoid Tissue in the Thyroid: Struma Lymphomatosa (Hashimoto), *Arch. Surg.* 22: 548 (April) 1931.

2. Clute, H. M.; Eckerson, E. B., and Warren, Shields: Clinical Aspects of Struma Lymphomatosa (Hashimoto), *Arch. Surg.* 31: 419 (Sept.) 1935.

3. Lee, J. G.: Chronic Nonspecific Thyroiditis, *Arch. Surg.* 31: 982 (Dec.) 1935.

4. Emerson, Clarence: Struma Lymphomatosa (Hashimoto) with Report of Ninth Case, *Nebraska M. J.* 20: 58 (Feb.) 1935.

5. Boyden, A. M.; Coller, F. A., and Bugher, J. C.: Riedel's Struma, *West. J. Surg.* 43: 547 (Oct.) 1935.

6. Ewing, James: Neoplastic Diseases, ed. 3, Philadelphia, W. B. Saunders Company, 1928.

7. Heineke: Chronische Thyroiditis, *Deutsche Ztschr. f. Chir.* 129: 189, 1914.

8. Heyd, C. G.: Riedel's Struma: Benign Granuloma of the Thyroid, *S. Clin. North America* 9: 493 (June) 1929.

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10. Reist, A.: Ueber chronische Thyroiditis, *Frankfurt. Ztschr. f. Path.* 28: 141, 1922.

11. Shaw, A. F. B., and Smith, R. P.: Riedel's Chronic Thyroiditis with a Report of Six Cases and a Contribution to the Pathology, *Brit. J. Surg.* 13: 93 (July) 1925.

12. Wegelin, C.: Schilddrüse, in Henke, F., and Lubarsch, O.: Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, 1926, vol. VIII.



were enclosed in dense connective tissue, and in these three cases the lesion of the thyroid was merely an incidental finding. One of the patients, a white woman aged 52, had committed suicide by drinking lye. The second patient, a Negress, aged 57, had died of acute yellow atrophy of the liver, and the cause of death of the third patient, a white woman, aged 28, was a verrucous endocarditis complicated by a subacute glomerulonephritis. The fourth case, which disclosed the most extensive changes of the thyroid, is described in detail:

**CASE 1.—History.**—A white woman, aged 58, of American descent, entered the hospital complaining of pain over the left side of the chest and heart, fainting spells, swelling of the hands and eyelids and progressive weakness, which had started six months before. The last menstrual period had occurred at the age of 30.

**Examination.**—On physical examination the patient was moderately obese and listless. The skin was dry, thickened and waxy with a slight degree of scaling. The hair of the head was coarse and dry and the hair of the pubic region was very scanty. The heart and lungs did not show any abnormal changes except that the heart tones sounded distant. The Wassermann reaction of the blood was strongly positive, that

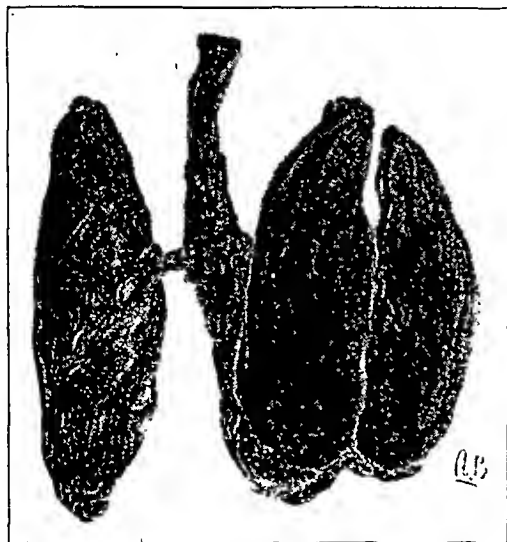


Fig. 1 (case 2).—Gross appearance of the thyroid.

of the spinal fluid negative. The urine did not contain albumin or sugar. The hemoglobin content of the blood was 60 per cent, the erythrocyte count was 4,650,000, and the leukocyte count was 14,000. There were 68 per cent neutrophils, 27 per cent lymphocytes, 3 per cent monocytes and 2 per cent eosinophils. The patient was very uncooperative and a determination of her basal metabolic rate could not be made. The diagnosis was "myxedema" and under thyroid medication the patient improved gradually. After three weeks she started to lose ground rapidly, the temperature rose to 102.6 F. and she died four weeks after admission.

**Autopsy.**—The body weight was 73 Kg. and the body length was 152 cm. The skin was dry and scaly and in the region of the thighs somewhat resembled fish skin. The heart weighed 280 Gm. There was a syphilitic aortitis, which involved the arch, and a marked atheroma of the abdominal aorta and the coronary arteries. There was an arteriosclerotic granulation of the kidneys and an apical scarring of both upper pulmonary lobes. The liver weighed 1,440 Gm., the spleen 125 Gm. and the adrenals 7 Gm. The thyroid weighed 17 Gm. and was firm in consistency and a pale pink gray. The internal genitalia were atrophic. The brain weighed 1,190 Gm. and there was a marked thickening of the leptomeninges, especially about the frontal lobes.

**Microscopic Examination.**—In the leptomeninges there were perivascular infiltrations of lymphocytes, which extended into the cortex. The cortex showed tigrolysis and neuronophagia of the nerve cells and a diffuse proliferation of the microglia

cells. The epidermis was thin and atrophic, while the cutis appeared thickened and contained a pale stained homogeneous material between the connective tissue bundles. The changes of the aorta were typical of syphilitic aortitis. The hypophysis and the pancreas were normal and the lipid content of the cortex of the adrenals was decreased.

The examination of the thyroid showed a most extensive lymphocytic infiltration, with numerous nodules about disintegrating follicles. The epithelial cells of these follicles were swollen and desquamated and in places showed an increased affinity to the eosin stain. In other places the cytoplasm of the epithelial cells was finely vacuolated. The content of these vacuoles did not take the fat stains, but fine fat granules were occasionally present between the vacuoles. There were evidences of attempts at regeneration in the form of a few mitotic figures. There was practically no colloid filled follicle left. A few plasma cells and free histiocytes were scattered between the round cells. The infiltrations were surrounded by much dense connective tissue, which enclosed the residues of shrunken follicles. The wall of the arteries and arterioles was slightly thickened.

#### ADVANCED FIBROSIS OF THE THYROID GLAND

In the two cases of the group in which there was advanced fibrosis of the thyroid gland the thyroid had been replaced by a sclerotic connective tissue. There were sufficient evidences to indicate that this sclerosis was preceded by and had developed from a lymphocytic infiltration of the gland, which was similar to that previously described. Both patients were elderly women and neither one showed the symptoms of myxedema. Of the five cases of sclerosis of the thyroid gland described by Simmonds, only two showed a myxedema. In my two cases a marked anemia was the most outstanding symptom, suggesting a primary disease of the blood-forming organs.

**CASE 2.—History.**—A white woman, aged 55, of German descent, was extremely weak and was not able to give much information. From her daughter it was learned that one week prior to her admission to the Cook County Hospital she had left the State of Wisconsin General Hospital in Madison at her request. Dr. F. J. Pohle, resident physician of this hospital, kindly supplied a detailed account of her stay there, from which the following data are taken: The patient had entered the hospital four weeks prior to her discharge, stating that during the past five months she had noticed a progressing weakness, which became so severe that she was unable to walk without assistance. She had been subject to frequent colds and became dyspneic at the slightest exertion. She was very pale, and about the tibias and ankles a slight edema was found. The blood pressure was 110 systolic, 68 diastolic, and the liver and spleen were palpable. Examination of the blood showed a hemoglobin content of 35 per cent, an erythrocyte count of 1,170,000 and a leukocyte count of 1,250 cells. There were 22 per cent neutrophils, 4 per cent eosinophils, 68 per cent small lymphocytes and 4 per cent metamyelocytes. The platelet count was 60,000. This condition remained constant and, since liver medication had no effect, three blood transfusions were given. The hemoglobin content then rose to 60 per cent and the number of the erythrocytes increased to 3,180,000. The white count, however, remained around 1,200. The clinical diagnosis was subleukemic lymphadenosis. A sore throat developed and the temperature went up to 103 F. The patient insisted on returning to Chicago and was discharged.

At the Cook County Hospital the patient complained of weakness and difficulty in swallowing. Physical examination disclosed a diffuse consolidation of the left lower pulmonary lobe and a very marked anemia. There was a mild stomatitis and a slight cervical lymphadenopathy. The lower border of the liver could be felt but the spleen was not palpable. The temperature varied between 102 and 103.6 F. The hemoglobin content was 29 per cent, the red blood cell count 1,430,000 and the white blood cell count 1,850. The differential count showed 66 per cent monocytes, 7 per cent plasma cells, 14 per cent lymphocytes, 1 per cent irritation forms, 10 per cent segmented neutrophils and 2 per cent staff nucleated neutrophils. There was a moderate anisocytosis with single hyperchromatic and

of animals exposed to temperatures averaging 90 F. showed an average increase of 10 per cent in the emptying time of the stomach. The observation gives experimental evidence for the basis of the recognized fact that an individual often feels more hungry during cold weather and less hungry in extremely warm weather.

### American Journal of Public Health, New York

27:1-102 (Jan.) 1937

- Newer Epidemiology of Yellow Fever. F. L. Soper, New York.—p. 1.  
Efficiency of State and Local Laboratories in Performance of Serodiagnostic Tests for Syphilis. Report of Committee on Evaluation of Serodiagnostic Tests for Syphilis.—p. 15.  
Integration of the Practicing Physician into Venereal Disease Program. J. N. Baker, Montgomery, Ala.—p. 24.  
Role of Vital Statistics in Medical Science. W. F. Walker, New York.—p. 29.  
Maternal Mortality of the Chicago Maternity Center. Beatrice E. Tucker and H. B. Renaron, Chicago.—p. 33.  
Public Health Features in Milk Plant Layout. R. E. Irwin, Harrisburg, Pa.—p. 37.  
Recent Trends in Public Health Engineering Practice. A. Wolman, Baltimore.—p. 43.  
Recent Advances in Laboratory Methods. W. D. Stovall, Madison, Wis.—p. 50.  
Housing as a Public Health Problem. C. E. A. Winslow, New Haven, Conn.—p. 56.  
Rodent Control in Food Establishments. R. Moore, State College, Miss.—p. 62.  
Mental Hygiene Programs in Schools and Colleges. C. E. Shepard, Stanford University, Calif.—p. 67.

### American Review of Tuberculosis, New York

35:147-280 (Feb.) 1937

- Oral Tuberculous Lesions. C. C. Darlington and I. Saluan, New York.—p. 147.  
Tuberculosis of Tongue: Report of Two Cases. R. D'Aunoy, E. von Haam and J. Connell, New Orleans.—p. 180.  
Esophagopleural Fistula in Case of Tuberculous Pyopneumothorax. A. J. Kanter and I. Madoff, New York.—p. 190.  
\*Tuberculous Enterocolitis: I. Study of Terminal Ileum and Colon by Barium Meal and Barium Enema. N. I. Fox, C. H. Warfield and L. O. Leader, Chicago.—p. 198.  
Practical Applications of Contemporary Research on X-Ray Apparatus and Technic for Chest. F. M. McPhedran, C. Weyl and S. R. Warren Jr., Philadelphia.—p. 208.  
Contraception in the Tuberculous. E. S. Mariette, Oak Terrace, Minn.—p. 216.  
\*Filament-Nonfilament Count in Tuberculosis Compared with Sedimentation Rate and Leukocytic Index. D. Paine and Katherine H. Austin, Waltham, Mass.—p. 221.  
Auto-Urine Test in Diagnosis of Tuberculosis. E. B. Hanan and Sophia Zurett, Buffalo.—p. 229.  
Desensitization of Tuberculous Guinea-Pigs with Unheated Tuberculin. A. Branch and G. V. Kropp, Detroit.—p. 247.  
Experimental Tuberculous Infection in Guinea-Pig Fetus Compared with That in the Adult. A. J. Vorwald, Saranac Lake, N. Y.—p. 260.

**Tuberculous Enterocolitis.**—Fox and his associates declare that abdominal pain, diarrhea, local rigidity and tenderness over the cecum, or a palpable tumor in the same region, are diagnostic of intestinal ulceration in far advanced cases of pulmonary tuberculosis; but these symptoms are not common, or even rare, diarrhea having occurred in only four of their 100 cases. The vague symptoms, such as anorexia, nausea, constipation and varying distress after meals, are more common but in themselves are insufficient for a diagnosis. The degree of intestinal involvement does not always correspond to the amount of pulmonary involvement, and therefore the diagnosis is missed until a later date when tuberculosis in the lungs becomes quite evident. Laboratory help in these cases is insufficient. Roentgen studies hold out the most promising possibilities. The oral method of giving barium sulfate for roentgen observation is the best for studying the ulcerative type of cecal tuberculosis. However, an examination of this region by x-rays is not complete unless barium sulfate is given by mouth and by enema. The terminal ileum was visualized in ninety-seven of the 100 cases at seven hours and in sixty-one cases at nine hours. The percentage with a visualized ileum at nine hours was definitely higher in the pathologic group. Of this group thirty-eight were found to have abnormalities after the oral administration of barium sulfate. Forty-eight with cavitation showed an incidence of 54 per cent of positive roentgen changes, and sixty-eight with positive sputum showed an incidence of 47 per cent of roentgen signs. The incidence of cavitation (68.4 per cent) and positive sputum (84.2 per cent) in the cases with positive roentgenologic changes is markedly higher than the corresponding figures (35.5 and

58 per cent) in those with negative observations. Of the four cases in which there were symptoms, three were roentgenologically positive. The incidence of positive signs was definitely higher by the oral method than by the barium sulfate enema.

**Filament-Nonfilament Count in Tuberculosis.**—Paine and Austin performed nonfilament counts, leukocyte counts and sedimentation rates on seventy-seven tuberculous patients over a considerable period, comparing the three tests as guides to pathologic activity and as warning signals of approaching relapse, with particular emphasis on the nonfilament count. In order to confirm the observations of previous workers, nonfilament counts were done on fifty healthy members of the sanatorium personnel. All were under 16 per cent, ranging from 2 to 16, with an average of 7.7 per cent. Thus the base line of 16 was used as the upper limit of normal. In only nine of the patients studied were the trends of the three determinations in disagreement. For the most part filament-nonfilament and leukocytic counts agreed closely. In the sixteen patients showing steady progression of the lung process all three tests were elevated consistently. In four patients showing a sudden and marked increase of disease neither the filament-nonfilament nor the leukocytic index showed any premonitory rise. Sedimentation rates remained elevated in some patients who were clinically inactive and whose leukocytic index and nonfilament count had returned to normal. The filament-nonfilament count in this study demonstrated no superiority over the leukocytic index.

### Arkansas Medical Society Journal, Fort Smith

33:151-168 (Feb.) 1937

- Diagnosis of Tuberculosis by the General Practitioner. J. D. Riley, State Sanatorium.—p. 151.  
Recent Advances in Obstetrics. B. J. Reeves, Little Rock.—p. 154.  
My Results with Ionization Treatment in Nasal Allergy. V. L. Payne, Pine Bluff.—p. 156.

### Journal of Infectious Diseases, Chicago

60:1-128 (Jan.-Feb.) 1937

- \*Influence of Certain Dried Fruits and Adsorbing Agents on Intestinal Flora of White Rats. L. Weinstein and J. E. Weiss, New Haven, Conn.—p. 1.  
Lysozyme: Occurrence of Apparently Sterile Phase; Relation of Lysis to Dissociation. M. Pinner and Marie Voldrich, Onconota, N. Y.—p. 6.  
Climate and Streptococcus-Rheumatism Relationship. W. B. Sharp and Mildred B. John, Galveston, Texas.—p. 15.  
Inhibitory Effect of Hypertonic Solutions of Sodium Chloride on Staphylococcus Hemotoxin. R. H. Rigdon, Nashville, Tenn.—p. 25.  
Effect of Pregnancy and of Female Sex Hormones in Modifying Course of Syphilis in Experimental Animals. J. E. Kemp, Chicago.—p. 32.  
Morphology of Haemophilus Pertussis Grown Under Varying Conditions and on Different Media. J. A. Toomey and W. S. Takacs, Cleveland.—p. 41.  
Cataphoretic Velocity of Typhoid Bacillus as Function of Culture Age and Type of Medium. R. M. Watrous, Chicago.—p. 47.  
\*Bacilluria Caused by Bacterium Alkalescens. M. L. Snyder and J. P. Hanner, Denver.—p. 51.  
Immunologic Studies with Purified Serum Proteins Bearing on Unitarian Theory of Antibodies. Edna Delves, Chicago.—p. 55.  
Observations on Frei Test. W. H. Connor, E. A. Levin and E. E. Ecker, Cleveland.—p. 62.  
California Field and Laboratory Studies on Relapsing Fever. M. Dorothy Beck, San Francisco.—p. 64.  
Meningitis Due to Organisms Belonging to Salmonella Group. J. H. Bahrenburg and E. E. Ecker, Cleveland.—p. 81.  
Survival of Oxygen and Water Deprivation by Tubercle Bacilli. T. S. Potter, Chicago.—p. 88.  
Carbohydrate Gradient of Certain Micro-Organisms. A. G. Wedum and Bernice L. Golden, Chicago.—p. 94.  
Cystine-Tellurite Agar for Corynebacterium Diphtheriae. M. Frobisher Jr., Baltimore.—p. 99.  
Lack of Fitness as Predisposing Factor in Infections of Type Encountered in Pneumonia and in Common Cold. A. Lock, Pittsburgh.—p. 106.  
Relationship Between Nasal and Humoral Antipoliomyelitic Substances. Beatrice F. Howitt, San Francisco.—p. 113.  
Studies on Anaerobic Bacteria: X. Heat Stable and Heat Labile Antigens in Botulinus and Related Groups of Spore-Bearing Anaerobes. L. S. McClung, San Francisco.—p. 122.

**Influence of Dried Fruits on Intestinal Flora.**—Weinstein and Weiss find that banana powder, apple powder and raisins, when fed to white rats subsisting on a high protein diet consisting exclusively of raw chopped beef, cause a change in the intestinal flora from one in which nonaciduric bacteria predominate to one in which Bacillus acidophilus is the main organism. Prunes, charcoal and kaolin do not have any visible

acetylsalicylic acid among those hypersensitive to the drug. All the fatal cases of hypersensitiveness to acetylsalicylic acid which we have encountered in the literature have been of this type. Vander Veer,<sup>9</sup> in the course of a discussion of the problem of asthma, stated: "We have the records of at least two dozen aspirin [sensitive] cases, in one of whom there developed an attack of asthma lasting three weeks following the ingestion of 5 grains and another patient who immediately went into shock and died in five minutes." Lamson and Thomas<sup>10</sup> reported the case of a woman with asthma, known to be sensitive to acetylsalicylic acid, who unwittingly took a dose of the drug in the form of an "asthma powder" and died as a result of the ensuing shock. Dysart<sup>11</sup> reported a case of asthma in which the patient knew she was sensitive to acetylsalicylic acid but who nevertheless deliberately took 5 grains (0.3 Gm.) of the drug and was dead within ten minutes. Francis, Ghent and Bullen<sup>12</sup> observed a case that illustrates still a third fashion in which the asthmatic patient who is sensitive to acetylsalicylic acid may come to grief. Their patient had had a previous unfortunate experience with acetylsalicylic acid, once having had an asthmatic attack of four days' duration as a result of taking 5 grains of the drug. Sometime later, having a severe attack of asthma, the patient sought relief at a hospital where he had not been treated previously. Ephedrine, epinephrine, amytal and other remedies were administered without much effect. When 10 grains (0.65 Gm.) of acetylsalicylic acid was given, the patient promptly went into a condition of shock and died thirty hours later despite all therapeutic efforts, including the administration of oxygen.

Violent bronchial asthma occurred in nine of fifteen cases of sensitivity to acetylsalicylic acid in Cooke's series; in one case almost fatal asphyxia was the result. Estimating that 10 per cent of all asthmatic patients are allergic to acetylsalicylic acid, van Leeuwen was of the opinion that these patients should be regarded as a special subgroup among the asthmatic. He noted that almost without exception they had severe asthma and were sensitive to many things besides acetylsalicylic acid. He found the treatment of these patients for asthma to be disappointing. Epinephrine, he stated, is "remarkably ineffective"; alcohol and morphine he found to be more useful.

Among the patients in our series who were asthmatic, three stated that their first attack of asthma had followed the use of acetylsalicylic acid. Van Leeuwen also observed patients who experienced their first asthmatic attack following ingestion of a tablet of acetylsalicylic acid and who continued to have frequent, even daily, attacks of a very severe nature thereafter. Asthma alone occurred in thirty-eight of the sixty-two cases (61 per cent). In combination with urticaria, vasomotor rhinitis or abdominal cramping, asthma occurred in five (8 per cent) additional cases. In only one case in our series was the asthma described as "mild wheezing"; in all others it was very severe. Palpitation was a distressing accompaniment of asthma and, in a few instances, cyanosis was present. One patient had learned from

experience to avoid acetylsalicylic acid but had had very severe asthmatic reactions, necessitating hospitalization, from taking nationally advertised headache and cold remedies which apparently contained quantities of this drug.

The duration of these asthmatic responses to the administration of acetylsalicylic acid varied from two hours to two days. Duke<sup>7</sup> stated that the reaction can last for from several days to one or two weeks or more. Cooke referred to one patient whose attack was prolonged for three weeks, but he stated that the attacks usually last from eight to thirty-six hours.

A recent experience with a patient who had an alarming attack of asthma after the administration of acetylsalicylic acid is as follows:

A farmer, aged 43, had had asthma for eighteen months. It came on after years of colds and prolonged coughing spells with expectoration. Mild at first, it became severe six months prior to his admission and, when first seen, he required epinephrine at least once daily and twice at night for relief of symptoms. He had lost 47 pounds (21 Kg.). He had had nasal congestion for years and a brief episode of eczema six years previously. A sister had had asthma.

Physical examination disclosed two pertinent features; the lungs were full of wheezing râles, breathing was labored, and both sides of the nose were filled with polyps. Sensitization tests were entirely negative after intradermal injections of airborne and food antigens. Stereoscopic roentgenograms of the pulmonary fields were essentially negative, and roentgenograms of the sinuses revealed polyps in the left frontal sinus, right and left ethmoids, and left antrum.

The patient was sent to the hospital for removal of the nasal polyps and for investigation of the sinuses. During the night before operation the patient was given 10 grains (0.65 Gm.) of acetylsalicylic acid. He had taken this drug but rarely in the past and remembered no ill effects from its use. Within thirty minutes after he took the drug this time, however, very severe and alarming asthma developed associated with cyanosis, perspiration, nausea and prostration. The pulse rate rose to 120 beats per minute and respirations rose from 18 to 32. Epinephrine failed to influence the asthma even when administered repeatedly at intervals of twenty minutes. Morphine gave but slight relief.

When he was placed in a tent containing 80 per cent oxygen, the patient's color improved somewhat but no other change could be noticed. The cervical musculature was contracted and the head was thrown back, making an almost straight tube of his trachea, pharynx and mouth. The mouth was open and dry and the breathing was very labored. The patient's condition became alarming; exhaustion was apparent. About thirteen hours after the onset of the acute asthma, a helium-oxygen mixture was administered, which definitely eased the effort of breathing but did not influence the asthma. Slight, although definite, improvement was noticed two and a half hours later and, in the following two hours, recovery seemed assured. The administration of helium was discontinued after almost four hours, but the patient was kept in an oxygen tent until the following morning, approximately thirty-two hours after the onset of the attack. Three days later bilateral antral windows were made and the nasal polyps were removed. Convalescence from this operation was uneventful.

The ineffectiveness of epinephrine and morphine in this case is characteristic of the more severe reactions to acetylsalicylic acid experienced by other patients in the series. It would seem that relief is obtained only when the effect of the drug wears off.

Vasomotor rhinitis: Typical, although severe, symptoms of vasomotor rhinitis occurred in three cases as a result of patients taking acetylsalicylic acid; it occurred in combination with asthma in two other cases. One patient experienced continuous sneezing and blockage of the nose and another described her reaction as a

9. Vander Veer, Albert, Jr.: The Asthma Problem, New York M. J. 112: 392-399 (Sept. 18) 1920.

10. Lamson, R. W., and Thomas, Roy: Some Untoward Effects of Acetylsalicylic Acid, J. A. M. A. 99: 107 (July 9) 1932.

11. Dysart, B. R.: Death Following Ingestion of Five Grains of Acetylsalicylic Acid, J. A. M. A. 101: 446 (Aug. 5) 1933.

12. Francis, Nathan; Ghent, O. T., and Bullen, S. S.: Death from Ten Grains of Aspirin, J. Allergy 6: 504-506 (July) 1935.

effect on the intestinal flora of white rats. The exact explanation for the action of banana, apple and raisins is not apparent, but it is quite probable that the carbohydrate and mineral contents of these fruits are of prime importance in their ability to establish an intestinal flora rich in *Bacillus acidophilus*.

**Bacilluria Caused by Bacterium Alkalescens.**—Snyder and Hanner present a case of continued bacilluria, at times accompanied by a definite though mild pyuria, which was apparently caused by *Bacterium alkalescens*. The organisms fermented dulcitol and were agglutinated by known acid concentration as contrasted with the negative reaction of *Bacterium dysenteriae* (Flexner) to these tests. On the basis of these results and the negative serologic relation with the Flexner type the strain was identified as *Bacterium alkalescens*. This bacilluria has existed now for nearly two years. The infection did not respond to oral administration of methenamine and sodium acid phosphate. However, the child has developed normally and in recent months has seemed in better health than ever. She suffers little from enuresis or even frequency of urination in the daytime. In all likelihood the infection was an ascending one because the organism was found in the stool. The species is apparently saprophytic in nature but under some circumstances may develop parasitic properties such as were displayed in this case.

### Kentucky Medical Journal, Bowling Green

33:39-78 (Feb.) 1937

- Change in Character of Medical Practice. J. D. Northcutt, Covington.—p. 42.  
Home Treatment of Pulmonary Tuberculosis. C. C. Turner, Glasgow.—p. 45.  
Rocky Mountain Spotted Fever in Kentucky. M. F. Beard, Louisville.—p. 49.  
Advances in Treatment of Varicose Veins and Leg Ulcers. P. R. Imes, Louisville.—p. 50.  
Spinal Anesthesia. M. Casper, Louisville.—p. 53.  
Seasonal Variation in Incidence of Puerperal Infection. R. F. Monroe, Louisville.—p. 54.  
Management of Preoperative Patient. J. A. Vesper Jr., Covington.—p. 57.  
Treatment of Pneumonia in Children and Infants. H. S. Andrews, Louisville.—p. 60.  
Physiology of Oxygen Want. J. M. Kinsman, Louisville.—p. 62.  
Unusual Foreign Body in Rectum. R. C. Alley, Lexington.—p. 67.  
Peripheral Vascular Disease. C. M. Edelen, Louisville.—p. 67.  
Symptoms and Etiology of Upper Urinary Tract Stone. D. E. Scott, Lexington.—p. 70.

### Laryngoscope, St. Louis

47:1-76 (Jan.) 1937

- Results of 76,000 Adenoid and Tonsil Operations. W. H. Turnley, New York.—p. 1.  
Choice of Operation in Tonsillectomy. J. D. Kelly, New York.—p. 7.  
Argyrosis. C. Kaplan, Brooklyn.—p. 14.  
\*Is Ionization Worth While for Allergic Patient? A. M. Alden, St. Louis.—p. 17.  
Pharyngomaxillary Fossa: Methods of Opening Through Mouth: Case Reports. H. M. Goodyear, Cincinnati.—p. 21.  
Further Study in Clinical Report of Use of Acriviolet in Diseases of Upper Respiratory Tract and Ear. A. J. Herzig, New York.—p. 25.  
Trio of Rare Bronchoscopic Cases. B. Welt and S. Weinstein, Brooklyn.—p. 30.  
Early Story of the American Laryngological, Rhinological and Otolological Society by One of Its Founders. D. L. Hubbard, Denver.—p. 50.  
Further Clinical Observations on Influence of Hygroscopic Agents in Cigarettes. F. B. Flinn, New York.—p. 58.

**Ionization and Allergy.**—Alden points out that ionization in no way alters the fundamental physiologic characteristics of the individual which make him allergic and that it even decreases for only a relatively short time the ability of the nasal cells to combine with and be affected by their offending allergens. What it does is, by a mechanical change, to render the nasal mucosa less able to produce disagreeable obstructive and secretory symptoms in response to either external irritation or vasomotor stimuli. Desensitization is still the method of choice in the treatment of this condition, ionization being reserved for patients in whom the obstructive and secretory symptoms are predominant and in whom the mechanical relief to be expected is more than commensurate with the tissue damage incident to the ionization. Asthma has not been lessened after ionization except in a few cases, in which the author is sure that the improvement was due to the relief from nasal obstruction rather than to any change which the treatment brought about in the allergic status of the patient.

### Pennsylvania Medical Journal, Harrisburg

40:249-324 (Jan.) 1937

- Studies in Influenza. T. Francis Jr., New York.—p. 249.  
Functional Uterine Bleeding. Catharine Macfarlane, Philadelphia.—p. 254.  
Laryngeal Symptoms in Children. Ellen J. Patterson, Pittsburgh.—p. 257.  
Fingernail and Toenail Changes Associated with Common Skin Diseases. W. D. Whitehead, Scranton.—p. 260.  
Restriction of Exercise in Treatment of Heart Disease. L. B. Laplace, Philadelphia.—p. 264.  
Comparison of Agglutination Tests in Individuals Treated with Typhoid Vaccines by Subcutaneous and Oral Methods. G. R. Lacy and M. Cohen, Pittsburgh.—p. 267.  
Damage from Drains. F. Eastman, Erie.—p. 270.

### South Carolina Medical Assn. Journal, Greenville

33:25-46 (Feb.) 1937

- Report of Conference on Venereal Disease Control Work. J. A. Hayne, S. Simons and G. E. McDaniel, Columbia.—p. 25.  
Eastern Type of Rocky Mountain Spotted Fever: Case Report. J. H. Stokes, McBee.—p. 27.  
Tubercle Bacillus Eradicated: Case Report. W. T. Lander, Williamston.—p. 29.

### Surgery, St. Louis

1:1-162 (Jan.) 1937

- \*Surgical Treatment of Scleroderma: Rationale of Sympathectomy and Parathyroidectomy (Based on Experimental Investigations and Clinical Study of Twenty-Six Personal Cases). R. Leriche, A. Jung, Strasbourg, France, and M. De Bakey, New Orleans.—p. 6.  
Sphincter of Oddi in Man and Certain Representative Mammals. E. A. Boyden, Minneapolis.—p. 25.  
Function of "Valves" of Heister. M. E. Lichtenstein and A. C. Ivy, Evanston, Ill.—p. 38.  
Nutritional Edema: Its Effect on Gastric Emptying Time Before and After Gastric Operations. P. M. Mcerray, R. P. Barden and I. S. Raydin, Philadelphia.—p. 53.  
Intestinal Obstruction Complicating Pregnancy. E. L. Eliason, and W. H. Erb, Philadelphia.—p. 65.  
Potassium in Acute Intestinal Obstruction. J. Scudder, R. L. Zwemer and R. Truszkowski, New York.—p. 74.  
Urinary Loss of Iodine Following Total Thyroidectomy. G. M. Curtis and L. E. Barron, with technical assistance of N. L. Matthews, Columbus, Ohio.—p. 92.  
Venous Stasis Accelerates Bone Repair. H. E. Pearse Jr. and J. J. Morton, Rochester, N. Y.—p. 106.  
Synovioma: Report of Fifteen Cases with Review of Literature. B. L. Coley and J. C. Pierson, New York.—p. 113.

**Surgical Treatment of Scleroderma.**—Leriche and his colleagues discuss the rationale for the conception that the sympathetic apparatus is of pathogenic significance in certain forms of scleroderma and therefore that sympathectomy is indicated as a therapeutic procedure. In this so-called Raynaud-scleroderma type of syndrome, histopathologic studies reveal definite vascular changes and clinical investigations show evidence of pathologic hypertonus of the arterioles. In the thirteen cases of scleroderma in which sympathectomy was performed, improvement followed operation in approximately two thirds of the cases. Therefore a disturbance in the equilibrium of the sympathetic apparatus is not the only or even the most significant factor in the pathogenesis of scleroderma. That a chronic hyperfunction of the parathyroids is of pathogenic significance and that parathyroidectomy is indicated as a therapeutic procedure is discussed in detail. Clinical and experimental investigations clearly demonstrate a definite disturbance in calcium metabolism, thus reflecting exaggerated physiologic function of the parathyroids. Of the thirteen cases of scleroderma in which the authors performed parathyroidectomy, improvement to a greater or lesser degree followed operation in twelve. Two of the patients, examined two and five years respectively after operation, could be considered cured. All the patients had rather severe and generalized forms of scleroderma. Only one patient was considered to have shown no improvement, although amelioration was observed immediately after operation, but the patient died two months later of the complicating Addison's disease. The authors consider parathyroidectomy the procedure of choice in the treatment of scleroderma. Clinical and experimental evidence supports the view that a chronic hyperparathyroidism does exist in scleroderma, and parathyroidectomy seems to ameliorate the condition. Sympathectomy may be combined with parathyroidectomy in cases characterized by symmetrical lesions, especially of the extremities, and in those in which typical vasomotor disturbances are present.

"terrible spell of hay fever." Bolt<sup>13</sup> and Macht<sup>14</sup> described nasal congestion as well as other symptoms following ingestion of acetylsalicylic acid in persons hypersensitive to the drug.

**Urticaria and angioneurotic edema:** The urticarial and angioneurotic edema-like reactions from the ingestion of acetylsalicylic acid were usually very distressing. Severe urticaria and angioneurotic edema following the ingestion of this drug by individuals hypersensitive to it are described frequently in the literature.<sup>15</sup> Edema of the glottis, tongue and throat also occurs occasionally.<sup>16</sup>

Coca<sup>1</sup> felt that acetylsalicylic acid is one of the most common causes of angioneurotic edema. Twelve patients (19 per cent) in our series reacted severely, with urticaria and angioneurotic edema. In addition, one patient with urticaria had severe abdominal cramps, and two others had asthma with urticaria. Severe palpitation sometimes accompanied the urticaria, and one patient had a temperature of 100 F. One patient, a man, had a more severe reaction of this type, with severe urticaria, "giant hives," and violent burning all over his body, which was almost unbearable in the scalp and on the palms and soles and occasionally was accompanied by purpura.

The patients in this group offered vivid descriptions of their own reactions to acetylsalicylic acid: One mentioned swelling of the face and bulging of the eyes; several mentioned swelling of the throat or tongue, and one patient's thumb was "twice normal size." Another patient described her face, after she had ingested one 5-grain tablet of acetylsalicylic acid, as a "terrible sight"; her "whole face was swollen," her eyes were "swelled shut" and her lips were "swollen and rolled out." A man who reacted with severe urticaria every time he took acetylsalicylic acid since the age of 15 years said that on one occasion he had been so gravely ill after taking it that he was "brought home to die."

No instance of dermatitis medicamentosa following the taking of acetylsalicylic acid was included in this series. The reactions to the drug in cases of dermatitis medicamentosa are delayed and usually mild, and the subsequent use of the drug does not provoke a repeti-

tion of symptoms. Clearly, the mechanism is entirely different from that of true hypersensitivity to drugs in the atopic sense.

**Abdominal pain:** Three patients in the series experienced abdominal pains, described in each case as "very severe abdominal cramps":

One patient, a man, aged 45, whose allergic complaints were asthmatic bronchitis and vasomotor rhinitis, stated that forty-five minutes after taking acetylsalicylic acid by mouth he experienced "swelling up of the stomach," abdominal "spasms" and severe asthma. He volunteered the statement that he would never take acetylsalicylic acid again. He was not sensitive to any other drug as far as he knew and his skin tests to common allergens were negative. He was not given a skin test with acetylsalicylic acid.

A second patient, a girl, aged 20 years, whose familial and personal history were negative for allergy, took 10 grains (0.65 Gm.) of acetylsalicylic acid and, about an hour later, experienced severe abdominal cramping, with swelling of the face, tongue and fingers. Slight erythema and fever (100 F.) were noted. The worst of the reaction lasted about three and a half hours, but the swelling of the fingers persisted for twelve hours. This patient estimated that she previously had used the drug only six or seven times, always without untoward effects.

The third of these patients was a woman, aged 55, who had had hay fever, urticaria and angioneurotic edema, and she had a positive familial history of allergy. Skin tests were positive for pollens and negative for other air-borne and food antigens. She previously had used acetylsalicylic acid with no bad results until, for no reason known to her, she began to experience marked salivation about an hour or two after taking the drug. With this salivation she "doubled up" with griping, colicky pains and abdominal contractions. This occurred several times, always in the same way. Taking the drug before going to bed, she would go to sleep only to be awakened by these symptoms. It was her practice to get up then and to drink a quantity of sodium bicarbonate in water, which relieved her distress and permitted her to return to sleep, only to be reawakened by pain, necessitating the use of more soda. She stressed the fact that soda gave only temporary relief until the attack wore off of its own accord.

As an emergency treatment the effect of soda in this case was very useful and should be tried in others. This will be referred to later when the treatment of patients with reactions to acetylsalicylic acid is considered.

It will be noted that external manifestations of edema or urticaria were encountered in one of the three patients who had abdominal pain, which lends some support, therefore, to the theory that the abdominal pain in such cases is due to edema of some portion of the gastro-intestinal tract or peritoneum. Does the marked salivation noted by the third patient indicate reflex stimulation of the salivary glands from abdominal irritation or from hypersensitivity of the nervous control of the salivary glands to acetylsalicylic acid? A similar instance of salivation and abdominal pain following the ingestion of acetylsalicylic acid has been reported by Macht.

**Purpura:** Four references to purpura-like reactions after the ingestion of acetylsalicylic acid were found in the literature. Hirschberg reported the case of a man who had severe, generalized urticaria, angioneurotic edema and nasal congestion following ingestion of 1 Gm. of the drug. Later, raised red spots the size of a dime appeared on his face, neck and mucous membranes and disappeared after four days. A very similar case has been reported by Otto. Karunaratne described an erythematous rash over the face and arms of a man, aged 32, which resulted, together with cyanosis, asthma and edema of the face and neck, from the ingestion of 10 grains (0.65 Gm.) of acetylsalicylic acid. The rash subsided in three days. A similar reaction to taking the

13. Bolt, R. F.: Aspirin Idiosyncrasy, *Brit. M. J.* 2: 560 (Nov. 1) 1919.

14. Macht, D. I.: A Case of Aspirin Poisoning, *M. Rec.* 80: 826 (Oct. 21) 1911.

15. Dyke,<sup>22</sup> Hirschberg,<sup>4</sup> Bolt,<sup>13</sup> Gilbert,<sup>16</sup> Morgan,<sup>18</sup> Shelby,<sup>16</sup> Brown,<sup>21</sup> Coke,<sup>22</sup> Macht<sup>14</sup> and:

Abercrombie, P. H.: Poisoning After Small Doses of Aspirin, *Brit. M. J.* 1: 1314 (June 3) 1911.

Clyne, Charles: Case of Intolerance to Aspirin, *Indian M. Gaz.* 55: 457-458 (Dec.) 1920.

Cooke, R. A.: Studies in Specific Hypersensitiveness: III. On Constitutional Reactions: The Dangers of the Diagnostic Cutaneous Test and Therapeutic Injection of Allergens, *J. Immunol.* 7: 119-146 (March) 1922.

Franke: Vergiftungserscheinungen nach Aspirin, *München. med. Wchnschr.* 50: 1299-1300 (July 28) 1903.

Graham, Cyrus: Idiosyncrasy to Aspirin, *J. A. M. A.* 56: 261-262 (Jan. 28) 1911.

Karunaratne, W. A. E.: A Case of Aspirin Idiosyncrasy, *Brit. M. J.* 2: 42 (July 12) 1919.

Killen, S. J.: Poisoning After Small Doses of Aspirin, *ibid.* 1: 476 (Feb. 25) 1911.

Kitchin, T. D.: A Case of Idiosyncrasy to Acetylsalicylic Acid, *J. A. M. A.* 74: 889 (March 27) 1920.

Meyer: Nebenwirkung nach dem Gebrauch von Aspirin, *Deutsche med. Wchnschr.* 29: 124 (Feb. 12) 1903.

Otto: Ueber einen weiteren Fall von Nebenwirkung des Aspirins, *ibid.* 29: 123-124 (Feb. 12) 1903.

Reed, E. N.: Idiosyncrasy to Aspirin (Acetylsalicylic Acid), *J. A. M. A.* 62: 773 (March 7) 1914.

Shookhoff, Charles, and Lieberman, D. L.: Hypersensitivity to Acetylsalicylic Acid Expressed by an Angina Pectoris Syndrome With and Without Urticaria, *J. Allergy* 4: 506-512 (Sept.) 1933.

Tyrell, E. J.: Intolerance of Aspirin, *Lancet* 1: 1118 (June 28) 1919.

16. Gilbert, G. B.: Unusual Idiosyncrasy to Aspirin, *J. A. M. A.* 56: 1262 (April 29) 1911.

18. Morgan, Conwy: A Case of Poisoning After Small Doses of Aspirin, *Brit. M. J.* 1: 307 (Feb. 11) 1911.

Shelby, E. P.: Acute Poisoning by Five Grains of Acetylsalicylic Acid—"Aspirin," *J. A. M. A.* 71: 1381 (Oct. 26) 1918.

Pridham, G. H.: Aspirin Poisoning and Idiosyncrasy, *Brit. M. J.* 2: 632 (Nov. 15) 1919.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Clinical Journal, London

66: 1-44 (Jan.) 1937

- \*Paratyphoid Infections of Respiratory Tract. J. Maxwell.—p. 1.  
Radium in Gynecology. A. Gough.—p. 3.  
Series Illustrating Obscure Hip Conditions in Children. M. Forrester-Brown.—p. 8.  
Traumatic Diaphragmatic Hernia. W. S. Dickie.—p. 14.  
The Management of Congestive Heart Failure. J. R. H. Towers.—p. 20.  
Anesthetics and Their Administration in General Practice. C. E. Sykes.—p. 25.  
Some Observations on Physical Stigmas. O. C. M. Davis and P. Phillips.—p. 29.  
Value of Routine Radiography in General Practice. W. B. R. Monteith.—p. 33.

**Paratyphoid Infections of Respiratory Tract.**—Maxwell calls attention to an acute infection of the chest of definite etiology, which is easily overlooked and which can be recognized with certainty if only the possibility of its existence is kept in mind. Two illustrative cases are presented. The clinical features of paratyphoid infection, in cases in which the symptoms are predominantly thoracic, are by no means characteristic, but certain signs should lead one to suspect it. 1. The cough is out of proportion to the physical signs in the chest, and it is usually ineffective. 2. The patient is much more toxic than are other patients who have one of the commoner types of respiratory infection with similar physical signs. 3. Headache, insomnia and sweats appear to be common, and mental confusion and a stuporose condition are very significant. 4. The diagnosis is simple if the blood for the Widal reaction is taken after the eighth day of the disease. 5. Associated abdominal changes are not pronounced, and, perhaps for this reason, the prognosis appears good. From the study of these and other similar cases the author feels safe in predicting an illness of approximately six weeks, with a good prognosis. Treatment need not be so strict as it is in true typhoid infections and should consist in giving large quantities of fluid, preferably fruit juices, with as much dextrose as the patient can be persuaded to take. For the headache, insomnia and other severe toxic symptoms it may be desirable to give morphine in full doses for as long as may be necessary. The treatment of the irritating cough may be difficult, for the usual sedatives have little effect, and it is best to prescribe a linnet containing heroin, even in the early stages of the illness.

## Journal of Laryngology and Otology, London

52: 1-64 (Jan.) 1937

- Some Tumors and Ulcers of Palate and Fauces (Semon Lecture 1936). W. Howarth.—p. 1.  
Malignant Disease of Upper Jaw. G. Öhngren.—p. 18.

## Journal of Physiology, London

88: 257-368 (Dec. 11) 1936

- Dilatation of Veins in Response to Tapping in Man and in Certain Other Mammals. K. J. Franklin and A. D. McLachlin.—p. 257.  
Reactions of Abdominal Vena Cava. K. J. Franklin and A. D. McLachlin.—p. 261.  
Stream Lines in Abdominal Vena Cava in Late Stages of Pregnancy. K. J. Franklin and A. D. McLachlin.—p. 263.  
Acetylcholine Metabolism of Sympathetic Ganglion. G. L. Brown and W. Feldberg.—p. 265.  
Reflex Slowing of Respiration Accompanying Changes in Intrapulmonary Pressure. M. Hammouda and W. H. Wilson.—p. 284.  
Species Variation in Thyrotropic Activity of Pituitary Gland. I. W. Rowlands.—p. 298.  
\*Inhibition of Ovulation in Rabbit by Antigonadotropic Serum. A. S. Parkes and I. W. Rowlands.—p. 305.  
Effect of Certain Hormones on Activity of Uterine Muscle of Guinea-Pig. G. H. Bell and J. M. Robson.—p. 312.  
Experiments on Mechanism of Strychnine "Curarization." H. D. Bouman.—p. 328.  
Sympathetic Vasodilator Ethers in Hare and Monkey Compared with Other Species. Edith Milbring and J. H. Burn.—p. 341.  
Induction of Pseudopregnancy in Rat by Electrical Stimulation Through the Head. G. W. Harris.—p. 361.

**Inhibition of Ovulation by Antigonadotropic Serum.**—Parkes and Rowlands found that antigonadotropic serum prepared by prolonged injection of rabbits with chemically treated ox anterior pituitary extract inhibits the ovulation-producing activity of the antigenic extract itself, of similar extracts of horse pituitary, and of saline suspension of fresh cow and sheep

anterior pituitaries. The serum is less effective in inhibiting the activity of human urine of pregnancy extracts, but it is far from ineffective. This serum, given intravenously to rabbits immediately after mating, inhibits the ovulation which would otherwise occur in from ten to twelve hours and may therefore be said to effect passive immunization against the secretion of the rabbit's own pituitary. There is thus no suggestion of species specificity in the antiovarian action of this serum.

## Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

53: 61-119 (Feb. 1) 1937. Partial Index

- Hemolytic Anemia of Icteric Origin, with Nocturnal Hemoglobinuria and Permanent Hemosiderinuria. A. Cain, R. Cattau, J.-V. Harrispe and G. B. van der Boijen.—p. 70.  
Severe Prolonged Cirrhotic Jaundice by Subacute Atrophy of the Liver. M. Chiray, G. Albot and Y. Bouvrain.—p. 86.  
Temporary Arterial Hypertension During Alcoholic Polyneuritis: Probable Neuritis of Depressor System. E. May and Mme. Broquet-Sainton.—p. 103.  
\*Periodic Hyarthrosis of Knee Cured by Local Roentgen Therapy. E. May, J.-A. Huet and Mlle. M. Barnaud.—p. 106.  
\*Hemorrhagic Aleukia Following Oral Application of Acetarsone: Two Cases. P. Émile-Weil, H. Menetrier and C. Polak.—p. 109.

**Periodic Hyarthrosis of Knee.**—Periodic hyarthrosis of the knee always creates a difficult problem. It is an obstinate disorder resembling Quincke's edema. May and his associates had under their observation a case affecting the left knee and which, for twenty years, made its regular appearance twice a month. The knee was not inflamed and was painless, and the general condition of the patient was not affected during the swelling. Not even the roentgenogram showed any changes. Movements were not limited; the quadriceps and the inguinal glands were intact. One puncture produced a lemon-like, dense fluid containing polymorphonuclears and lymphocytes in equal numbers, but no eosinophils. Its refractometric index was 44, which corresponds to about 36.81 of albumin per thousand. Eight roentgen treatments were given to the external and internal aspects of the left knee. The dosage was 225 roentgens with 25 cm. spark gap, 2 milliamperes of current and 6 mm. of aluminum filter. The effect was remarkable and in the following ten months the patient had no recurrence whatever. The authors believe that theirs is the first example of successful roentgen treatment of periodic hyarthrosis and they are reminded of a theory advanced by Hildebrand, who thinks that in such cases there is an excessive sensitivity of the nervous fibers of the synovia and who declared that the sedative action of roentgen rays would be logical.

**Hemorrhagic Aleukia.**—Émile-Weil and his collaborators had under observation two cases of chronic enteritis which were treated by oral administration of acetarsone. The first patient received a total of 10 Gm. in two months. A hemorrhagic and anemic state made its appearance ten days later. Soon the number of red cells dropped from 1,500,000 to 900,000 in spite of repeated transfusions and injections of liver extract, and there was an all round leukopenia. Puncture of the bone marrow showed a great drop in plastic reaction. After five months the patient recovered and showed only a slight anemia (4,000,000) and some diminution of the granulocytes. In the second case acetarsone was administered more rapidly in spite of occult hemorrhages. The erythrocytes fell from 1,300,000 to 600,000, but with a higher color index. The granulocytes fell to 15 per cent, but without marked leukopenia. Platelets were fewer than 500. The bone marrow showed a strong normoblastic and myeloid reaction, which rendered the prognosis favorable. However, furuncles and a staphylococcal infection undoubtedly contributed to the fatal issue. In both cases the pictures of the bone marrow were misleading. These accidents are rare, since Sézary conducted without such mishaps thousands of acetarsone treatments in patients having dementia paralytica. From the physiologic point of view of aplastic lesions in the marrow it may be stressed that acetarsone is a pentavalent aromatic derivative of arsenic acid and is just as capable of causing hematic injuries as are the trivalents. In fact, the authors have seen a little girl treated with trypanamide whose case, from the symptoms, appeared hopeless. But she recovered from the anemia, which was not cryptogenic but essential. The probable truth is that these cases are not due to intoxication but to intolerance accompanied by a possible secondary infection.

drug had occurred three years previously. Reed has reported the case of a man, aged 36, who took 5 grains (0.3 Gm.) of the drug, vomited a half hour later, and was cyanotic and severely asthmatic two and a half hours later, his face being edematous and his nose congested. Recovery occurred after five hours, but the next day a papular, purpuric rash was noted over his trunk. The patient had experienced a similar reaction two and a half years before.

Two of our patients noted submucosal or subcutaneous hemorrhages after the ingestion of acetylsalicylic acid:

A woman, aged 50, who had a positive familial history of allergy and who herself had hay fever and migraine, had noted repeatedly that the ingestion of even "tiny amounts" of acetylsalicylic acid resulted in subcutaneous hemorrhages in the hands and legs, together with submucosal hemorrhages in the mouth and throat. She also speculated on the possibility of the repeated ingestion of this drug for headaches, which she was having almost daily at that time, being responsible for her metrorrhagia and menorrhagia. Hysterectomy had been performed because of hemorrhage but no organic lesion had been found in the uterus after it was removed. Realizing that purpura always followed the taking of acetylsalicylic acid in her case, she discontinued its use and had no further trouble until she took a dose of a nationally advertised antacid mixture containing acetylsalicylic acid, when she again had purpura.

The second patient, a man, aged 58, who was definitely allergic (vasomotor rhinitis, asthma, urticaria, food allergy) and who had a positive familial history of allergy but for whom all skin tests were negative, found that from twenty to thirty minutes after taking acetylsalicylic acid by mouth, severe generalized urticaria of the giant type would develop, and occasionally vesicles and definite subcutaneous hemorrhages also would develop. Epinephrine subcutaneously gave some symptomatic relief.

**Angina pectoris syndrome:** A type of reaction which we have not observed but which is of great interest is that reported by Shookhoff and Lieberman. These authors observed three cases in which the ingestion of acetylsalicylic acid was followed by viselike pain, of typical coronary distribution, accompanied by a fall in blood pressure. Urticaria also developed in two of the cases. One patient was given acetylsalicylic acid while under observation, and transient electrocardiographic changes were noted (prolongation of PR interval in derivation II, distinct notching of S in derivation II, increased amplitude of S in derivation III, and inverted T wave in derivation III).

#### DIAGNOSIS

The diagnosis of hypersensitivity to acetylsalicylic acid is usually made accidentally and in an obvious fashion by the patient or his physician. The very real dangers of reactions to acetylsalicylic acid among patients with asthma make it very much worth while to be able to determine such hypersensitivity by means other than giving the drug by mouth. Skin testing, unfortunately, is both inefficient and potentially dangerous. Cooke stated that positive cutaneous reactions will not be obtained except in those cases in which urticaria is the clinical manifestation of the hypersensitivity. He further observed that complete absence of skin allergy, with hypersensitiveness limited to the respiratory mucous membranes, occurs only with drug allergy and particularly with hypersensitiveness to acetylsalicylic acid. Van Leeuwen, working with asthmatic persons allergic to acetylsalicylic acid, found that both cutaneous and intracutaneous skin tests with foods were always negative.

Other investigators<sup>7</sup> have warned against the dangers of skin testing, particularly by the intracutaneous technique, in cases in which patients are hypersensitive to acetylsalicylic acid. Cooke related a case in which a severe constitutional reaction lasting three days followed the intradermal injection of  $\frac{1}{10}$  grain (0.006 Gm.) of acetylsalicylic acid. Only two of our patients (both of whom had nasal polyps) were tested with acetylsalicylic acid: scratch tests with a 1:1,000 solution of acetylsalicylic acid resulted in no reaction in one case, in which the patient gave a clinical history of severe asthma lasting two days following ingestion of the drug, and in a grade 1+ reaction in the other, in which the patient experienced a severe urticarial reaction following ingestion of the drug.

From the purely clinical standpoint, a skin test with acetylsalicylic acid adds very little to the care and study of the patient known to be sensitive to the drug, and the risk of indiscriminate testing in these cases is greater than the value of the test.

In an effort to avoid these dangers, and likewise to provide a method of testing more reliable than the cutaneous methods, Duke has suggested a very simple procedure. A small speck of acetylsalicylic acid is placed in the suspect's mouth. If the individual is allergic to the drug, symptoms such as cough, asthma, itching or edema should appear within one minute. If they do, any of the drug remaining in the mouth is immediately destroyed by rinsing the mouth with a dilute acid solution (vinegar). Duke reported the use of this test with positive results in three cases. We have employed Duke's technic in too few cases to comment on its value at this time.

Coca and Grove<sup>17</sup> were unable to demonstrate the Prausnitz-Kuestner reaction with the serum of patients sensitive to acetylsalicylic acid and quinine even though some of them manifested positive cutaneous reactions.

Although but two of our patients were skin-tested with acetylsalicylic acid, most of them were tested with the common air-borne and food allergens. Excluding those sensitive to pollen, it seems characteristic of the group that the skin tests were frequently negative. Twenty-three (37 per cent) had entirely negative results from all the allergens employed in each case. Positive or questionably positive tests, exclusive of pollens, were found in thirteen cases. Seven patients reacted to food antigens, seven to orris root, seven to feathers, seven to danders, and one to kapok. Excluding pollens, reactions of grade 3+ to orris root and feathers were the greatest reactions obtained.

#### TREATMENT

It has been pointed out<sup>18</sup> that the best treatment for patients who are hypersensitive to drugs is absolute avoidance of the drug. To the patient who has experienced a severe reaction, of whatever type, from the ingestion of acetylsalicylic acid, it hardly is necessary to emphasize the importance of avoiding the drug entirely, even in minute quantities. One not infrequently hears such patients solemnly state "I will never take another dose of aspirin." But such an individual, in spite of all his good intentions, runs two risks: (1) that he will take the drug or be given it unknowingly in some prescription or proprietary remedy or (2) that some one unfamiliar with the severity of the

17. Coca, A. F., and Grove, Ella F.: Studies in Hypersensitiveness: XIII. A Study of the Atopic Reagents, *J. Immunol.* 10: 445-464 (March) 1925.

18. Unger, Leon: Drug Idiosyncrasy, *J. Allergy* 3: 76-80 (Nov.) 1931.

## Ginecolog a, Turin

3: 1-78 (N.) 1937

- \*Anatomopathologic Modifications of Pelvic Sympathetic in Sclerocystic Ovaritis. F. Spirito.—p. 1.  
Relation Between Pancreas and Ovary. Experiments. S. Zocchi.—p. 9.  
Inorganic Sulfur in Blood in Normal Pregnancy at Term, Nephropathy of Pregnancy and Eclampsia. U. De Michelis and E. Robecchi.—p. 25.  
Extra-Uterine Pregnancy at Term: Cases. V. Marchisio.—p. 35.  
Motility of Stomach in Pregnancy. T. M. Caffarato.—p. 47.

**Anatomopathologic Modification of Pelvic Sympathetic in Sclerocystic Ovaritis.**—Spirito states that the pathogenesis of sclerocystic ovaritis is hormonal. Neuroma-like formations may exist at the hilus of the sclerocystic or the normal ovary. The anatomic alterations of the pelvic sympathetic which are present in sclerocystic ovaritis are secondary to the sclerosis. They may be due to sclerosis of the nerve or fibrils or to compression of the nerve by nearby sclerosed tissues. The alterations of the pelvic sympathetic are the cause of the pain, which is the most frequent and important symptom of the disease. The treatment consists in resection of the presacral nerve. The resection must be ample to obtain complete and rapid disappearance of the pain. Presacral sympathectomy has an easy technic. Surgical trauma of the ovaries and tubes, which may occur during the performance of an operation, is prevented by sympathectomy. Ovarian and tubal surgical trauma may result in the production of tubal epiploic or intestinal adhesions.

## Semana Médica, Buenos Aires

44: 237-312 (Jan. 28) 1937. Partial Index

- Dupuytren Contraction: Surgical Treatment. J. C. Fernández.—p. 260.  
\*Sedimentation Speed of Erythrocytes in Hookworm Disease. J. Bacigalupo and G. Loretto.—p. 262.  
\*Biologic Treatment of Interlobar Suppurative Pleurisy. M. Manguel.—p. 264.  
Early Tertiary Syphilis: Case. C. Rossi Belgrano, D. A. Accialini and J. A. Jaca.—p. 268.  
Bleeding Breast in Pregnancy: Case. M. V. Falsia.—p. 284.  
Large Calculus in Prostate: Case. P. Moreira Berman and V. Bertola.—p. 286.

**Sedimentation Speed of Erythrocytes in Ancylostomiasis.**—Bacigalupo and Loretto state that the sedimentation speed of the erythrocytes is not modified in patients suffering from Ancylostoma duodenale infection, regardless of the intensity of the infection. The humoral figures are modified as shown by the presence of eosinophilia. The authors' statements are based on the results of clinical and humoral studies made in five cases.

**Biologic Treatment of Interlobar Suppurative Pleurisy.**—Manguel reports satisfactory results from Mendez's biologic treatment in interlobar suppurative pleurisy. The treatment consists in administration of a daily subcutaneous injection of the content of a vial of a haptene preparation at the infraclavicular region. In making the injection a small amount of the exudate, necessary to relieve pressure, is removed. Pleuritic exudates contain antibodies which, in association with the injected haptenes, make the exudate sterile and control inflammation and the local pathologic condition of the pleura with consequent recovery of the patient. The roentgen study of the thorax during the treatment shows reabsorption of the interlobar suppuration. The injections are discontinued when suppuration stops. The author reports three cases in which recovery occurred.

## Klinische Wochenschrift, Berlin

16: 113-144 (Jan. 23) 1937. Partial Index

- Cumulation of Glucosides of Digitalis Group. F. Hildebrandt.—p. 117.  
Severe Insufficiency of Anterior Lobe of Hypophysis and Its Treatment. F. Krause and O. H. Müller.—p. 118.  
\*Bismuth Therapy of Tonsillitis. J. Berberich.—p. 122.  
Hormones and Neuromuscular Irritability. D. Adlersberg and E. Klaffen.—p. 124.  
Casuistics of Pernicious Anemia. Alexandra Iljin.—p. 125.  
\*Testicular Function After Vasectomy. H. Knaus.—p. 129.

**Bismuth Therapy of Tonsillitis.**—Berberich points out that several years ago Monteiro recommended bismuth therapy for tonsillitis. The fact that several other investigators like-

wise obtained favorable results with this treatment induced him to try it. He used a bismuth preparation that had been proved harmless in animal experiments and in patients with syphilis. On the basis of his observations he reaches the conclusion that bismuth therapy reduces the duration of tonsillitis to about half the usual time. About twenty-four hours after the intragluteal bismuth injection the temperature subsides to normal, the coatings are cast off and existing edemas disappear. The difficulties in swallowing disappear within six to eight hours. A favorable general condition is usually reestablished after twenty-four hours.

**Testicular Function After Vasectomy.**—Knaus directs attention to the contradictory results of the morphologic examinations of the testes following vasoligation or vasectomy. He admits that at first it may appear strange that typical interventions such as vasoligation or vasectomy cause in some cases complete destruction of the testicular epithelium (congestion atrophy) while in other cases they fail to influence the testes. However, he thinks that whoever is acquainted with the Crew-Fukui-Moorc discovery of the specific heat sensitivity of the testes will understand the differences in the testicular changes after the closure of the spermatic duct. He describes investigations on the problem as to whether the spermatogenesis remains unimpaired by vasectomy. If this is the case, the sperm that accumulates in the globus minor of the epididymis must remain fertile. The author's experiments proved the fertility of the sperm of three rabbits that had been subjected to vasectomy more than a year previously. By means of the spermatozoa of these three rabbits, twenty-seven young ones were produced in six female rabbits. He directs attention to a review of the literature on the problem of the testicular function after vasectomy which reveals that in the majority of cases in which the obstruction is made below the efferent ductules the testes remain unimpaired, whereas, if these efferent ductules are obstructed, congestion atrophy and degeneration result regularly. In this connection he recalls certain observations made by Steinach. Regarding the testicular degeneration observed by Spath in rabbits after vasectomy, the author says that this is not a congestion atrophy but is due to heat injury of the testes, which in turn can be explained by the fact that the testes were in the abdominal cavity. In man, however, the testes do not ascend to the abdominal cavity with its higher temperature but remain in the scrotum, and therefore this testicular degeneration does not occur.

## Ugeskrift for Læger, Copenhagen

95: 1309-1318 (Dec. 31) 1936

- \*Value of Determination of Sugar in Spinal Fluid in Diagnosis of Meningitis and Remarks on Postalbumin Hyperglycorrhachia in Acute Infectious Diseases. N. I. Nissen.—p. 1309.

**Sugar in Spinal Fluid in Diagnosis of Meningitis.**—Nissen found that after administration of large amounts of dextrose in patients with acute infectious diseases and meningitis postalbumin hyperglycorrhachia may be higher than normal, but he emphasizes that no alimentary increase could be established after the intake of ordinary meals with slowly resorbable carbohydrate. On puncture the sugar percentage was slightly higher in the first portion emptied than in the last, and in accord with this the suboccipital fluid in tuberculous meningitis contained somewhat less than the lumbar fluid. The diagnostic value of sugar in the spinal fluid was tested in 529 patients, partly normal, partly with meningitis or meningeal irritation. Of 282 patients with benign disturbances of the meninges (acute anterior poliomyelitis, encephalitis, "meningitis serosa benigna"), only three showed values under 40 mg. per hundred cubic centimeters. Of thirty-one with malignant disorder of the meninges (tuberculous meningitis), twenty-eight gave values under 40 mg. per hundred cubic centimeters. The boundary between benign and malignant meningitis is thus established at 40 mg. per hundred cubic centimeters. Normal values appear only in the earliest stages of tuberculous meningitis. Determination of the sugar in the spinal fluid is of even greater diagnostic value than the cytologic examination and the determination of the albumin content.

reaction experienced by him will urge him to take it because "one tablet of aspirin has never hurt any one." Should that well meaning but uninformed individual be present to witness the result of his careless advice, he would not be likely to question the next person's statement that acetylsalicylic acid or some other drug or food made him ill. The patient known to be sensitive in this way to acetylsalicylic acid should also be told of the proprietary medicines in which he can expect to find it. He will then do the rest. He should also be told that "acetylsalicylic acid" and "acidi-acetylsalicylici" appearing on prescriptions are "aspirin."

Widal<sup>19</sup> and others have reported that hypersensitivity to a drug (antipyrine) may be overcome by feeding small amounts of the drug first. Coca,<sup>1</sup> however, was of the opinion that hyposensitization with acetylsalicylic acid is "unsatisfactory and because of the risk involved should not be undertaken except under compulsion of absolute necessity." Van Leeuwen has expressed a similar opinion against desensitization with acetylsalicylic acid.

*The Attack.*—The treatment of the patient with a reaction following the ingestion of acetylsalicylic acid is chiefly symptomatic and dependent on the nature and severity of the reaction. Repeated hypodermic injections of epinephrine will in most instances be found useful, although entirely ineffectual for some of the worst reactions. The experience of one of our patients in obtaining very satisfactory temporary relief by the repeated ingestion of a solution of sodium bicarbonate suggests that it be tried in other cases. Since another of our patients stated that she was unable to take sodium salicylate as well as acetylsalicylic acid, it is possible that most patients will derive no benefit from this measure. To be effective, the solution of sodium bicarbonate should be given very early, at which time, if there are no contraindications, gastric lavage might also be considered.

If any acetylsalicylic acid remains in the patient's mouth at the time of the reaction, in addition to its prompt removal Duke<sup>7</sup> advised rinsing the mouth repeatedly with a solution containing 4 cc. of dilute acetic acid or vinegar to a glass of water.

Since the majority of patients who are sensitive to acetylsalicylic acid react with violent and prolonged asthma, it not infrequently will be necessary to use oxygen, and possibly a mixture of helium and oxygen,<sup>20</sup> such as was used for one of our patients to reduce the fatigue from hours of asthmatic dyspnea. The use of morphine does not relieve the asthma; it has a depressant effect and it would seem best to omit it in such instances.

*Comment.*—The question as to whether hypersensitivity to acetylsalicylic acid is congenital or acquired is of theoretical and considerable practical importance. Karunaratne reported the case of a man of 32 who, so far as could be determined, had taken acetylsalicylic acid only twice during his life. Both times he experienced violent reactions. We have already referred to similar observations noted by van Leeuwen.<sup>5</sup>

Among our patients there were fifteen who believed that their first encounter with acetylsalicylic acid was followed by an allergic reaction of some sort. Unfortunately, one cannot be certain that these patients had

not taken acetylsalicylic acid previously. They may have taken it as a constituent of a prescription or "patent medicine" when its presence was unsuspected or they may have forgotten the incident of taking it since no extraordinary reaction had followed. Most of our patients, and many of those reported in the literature,<sup>21</sup> had taken the drug many times without ill effect. Coke<sup>22</sup> concluded that this hypersensitivity was always acquired; he believed that it affected those who took the drug in considerable quantity and then went for a long time without taking it. The histories of our patients do not bear this out. Five of them said that they rarely had used acetylsalicylic acid previously; seven had used it occasionally and seven more often still.

In no instance in our series of cases or in those reported in the literature was more than one member of a family sensitive to acetylsalicylic acid. One allergic patient who was sensitive to the drug had a son who also was definitely allergic, but he could take acetylsalicylic acid without any abnormal reaction.

These observations cannot be used to argue for or against the hereditary, as opposed to the acquired, nature of hypersensitivity to acetylsalicylic acid. Presumably a hereditary hypersensitivity need not make itself known until long after birth, at a time when other factors favor its appearance; or it may never manifest itself.

Very little concerning the actual mechanism of drug allergy is known. Van Leeuwen assumed that the allergic action of a drug is only an "augmented action" on other subliminal reactions going on in the body. Perhaps the most significant observations are those of Landsteiner and Lampl<sup>23</sup> and Landsteiner,<sup>24</sup> who have pointed out that simple chemicals can combine with proteins to form new compounds which have specific immunologic properties.

Sensitivity to drugs is remarkably specific as a rule.<sup>24</sup> An individual may be hypersensitive to one drug such as acetylsalicylic acid and yet take with impunity closely related drugs such as salicylic acid, methyl salicylate and also compounds containing radicals common to acetylsalicylic acid, such as benzoic acid and sodium acetate.<sup>6</sup> It would seem that hypersensitivity may be manifested toward the whole molecule or merely toward radicals or groups of radicals in the molecule.<sup>25</sup> In the case of acetylsalicylic acid, the acetyl group seems to be the one responsible for making it the most common atopen among the salicylic compounds.

Van Leeuwen found that his patients were often sensitive to other drugs, such as phenobarbital, antipyrine, sodium salicylate and barbitol.<sup>26</sup> Of our patients, twenty stated that they knew of no other drug or medicine to which they were hypersensitive, while nineteen mentioned some drug or drugs other than acetylsalicylic acid which, for one reason or another, they could not take. Among the preparations named were quinine, sodium salicylate, acetophenetidin,

21. Brown, Alexander: Note on a Toxic Effect of Aspirin, *Lancet* 2: 761 (Sept. 9) 1911. Bolt.<sup>22</sup> Coke.<sup>23</sup>

22. Coke, Frank: Asthma, New York, William Wood & Co., 1925, pp. 116-119.

23. Landsteiner, Karl, and Lampl, Hans: Ueber die Abhängigkeit der serologischen Spezifität von der chemischen Struktur (Darstellung von Antigenen mit bekannter chemischer Konstitution der spezifischen Gruppen), *Biochem. Ztschr.* 86: 343-394, 1918.

24. Landsteiner, Karl: Experiments on Anaphylaxis to Azoproteins, *J. Exper. Med.* 39: 631-637 (May) 1924.

25. Coca, A. F.: Hypersensitiveness, in Tice, Frederick: Practice of Medicine, Hagerstown, W. F. Prior Company, Inc. 1, 1923.

26. van Leeuwen, W. S.: A Possible Explanation for Certain Cases of Hypersensitiveness to Drugs in Men, *J. Pharmacol. & Exper. Therap.* 24: 25-32 (Aug.) 1924.

19. Widal, Fernand, and Vallery-Radot Pasteur: Anaphylaxie à l'antipyrine apparue après une longue phase désensibilisation, *Presse méd.* 25: 93-95 (Feb. 4) 1920.

20. Maytum, C. K.; Prickman, L. E., and Boothby, W. M.: The Use of Helium and Oxygen in the Treatment of Severe Intractable Asthma. *Proc. Staff Meet., Mayo Clin.* 10: 788-790 (Dec. 11) 1935.





epinephrine, cocaine, iodides, aminopyrine, morphine, strychnine, "any coal tar products," and a number of proprietary preparations.

A number of patients found to their sorrow that many proprietary medicines, including a number of so-called asthma remedies,<sup>10</sup> contain acetylsalicylic acid. At the present time among the best known of these preparations are Alka-Seltzer, Anacin, Aspirgum, Calaspirin, Acetidine, Dr. Miles Aspiromint, M. Matte's German Asthma Powder, Empirin Compound, and Etro. Doubtless there are many others. Unfortunately for those who are sensitive to acetylsalicylic acid, the present Food and Drug Laws do not require that the words "acetylsalicylic acid" or "aspirin" appear on the labels for proprietary medicines that contain it.

Coca<sup>1</sup> was of the opinion that "aspirin and the closely related coal tar products are among the most treacherous drugs employed in the therapy of asthma." Duke stated that the effect of acetylsalicylic acid on patients sensitive to it can amount to a "catastrophe in every sense of the word." Our own experience amply confirms these statements.

As a diagnostic test to aid in differentiating rheumatic or infectious arthritis from tuberculous, gonorrheal or syphilitic arthritis and to evaluate the possible therapeutic value of the removal of foci of infection, Wolf<sup>27</sup> has proposed and used successfully what he calls the "aspirin tablet test." In light of our experience and that of others, great caution should be exercised in using this test on allergic patients.

A relationship of obscure etiology but of definite practical importance exists between the presence of nasal polyps and allergic diseases and hypersensitivity to acetylsalicylic acid in particular. Of our sixty-two patients, twenty-one (33 per cent) definitely had nasal polyps. In addition to these, a number of others, particularly those with vasomotor rhinitis, probably had them although no definite record of their existence was made. It is significant that in our series those patients who had nasal polyps responded with the worst reactions to the ingestion of acetylsalicylic acid. Nineteen of the patients who had nasal polyps had severe to grave asthma, one had "terrible hay fever," and one had generalized severe urticaria.

The prognostic importance of the presence or absence of hypersensitivity to acetylsalicylic acid among asthmatic patients with nasal polyps was emphasized by Francis.<sup>28</sup> Basing his conclusions on the case histories of twenty-four patients with asthma whose nasal polyps had been removed in an attempt to benefit the asthma, he formulated these rules: 1. If a patient can take acetylsalicylic acid, removal of nasal polyps will benefit the asthma (ten cases). 2. If a patient cannot take the drug, removal of nasal polyps will make the asthma worse (eleven cases). He further warned against giving acetylsalicylic acid to asthmatic patients who have nasal polyps.

#### SUMMARY AND CONCLUSIONS

Hypersensitivity to acetylsalicylic acid is the most common form of drug allergy, and it is much more common than is generally supposed. A series of sixty-two cases was studied. The condition is more common among females and is limited almost exclusively to persons with a personal or familial history of allergy. Particularly noteworthy is the high incidence of hyper-

sensitivity to acetylsalicylic acid among the asthmatic, especially among asthmatic individuals with nasal polyps.

Asthma, urticaria and angioneurotic edema are the most common forms of reaction to the ingestion of acetylsalicylic acid by sensitive individuals. The asthmatic attacks are prone to be severe, prolonged and resistant to treatment. Fatal reactions have been reported. Other types of reaction which have been observed are vasomotor rhinitis, purpura, abdominal cramps and salivation.

Skin testing should not be employed in the diagnosis of hypersensitivity to acetylsalicylic acid as such tests are both unreliable and a potential source of danger.

Scrupulous avoidance of the drug by the allergic patient is the best treatment for hypersensitivity to acetylsalicylic acid. The presence of acetylsalicylic acid in the formulas of many proprietary medicines makes them a potential source of danger to these patients. Acetylsalicylic acid, however, is a useful and effective drug, and it may be prescribed with relative safety to patients who give no history of personal or familial allergy. It may also be used with caution by allergic patients after ascertaining that it has been used previously by them without ill effect. It should never be administered, however, to asthmatic patients who have nasal polyps.

## DARK ADAPTATION AND VITAMIN A

### A NEW PHOTOMETRIC TECHNIC

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In 1934 we<sup>1</sup> described a photometric test for detecting moderate degrees of vitamin A deficiency by determining ability to adapt to darkness. The observations that formed the basis of the former report were made with a Birch-Hirschfeld photometer. For reasons discussed subsequently this instrument is not adapted for satisfactory use in the manner employed. Because of the difficulties encountered, a new photometer has been devised especially for the dark adaptation test. It is our purpose in this publication to describe the use of the new photometer and also certain experimental observations that have been made with it.<sup>2</sup>

The new photometric technic makes use of the same basic principles as were described in our previous report. Scotopic vision is observed with relation to exposure to a bright light and to a period in darkness. The observations are made by determining the amount of light necessary for the subject to see three of the five

From the Department of Pediatrics, State University of Iowa, College of Medicine.

Read in part before the Society for Research in Child Development, Washington, D. C., Oct. 30, 1936.

1. Jeans, P. C., and Zentmire, Zelma: A Clinical Method for Determining Moderate Degrees of Vitamin A Deficiency, *J. A. M. A.* 102: 892 (March 24) 1934; The Prevalence of Vitamin A Deficiency Among Iowa School Children, *ibid.* 106: 996 (March 21) 1936.

2. The photometer is manufactured by the Frober-Faybor Company of Cleveland and is called the biophotometer. It was devised by the research staff of this organization entirely on their own initiative. The technic described here has been worked out in collaboration with the research staff and with their active and enthusiastic assistance in many ways. The photometer has undergone a moderate evolution during the course and as a result of the experimental observations over a considerable period. Any credit that may attach to this report belongs as much to the research staff on the Frober-Faybor Company as to the authors, if not more.

27. Wolf, H. F.: New Conceptions of Arthritis and Their Relation to Physical Therapy, *Arch. Physical Therapy* 15: 405-408 (July) 1934.

28. Francis, Clement: The Prognosis of Operations for Removal of Nasal Polypi in Cases of Asthma, *Practitioner* 123: 272-278 (Oct.) 1929.

ELIMINATION OF PHENOLPHTHALEIN IN THE URINE

*Free Phenolphthalein.*—This was found in only 8.5 per cent of the urines of medical students and in 21.5 per cent of the urines of the Cook County Hospital patients. This is probably due to the following two facts:

1. The larger the dose the more frequently does free phenolphthalein appear in the urine (chart 1). A larger proportion of the Cook County Hospital patients than of the medical students received 0.3 Gm. doses of phenolphthalein.

2. We have proof of the fact that bacterial decomposition of the urine liberates phenolphthalein from its conjugated form. Many of the Cook County Hospital specimens were over twenty-four hours old and without preservative.

*Conjugated Phenolphthalein.*—In explanation of the figures in the report, it should be pointed out that these express the amount of free phenolphthalein into which the conjugated form is converted by the prolonged heating after addition of acid. The substance or substances with which the phenolphthalein is conjugated are thought to be sulfate and glycuronate.

Conjugated phenolphthalein was found in every urine specimen examined. In other words, one can tell, by the presence or absence of conjugated phenolphthalein in the urine, whether a person has taken phenolphthalein or not.

The quantity of conjugated phenolphthalein when free phenolphthalein was also present was always greater (with a few exceptions) than that of free phenolphthalein. On the theory that phenolphthalein, after absorption from the alimentary tract, is conjugated as it passes through the liver one can explain the presence of conjugated phenolphthalein when there is no free phenolphthalein or the fact that there is

A detailed study of the quantitative relations of phenolphthalein elimination in the urine and of some of the conditions that influence it will be the subject of a separate paper.

EVIDENCE FROM THE LITERATURE

Zoltan von Vamossy,<sup>6</sup> who discovered the cathartic action of phenolphthalein in the course of an investigation for the Hungarian government to determine whether this substance was sufficiently harmless to

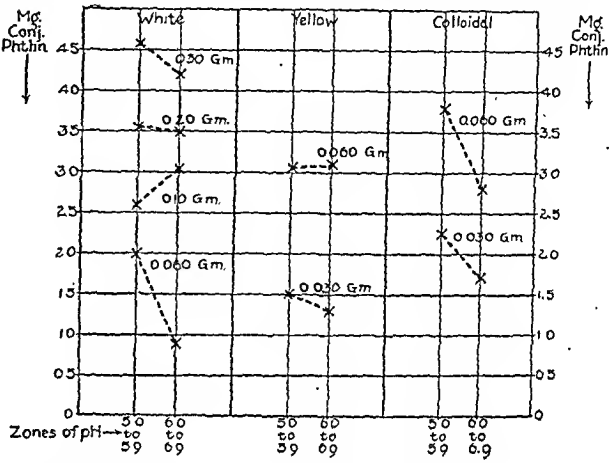


Chart 2.—Relation of quantity of conjugated phenolphthalein eliminated in urine to doses ingested. Each x shows the average of all the observations in the respective zone.

mark adulterated wine with it, concentrated his attention on other possible effects of phenolphthalein on the human body and was unable to discover any. Tunnicliffe,<sup>7</sup> Mendelsohn,<sup>8</sup> Blum,<sup>9</sup> Fleig<sup>10</sup> and many others paid a great deal of attention to the effect of the substance on the kidney, and they arrived at the opinion that it is absolutely harmless not only to the healthy kidney but also to patients with nephritis of various kinds; the contrast was pointed out between it and the unfavorable effect on the kidney of a number of vegetable purgatives, such as colocynth, aloë and anthrapurpurin.

While there is a host of witnesses corroborating the correctness of our observations and the opinion of the critical authors of the textbooks quoted, the question may be raised how it happens that some writers of textbooks report that phenolphthalein has produced albuminuria. A survey of the literature shows that this assertion rests on a few sporadic case reports, most of them dating from the early days of the use of phenolphthalein, when its action was not yet understood and anything that happened after its administration was ascribed to it, and on a solitary and unconfirmed report by Hydrick.<sup>11</sup> Typical of the early case reports are the following:

Blumenthal<sup>12</sup> cites a case of febrile hemolytic jaundice and hemoglobinuria that occurred, accompanied by

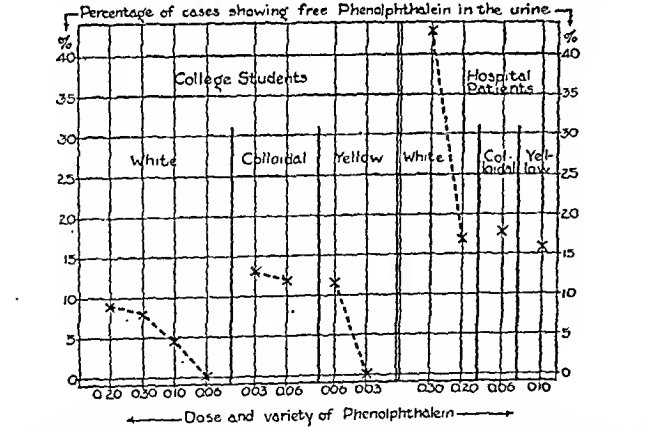


Chart 1.—Percentage of cases showing free phenolphthalein in the urine in relation to the dose. The larger the dose, the more frequently does free phenolphthalein appear in the urine. Each x shows the average of all the observations in the respective zone.

more conjugated than free phenolphthalein in the urine in most cases. The exceptions to the rule are probably due to the decomposition of the conjugated phenolphthalein by bacterial action, as all the fourteen specimens (excepting one) that showed this condition came from the Cook County Hospital.

As shown by chart 2, there is some relation between the amount of conjugated phenolphthalein eliminated and the dose ingested. This chart indicated that, the larger the dose, the greater the average amount of conjugated phenolphthalein eliminated.

6. Vamossy, Zoltan von: Ist "Purgen" ein schädliches Abführmittel? München. med. Wchnschr. 1: 1124, 1903; Is Phenolphthalein Harmful? Am. J. Digest. Dis. & Nutrition 3: 22 (March) 1936.  
7. Tunnicliffe, F. W.: Synthetic Purgatives: The Purgative Action of Dihydroxyphthalone (Phenolphthalein, Purgen), Brit. M. J. 2: 1224-1227 (Oct. 18) 1905.  
8. Mendelsohn, Martin: Ueber Abführungen und Abführmittel. Deutsche Aerzte-Ztg., Jan. 15, 1905, pp. 28-35.  
9. Blum, R.: Purgen, ein neues Abführmittel, Therap. Monatsh. 18: 468-470, 1904.  
10. Fleig, M. C.: Deux purgatives synthétiques, Arch. internat. de pharmacodyn. et de therap. 18: 327-337, 1908.  
11. Hydrick, J. L.: Albuminuria Following Ingestion of Phenolphthalein, Proc. Am. Soc. Biol. Chem., J. Biol. Chem. 17: 36, 1914.  
12. Blumenthal, F.: Diagnostische und therapeutische Vorschläge, Med. Klin. 1: 841 (July 23) 1905.

points of a dice five-spot, or quincunx, punched out of a metal screen, when the light transmitted through the holes is of decreasing intensity from the left to the right of the quincunx. Thus the essential features of the instrument include a bright light, a quincunx screen and a dim light of controllable variability of intensity for illumination through the holes of the quincunx screen.

In the schematic representation of figure 1 are shown some of the features of the new photometer.

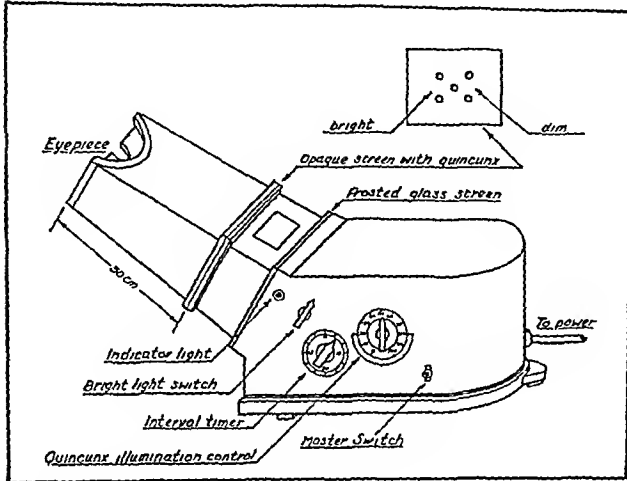


Fig. 1.—Schematic representation of the biophotometer.

The bulbs for producing the bright and the dim light are housed within the instrument. The switch in the upper left corner controls the bright light, the dim light and the quincunx screen. When the switch is turned fully forward, the quincunx screen is swung out of the line of vision and the bright light is turned on. Looking into the eyepiece, one sees the frosted glass screen. This screen is illuminated by a 100 watt "daylight" bulb, maintained at a constant intensity of illumination. The light value at the end of the eyepiece is 1.1 foot candles. When the same switch is turned fully backward the quincunx screen is brought into the line of vision, the bright light is turned off and a small bulb is lighted. The light of the small bulb is controlled by a rheostat, the handle of which turns over a numbered dial. As the handle is turned from zero the resistance is increased and the light that passes through the quincunx becomes less intense. When the dial setting is zero, all five of the light spots of the quincunx are visible. As the pointer is turned over the dial and the light becomes dimmer, the two spots on the observer's right disappear. With further turning the middle spot and finally the two spots on the left disappear.

The photometer is equipped with a means for standardizing the voltage used. The distance of the eyes from the light and the quincunx screen is fixed by means of an eyepiece. The quincunx as a whole and the individual holes of the quincunx are larger than in the Birch-Hirschfeld instrument. These changes in the quincunx, together with alteration of the relative intensities of light transmitted through the holes, make the reading easier.

The test may be conducted with a large number of variations. Differences in adaptation may be shown by any one of several technics. A subject who has poor adaptation as shown by one variety of test will have the same abnormality demonstrated by another variety.

The selection of one of these procedures to be used as a standard seems highly desirable. The use of such a standard permits comparison of the results of all observers employing it. After trial of many types of variation, a procedure has been chosen which we believe makes a useful standard.

#### A STANDARD TECHNIC

The photometer is installed in a dark room, which is kept in as nearly absolute darkness as possible throughout the test. Though it is theoretically possible to conduct the test in a lighted room, this is not a practical procedure. Especially with children, a bright light in the room invariably interferes with the test. The eyepiece of the photometer is so shaped that, as the subject looks into the instrument, he can press his head against the soft rubber edge and exclude most extraneous light. It is much less tiring, however, if he is permitted more freedom of motion between readings.

Personal comfort of the subject is considered important. At least between readings, opportunity should be offered for relaxation against a back support. The photometer should be adjusted at an appropriate height for each subject. Any fatigue that may occur to the extent of interfering with the results of the test is not retinal but is in the mental and body processes.

It is necessary that the operator have a source of light in order to read the dial and a time piece. For this purpose a small red light, well shaded, used intermittently as needed, will cause the least amount of interference should some of the light leak around the eyepiece.

The time consumed by the test comprises a total of twenty-three minutes divided into three periods: (1) a ten minute foreperiod in the dark, (2) exposure to the bright light of the photometer for three minutes, and (3) a ten minute period in the dark. Readings are made at the beginning, middle and end of the foreperiod and at the beginning and end of the recovery period, with one or two additional readings in the recovery period between the first and last readings. As soon as the ten minute reading of the foreperiod is made, the subject is exposed to the bright light of the photometer for three minutes. During the time of

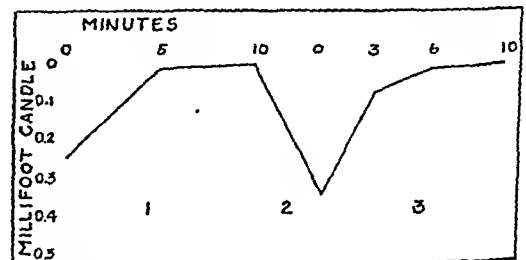


Fig. 2.—Plotted readings of a test of a normal subject: 1, foreperiod; 2, light period; 3, recovery period.

the exposure to the bright light, it is important that the subject keep the head closely against the eyepiece; children may try to look over or under the photometer. Attention should be given that the subject does not close his eyes. Care must be taken that the switch which controls the bright light is completely thrown; otherwise the subject looks at the dim light.

Immediately after exposure to the bright light for three minutes the quincunx screen is thrown into position and a reading is made. The test is completed by

vomiting, the day after the taking of a 0.1 Gm. "Purgin" tablet. Cylindruria and albuminuria continued for several days and then disappeared. No other report of any such syndrome following the administration of phenolphthalein is available.

Von Jaksch<sup>13</sup> mentions in his book on "Die Vergiftungen" a "verbal" report by a Dr. Wiener of a woman who took large doses of "Purgin" and who suffered from pain in the colon with spastic contraction and had frequent bleeding from the urinary bladder. That something else than phenolphthalein must have caused the "frequent bleeding" seems again obvious, as reports of other such cases are lacking.

Fürbringer<sup>14</sup> reports the case of a woman, aged 59, convalescing from erysipelas, who, after taking 0.6 Gm. of phenolphthalein, developed a drastic diarrhea and whose urine contained albumin and casts. This the author, who had not seen the patient previously, ascribes to the taking of the phenolphthalein, as he does "not know of such late kidney symptoms developing frequently after erysipelas." The urine still contained a trace of albumin in the third week after the taking of the phenolphthalein. That erysipelas is much more likely to be responsible for such continued albuminuria than the phenolphthalein seems obvious in accordance with our present understanding of the two possibilities.

The "law of chance" must cause a dose of medicine that is used with a high degree of frequency to be followed by unexpected symptoms that would also have occurred had the medicine not been taken. When a drug has a real tendency to produce a certain untoward manifestation, the frequent use of the drug will invariably cause recurrences of the phenomenon; and, the more extensively the drug is used, the more common will be the manifestation. This is illustrated by the phenolphthalein eruption, of which, though it is in point of fact comparatively rare, we now have a large number of cases on record.

A paper by J. L. Hydrick was read in 1914 before the American Society of Biological Chemistry which was abstracted in the *Proceedings*. He reports an unbroken series of twenty different individuals in each of whom the subject's urine showed no trace of albumin before the taking of the phenolphthalein, and in each and every one of whom positive tests for albumin were secured in the twenty-four hour specimen of urine ("a twenty-four hour specimen is important"), collected after the administration of 1 or 2 grain (0.065 or 0.13 Gm.) doses of phenolphthalein. This finding of Hydrick's is diametrically opposite to the results of all other students of the question, as well as our own. It has never been confirmed. Hydrick's original paper, which he wrote while he was an undergraduate at Jefferson Medical College, was never published excepting in abstract, because he had written in the report to the society that what he had done was not for publication but to call the attention of the society to the fact that this was a subject which should be investigated thoroughly.

Dr. John L. Hydrick, in a personal communication of Nov. 8, 1936, graciously states: "It is, of course, impossible for me to say what possible errors of technic, or what special circumstances produced the results in my experiments that were interpreted by me, and by several others who saw some of my experiments, as evidence of

albuminuria after taking phenolphthalein. . . . It is possible that the phenolphthalein of 1914 was not so pure as that of 1936."

If a preliminary twenty-four hour specimen of urine was not examined, there are at least two pitfalls one might stumble into: 1. In orthostatic albuminuria a morning specimen of urine is free from albumin, while a twenty-four hour specimen contains it. 2. When a twenty-four hour specimen of urine is preserved with toluene or xylene and it is not clarified by filtration, Robert's ring test is positive, giving a false albumin reaction; and addition of alcohol is of no differentiating value, because alcohol by itself produces a ring with Robert's reagent, obviously the result of precipitation of magnesium sulfate.

#### CONCLUSIONS

1. Medicinal doses of phenolphthalein do not produce albuminuria.

2. While free phenolphthalein is generally absent in the urine of individuals who take a small medicinal dose of phenolphthalein, conjugated phenolphthalein is always present.

3. The larger the dose, the greater the percentage of individuals passing free phenolphthalein in the urine, and the greater the average amount of conjugated phenolphthalein eliminated.

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### TRANSITORY HYPERGLYCEMIA AND GLYCOSURIA IN ACUTE CORO- NARY OCCLUSION

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LOS ANGELES

The report of a transitory hyperglycemia and glycosuria occurring in a patient with acute coronary occlusion follows:

M. E., a white woman, aged 52, entered the Cedars of Lebanon medical ward, service of Dr. H. H. Lissner, at 3 a. m., Jan. 16, 1936. She complained of cutting pain in the precordium radiating down the inner aspect of the left arm, nausea and vomiting. The patient had had a known hypertension for several years; according to her attending physician, and during the past year had noted a mild pain of a similar character which had been induced by exertion, excitement or heavy eating and relieved by rest. These pains had been gradually becoming more severe and frequent. On the day previous to admission she had felt somewhat weak and about 10:30 p. m., while resting, the onset of the pain had occurred very suddenly. She was apparently in shock when seen by her attending physician and was sent immediately to the hospital. The family and past history were essentially irrelevant. On entrance to the hospital the patient, who was somewhat obese, was noted to have an ashy gray pallor, was slightly cyanotic and appeared to be suffering with rather intense pain. The pulse was 90, the temperature 98 F. and the respiratory rate 25. The pupils reacted to light and in accommodation. The heart was enlarged to the anterior axillary line, the apex being in the fifth interspace. The tones were distant and muffled. The rhythm was normal. No friction rub was heard. The blood pressure was 100 systolic, 82 diastolic. The lungs were clear, the abdomen presented no abnormalities, and there was no peripheral edema. An electrocardiogram taken several hours later revealed a simple tachycardia, very severe myocardial damage, disturbance of the interventricular conduction and T wave changes in all four leads diagnostic of acute coronary occlusion. The leukocyte count was 12,000 per cubic millimeter of blood. The blood nonprotein nitrogen was 49 mg. per hundred cubic centimeters and the blood Wassermann reaction was negative. The sedimentation time was decreased from 120 minutes normal to 30 minutes. Urinalysis revealed a specific gravity of 1.037, a

13. von Jaksch, R.: Die Vergiftungen, ed. 2, Vienna, Hölder, 1910, p. 345.

14. Fürbringer: Schwere Vergiftung durch Laxativ-Drops (Phenolphthalein), Deutsche med. Wchnschr. 43: 842-844, 1917.

making readings every two and one-half to three minutes for a ten minute period. Readings made more frequently tend to tire the subject, with a possible result of causing the later readings to differ somewhat from those which otherwise would have been obtained.

#### MAKING READINGS

Readings are made by turning the rheostat handle over the dial until only two spots are seen and then turning it slowly back until the third spot is again just

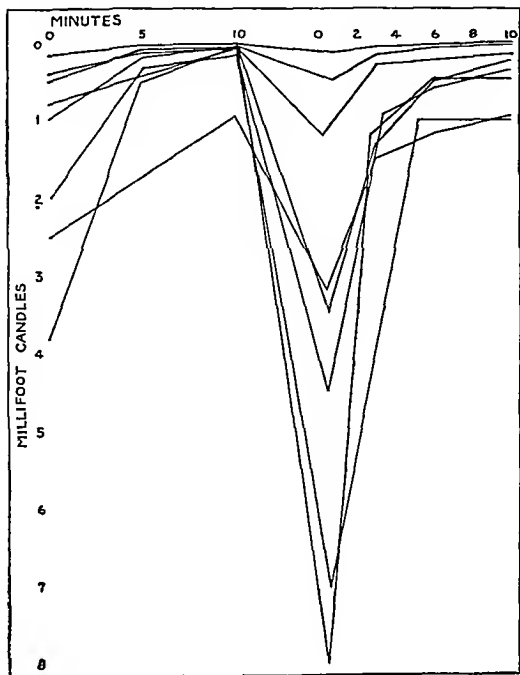


Fig. 3.—Plotted readings indicating the range of values found when a large group is tested.

visible. This is the end point and the dial reading is recorded. In all instances the dial pointer should be turned slowly enough to allow for the lag which occurs between its turning and the ability of the subject to see the spots. Readings should be made, if possible, within thirty seconds; a longer period is tiring and more light may be required to see the spots.

Readings in the foreperiod are more simply made than those in the recovery period. The first reading in the recovery period is an important one and the most difficult to obtain accurately. Considerable practice is required. A very rapid adaptation occurs, which seems to slow down between twenty and thirty seconds from the time the bright light is turned off. The reading should be made between twenty and thirty seconds. For making this first reading in the recovery period the light control is turned slowly from zero until only two spots are seen. If twenty seconds has not elapsed when two spots are seen, it is best to stop turning the rheostat control and to keep inquiring how many spots are seen until the twenty seconds passes. If at twenty seconds the third spot has reappeared, the control should be turned until only two are seen. This procedure eliminates the after-image of the center spot. The point at which only two spots are seen should be found as soon after twenty seconds as possible. The rheostat handle is then turned back to the end point of three spots. The third spot should be plain enough so that the subject is certain it is seen. Blinking or

flicker of the spots is sometimes observed. However, if the subject is certain that three spots are seen, the end point has been reached. Flicker is more often present in those who have poor dark-adaptation. As the rheostat handle is turned slowly from zero, the subject will see three or more spots, perhaps, until the dial reads 35, at which point he sees two; but when the handle is turned back until three are seen again, the reading may be 20. Occasionally, individuals are encountered who have more than the usual lag of vision; it may be so marked that several tests must be made if a significant first reading is obtained.

For making readings subsequent to the first one in the recovery period the light control need not be turned back to zero but may be started from the place it was left at the previous reading. The time of the reading is recorded as that of the nearest half-minute at the end of the reading.

#### COMMENT ON THE READINGS

The intensity of the light transmitted through the center hole of the quincunx is known for all dial readings. The readings in terms of the dial settings are converted to light values in millifoot candles and plotted to make a graphic record. Such a record is shown in figure 2. In this chart the three phases of the test are shown. The plotted points represent the amount of light required to see just three of the five spots of the quincunx. The readings in the foreperiod represent the adaptation in the dark after exposure to the light of chance environment preceding the test. These readings do not have as great significance as those of the recovery period. The chief purpose of the foreperiod is to eliminate the effect of differences in preceding environmental light intensities and to bring all subjects to a more nearly equal basis for the test. The initial reading varies at different times with the same individual, the variation depending on the intensity of the light to which the subject was exposed immediately preceding the test. In some instances the first reading is informative when considered in relation

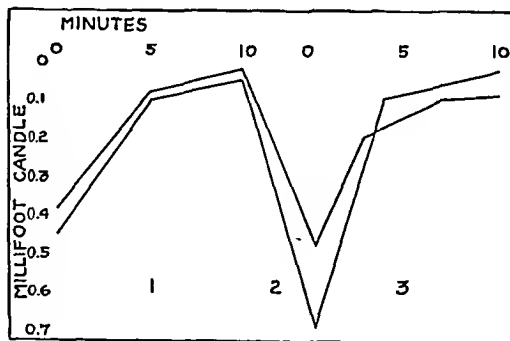


Fig. 4—Two types of borderline curve.

to subsequent readings. Individuals with poor dark adaptation usually require more light for this first reading than do normal subjects. The reading made in the middle of the foreperiod gives some information, but its greatest usefulness lies in the additional opportunity permitted the subject to become accustomed to the procedure before the more critical readings are made. The reading at the end of the ten minute foreperiod is more significant than the readings which precede.

The readings in the recovery period represent the adaptation in the dark after exposure to the experi-



moderately heavy trace of albumin and positive sugar and acetone. The patient was put at extreme rest on a 2,000 calory diet containing 235 Gm. of carbohydrate, 60 Gm. of protein and 90 Gm. of fat and was treated symptomatically. January 17, the fasting blood sugar was 244 mg. per hundred cubic centimeters. The same day the temperature rose to 99.6 F. and two days later to 100.2. A friction rub was never heard but January 21 a "gallop rhythm" was audible, which persisted until February 10. The fasting blood sugar was repeated on the twelfth day after admission and found to be 172 mg. By the thirteenth day after admission the urine was sugar free and negative for acetone, although a moderately heavy trace of albumin still persisted. On the sixteenth day the fasting blood sugar was 200 mg., on the twenty-sixth day 141 mg., on the forty-sixth day 139 mg., on the sixty-eighth day 116 mg., and on the seventy-first day 98 mg. per hundred cubic centimeters of blood. Successive electrocardiograms taken at intervals of several days showed progressive changes toward normal in the T waves. January 27, or on the eleventh day after admission, signs of acute congestive heart failure developed and the patient was placed on digitalis and limited fluids. Her condition steadily improved and she was discharged to her home ambulatory March 29, seventy-three days after admission. At no time during her stay at the hospital or before had the patient had insulin. May 5, 110 days after the onset of the occlusion, the fasting blood sugar taken at home was 86 mg. per hundred cubic centimeters of blood.

The report of this case is undertaken for the purpose of emphasizing one of the frequent clinical features of acute coronary occlusion that is often misinterpreted and mistreated—transitory hyperglycemia and glycosuria. It is misinterpreted because the condition is apt to be confused with true diabetes mellitus and mistreated because insulin is often employed in such doses that the blood sugar is rapidly lowered, thereby leading to serious faults in conduction, namely, extrasystoles, auricular fibrillation and bundle branch block,<sup>1</sup> to acute congestive failure<sup>2</sup> or frequently to death.

In a recent survey of seventy-four cases of acute coronary occlusion seen at this hospital which were proved by clinical and electrocardiographic examinations and in which there had been no previously known diabetes, 20 per cent were found to show hyperglycemia or glycosuria shortly after the onset of the occlusion. In all these cases the blood sugar had returned to normal or the urine was sugar free by the end of the convalescence, with no particular steps directed toward this end. In three of these cases, in which a series of blood sugar determinations had been made, the results were quite similar to those of the case reported. The incidence in this series appears higher than one would expect to find, although it is consistent with Edelmann's<sup>3</sup> series in which he found that eleven of fifty-six cases showed glycosuria with no manifest diabetes. Scherf<sup>4</sup> found an even higher incidence, or six of nine cases. It would therefore be of interest to follow a larger series to determine just how often the condition does occur.

To my knowledge, Levine<sup>5</sup> in 1929 first called attention to this clinical finding, and it has since been referred to by such authors as Cruickshank,<sup>6</sup> Edelmann,<sup>3</sup> Scherf,<sup>4</sup>

Gottsegen<sup>7</sup> and Raab and Rabinowitz.<sup>8</sup> It did not become of serious consequence to the patient, however, until the advent of insulin, which agent, although being of life-saving therapeutics to the patient with true diabetes, has undoubtedly meant death to many persons suffering with acute coronary occlusion. Gigon<sup>9</sup> in 1923 first reported the death, after the administration of three doses of insulin, of a diabetic patient suffering with acute congestive heart failure. Nicely and Edmondson<sup>10</sup> concluded after clinical experience with two cases that myocardial incompetence had resulted from undernutrition of the heart muscle due to the lack of a reserve of cardiac and muscle glycogen. Recently it has been shown that there are definite electrocardiographic changes produced by insulin administration, the most consistent of them being a flattening of the T waves, particularly in lead I. Other changes noted with less frequency are delayed auriculoventricular conduction time, depression of the P waves and slurring and prolongation of the QRS complex.<sup>11</sup> These changes have not as yet been adequately explained. Many have thought them due solely to a hypoglycemic state, but von Haynal, Vidovszky and Györgi<sup>11</sup> give strong evidence in favor of a direct action of insulin on the heart muscle. Soskin and his co-workers,<sup>1</sup> on the other hand, have been able to produce practically identical electrocardiographic changes by merely keeping a diabetic patient with cardiovascular disease on a low carbohydrate diet with no insulin and practically no change in the blood sugar level noted. They conclude thereby that the etiologic agent is probably a lack of available carbohydrate for adequate cardiac nutrition.

That a high level of blood sugar is not deleterious but rather advantageous to the cardiac patient, particularly in the anginal type of cardiac distress, has been the clinical experience of many. Büdingen<sup>12</sup> in 1923 and Smith, Gibson and Ross<sup>13</sup> in 1927 have stressed the beneficial effects of the administration of dextrose and high carbohydrate diets in the relief of congestive heart failure.

As to the cause of the rise in the blood sugar, no one can at this time definitely say, although many theories have been advanced.<sup>8</sup> Whether it is a physiologic or a pathologic response has not been determined. The analogous occurrence of hyperglycemia and glycosuria in patients suffering with circulatory shock following cerebral hemorrhage, embolism and thrombosis may aid in the future in solving this problem. What is known, however, is that in a certain percentage of patients suffering with acute coronary occlusion such a phenomenon does occur and that when it is seen one must remember that it does not necessarily indicate any true diabetic state, that it will usually subside of its own accord, and that the employment of insulin is usually not necessary.

7. Gottsegen, G.: Coronarthrombose und Diabetes, Arch. f. Verdauungskr. 53: 36-40 (Jan.) 1933.

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many plasma cells. The myocardium contained small recent hemorrhages. The bone marrow of the femur was 32 per cent cellular and showed 1.7 per cent myeloblasts, 51.6 per cent neutrophilic myelocytes, 2.6 per cent neutrophilic leukocytes, 0.5 per cent eosinophilic myelocytes, 1.5 per cent eosinophilic leukocytes, 0.7 per cent erythrogonias, 3.8 per cent erythroblasts, 13.3 per cent normoblasts, 0.5 per cent lymphocytes, 4.1 per cent plasma cells, 0.7 per cent monocytes and 0.4 per cent negakaryocytes.

## COMMENT

Comparing the extensive lymphocytic infiltrations with the diffuse fibrosis of the thyroid gland, it becomes evident that the two conditions represent different stages of the same process and that the lymphocytic infiltrations terminate in the replacement of the parenchyma by a dense and sclerotic connective tissue. As far as the lymphocytic infiltrations are concerned, it appears to me that they are exaggerated forms of the interstitial nodular accumulations of lymphocytes which are so commonly found in exophthalmic goiters and in simple goiters and which are also occasionally observed

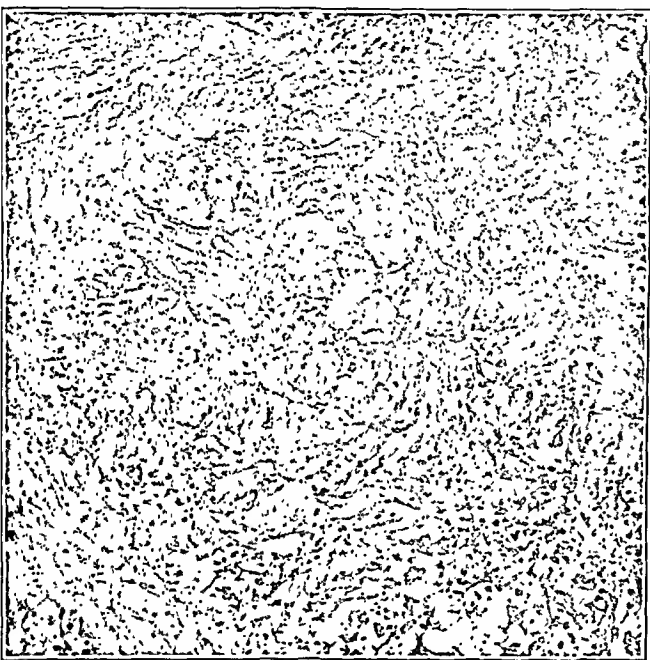


Fig. 3 (case 2).—Section of thyroid. Bundles of coarse connective tissue fibers enclosing degenerating epithelial cells. (Paraffin section; van Gieson stain; magnification 150 diameters.)

in normal thyroids, particularly in elderly and obese women (Simmonds,<sup>14</sup> Wegelin<sup>12</sup>). It is now generally assumed that the interstitial lymphocytic nodules result from the excessive resorption of the secretion products of the follicles or form about follicles that undergo degeneration or involution. They are secondary phenomena that can be linked to degeneration, involution, hypoplasia or functional disturbance of the gland (Wegelin,<sup>12</sup> Graham and McCullagh,<sup>1</sup> Williamson and Pearse,<sup>15</sup> Goormaghtigh,<sup>16</sup> Connor<sup>17</sup> and others). In the most pronounced cases they replace most of the parenchyma. Among the factors that may cause degeneration of the thyroid, infections have often been referred to; and, in the history of the cases presenting chronic thyroiditis, Riedel's goiter and Hashimoto's

goiter infections, especially of the respiratory tract, have repeatedly been stressed. One of my patients with fibrosis of the thyroid had suffered from frequent colds. The case presenting the most extensive lymphocytic infiltrations of the thyroid showed a combination with syphilitic aortitis and meningo-encephalitis. Of the twenty cases of fibrous atrophy of the thyroid described by Simmonds,<sup>18</sup> four were associated with an old syphilis, and the observations of the Monods<sup>19</sup> and Küttner<sup>20</sup> seem to indicate that syphilis may be responsible for sclerosis of the thyroid. Roulet<sup>21</sup> describes an obliterating endophlebitis and endarteritis in Riedel's goiter which resembles the vascular changes observed in syphilis, but he does not consider them as indicating the syphilitic origin of the thyroid lesions. In my case the process in the thyroid did not carry the histologic earmarks of a syphilitic inflammation and did not differ from the changes in the other cases in which there were no evidences of syphilis. I believe that any infection may lead to nonspecific degenerative changes of the thyroid gland with a secondary lymphatic reaction and that those glands are predisposed to degeneration which are either hypoplastic or are the site of a pathologic or physiologic involution. It is this predisposing involution which may account for the fact that the disease under discussion affects mainly women after the menopause. In none of my cases were there any indications that the administration of iodine might be connected with the process.

Because of the intimate relations between the glands of internal secretion, one may expect that the grave alteration of the thyroid affects also the other endocrine glands. Histologically there were no evidences of involvement of the parathyroids, adrenals, hypophysis or pineal glands or of the islands of the pancreas in the cases in which all these glands could be examined. This observation confirms the statement that the lymphocytic infiltrations and fibrosis of the thyroid, which is often found in Addison's disease, particularly the type that is due to the cytotoxic atrophy of the suprarenal cortex, is not secondary to the destruction of the adrenal cortex but is a separate although probably coordinate process (Brenner,<sup>22</sup> Dubois,<sup>23</sup> Köhler,<sup>24</sup> Kreibitz,<sup>25</sup> Saphir and Binswanger,<sup>26</sup> Schmidt,<sup>27</sup> Shaw and Smith,<sup>11</sup> Weller,<sup>28</sup> Wells<sup>29</sup>). In my material of autopsies of the last eight years there were eleven cases of Addison's disease, four of which showed a cytotoxic atrophy of the adrenal cortex and seven of which were due to a fibrocaceous tuberculosis of the adrenal. In

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SUMMARY

1. A patient suffering with acute coronary occlusion had transitory hyperglycemia and glycosuria.
  2. Hyperglycemia and glycosuria are common to the syndrome of acute coronary occlusion, as is borne out by the study of a series of seventy-four cases.
  3. Such clinical changes are usually of a transitory nature and do not necessarily indicate any true diabetic state.
  4. A high level of blood sugar is beneficial rather than harmful in acute cardiac patients, as is evidenced in the literature.
  5. The employment of insulin in the therapy of such cases is usually not necessary and, if undertaken, must be done with caution.
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HYPERSENSITIVITY TO ACETYL-SALICYLIC ACID (ASPIRIN)

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Among the most dramatic and dangerous manifestations of allergy are those reactions which occur following the ingestion, by hypersensitive individuals, of familiar and ordinarily innocuous drugs. Such reactions not only may defeat the purpose for which the drug was administered but may produce a new train of distressing symptoms and, in extreme cases, may lead to death. Hypersensitivity to drugs of all types has been recognized for a long time and reports of reactions from even the newest drugs follow closely on their introduction into common use. It is to be expected, therefore, that hypersensitivity to acetylsalicylic acid (aspirin), because of the frequent and promiscuous use of this drug, would be relatively more frequent than hypersensitivity to other drugs. Our experience as well as that of others<sup>1</sup> bears this out.

This report is based on a review of the literature and a study of sixty-two cases of true hypersensitivity to acetylsalicylic acid from the records of the Mayo Clinic. Cases of poisoning from acetylsalicylic acid, such as those reported recently by Dyke<sup>2</sup> and by Neale,<sup>3</sup> are not under consideration here since the condition in those cases was the result of overdosage rather than of specific hypersensitivity. For purposes of comparison we have summarized a series of thirty-three cases of hypersensitivity to acetylsalicylic acid reported in the literature. This by no means represents the total number of cases reported but merely those concerning which enough detail was given to render them suitable for tabulation. Even so, this series is not strictly comparable with ours, for many of the reports are incomplete and many of the authors were concerned with but a single phase of hypersensitivity to acetylsalicylic acid.

The earliest report we have encountered was that of Hirschberg,<sup>4</sup> who in 1902 observed a case of urticaria

and purpura following the ingestion of 1 Gm. of acetylsalicylic acid. He had no conception of allergic diseases as they are thought of today, but he did compare the reaction with some he had observed following the use of quinine and antipyrine. Most of the remaining articles are reports of small series or isolated cases. No one apparently has attempted to survey the field as a whole.

THE GROUP AS A WHOLE

*Incidence.*—We have no knowledge of the incidence of hypersensitivity to acetylsalicylic acid in the general population. Most cases undoubtedly go undiagnosed or unreported. It is significant that during recent years, while our threshold of suspicion of sensitivity to acetylsalicylic acid has been relatively low, the frequency with which the diagnosis is made has been increasing. The actual incidence probably is much higher than ordinarily supposed. "Aspirin sensitivity," stated Coca,<sup>1</sup> "is the commonest form of drug hypersensitivity encountered in atopy." It likewise has been recognized that hypersensitivity to acetylsalicylic acid, or aspirin, is particularly common among asthmatic patients. Giving 5 grains (0.3 Gm.) of acetylsalicylic acid to each of 100 asthmatic patients, van Leeuwen<sup>5</sup> noted reactions in sixteen. He felt, however, that this figure was too high for general application, as sensitivity to acetylsalicylic acid is more common among patients with severe asthma. Van Leeuwen estimated, therefore, that about 10 per cent of all asthmatic persons are specifically allergic to acetylsalicylic acid and that the percentage is even greater among those who have severe asthma. Our impression clinically is that this estimate is entirely too high for the group of asthmatic patients encountered in this country. We feel that the incidence is much higher than is generally supposed, however, as can be demonstrated by routine questioning of allergic patients with reference to sensitivity to drugs.

*Sex.*—There is a definite preponderance of females in the group of patients hypersensitive to acetylsalicylic acid. Among our patients the ratio was forty females to twenty-two males. In the cases assembled from the literature the ratio was nineteen females to fourteen males. Although we have no data on this point, we believe this difference to be an expression of the greater tendency on the part of women to resort to the use of anodynes rather than an expression of any specific difference in the sexes.

*Age.*—At the time of registration at the Mayo Clinic, two thirds of our patients were between 31 and 50 years of age; 90 per cent were between the ages of 21 and 60 years. Cases from the literature show a similar distribution.

*Age at Onset.*—Of greater interest, however, is the age at which the first symptoms of hypersensitivity to acetylsalicylic acid were observed. One patient was but 10 years old; another had reached the age of 64 years. Approximately two thirds of the group were between 21 and 50 years. Thus, sensitivity to acetylsalicylic acid is prone to appear in individuals of middle age, at a somewhat later age than is characteristic of the onset of most allergic diseases.

*Familial and Personal History of Allergy.*—Of forty-six patients interrogated, thirty-two (78 per cent) gave a definitely positive history of allergic phenomena

From the Division of Medicine, the Mayo Clinic.

1. Coca, A. F.; Walzer, Matthew, and Thommen, A. A.: Asthma and Hay Fever in Theory and Practice, Baltimore, C. C. Thomas, 1931, pp. 219 to 280. Cooke,<sup>6</sup> Duke,<sup>7</sup> van Leeuwen.<sup>5</sup>

2. Dyke, S. C.: Case of Acetylsalicylic Acid (Aspirin) Poisoning. *Lancet* 2: 613-614 (Sept. 14) 1935.

3. Neale, A. V.: Aspirin Poisoning, *Brit. M. J.* 1: 109-110 (Jan. 18) 1936.

4. Hirschberg: Mitteilung über ein Fall von Nebenwirkung des Aspirin, *Deutsche med. Wchnschr.* 28: 416 (June 5) 1902.

5. van Leeuwen, W. S.: Pathognomonische Bedeutung der Ueberempfindlichkeit gegen Aspirin bei Asthmikern, *München. med. Wchnschr.* 75: 1588-1591 (Sept. 14) 1928.

No special attention has so far been paid to the blood changes in cases presenting Riedel's or Hashimoto's goiter. My three cases in which lymphocytic infiltrations of the thyroid was an incidental finding did not show any unusual changes of the blood. The case presenting myxedema showed a lowered hemoglobin content but the number of the red blood cells was normal. In one of the cases of advanced fibrotic atrophy of the thyroid a marked, slightly hypochromic anemia was present, which remained constant until the patient died. The bone marrow was active and there were no evidences of a disturbed differentiation or maturation of the cells of the bone marrow. The cause of the anemia is therefore difficult to determine from the anatomic changes. The presence of iron in the spleen and liver may be due to an excessive destruction of the erythrocytes or to the failure of utilizing the iron. In the other case of sclerosis of the thyroid the anemia was very severe and of the aplastic type and the histologic picture of the bone marrow fitted well with an aplastic anemia. This case also presented a lobar pneumonia, and the plasma-cellular-lymphocytic reaction of the bone marrow, spleen and lymph nodes can be attributed to the complicating infection.

It is, of course, not permissible to draw conclusions from two isolated observations. The two cases suggest, however, that in unexplained anemias of elderly women the possibility of a grave alteration of the thyroid gland should be taken into consideration even though the cases do not present manifestations of myxedema. Unfortunately, determinations of the basal metabolic rate were not made in my cases. Whether the anemia is directly related to the lack of the thyroid hormones or merely a part of the diminished vitality of all the tissues I do not venture to decide.

#### SUMMARY

Four cases of extensive lymphocytic infiltration of the thyroid gland, which closely resembles the histologic picture of Hashimoto's goiter, emphasize that this infiltration may not cause an enlargement of the gland. In three of the cases the infiltration was an incidental finding while in the fourth case it was associated with myxedema.

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#### ABSTRACT OF DISCUSSION

DR. LINDON SEED, Chicago: In view of the relation of anemia to myxedema, the medical department of the University of Illinois requested a total thyroidectomy in a patient with polycythemia vera. At present, nine months since thyroidectomy, she has a total myxedema. The blood volume, which was elevated, has been depressed, but the red blood count is the same as before operation. As time passes anemia may appear; for the present at least there has been little effect. There is a type of Riedel's struma that begins with soreness in the neck, slightly elevated temperature, leukocytosis and an elevated basal metabolic rate with its secondary manifestations. I have operated on three such patients and the microscopic picture was that of a typical woody thyroiditis with giant cells. In spite of the temperature elevation, tissue cultures were negative. In one patient there was an associated syphilitic aortitis, nephritis and hypertension. It was obvious that she would not live long. I did a biopsy on the right lobe and at autopsy three months later obtained the left lobe. To my surprise the left lobe showed good thyroid follicles and much less fibrosis. Apparently with passage of time the condition improved. In view of this it seemed to me that, unless there was obstructive dyspnea, one could leave the thyroid alone. In three successive cases I did so, and the patients recovered nicely. Unfortunately, however, the fourth one, who had what I thought was a Riedel's struma, went to another physician who did a biopsy and proved it to

be an adenocarcinoma. Such a mistake is too easy to make and one is not justified in treating the condition without a biopsy.

DR. LEON ASHER, Berne, Switzerland: I should like to remark on the possible relationship between the thyroid gland and anemia. That there may be such a relationship can be definitely shown by physiologic methods. There is no doubt that the bone marrow is under the regulating influence of the thyroid gland. That can be tested with functional methods. For instance, regarding the behavior of leukocytes, if a normal animal is injected with 2 per cent of sodium salt of nucleic acid there will be an enormous increase of leukocytes, and a pathologist or anatomist will easily demonstrate an increased activity of the bone marrow. If the thyroid gland is removed, this reaction will not appear any more as long as one does not give senseless amounts of sodium nucleic acid. There are various experimental proofs that the bone marrow is under the regulatory influence of the thyroid gland as to red blood corpuscles and white corpuscles. Cases must always be analyzed. Why is there a special, more outspoken anemia in certain types of thyroid disease, a certain deficiency of the internal secretion? There may be something else besides. I have reference to the spleen with its inhibitory regulating influence on the bone marrow. There may be cases in which, in addition to the deficiency of the thyroid gland, there is added the inhibitory influence of the spleen, resulting in more pronounced diminution of the functional capacity of the bone marrow. If the spleen is removed, the function of the bone marrow returns. There is certainly a regulatory augmentory influence of the thyroid and bone marrow and an inhibitory one of the spleen. The real function of the thyroid is the regulation of permeability. One can show in animals and in human beings the decreased permeability of cells and blood vessels and the decreased interchange between blood vessels and cells, so that, if myxedema exists in certain cases, something else must enter besides. What that something else is, the physiologist cannot tell. That is the business especially of experimental pathologists and physicians. Let them find the reason why in certain cases there is myxedema and in certain cases not. I can only say that if one observes the patients in my country one will see in some most exquisite myxedema and in others none.

DR. ANTON J. CARLSON, Chicago: Complete thyroidectomy in the experimental animal leads to anemia. This is not new. The anemia comes on gradually. The difficulty of recognizing myxedema lies mainly in that we have in our mind's eye the picture of advanced myxedema, while neither in the laboratory nor in the clinic are there sufficiently delicate methods to determine the beginning stages, particularly in cases in which one does not follow the basal metabolic rate. Certainly in the rabbit, in which one can in most cases make a total thyroidectomy, there are a lowered basal rate, anemia, a lowered temperature, changes in the skin and interference with hair growth, all the characteristics that go with myxedema. But these develop gradually. I certainly could not recognize the initial stage at present. I have some respect for a Boston bean, particularly if it isn't baked, and if it contains thyroid tissue, because I have seen great hypertrophy or hyperplasia of thyroid remnants that were not even the size of a Boston bean or even of a mustard seed. Man is not so different from other mammals, in which there may be accessory thyroids from the base of the tongue to the base of the heart. Hence one can seldom be certain that total thyroidectomy has been achieved. I am intrigued by the report of the rejuvenating effect on women beyond 45 by taking out thyroids that are degenerated to start with. If the facts are as reported the thyroidectomy can have nothing to do with it. It must be the proximity of the surgeon.

DR. RICHARD H. JAFFÉ, Chicago: I am grateful to Dr. Carlson and Dr. Asher for discussing my paper. I enjoyed the witty remarks also. What I wanted to emphasize is the fact that hypofunction of the thyroid may present itself occasionally under the clinical picture of a severe blood dyscrasia. I am aware of the possibility that if in the cases which I described pathologically a hypofunction of the thyroid had been suspected clinically, other evidences of this hypofunction might have been detected. In these cases one may speak of a "masked myxedema." I hope that my presentation may have stimulated investigative work into the nature of the obscure anemias, especially those of elderly women.

among their blood relatives. Fourteen did not have knowledge of any such familial tendency. An almost identical incidence of familial allergy, twelve (80 per cent) out of fifteen, was noted by Cooke<sup>6</sup> in a group of patients sensitive to drugs. On the other hand, van Leeuwen concluded that most individuals who are allergic to acetylsalicylic acid have no hereditary allergic background, a conclusion that is contradicted by our observations.

Most of the patients allergic to acetylsalicylic acid whose cases are reported in the literature were sufferers from some allergic disease, most frequently asthma. All but three of our patients had or had had one or more allergic disorders in addition to their hypersensitivity to acetylsalicylic acid. Of these three, two gave a positive familial history of allergy. It seems very significant, therefore, that all but one patient in a group of sixty-two gave a positive familial or personal history of allergy. This finding reemphasizes<sup>7</sup> the potential danger from the indiscriminate use of drugs in cases in which there is evidence of major allergic disease. No more convincing argument against the use of acetylsalicylic acid as a remedy for asthma is needed except

*Types of Allergic Reaction Following Ingestion of Acetylsalicylic Acid*

	Patients	Per Cent
Asthma .....	38	61.2
Urticaria and angioneurotic edema.....	12	19.3
Vasomotor rhinitis .....	3	4.8
Urticaria with severe abdominal cramps..	1	1.6
Urticaria and purpura.....	1	1.6
Asthma and angioneurotic edema or urticaria .....	2	3.2
Gross purpura .....	1	1.6
Abdominal cramps and salivation.....	1	1.6
Asthma and vasomotor rhinitis.....	2	3.2
Asthma and abdominal cramps....	1	1.6
	62	100.0

to point out, as we do later in this article, the cases of death resulting from its use by asthmatic patients.

It is hardly necessary for us to point out that the value of acetylsalicylic acid as a drug is not being questioned. It would seem that nonallergic individuals need have little or no concern about experiencing from the ingestion of this drug the reactions that are described in this paper. The fundamental difficulty in cases of hypersensitivity to the drug lies not in the drug itself but in the individual who ingests it.

It is interesting to note that not one of our patients came to the clinic primarily because of hypersensitivity to acetylsalicylic acid. A great majority, however, came with or because of some allergic complaint, and such complaints usually were multiple. Forty-three patients had had asthma, thus illustrating the frequent relationship between the two disorders. Twenty-one had vasomotor rhinitis, eleven had hay fever, and ten gave a history of urticaria or angioneurotic edema. Six patients were subject to migraine. Four patients of the group had sinusitis, and twenty-one were found to have nasal polyps.

*Features of the Allergic Reaction to Acetylsalicylic Acid.*—The administration of a tablet of acetylsalicylic acid to one of these hypersensitive individuals may

result in one or several different allergic reactions. Practically all the commonly accepted major allergic syndromes except eczema were encountered in our series. The respiratory mucous membrane is by far the most frequently reacting tissue; the skin, subcutaneous tissues and blood vessels next, and the gastro-intestinal tract next. A summary of the reactions of our patients to the administration of acetylsalicylic acid is given in the table.

It is interesting to note that the reaction which follows the ingestion of acetylsalicylic acid is usually, although not necessarily, an exacerbation of the patient's allergic disease. We have observed cases of vasomotor rhinitis in which asthmatic attacks were experienced following the taking of acetylsalicylic acid and others in which giant urticaria developed but in neither of which instances was any aggravation of nasal symptoms experienced. Such cases, however, are the exception rather than the rule.

*Speed of Reaction.*—The time intervening between the administration of acetylsalicylic acid and the onset of symptoms, usually is short, the minimal recorded time being ten minutes and the longest two hours. This is so striking that it would seem that symptoms occurring at an interval longer than two hours, or at the most three hours, after the ingestion of acetylsalicylic acid are probably not due to true allergic sensitivity to the drug. "Delayed" reactions were not encountered in our series. Two patients (3 per cent) stated that their symptoms (asthma) occurred "almost immediately" after taking acetylsalicylic acid. Thirty patients (48 per cent) stated that their reaction occurred within one hour or less, and four (6 per cent) stated that their symptoms occurred in from one to two hours. The average recorded interval was thirty-two minutes. The reports in the literature agree closely with our experience. In Cooke's series the symptoms began from fifteen to twenty minutes after the ingestion of acetylsalicylic acid.

The speed of reaction varied considerably with the type of reaction. For instance, the average interval between the ingestion of acetylsalicylic acid and the onset of asthma in twenty-three cases was twenty-five minutes. Vasomotor rhinitis appeared in one case ten minutes after the taking of acetylsalicylic acid. Eight patients had hives on the average of fifty minutes after taking the drug. Three patients experienced abdominal cramps on the average of sixty-five minutes after ingesting it. The explanation for this variation in the interval before a reaction developed is not at once apparent.

*Eosinophils and Sedimentation Rate.*—Differential blood counts were not made as a routine in our series of cases. Six differential counts were made for as many individuals: Two showed an absence of eosinophils; three, 2 per cent of eosinophils, and one, 9 per cent of eosinophils. Cooke found an increase of eosinophils of from 10 to 15 per cent in "practically all" his cases in which sensitiveness to antipyretics was present. Van Niekirk<sup>8</sup> found that the sedimentation rate of erythrocytes is normal in cases of asthma but greatly accelerated in cases of asthma in which hypersensitiveness to acetylsalicylic acid is shown. We have no data on this point.

*Types of Reaction.*—Asthma: This is at once the most frequent and most serious form of reaction to

6. Cooke, R. A.: Allergy in Drug Idiosyncrasy, J. A. M. A. 73: 759-760 (Sept. 6) 1919.

7. Duke, W. W.: Aspirin Allergy: A Method of Testing for Aspirin Sensitiveness and Method of Avoiding Aspirin Catastrophes, J. Allergy 4: 426-427 (July) 1935. Coca.<sup>1</sup>

8. Van Niekirk, quoted by van Leeuwen.<sup>21</sup>



in a boiling water bath, filtered, and the whole amount injected into a dog that had been previously standardized with regard to its sensitivity.

The material produced an increase of 2.84 mg. per hundred cubic centimeters of blood calcium, whereas, in the same animal, 300 units of parathyroid extract obtained from normal beef parathyroid glands treated in the same way had previously produced an increase of 5.04 mg. per hundred cubic centimeters of blood calcium. This material was equivalent, therefore, to approximately 169 units (Hanson) of parathyroid extract. On this basis, the entire adenoma contained approximately 275 units, or slightly more than 105 units per gram. This is about

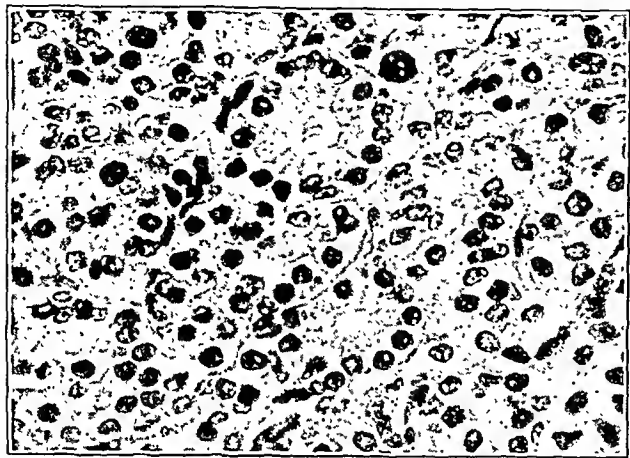


Fig. 3.—Cell arrangement and sparseness of stroma of parathyroid adenoma.

twice the amount of parathyroid hormone per gram obtained from normal beef parathyroid gland.

**Postoperative Course of the Patient.**—Two hours after operation and twice daily subsequently the patient was given 20 cc. of 10 per cent calcium gluconate solution intravenously and 1 cc. of parathyroid extract<sup>5</sup> hypodermically. Her serum calcium nevertheless dropped from a preoperative level of 11.2 mg. to 9 mg. per hundred cubic centimeters in twenty-four hours and reached 7.9 mg. on the third postoperative day. There were no obvious signs of tetany. On a low phosphorus diet<sup>6</sup> with added viosterol (30 drops daily) and calcium gluconate tablets (276 grains [18 Gm.] daily) orally her serum calcium level gradually rose and reached 10.3 mg. per hundred cubic centimeters exactly one month after operation. She felt stronger and brighter daily and ate with unusually good appetite. Her anemia responded to iron and liver therapy with addition of hydrochloric acid. Renal function improved, and the blood urea nitrogen fell to 16.0 mg. per hundred cubic centimeters with rising urinary output. Roentgen examination of the abdomen showed no evidence of calcareous deposits in the region of the kidneys. One month after operation it was possible to discontinue parathyroid injections. Three months after operation she was discharged in good condition. When seen at home (March 21, 1936) she was no longer wearing a cast, her muscle function was improved, and she was walking about her room. Her anemia was much less (hemoglobin 75 per cent, erythrocytes 3,820,000), and on a normal diet which included one quart of milk daily her serum calcium was 9.7 mg. per hundred cubic centimeters and phosphorus 3.4 mg. per hundred cubic centimeters. July 7, 1936 (eight months after parathyroidectomy) her blood serum calcium was 10.1 mg. per hundred cubic centimeters and the serum phosphatase had become normal (12 units).

#### SUMMARY

In a typical case of hyperparathyroidism marked clinical improvement resulted from surgical excision of an adenoma of

5. Parathyroid extract-Squibb. One unit (Hanson) is defined as one hundredth of the amount of extract required to cause an increase of 1 mg. of calcium per hundred cubic centimeters of blood serum in dogs weighing from 10 to 12 Kg., the increase being determined after subcutaneous administration to dogs of a sufficient quantity of solution to cause an average increase in blood serum calcium of from 4 to 6 mg. within sixteen hours. One cubic centimeter contains 100 units.

6. Shelling, D. H., and Goodman, M. J.: Calcium and Phosphorus Studies: IX. The Importance of Low Dietary Phosphorus in the Treatment of Parathyroid Tetany. J. A. M. A. 102: 669 (March 3) 1934.

the left lower parathyroid gland. Bio-assay of the gland revealed approximately 105 units of hormone per gram. Search of the literature reveals no previous instance in which direct analysis was made of the hormone content of such an adenoma.

#### PIGMENTATION OF THE SKIN DUE TO IRON (COPPERAS) APPLIED LOCALLY

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There are several cases on record of pigmentation following the local application of iron-containing medicinal substances. One may well take warning from these that the use of certain agents is liable to be followed by discoloration, which may be permanent.

#### REPORT OF CASE

Miss G. H., a robust woman, aged 33, with blue eyes, dark hair and brunette skin of fine texture, contracted impetigo, which commenced with "blisters" on her neck, June 13, 1936. For five days she applied tincture of iodine several times a day, without benefit. Then, at the suggestion of a neighbor, she made up a strong solution of copperas, which is ferrous sulfate,  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ , a translucent, greenish crystalline substance known also as green vitriol. She did not measure the strength, simply dissolving several teaspoonfuls in a glass of water. She applied the solution by "dabbing it on several times a day for two or three days." The condition became worse and pained her severely. She then used magnesium sulfate solution for a short time, without benefit. June 23 she was seen at the dispensary of the University of Kansas Hospital, where a saturated solution of lead acetate was prescribed. On applying this, she said her face burned violently and felt "cooked," and the lesions became darker and redder. Then 10 per cent ammoniated mercurial ointment was prescribed, and on June 30 notable improvement was observed along with a red-brown pigmentation of the lesions. It was surmised this would go away, but it did not do so. August 11 she returned to the



Brown pigmentation at the sites of healed lesions of impetigo. This discoloration is due to the use of a copperas solution (ferrous sulfate) followed by lead acetate solution, with the resulting staining of the skin with basic ferric acetate.

dispensary to learn whether or not something might be done to hasten the disappearance of the discoloration. A 2 per cent solution of salicylic acid in 30 per cent alcohol was given her but yielded no effectual results. Then the area was blistered with ultraviolet rays, with no greater benefit.

I obtained this information from the patient and from the records September 30, at which time she presented the striking appearance that the illustration shows. From a distance one would jump to the conclusion that she had impetigo, but the

polychromatic macrocytes. Platelets were practically absent. The clinical diagnosis was aplastic anemia. Three days after admission the patient died.

**Autopsy.**—The body weighed 62 Kg. and the body length was 160 cm. There was a lobar pneumonia in the stage of brown hepatization of the left lower pulmonary lobe. Petechial hemorrhages were found in the skin and in the mucosa of the renal pelvis and urinary bladder. In the left rectus abdominis muscle and in the retroperitoneal tissue large extravasations of blood were present. The heart weighed 450 Gm. and the leaflets of the aortic valve were slightly deformed. The intima of the aorta and coronary arteries was smooth. The liver weighed 1,825 Gm., the spleen 175 Gm. and the kidneys 475 Gm. The gallbladder contained a single cholesterol stone. The internal genitalia were atrophic and the ovaries showed small follicular cysts. The adrenals were very soft and their cortex was a light yellow. The thyroid weighed 22 Gm. It was of normal shape, felt very firm and consisted of light pinkish brown tissue (fig. 1). The brain could not be examined.

**Microscopic Examination.**—In place of the normal thyroid tissue there was a dense fibrillar connective tissue, which was loosely infiltrated by lymphocytes, plasma cells and histiocytes. In focal areas the lymphocytes accumulated to small nodules, in the region of which a delicate, argentaflavine reticulum could be demonstrated. These nodules enclosed the residues of disintegrated follicles. The colloid had disappeared and the epithelial cells were swollen and finely vacuolated. Their nuclei were shrunken and crenated (fig. 2). In van Gieson stained sections, isolated groups of vacuolated epithelial cells could be seen between the coarse connective tissue fibers (fig. 3). There were small nests of polygonal cells with ample cytoplasm and vesicular nuclei, which were surrounded by a layer of argentaflavine fibrils in the same manner as the follicles of the thyroid.<sup>13</sup> The wall of the arterioles and small arteries was slightly thickened, the intima of the larger arteries was moderately thickened and the internal elastic membrane was calcified.

The bone marrow was 17.8 per cent cellular and the cellular areas were composed of 52.2 per cent plasma cells, 38.3 per cent lymphocytes, 3 per cent monocytes, 4.3 per cent normoblasts, 1.1 per cent basophilic granulated cells, 0.4 per cent neutrophilic myelocytes, 0.4 per cent eosinophilic myelocytes and 0.3 per cent eosinophilic leukocytes. The plasma cells were large, and many of them contained from two to four nuclei. Similar to the bone marrow the lymph nodes and the spleen showed numerous large and often multinucleated plasma cells, and plasma cells could also be seen in the lumen of the portal sinusoids of the liver. There was much iron pigment in the spleen but none in the liver. The liver showed centrilobular, focal necrosis and a swelling and proliferation of the Kupffer cells. The alveolar exudate of the lung consisted of compact casts of fibrin with very few mononuclear cells. There were focal areas of necrosis, and the branches of the pulmonary artery leading to these areas of necrosis were occluded by fibrin thrombi. There was a slight increase of the interlobular fat tissue of the pancreas, and the islands were well preserved. The parathyroids contained the number of interstitial fat cells that corresponded to the age of the patient. Clear chief cells predominated. The lipid content of the adrenal cortex was much reduced and in the fascicular zone there were small nests of plasma cells, lymphocytes and iron filled histiocytes. The hypophysis could not be examined, since permission for removing the skull was not obtained.

**CASE 3.—History.**—A white American woman, aged 63, complained of extreme weakness, which had developed within the last six months. For the past month she had been eating very little because of a sore tongue. Recently she suffered from a severe diarrhea.

**Examination.**—On admission her temperature was 98.5 F., her blood pressure 78 systolic, 65 diastolic, the pulse rate 104 and the respiratory rate 16. The eyes were sunken, the tongue was coated, its edges were injected and there was also an injection of the mucosa of the soft palate and the pharynx. The neck, lungs and heart did not show any abnormalities. The Wassermann and Kahn tests of the blood gave negative results. The examination of the urine was negative, as was also the examination of the feces.

Examination of the blood showed a hemoglobin content of 57 per cent. It decreased later to 48 per cent. The number of erythrocytes decreased from 2,980,000 to 2,580,000, and the number of the white cells varied between 5,750 and 10,500. There were from 71 to 81 per cent neutrophils, from 9 to 19 per cent lymphocytes, from 4 to 10 per cent monocytes and an occasional eosinophilic and basophilic leukocyte. There was a slight anisocytosis of the erythrocytes and a shifting of the neutrophils to the left. The platelet count was 200,000.

The patient was given a high vitamin diet and liver extract but she failed to respond. Because of her extreme weakness, no satisfactory determination of the basal metabolic rate could be made. The final diagnosis was anemia, probably of endocrine nature, most likely Simmonds' disease. She died six weeks after admission to the hospital.

**Autopsy.**—The body weight was 45 Kg. and the body length was 160 cm. In the skin of the neck and the dorsal aspect of the left forearm, single, up to 15 mm., confluent, dark purple red patches were seen. The right lung showed focal areas of consolidation. The heart weighed 285 Gm., the liver 1,230 Gm..



Fig. 2 (case 2).—Section of thyroid. Lymphocytic nodule containing the residue of a follicle, which is composed of finely vacuolated epithelial cells with crenated nuclei. (Paraffin section; hemalum-eosin; magnification 150 diameters.)

the spleen 60 Gm. and the adrenals 12 Gm. The hypophysis measured 20 by 14 by 5 cm. The weight of the thyroid amounted to 9 Gm. The organ was of normal shape and of firm consistency and was made up of homogeneous pale gray tissue. There was a slight atheroma of the coronary arteries and a more marked atheroma of the abdominal aorta. The brain weighed 1,250 Gm.

**Microscopic Examination.**—The thyroid resembled closely that of the preceding case. Again the diffuse, sclerosing fibrosis was the outstanding feature. Lymphocytic nodules and residues of follicles were less conspicuous than in case 2. There were small groups of squamous epithelial cells (fig. 4). In the anterior lobe of the hypophysis the oxyphilic cells predominated, and there were many small follicles filled with a colloid-like substance. The intermediary part consisted of several large, colloid-filled follicles. The posterior lobe, adjacent to the intermediary part, showed single, small nests of oxyphilic cells with eccentrically placed and deeply stained nuclei. The cortical cells of the adrenal contained much lipid material and there were small cortical adenomas, which were rich in fat. The parathyroids contained many fat cells and the clear chief cells predominated. The pineal gland consisted of islands of moderately sized cells with round or slightly indented nuclei. The ovaries were atrophic. The liver and the spleen showed a very marked hemosiderosis and in the pulp of the spleen there were

13. The metaplasia of the epithelium of the thyroid will be discussed in a separate paper.

There are nevertheless a great many institutions that have no photographic facilities, and here the physician is thrown on his own resources whenever photographic recording is necessary. Furthermore, in his private practice the practitioner may find it expedient to photograph his own material, especially when much photography is to be done or when transitory pathologic conditions make an immediate photograph necessary.

Some mention has been made in medical literature of the possibilities of clinical photography,<sup>1</sup> but for the most part the literature on medical photography is addressed largely to those who are already acquainted with the fundamentals of photographic technic. This fact has undoubtedly contributed to the prevailing misconceptions that the technic of medical photography is difficult and the necessary apparatus inordinately expensive. The rise of the miniature camera, too, has created the attitude among many practitioners that less expensive cameras are useless so far as clinical photography is concerned. Yet perfectly satisfactory work may be done with inexpensive cameras, and many physicians who possess folding roll film cameras are able with the addition of a few bits of supplementary apparatus to obtain splendid results in all branches of macrophotography, photomicrography, the photography of necropsy and biopsy specimens, copying work, enlarging, and even color and infra-red photography. The present article deals with the practical aspects of clinical photography and outlines a minimum of apparatus necessary for work in the various fields. Only such photographic theory has been introduced as is absolutely essential to an understanding of practical principles.

#### THE CHOICE OF A CAMERA

*Plate and Film Pack Folding Cameras.*—The most satisfactory camera for clinical use is a folding plate and film pack camera equipped with a double extension bellows and a ground glass back. The wide variety of photographic emulsions available in plates, cut films and film packs satisfies all requirements of latitude, speed, contrast, fineness of grain and color sensitivity. The double extension bellows permits the full-scale copying of charts, pictures and diagrams and is useful in photomicrography. The ground glass back allows critical focusing. The camera furthermore may be used as the principal part of an enlarging or projecting apparatus. The most satisfactory picture size is either  $2\frac{1}{4}$  by  $3\frac{1}{4}$  inches or  $3\frac{1}{4}$  by  $4\frac{1}{4}$  inches, from which a suitable contact print may be obtained if an enlargement is not desired.

*Reflex Cameras.*—The chief advantage of reflex cameras is that the focus can be adjusted up to the instant of exposure. This advantage is offset by the bulk and cost of the camera. For clinical purposes the focal plane shutter with which the reflex cameras are equipped is not as suitable as the ordinary "between-the-lens" shutter, since the slower speeds, from one-fifth second to 1 second, cannot be obtained. Folding patterns of the reflex camera have been devised, but these are somewhat more difficult to manipulate than the box reflex type. Double lens reflex cameras overcome the ordinary disadvantages of the reflex camera, being compact and allowing the slower speeds, but are rather costly and there is some error in parallax on extreme closeups.

*Miniature Cameras.*—Although considered a toy by many photographers, the miniature camera is rapidly gaining in popularity and promises to become the universal camera of the future. Precision instruments, such as the Leica and Contax, are supplied with fine optical equipment and combine sturdiness of construction, compactness, speed, and ease of operation. The film used is a fine grain cine-negative film of standard 35 mm. width, from which enlargements of many diameters may be obtained. The small size and light weight of the camera permit it to be carried in a coat pocket, and the high speed lens equipment allows satisfactory exposures under unfavorable light conditions. The relative inexpensiveness of movie film is another factor to be considered, especially when many pictures are to be taken or when color photographs are desired. Furthermore, positive film transparencies may be made for projection purposes at a great saving as compared to the cost of lantern slides. There are, however, several disadvantages associated with the miniature camera. The price of a precision camera with the highest speed lens amounts to several hundred dollars, but this initial price is tremendously augmented by the cost of supplementary apparatus, such as equipment for copying, enlarging and microscopic work, without which satisfactory clinical photography cannot be done. Miniature films require more meticulous handling than larger films, the slightest errors in processing rendering good enlargements impossible. Another objection is that contact prints are too small for detail to be readily seen; consequently all pictures must be enlarged, a fact that destroys the operating economy. The average spool of film used contains thirty-six exposures and this is another serious drawback, since it is necessary to expose the entire roll before any single desired negative can be obtained. Miniature roll film cameras that take sixteen pictures on ordinary vest pocket roll film are less expensive but lack some of the important features of the precision instruments.

*Roll Film Cameras.*—With the wide range of emulsions available in roll film, perfectly satisfactory results in clinical photography may be achieved by employing a good roll film camera. Two essentials are necessary: first, a reliable anastigmatic lens; second, a shutter with slow speeds of one-fifth to 1 second. Supplementary portrait and copying lenses will substitute satisfactorily for the double extension bellows, and reasonably sharp focus may be obtained by measuring by rule the distance between the subject and the camera. Photomicrographic work may be accomplished with ease, and the camera may be used for enlarging or projecting purposes. There are many good inexpensive roll film cameras with these features available.

*Lenses.*—Standard cameras are usually equipped with reliable anastigmatic lenses corrected for astigmatism, chromatism and spherical aberration. The quality of a lens is difficult to estimate without actual trial, but a lens manufactured by a reputable maker will ordinarily prove satisfactory. Cooke, Zeiss, Ilex, Schneider, Leitz, Goerz, Voigtlander, Bausch and Lomb, and Meyer lenses rank among the best. For pleasing perspective the focal length of the lens should be equal to or greater than the diagonal of the film or plate. The speed of the lens depends, of course, on the maximum aperture, and rarely, except in the miniature cameras, is it advisable to purchase a lens with a speed greater than  $f/3.5$ , faster lenses for larger cameras being bulky, expensive, and providing very small depth of

1. Goodman, Herman: Medical Photography, M. J. & Rec. 127: 76-78 (Jan.) 1928. Poser, M.: Some Problems in Biological Photography, J. Biol. Photograph. A. 1: 61-71 (Dec.) 1932.

two cases of cytotoxic atrophy of the adrenal cortex the thyroid was densely infiltrated by lymphocytes, while in one the infiltrations were insignificant and in one case absent. Two cases of fibrocasseous tuberculosis of the adrenal showed much lymphocytic infiltration of the thyroid. In one case the infiltrations were of moderate intensity and in three cases of mild intensity, and in one case the thyroid was unchanged. In a Negro woman, aged 29, with Simmonds' disease, in whom the anterior lobe of the hypophysis had been completely replaced by scar tissue, the thyroid was atrophic, weighing 10 Gm., but was free from lymphocytic infiltrations. The adrenals weighed 6.5 Gm. and the inner layer of the fascicular zone and the reticular zone had been transformed into dense connective tissue. In another case in which the anterior lobe of the hypophysis had been destroyed by a fibrocasseous tubercle, thyroid and adrenals were unchanged. These cases indicate that the combination of pathologic changes of the glands of internal secretion does not follow any definite rule and that all possible combinations may occur. In polyglandular insufficiency the thyroid, however, is almost constantly involved and often seems to form the center of the symptom complex.

With regard to the marked anemia in the two cases of sclerosis of the thyroid gland, the question may be raised whether this anemia is related to the lesion of the thyroid or is coincidental. The influence of the thyroid on the bone marrow has been the subject of many clinical and experimental studies, of which I mention only some of the more recent ones. Schwanke<sup>30</sup> found that three fifths of his cases of exophthalmic goiter showed a polycythemia with erythrocyte counts between 5 and 8.6 million. Improvement was frequently followed by a drop in the number of the erythrocytes. Schermann<sup>31</sup> noticed an increased reticulocyte count among the population of the endemic goiter district of Mari (Russia). A series of papers deals with the anemia in myxedema (Emery,<sup>32</sup> Lerman and Means,<sup>33</sup> Stone,<sup>34</sup> Mackenzie,<sup>35</sup> Boros and Czoniczner<sup>36</sup> and others). Boros and Czoniczner<sup>36</sup> studied the blood picture in twelve cases of myxedema and found in five cases a macrocytic anemia and in one case a normocytic anemia. Lerman and Means<sup>33</sup> pointed out that anemia is more common in the patients with myxedema and gastric anacidity than in the patients with myxedema and free hydrochloric acid in the gastric juice. The combination of myxedema with true pernicious anemia has been described by Means, Lerman and Castle,<sup>37</sup> Giffin and Bowler,<sup>38</sup> Davis,<sup>39</sup> Boros and Czoniczner<sup>36</sup> and Holbøll.<sup>40</sup> In uncomplicated pernicious anemia the basal metabolic rate is increased, while it is lowered in the cases presenting pernicious anemia and myxedema.

Mendershausen<sup>41</sup> has stressed that the thyroid of patients with pernicious anemia is often atrophic and infiltrated by lymphocytes, an observation which I have not been able to confirm. Heilmeyer and Albus<sup>42</sup> described a severe hemolytic anemia that developed from a myxedema anemia following grip and was complicated by acromegalic symptoms. The autopsy of this case revealed a complete atrophy of the thyroid. One of the cases of Riedel's goiter reported by Boyden and his associates<sup>43</sup> terminated fatally two years after the operation from pernicious anemia and cirrhosis of the liver. In a case of severe nonhemolytic anemia with hepatosplenomegaly and advanced sclerotic atrophy of the thyroid and positive serologic reaction for syphilis, Serio<sup>43</sup> is inclined to consider a simultaneous syphilitic alteration of the spleen, the liver, the thyroid and the blood-forming tissues.

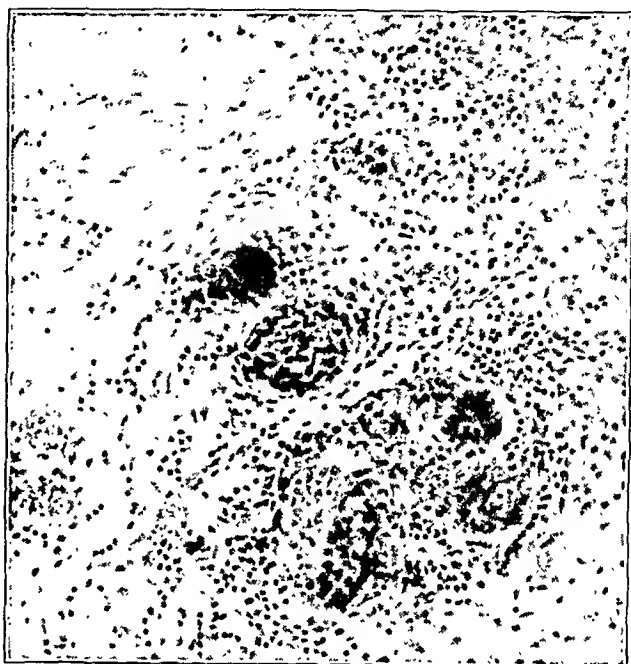


Fig. 4 (case 3).—Section of thyroid. Small nests of squamous epithelial cells surrounded by dense connective tissue and loose accumulations of round cells. (Frozen section; hematoxylin-eosin stain; magnification 150 diameters.)

Sharpe and Bisgard<sup>44</sup> and others have found that complete removal of the thyroid in young rabbits causes a moderate macrocytic anemia, which becomes fixed at a certain level and then remains constant. Kunde, Green and Burns<sup>45</sup> observed a macrocytic anemia in thyroidectomized rabbits. Latta and Benner<sup>46</sup> found that thyroxine injected into albino rats produced a rise in the percentage of the reticulocytes, which in some instances was later followed by a decrease. The bone marrow, in particular the erythropoietic tissue, was hyperplastic. After large amounts of thyroxine there were evidences of exhaustion of the bone marrow.

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34. Stone, C. T.: Occurrence of Anemia in Myxedema, *Ann. Int. Med.* **2**: 245 (Aug.) 1928.

35. Mackenzie, G. M.: Anemia in Hypothyroidism, *J. A. M. A.* **86**: 462 (Feb. 13) 1926.

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43. Serio, F.: Anemie tireosplenopatiche, *Haematologica* **16**: 609, 1935.

44. Sharpe, J. C., and Bisgard, J. D.: The Relation of the Thyroid Gland to Hematopoiesis, *J. Lab. & Clin. Med.* **21**: 347 (Jan.) 1936.

45. Kunde, M. M.; Green, M. F., and Burns, G.: Blood Changes in Experimental Hypo- and Hyperthyroidism (Rabbit), *Am. J. Physiol.* **99**: 469 (Jan.) 1932.

46. Latta, J. S., and Benner, M. C.: The Hemopoietic Disturbances Induced in the Albino Rat by Administration of Thyroxine, *Am. J. Anat.* **54**: 115 (Jan.) 1934.

**Washing and Drying.**—Washing should be carried out for approximately one hour in running water to remove all traces of hypo. The films should be moved about freely, but excessive handling must be avoided to prevent scratching the emulsion. On being removed from the washing tank, the film is wiped with a damp chamois or damp cotton to remove excess water and then is hung up to dry. An electric fan will promote rapid drying.

**Reducing and Intensifying.**—In instances of incorrect exposure or development, negatives may be either too dense or too thin to print well. Such negatives may sometimes be salvaged by the use of reducing and intensifying solutions. Heavy overexposed negatives are best treated by Farmer's reducer,<sup>3</sup> which is a cutting reducer tending to increase contrast. For overdeveloped negatives a permanganate proportional reducer<sup>3</sup> which lowers contrast should be used.

Intensifying solutions<sup>3</sup> will increase the printing density of thin, flat negatives, but markedly underexposed negatives that have little detail will not benefit much by intensification.

**Printing.**—The materials needed for making contact prints are few and consist of a printing frame, rubber squeegee, developing-out paper, a few enameled ferrotype tins, and a suitable safelight. To give the best rendering of fine detail, a paper with a glossy surface such as Glossy Velox or Azo is recommended. It is available in six degrees of contrast to compensate the variation in the printing quality of negatives. The negative is placed in the printing frame emulsion side upward, and the paper is placed on the negative emulsion side downward. The back of the frame is replaced and the paper is exposed to white electric light. The exposure time required depends on the density of the negative, the contrast of the paper and the intensity of white light. A 25 watt or 40 watt bulb may be used as a light source and a few trials will indicate the correct exposure. M. Q. tube developer solution or D-72 developer<sup>3</sup> will be found satisfactory. The acid short-stop bath and fixing bath are identical to those used for negatives. Following a wash of one hour in running water, the prints are squeegeed face downward on the ferrotype tins, which have been prepared by polishing with a glazing polish. A good polish may be made by dissolving a small amount of paraffin in benzene.

**Positive Film Transparencies.**—For exhibition purposes, photographs may be printed on Eastman Process Safety Film, the film being used in the same manner as developing-out paper. Exposure and development are carried out the same as for paper. The positive prints may be framed in cardboard mounts and a piece of Eastman Acetate Sheeting or cellophane may be placed over the emulsion side of the print in order to protect it. The detail apparent in positive prints is splendid when viewed through an illuminator. Reversible movie film may be obtained for use in miniature cameras, the negative being converted directly into positive prints for projection purposes. A better method, however, is to employ the regular negatives and print them on positive movie film in order to preserve the negative in case other positive photographs are desired.

**Retouching.**—Being accurate scientific records, negatives obviously cannot be retouched. It is permissible, however, to block out backgrounds and extraneous subjects with an opaque substance such as Eastman Opaque. Numbers and indications may be drawn on

the negative with the opaque material, and in the final print or enlargement these will show up as white marks.

**Enlarging.**—Briefly stated, the process of enlarging consists of placing a negative between a concentrated source of light and a lens, and focusing the image on a piece of bromide paper, which is processed in the usual manner. Enlarging machines may be purchased in vertical types, which focus on a table, or in horizontal types, which utilize an upright screen for focusing purposes. Enlarging is facilitated in vertical machines, but enlargements of more than six to ten diameters are more difficult to obtain than in horizontal enlargers.

With a little ingenuity any camera equipped with a good anastigmatic lens and removable back may be adapted for an enlarger. A light-proof box, from 8 to 12 inches square, is painted white on the inside, and to one wall there is attached a socket to hold a Photoflood bulb. An opening is cut in the opposite wall somewhat larger than the size of the negative to be used. A piece of opal glass, to serve as a diffuser of light, is placed on the inside of the box over this opening. On either side of the opening on the outside of the box there is attached a grooved vertical strip of wood to act as a guide for the negative carrier, which may be an ordinary printing frame with the back removed or two pieces of thin, good quality glass, between which the negative is sandwiched. Metal or cardboard masks may be purchased or constructed to shield negatives of various sizes. An air vent must be constructed on top of the box to permit the escape of heat without allowing the escape of light. For this purpose several tin cans of unequal size, painted dead black, may be utilized, the smaller cans being placed within the larger and the bottoms perforated in different positions so that the light cannot shine through directly. The back of the camera is removed and the camera placed snugly against the window of the box. The negative carrier containing the mask and negative is inserted between the box and camera within the two grooved strips of wood. The light is turned on and the image focused sharply on a screen by moving the lens board of the camera backward or forward. The size of the image and therefore the degree of enlargement is controlled by varying the distance between the lens and the screen.

A convenient paper holder may be constructed from a stiff piece of cardboard by gluing four art corners, such as are used in mounting pictures in albums, on the cardboard in such a position that the bromide paper may be easily introduced and removed. Either the screen or the table on which the enlarger rests may be movable in order to obtain varying degrees of enlargement. In the latter case the wall of the room may be utilized as a screen.

In making enlargements, a darkroom illuminated by an orange safelight is necessary. The image is focused on the cardboard paper holder, which is affixed to the screen by several pushpins. The light in the enlarger is turned off and a piece of bromide paper is introduced into the paper holder. The light is then turned on again for the necessary exposure. A few trials with small strips of bromide paper will indicate the correct exposure to use.

The exposed bromide paper is placed in the developer, acid short-stop, and fixing solution in the same manner as in the processing of contact prints. For developer solution M. Q. tubes, D-72 developer or the formula



## Clinical Notes, Suggestions and New Instruments

### BIO-ASSAY OF A PARATHYROID ADENOMA IN A CASE OF GENERALIZED OSTEITIS FIBROSA

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The evolution of the concept of hyperparathyroidism may be traced in successive stages from the original description of osteitis fibrosa cystica by von Recklinghausen<sup>1</sup> to its emergence as a disorder of function of the parathyroid glands, culminating in Mandl's<sup>2</sup> important observation that removal of a parathyroid adenoma resulted in marked immediate clinical improvement of the condition. The chain of evidence at present is almost complete that excessive secretion of parathyroid hormone by such an adenoma is to be regarded as the essential cause of the bony changes, hypercalcemia, and associated phenomena of this disease.<sup>3</sup> Reports in the available literature, however, contain no instances in which the actual hormone content of adenomas removed surgically has been determined.

Removal of a parathyroid adenoma in the following case permitted a biologic assay of its hormone content:

#### REPORT OF CASE

**History.**—A woman, aged 42, was admitted to St. Peter's Hospital, Oct. 25, 1935, for treatment of fractures of the humerus and femur. For at least six years she had had "rheumatic pains" in her limbs, polydipsia, polyuria and noc-



Fig. 1.—Marked osteoporosis and fibrocystic changes in humerus with fractures.

turia. Four months before admission, while pushing a trunk, she fell and injured her hip. Roentgen examination on the day of admission to the hospital showed evidence of advanced cystic disease and osteoporosis of the bones with fractures of

the humerus and femur (fig. 1). The diagnosis of hyperparathyroidism was made by the roentgenologist, Dr. William Klein. The blood serum calcium was 12.3 mg. per hundred cubic centimeters, phosphorus 2.8 mg., and the phosphatase was elevated to 39.4 King-Armstrong units. Urinalysis revealed calcium phosphate and triple phosphate sediments, slight albuminuria, occasional leukocytes, and fixation of the specific gravity between 1.010 and 1.012. Blood urea nitrogen was 21.5 mg. per hundred cubic centimeters, and the phenolsulfonphthalein excretion in the urine only 12 to 17 per cent in two hours. The hemoglobin was 44 per cent (Dare) and erythrocytes 3,540,000, with hypochromia and slight basophilic stippling. Fractional gastric analysis (Rehfuess) revealed complete absence of free hydrochloric acid and a total acidity of 30. Immobilization and moderate traction were applied for the fractures (Dr. Haywood). Two weeks after admission the patient was operated on for suspected parathyroid adenoma.

**Operation (Dr. Clarke).**—Under tribrom-ethanol anesthesia with procaine hydrochloride infiltration the thyroid was exposed; two normal parathyroids were identified on the right side. A large, yellowish, encapsulated body, the size of a small olive, was found without difficulty lying flush with the anterior surface of the lower pole of the left lobe of the thyroid within a common sheath. The mass was easily liberated from a smooth fibrous bed within the thyroid gland. A frozen section was reported "parathyroid adenoma."

**Description of the Specimen.**—The gland tissue removed at operation weighed 2.6 Gm. It formed a single mass with slight lobulation (fig. 2). The cut surface was uniform and solid, without visible finer structure or obvious fibrosis or cyst formation, light amber in color, and having a soaplike homogeneity of aspect. Part of the gland was reserved for histologic study and the remainder, weighing 1.6 Gm., was placed on ice for twenty-four hours. It was then chopped fine and transferred to acetone and sent to Dr. J. A. Morrell of the Biological Laboratories of E. R. Squibb & Sons, through whose kindness the assay for hormone was effected.

**Microscopic Examination.**—The cells of the gland were arranged compactly in curving rows and rounded nests, often forming small acini (fig. 3). A few acini possessed a small round or oval clear lumen. The individual cell groups and acini were separated by a delicate stroma of exceedingly narrow connective tissue fibrils with wide or narrow capillary vessels. The uniformly solid glandular appearance of the tissue was interrupted in a few places by venous sinuses and a few coarser fibrous trabeculae from which the finer network arose. Nearly all the cells were of one type corresponding to the transitional oxyphil cell.<sup>4</sup> The cell borders were usually distinct and clearly defined the shape of the cells as rounded, cuboidal or polygonal, varying considerably in size. Often the cell boundaries were indistinct. The cytoplasm was finely granular and compact, and stained a faint pink with hematoxylin and eosin. The nuclei were generally rounded with a tendency to polygonal shape, and ranged in size from 7 to 12 microns or even larger. The larger nuclei showed dense chromatin masses, the smaller nuclei a more evenly distributed lighter chromatin with tiny nucleoli. No mitoses were seen. A few groups of cells occurred the cytoplasm of which had been largely replaced by large clear spaces in which the nuclei appeared as if suspended (wasserhelle, or clear principal cells).

The diagnosis was transitional oxyphil cell adenoma.

**Results of Bio-Assay (Dr. J. A. Morrell).**—Defatting and desiccation of the tissue were completed by the use of acetone and the residue was then completely dried. The dried glandular material was then heated with 3 per cent hydrochloric acid

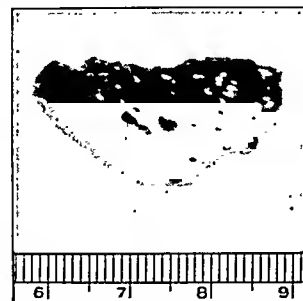


Fig. 2.—Parathyroid adenoma immediately after surgical removal (natural size).

From the laboratories and surgical service of the St. Peter's General Hospital, New Brunswick, N. J.

1. von Recklinghausen, F. D.: *Festschrift Rudolf Virchow zu seinem 71 Geburtstag*, Berlin, G. Reiner, 1891.

2. Mandl, F.: *Arch. f. klin. Chir.* 143:245, 1926; *Zentralbl. f. Chir.* 56:173, 1929.

3. An excellent general review of the literature is given by Jaffe, H. L.: *Hyperparathyroidism (Recklinghausen's Disease of Bone)*, *Arch. Path.* 16:63 (July), 236 (Aug.) 1933.

4. Morgan, J. R. E.: *The Parathyroid Glands: I. A Study of the Normal Gland*, *Arch. Path.* 21:10 (Jan.) 1936. Warren, Shields, and Morgan, J. R. E.: *The Parathyroid Glands: II. A Histologic Study of Parathyroid Adenoma*, *ibid.* 20:823 (Dec.) 1935.

the camera. A cardboard screen is held in front of the first lamp to cast a shadow on the ear, which will add contour to the face. A similar type of uneven lighting may be used in subjects when it is desired to emphasize contours.

The Photoflash lamp is a special type of bulb containing aluminum foil and oxygen, producing a brief blue-white light of great intensity when connected to a flashlight battery or ordinary 115 volt house circuit. The flash is one-fiftieth second, and snapshots may be made in cases of weak or nervous subjects who cannot hold still for time exposures. The intensity of illumination makes it possible to utilize small shutter openings, thus increasing the depth of field and rendering detail sharp in various planes. The time of posing is reduced to a minimum, and there is no time lost in arranging lights; consequently pictures may be taken in places where it is impossible to obtain conveniently proper illumination. To some physicians photography by means of the Photoflash lamp method will prove itself ideal to the exclusion of other illuminants. Two white portable reflectors, such as white window shades, mounted on stands placed on each side of the subject, will intensify and more evenly distribute the light. A conical reflector for the lamp similar to the Photoflood reflector is necessary to concentrate the light. The only disadvantage is the cost, since only one picture can be made with each lamp. However, when it is considered that retakes because of movement of the patient are practically eliminated, the actual cost per successful picture compares favorably with other methods of illumination.

*Exposure.*—After the patient has been posed in front of the background with the part to be photographed illuminated to best advantage, the camera mounted on a tripod is focused carefully on the subject. The distance from the subject to the camera must correspond exactly to the distance scale set on the camera. Failure to measure the distance accurately is responsible for the majority of out-of-focus pictures. Measurements must be made with a tape measure from the center of the lesion or part to be photographed to the lens of the camera. This is especially important in cameras not equipped with a ground glass focusing back. Cameras without a double extension bellows cannot be moved closer to the subject than 4 or 5 feet; consequently when the pathologic lesion or subject is small, it may be expedient to use a portrait attachment over the regular lens. It is usually advisable to photograph according to a definite scale. Some cameras, such as the Eastman Clinical camera, are equipped with a focusing scale which makes it easy to obtain identical areas in all photographs made. A good substitute for a focusing scale is to record the distance between the subject and the lens and to make subsequent photographs at the same distance.

The exposure is dependent on the intensity of light, lens aperture, and speed of the photographic emulsion used. The closer the lamps are moved to the subject, the greater the concentration of light and the less the exposure. Since in many instances the subject cannot be kept quiet, shutter speeds slower than one twenty-fifth second will result in a blurred picture. By using the same film and the same number of Photoflood bulbs at the same distance from the subject, exposures can easily be standardized by the physician and good results uniformly obtained. The wider apertures  $f/4.5$ ,  $f/5.6$

and  $f/6.3$  will generally be found necessary for snapshots, but if the character of the picture is such as to necessitate sharpness of detail over a considerable area, greater depth of field will be obtained with the smaller apertures  $f/8$ ,  $f/11$ ,  $f/16$  and  $f/22$ , and the exposure can be increased or the intensity of the light strengthened either by bringing the lamps closer to the subject or by employing more lamps. While a good exposure meter will undoubtedly prove itself invaluable, simple experimentation will teach one the proper exposure times to employ. As a general rule two Photoflood bulbs in a reflector at a distance of 4 feet from the subject will allow, with the fastest films and apertures of from  $f/4.5$  to  $f/6.3$ , an exposure of one twenty-fifth second. Each lens stop as denoted by  $f$ /numbers necessitates twice the exposure required when the next larger stop is used. Thus, in the series  $f/4$ ,  $f/5.6$ ,  $f/8$ ,  $f/11$ ,  $f/16$ ,  $f/22$  and  $f/32$ , each successive stop will require twice the exposure of the one preceding.

In utilizing Photoflash lamps the subject is posed against the background and, if possible, white reflectors are arranged on each side of the subject. The camera, mounted on a tripod, is placed at a distance corresponding to the distance scale on the camera, and, if the camera has a ground glass back, focusing is accomplished by means of a Photoflood lamp. The Photoflash lamp is placed to the right of the camera so that a line drawn from the lamp to the subject forms with the axis of the camera a 30 to 45 degree angle. The extraneous lights in the room are turned off, the shutter of the camera, which has been set on Time, is opened, and the Photoflash lamp fired by turning on the switch, and finally the shutter of the camera is closed. With a No. 10 Photoflash lamp 3 feet from the subject, the diaphragm opening should be  $f/22$ ; at 4 feet the opening should be  $f/16$ ; at 9 feet,  $f/11$ . If expense is no object a Photoflash Synchronizer, such as is used by press photographers, may be purchased. This Synchronizer both operates the shutter of the camera and fires the Photoflash lamp.

*Photographic Emulsions.*—For all-round work a rapid orthochromatic material, such as Eastman Super Speed Ortho Portrait Safety Cut Film or, in roll film, Verichrome film will yield good results. Being insensitive to red, the orthochromatic materials register skin lesions and blemishes accurately without a filter. Panchromatic and supersensitive panchromatic emulsions may be used for speed work, and Eastman Portrait Panchromatic Cut Film, Wratten Hyper Sensitive Panchromatic Plate, and Kodak Super Sensitive Panchromatic Roll Film and Filmpack are popular materials of this type. In order to standardize results, one type of film or plate should be used until the capacities of that particular emulsion are fully understood. In using panchromatic emulsions it will be necessary to use a contrast filter, such as Wratten B green filter, for the purpose of accentuating reddish skin lesions. The exposure must, of course, be increased to compensate for the associated filter factor. Sometimes a Wratten C blue filter will accentuate a lesion better than the green filter. For accurate monochromatic rendering of a subject with panchromatic film, the  $X_1$  or  $X_2$  filter may be employed. Whenever extreme enlargements are contemplated, the use of a fine grain orthochromatic material or panchromatic emulsion, as Eastman Panchromatic film, is advisable.

(To be continued)

skin was entirely free from inflammation and had been so for six weeks. The lesions were macular, without any change in texture whatever, and entirely without symptoms excepting unsightliness. The pigment appeared to be superficially located but was not in the epidermis, as was proved by the therapeutic failure of ultraviolet irradiation in blistering dosage. The red-brown sepia was deeper at the periphery of the circular, annular and crescentic lesions that were formerly impetiginous. The shading reduplicated the appearance of active impetigo.

There had occurred, she said, some slight paling of the lesions during the time they had existed. It was judged unwise to attempt their removal by various means of irritation, and, *faute de mieux*, a cosmetic preparation was prescribed, to the considerable satisfaction of the patient.

## COMMENT

The pigmentation is understood with the following chemical explanation, for which I am in part indebted to Miss Elizabeth Bachman. Ferrous sulfate is a powerful astringent. Applied to the oozing impetiginous lesions, the iron attached itself to the superficial connective tissue of the dermis. Ferrous valence was soon oxidized to ferric. The tissue fluid maintained a faintly alkaline state. Lead acetate was applied, with the production of insoluble basic ferric acetate, which possesses the exact red-brown color that the patient presented.

Basic ferric acetate is used commercially for the purpose of dyeing silk, wool and other materials this particular color. The patient's dermis could not have been more satisfactorily stained by a professional industrial chemist. How long the pigmentation will persist is in doubt. It has faded a little, and, since iron is susceptible of being utilized in the body, it may be eventually absorbed. An effort to peel away the marks is futile. They might be removed by shaving off the superficial layers of the corium, as Dubreuilh<sup>1</sup> has done in order to eradicate tattooing, but the likelihood of scarring is great.

Pigmentation due to iron, such as is reported here, has been recorded by Pusey,<sup>2</sup> who observed permanent punctate staining of the skin following the application of a copperas solution prescribed for the relief of an oozing dermatitis. Lead acetate solution had been used before the copperas. Pusey's histologic investigation revealed that the iron was distributed in amorphous granules, which, unstained, were light brown and reacted with potassium ferricyanide to form deep blue grains. These were unevenly scattered in collections of variable size between the connective tissue fibers in the subpapillary layer of the corium and were separated from the superimposed normal-appearing epidermis by an unstained but thin connective tissue zone. They were both intracellular and extracellular. Some fibers seemed to have been converted into granules. Pusey attributed the pigmentation to iron hydroxide.

Traub and Tennen<sup>3</sup> recorded two cases of similar staining due to a ferric chloride solution used to treat dermatitis from poison ivy. They reviewed the literature with regard to the use of iron salts for the condition, a form of therapy which, introduced by McNair<sup>4</sup> in 1921, has been of considerable popularity. "Many have attested the usefulness, harmlessness and efficacy of preparations of iron salts in both the treatment and the prophylaxis of rhus poisoning." They list articles over a decade from various journals; yet only half a dozen or so cases of permanent pigmentation have been recorded.

The inference is evident that there is more involved than the mere application of ferrous sulfate or ferric chloride to the denuded skin if pigmentation is to be produced.

The explanation lies, I believe, in that it is the acetate of iron which dyes the dermis. Unless the iron is applied while or before an acetate is present, it is harmless. Certainly more cases of pigmentation would have been observed if iron salts alone were responsible. It is not unusual that lead acetate or aluminum acetate is employed to alleviate a moist dermatitis such as ivy causes. It is true that iron salts in the presence of

acetate stain various materials such as silk, a protein from a chemical standpoint not greatly unlike the collagenous tissue of the skin. The case which I report stands in evidence that iron did not cause pigmentation until acetate was applied. It is a reasonable presumption that the rare cases of iron pigmentation are due to the coincidental use of the other agent.

Traub and Tennen did not state that acetate had been used previous to the application of iron in either of their patients, but they did not state that it had not. Their patient had been treated with calamine lotion, a weakly alkaline mixture containing zinc carbonate. Perhaps other agents than acetate will likewise enable iron to fix itself permanently to the protein molecule. Iron-containing lotions must not be prescribed when acetate is also being used; and acetate lotions must be scrupulously avoided if iron has been used.

## SUMMARY

Permanent reddish brown pigmentation of the skin at the sites of lesions of impetigo was caused by the use of a solution of copperas (ferrous sulfate) followed by the application of a solution of lead acetate.

Pigmentation in this case is due to the dyeing of the corium with basic ferric acetate.

Iron solutions are commonly used to treat oozing dermatoses without resultant discoloration. Ferric acetate is used commercially to dye silk and other materials the reddish brown seen in this and similar cases, which are rare. It is probable that the rare cases of pigmentation following the use of iron solutions are cases in which acetate has been used coincidentally.

Such pigmentation when it occurs cannot be removed by peeling or irritative therapeutic measures, for the iron deposits are not in the epidermis. It can be removed only by procedures that are likely to scar. With certain cosmetic preparations, it can be hidden successfully.

1308 Bryant Building.

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**Special Article**

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**PRACTICAL CLINICAL PHOTOGRAPHY**

LEWIS R. WOLBERG, M.D.

KINGS PARK, N. Y.

The scientific and medicolegal advantages of photographic case records are apparent to most physicians, although relatively few physicians take the opportunity of utilizing their clinical material for photographic purposes. There is scarcely a specialty or branch of experimental and clinical medicine and surgery which cannot be enriched by photography. Dermatologic lesions, neoplasms, developmental and nutritive disorders, deformities, neurologic disturbances, fractures, dislocations, burns, inflammations and a host of other conditions lend themselves readily to photographic recording. The photography of surgical instruments, appliances and special apparatus, the recording of operative procedures, the reproduction of gross and microscopic necropsy and biopsy specimens, blood, parasitologic and bacteriologic specimens, the copying of charts, records and roentgenograms and the making of lantern slides and transparencies for teaching purposes are other accomplishments that the camera makes possible.

The Biological Photographic Association, organized for the purpose of fostering cooperation between the professional photographer and the private physician in the interest of better methods and results, has done much toward raising the standards of medical photography. An increasing number of physicians consequently are availing themselves of the services of professional photographers, and progressive institutions are developing well equipped photographic departments.

1. Dubreuilh: De tatouage par décortication (un nouveau procédé), *Ann. de dermat. et de syph.* 10: 367, 1909.

2. Pusey, W. A.: Brown Stains in the Skin From Wet Dressings of a Solution of Copperas, *J. A. M. A.* 68: 627 (Feb. 24) 1917.

3. Traub, E. F., and Tennen, J. S.: Permanent Pigmentation Following Application of Iron Salts for the Treatment of Ivy Poisoning, *J. A. M. A.* 106: 1711 (May 16) 1936.

4. McNair, J. B.: A Contribution to the Chemotherapy of Rhus Dermatitis and Tentative Method for Treatment, *Arch. Dermat. & Syph.* 3: 802 (June) 1921.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 9, 1937

## MORTALITY FROM HEART DISEASE

Almost all recent statistics on the mortality from heart disease indicate a rapid rise in deaths from this cause. Is this increase real or apparent? Several factors enter into the gross figures. The rise in the average age of the population is an obvious one. The method of reporting heart disease on death certificates also affects the gross figures. The true interpretation, therefore, resolves itself into an analysis of the elements affecting mortality from heart disease into their various components. With this in view, Hedley<sup>1</sup> has reported a series of studies on the mortality from heart disease.

There is a difference, he points out, between the methods of clinical recording of heart disease and the mortality records as obtained from death certificates. The salient feature in modern clinical diagnosis and classification is the grouping of diseases and disorders of the heart on an etiologic basis. Thus, one of the chief difficulties in attempting to describe cardiac disease on any other basis than that of etiology is that dissimilar conditions are thereby placed in the same category. The clinical, pathologic and epidemiologic pictures differ with the causative factors. Quite different is the method of recording heart disease according to the International List of Causes of Death. This guide came into use during a period when interest centered around the discovery and interpretation of organic lesions rather than etiology. Although changes have been made since that time, the main basis of classification still rests on an anatomic interpretation. In addition to this obsolescence of terminology, the list fails to recognize many deaths due to heart disease. Thus, for example, deaths from rheumatic carditis are frequently placed under the title "rheumatic fever." Similarly, deaths from Sydenham's chorea are placed under "other diseases of the nervous system," the inference being that the patient dies of cerebral manifestations. Another factor that definitely affects the recording of deaths is the Manual of Joint Causes of

Death. It is used to determine which of two or more conditions listed on a death certificate takes precedence as the cause of death. For instance, if heart disease and nephritis are both mentioned on a death certificate, the cause of death is listed as nephritis. Heart disease is considered secondary to almost all the other known factors. Causative cardiac conditions and associated circulatory disorders are consequently lost when reported. The present system of recording death would seem no longer in accordance with modern clinical conceptions of heart disease. Failure to consider certain etiologic factors makes it impossible to evaluate their significance in causing heart disease.

Another important element in the classification of deaths from heart disease is pointed out by Hedley. In the last analysis, any statistical studies of mortality must be based on the individual death certificates. The ultimate responsibility for the accuracy of any scheme of tabulation is therefore dependent on the integrity, interest and training of those furnishing the designated authorities with the required information. Some of the accepted cardiac diagnoses serve, however, only as a satisfactory screen behind which to hide a diagnostic uncertainty. The ultimate importance of the death certificate should thus be realized by the physicians who fill them out, and every effort should be made to have them convey a correct interpretation of the facts. Even when this is done, however, the method of ascribing precedence to one cause of death over another previously referred to and controlled by the Manual of Joint Causes of Death may seriously affect the ultimate figures. Thus, in some statistics cited by Hedley, coronary thrombosis was diagnosed 144 times as a primary cause of death and 115 times as a contributory factor, appearing on 259 death certificates. In the official tabulation of causes of death, however, the cause was ascribed to disease of the coronary arteries in only seventy-eight instances, owing to the system of relative weighting of the significance of various conditions as causes of death.

As a result of a study of the hospital records of deaths certified under heart disease in the Washington, D. C., hospitals during 1932, Hedley felt that he could conclude that the accuracy with which the mortality from heart disease is reported and recorded leaves much to be desired. Some of the errors could be attributed to laxity or misdiagnoses on the part of the reporting physician, while others were due to the manner of assorting and tabulating mortality statistics. The chief source of error on the part of those signing death certificates could be ascribed to too great tendencies to certify as heart disease other conditions characterized by terminal congestive heart failure. Among 355 deaths officially recorded as being due to heart disease, which occurred in hospitals, seventy-one, or approximately 20 per cent, were from known noncardiac causes. Many deaths from heart disease are not officially recorded as such. Many conditions other than heart disease and most of the etiologic factors responsible

1. Hedley, O. F.: Studies of Heart Disease Mortality, U. S. Treasury Dept. Pub. Health Bull. 231, October 1936.

field at full aperture. A slower lens, such as  $f/4.5$ , is entirely adequate, since it is usually used at an aperture of from  $f/8$  to  $f/32$  in order to provide sufficient depth of field to insure the entire area of interest being sharply in focus.<sup>2</sup>

**Shutters.**—Since high-speed work is rarely necessary in clinical photography, focal plane shutters offer no distinct advantages. As has been previously mentioned, speeds of one-tenth, one-fifth, one-half and one second are often required; therefore diaphragm or "between-the-lens" shutters, such as Compur, Ilex, Wollensak and Optimo shutters, are preferable.

#### ACCESSORY EQUIPMENT

A tripod, preferably with a tilting top, on which to set the camera is a very useful accessory. A folding metal tripod is portable and may be purchased inexpensively. A good addition to a tripod, if the tripod has no tilting top and the camera is not too heavy, is an Eastman Optipod, a ball-and-socket swivel arrangement, which may be attached to the tripod and allows the tilting of the camera in any direction. A lens shade will prove itself a boon in preventing glare from the reflections of light on the ceiling, walls and floor. Necessary equipment for developing and printing film and paper is discussed under the heading "Photographic Processes," and essential illuminants are outlined under "The Photography of the Patient by Visible Light."

Optional equipment includes filters for contrast and color correction, such as Wratten A, B, C, K<sub>2</sub>, G, X<sub>1</sub> and X<sub>2</sub> filters, an enlarger or device to convert one's camera into an enlarger, a source of light for photomicrography, an exposure meter, and special apparatus for gastric, ophthalmoscopic, rectal and cystoscopic photography.

#### PHOTOGRAPHIC PROCESSES

**The Darkroom.**—While developing and printing may be relegated to a reliable photofinisher, most physicians will probably get better results by processing their own films. A photographic darkroom is, of course, a necessity. If one does not possess an x-ray darkroom, a closet or small empty room may easily be converted into a darkroom by adding a sink and a few tables and shelves. The windows must be made lightproof unless work is to be confined to nighttime. A small electric fan will help ventilation considerably. The ordinary x-ray safelight will be unsuitable for most of the negative materials used and therefore it will be necessary to procure one or more safelights according to the type of materials handled. A dark red safelight, such as a Wratten Series 2 Safelight, will be found a convenience in working with orthochromatic materials, and, if a light must be used in developing panchromatic emulsions, a deep green light, such as the Wratten Series 3 Safelight, is recommended. An orange electric safelight or Wratten Series O Safelight is a necessity for use with bromide papers, developing-out papers and lantern slides.

**Developing.**—Films and plates may be developed by the tray or tank method. For tray development three glass, enameled or hard rubber trays for the developing solution, acid short-stop, and fixing reagent are required. Tank development is much preferred because of the more even development and lessened handling of the film. For packs or cut films rectangular hard-rubber tanks are most suitable, and for roll films

cylindric or rectangular tanks may be used. Tray development will give excellent results provided development is carried out in the dark or with the proper safelight. A clock that ticks off quarter or half seconds is a convenience in timing development of paper or film, and a thermometer will be found necessary to measure the temperature of solutions.

There is a wide latitude in the choice of developing solutions. Development for eight minutes in ordinary x-ray developer will yield fairly good negatives. Developer is conveniently dispensed in small glass tubes known as M. Q. tubes, which may be used not only for developing films and plates but also for bromide and developing-out papers. Eastman Film and Plate Developer in tube form and Eastman Universal Developer are both excellent formulas. If one wishes to be scientifically exact, the best formulas are those recommended by the manufacturer for a particular emulsion used. For a small investment one may procure a set of scales and all necessary chemicals to compound formulas.

A good all-round developer for films and plates is the Eastman D-61a formula.<sup>3</sup> A developer yielding fairly strong contrast in supersensitive panchromatic emulsions and Panatomic film is D-72, which may be compounded<sup>3</sup> or purchased from photographic supply houses ready to mix with water to give 1 quart, 2 quarts or 1 gallon of solution.

Fine grain developers will be necessary for miniature films or other fine grain films whenever great enlargements are contemplated. Since fine grain is dependent mostly on the character of the emulsion and only to a limited extent on the developer, it is essential to use a fine grain emulsion. Full exposure, slight underdevelopment employing a slow acting developer to minimize the clumping of silver particles, and rapid drying of the film will insure the best results. There are many fine grain developers on the market, among which the D-76 developer<sup>3</sup> is very popular. This developer may be compounded or obtained ready to mix with water and will give splendid results in most cases. Some ultra fine grain developers contain paraphenylenediamine, a powerful poison, and require approximately double exposures and development. The Eastman Kodak Company has recently marketed an ultra fine grain developer which is nonpoisonous and faster acting than paraphenylenediamine.<sup>4</sup>

**Fixing.**—The use of an intermediate acetic acid bath helps prevent staining and prolongs the life of the fixing bath. The following bath should be made up fresh: water, 32 ounces; acetic acid 28 per cent, 1½ ounces.

The negative is next transferred to an acid-hypo fixing solution at 65 F. and allowed to remain approximately twenty minutes, or ten minutes longer than it takes for the white color of the emulsion to disappear. The fixing bath need not be prepared fresh and may be used over and over again until the action slows up and more than from five to seven minutes is necessary for the negative to clear. White light may be turned on in the darkroom after the film has been in the fixing solution for approximately two minutes. Acid hypo may be purchased as a prepared powder to make up the fixing solution, or the solution may be compounded from formula.<sup>3</sup>

3. Eastman processing formulas are published in the booklet "Eastman Professional Films," which may be obtained on application to the Eastman Kodak Company, Rochester, N. Y.

4. Vittum, P. W., and Crabtree, J. I.: A New Fine Grain Developer. Camera Craft 42: 587-597 (Dec.), 1935.

2. The Eastman Clinical Camera is fitted with an  $f/7.7$  anastigmatic lens.



ease load than to put on special workers, except that specially trained persons may be necessary and valuable in a supervisory and consultant capacity.

5. The section on cooperation of the private physician in the control of venereal diseases made a report which indicated the dual responsibility of the physician in any case of communicable disease, including the venereal diseases. This responsibility is for the patient and for the community. The section recommended that the responsibilities of public health officials include provision of easy, convenient and postage-free forms for necessary reporting, omitting names or other too positive identification where circumstances indicate, and providing most careful safeguards for confidential and secret keeping of the records; the distribution, gratis where required, of necessary drugs for the treatment of the venereal diseases; the provision, gratis, of necessary laboratory services, including serologic tests, dark-field examinations and the examination of pus for the gonococcus; hospitalization at public expense where necessary, especially for the syphilitic pregnant woman; and provision of consultation service to physicians, and to clinics apart from teaching centers, wherever practical.

The principles here presented seemed in general to meet with the approval of all groups represented. Recognition was given to the fact that conditions in the United States differ widely in different localities and even sometimes within a single community and that programs, subject only to general fundamentals, must be varied and adapted to meet local needs. Recognition was given in all the sections to the necessity for carrying out the program in the states and local communities through cooperation from the beginning between state health departments and state medical societies, and between local health departments and local medical societies.

In all probability most indigent patients in denser population centers will need to be treated in clinics. In smaller communities and rural areas, treatment of the indigent was recommended through the offices of family physicians. The recommendations included payment of the physician on such a basis as might locally be agreed on for services rendered to indigent patients. Certain questions were raised relating to the lack of uniformity of instruction in syphilology in the medical schools. The question was debated in the section on medical cooperation under the heading of undergraduate education and a resolution was adopted requesting the Surgeon General to refer the matter of undergraduate education in syphilology to the Council on Medical Education and Hospitals of the American Medical Association, and to the Association of American Medical Colleges. Stress was laid particularly on the desirability of carrying postgraduate educational efforts as well as the machinery of cooperation through the channels of organized medicine in the state and the local community.

## Current Comment

### AMERICAN MEDICAL ASSOCIATION BULLETIN SECTION

Last week THE JOURNAL published the first issue of the new Bulletin Section, which is to record the economic, social and business aspects of medical practice as well as the affairs of the Association. Certain changes are now made in this department to meet post office regulations. In the current issue, it appears following the Current Medical Literature department, just preceding the second advertising section, and the pages as numbered carry an additional letter B, indicating that they are paged for the *Bulletin*.

### WHAT'S IN A NAME?

The emphasis placed on prompt and accurate registration of birth certification is amply borne out by the facts of its importance. Thus one example of many is brought out in a recent press bulletin from the Maryland Department of Health.<sup>1</sup> A young American, now a resident of Poland, is experiencing some difficulty in returning to Maryland, his native state. The physician in attendance at his birth twenty years ago wrote "female" instead of "male" on the birth certificate recorded in the state bureau of vital statistics. When the young man was about 7 years old, the father took the family to Poland. His mother, whose health was not good, and the two sons remained in Poland when the father returned to Maryland. A difficulty resulting from the error on the birth certificate remaining undetected for so long a period seems like a relatively inconsequential matter. Nevertheless, it is taking the combined efforts of the bureau of vital statistics, the young man's family, the family physician and the priest of the church in which he was baptized to bring about a satisfactory correction of this minor mistake. Further emphasis is accorded this point in a weekly health message from the United States Public Health Service and the Iowa State Department of Health.<sup>2</sup> This states, in part: "With the passing of the Old Age Assistance Act in the state of Iowa, many citizens have been called on to produce their birth certificate to prove identity and nativity. In many cases the applicant for a birth certificate has run into difficulty because of the death of parents, friends or perhaps the physician who was in attendance at the birth." Such registration is, in fact, at times essential and at others of great importance. It establishes the name, the date of birth and the child's parentage. The birth certificate may be required for permission to enter school, to work, to hold office or vote, or to establish age in connection with granting of pensions or inheritance of property. Both bulletins advise prompt choice of the child's name with the prompt and accurate filing without use of nicknames or anything else that might at a later date cause some question as to the accuracy of the certificate.

1. Department of Health, State of Maryland, Press Bull. 641, Nov. 9, 1936.

2. U. S. Pub. Health Service and Iowa State Department of Health, Health Message 526, Nov. 9, 1936.

recommended by the manufacturers of the paper used may be employed. The washing, drying and squeegeeing on polished ferrotype tins are carried out in the manner described for contact prints.

Almost any glossy bromide paper may be used, and varying grades of contrast—soft, normal or contrast—will tend to compensate for variations in negative quality. For reproduction purposes a sharp contrasty enlargement is best.

While enlargements of 4 or 5 diameters may be made in most sharp negatives without objectional grain, greater enlargements will necessitate the use of a fine grain negative developed in a fine grain developer such as D-76.

*Making Lantern Slides.*—Negatives to be used for the purpose of making lantern slides must be as nearly perfect as possible, because tiny defects, such as blurred images, scratches and pinholes, are tremendously magnified during the process of projection.

Lantern slides are really positive transparencies, and the technic of making slides is as simple as making contact prints or enlargements except that glass plates are used instead of paper. Developing, fixing, washing and drying are carried out in the same manner as for ordinary negative plates.

In making a lantern slide by contact printing, a regular printing frame is used and the emulsion side of the slide is placed in contact with the emulsion side of the negative. Exposure depends on the density of the negative and the strength of the light source. For Eastman Regular Lantern Slide Plates, which are recommended for normal negatives, at a distance of 6 feet from a 25 watt frosted lamp, the exposure is approximately five seconds. For the Eastman Slow Lantern Slide Plates, recommended for soft negatives, the exposure is approximately fifteen seconds. The chief disadvantage of contact printing is that negatives larger than the slide can be only partly included.

Projection printing allows enlargement or reduction of the original negative, the method being exactly the same as for bromide paper. In making reductions, the bellows extension must be increased and the easel brought closer to the lens. Three or four stout drawing pins attached to the easel will serve as a support for the plate during exposure. Focusing must be needle sharp, and preliminary focusing may be carried out on a spoiled undeveloped slide.

Full development should be secured with the use of a standard metol hydroquinone developer. Rinsing, fixing and drying follow, and subsequent reduction or intensification may be carried out if necessary. An orange safelight similar to the safelight for bromide paper may be used during the exposure and processing of the slides.

Varnishing the slide with Eastman Lantern Slide Varnish will protect it against "dewing." A mask of black paper with an opening 3 inches by  $2\frac{1}{4}$  inches should next be applied, or undesired portions of the slide may be excluded by means of Eastman Lantern Slide Binders applied to the emulsion side of the slide. The slide is then carefully dusted and bound to a cover-glass with gummed strips.

#### THE PHOTOGRAPHY OF THE PATIENT BY VISIBLE LIGHT

*The Background.*—In making a full length picture of a patient, or in photographing a part of the body, the background should be as inconspicuous as possible, in

order to avoid detracting interest from the principal subject. A medium gray background is the most practical and an ordinary gray hospital blanket will prove ideal for this purpose. Where much photography is to be done it may pay to construct a background by stretching gray cloth over a wooden frame 6 feet square. A useful portable background is an ordinary roller shade, one side of which is white, the other side gray or black. The background should contrast with the tone of the subject, and for a person of dark complexion or a colored person it may be advisable to utilize a white background in the form of a white blanket or sheet. In clinics or in places where a proper background cannot be obtained, the patient may be photographed against a plain wall. Best results are obtained with the subject several yards from the background. It is important to remember, in photographing patients in surroundings where the background is apt to prove distracting, that utilizing a wide opening of the lens will shorten the depth of field and may automatically throw the background out of focus. In photographing a part of the body such as an arm or a leg, the part may be conveniently rested on the examining table over which there has been stretched a blanket or sheet.

*Illumination.*—While photographs may be made outdoors in direct sunlight or shade, the majority of pictures must of necessity be taken indoors, where the illumination is relatively poor. Artificial sources of light are consequently essential, and there are available two types of illuminants: Photoflood bulbs and Photoflash lamps.

The Photoflood bulb is a 65 volt Mazda lamp, which, when burned on a 115 volt circuit, produces the light equivalent of a 750 watt lamp. Each bulb consumes 2.15 amperes, and as many as five bulbs may be used safely on an ordinary house-lighting circuit. Although the life of the bulb is rated at two hours, the general experience is that Photoflood bulbs burn considerably longer. Photoflood bulbs are economical sources of light and are sufficiently small to be portable. The efficiency of the bulb is considerably increased by a reflector. Ordinary metal shades are satisfactory, but conical metal reflectors are preferable. Kodaflectors or other Photoflood reflectors are very convenient and may be purchased at small expense. The number of lamps used depends of course on the extent of the area to be photographed. One bulb will be sufficient for small lesions, but large areas will require as many as four or five Photofloods. Two lamps with two bulbs mounted in each will suffice for most purposes. The intense brilliance of the lights may be annoying to some patients and a diffusing screen made of several layers of muslin or cheese cloth will reduce the glare and produce a more even distribution of light. Unlike portraiture, the object is to reproduce detail accurately and to bring out deformities and blemishes rather than to soften them.

Flat lighting, in which the illumination is spread evenly over the subject minimizing shadows, is best suited for most subjects. This lighting may be obtained by arranging two lamps of equal intensity equidistant on each side of the subject. Three-quarter front lighting should be used where the face is to be photographed as for facial expression. The first lamp is placed 45 degrees above and to one side of the subject half way between the camera and the subject. The second lamp, focused on the shadow side of the face, is placed behind

## IOWA

**Personal.**—Dr. Albert E. Shaw has been elected coroner of Polk County to succeed William A. Carpenter; both are of Des Moines.—Dr. Milford E. Barnes, Iowa City, has been elected president of the Iowa Tuberculosis Association to fill the unexpired term of the late Dr. James A. Edwards, Oakdale.—Dr. Harry A. Stribley has been appointed in charge of a new clinic for the treatment of venereal disease which opened in Dubuque December 1.

**First District Health Unit.**—The first public health district in Iowa has been organized with Dr. William M. Trotter, formerly of Maxwell, as director. To be known as district number 1, the unit comprises the counties of Lyon, Osceola, Sioux, Plymouth, O'Brien and Cherokee. It will supplement but in no way interfere with health work now being carried out in the counties. Similar health districts are to be formed in other parts of the state as rapidly as trained personnel is available, it was reported.

**Society News.**—Dr. Karl A. Menninger, Topeka, Kan., will address the Linn County Medical Society, January 15, in Cedar Rapids. His subject will be "Various Forms of Self Destruction." Dr. John Royal Moore, Philadelphia, discussed "Fractures of the Neck of the Femur" before the society, December 17. Dr. Raymond J. Stephen, Cedar Rapids, read a paper on "The Ophthalmoscope in General Practice."—Dr. Percival Bailey, Chicago, discussed the treatment of common neurologic disorders before the Black Hawk County Medical Society in Waterloo, November 17.—At a meeting of the Marshall County Medical Society in Marshalltown, December 1, Dr. George B. Eusterman, Rochester, Minn., spoke on diagnosis and treatment of gastro-intestinal disorders.

## KENTUCKY

**Personal.**—Dr. Benjamin T. Black, Campbellsville, recently celebrated the fiftieth anniversary of his settling in that town. Dr. Black was graduated from the University of Louisville School of Medicine in 1885.

## LOUISIANA

**Health at New Orleans.**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended December 26, indicate that the highest mortality rate (20.3) appears for New Orleans and that the rate for the group of cities as a whole was 11.9. The mortality rate for New Orleans for the corresponding period last year was 22.3 and for the group of cities as a whole 12.6. The annual rate for eighty-six cities for the fifty-two weeks of 1936 was 12 as against a rate of 11.4 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

## MAINE

**Society News.**—At a meeting of the Kennebec County Medical Association in Gardiner, November 19, the speakers included Drs. Merrill E. Joss, Richmond, on pregnancy with poliomyelitis, and Silas O. Clason, Gardiner, use of solution of posterior pituitary in labor.—Dr. Richard P. Jones, Belfast, read a paper before the Waldo County Medical Society in Belfast, November 19, entitled "A Review of Some of the More Common Blood Dyscrasias."—The Washington County Medical Society was addressed in Whiting, November 4, by Drs. Frederick T. Hill, Waterville, on "Bronchoscopy as an Aid to Diagnosis," and John O. Piper, Waterville, "Complications of Diabetes."—Dr. Robert H. Aldrich, Boston, addressed the York County Medical Society, recently, on "Gentian Violet and Aniline Dye Treatment of Burns."

## MARYLAND

**Dr. Rowland Honored.**—Special ceremonies were held at the University of Maryland School of Medicine, Baltimore, December 18, to commemorate the twentieth anniversary of Dr. James M. H. Rowland as dean. The occasion was also a part of the Founder's Day celebration. The speaker at the morning ceremony in honor of Dr. Rowland was Dr. Thurman D. Kitchen, president of Wake Forest College, Wake Forest, N. C. An oil portrait by Thomas C. Corner was presented

to the university by Dr. Charles Bagley Jr., acting for the faculty of the medical school. Dr. Walter D. Wise, professor of clinical surgery at the university, officiated as toastmaster at the banquet in the evening, and speakers included Drs. Alan M. Chesney, dean, Johns Hopkins University School of Medicine; Maurice C. Pincoffs, professor of medicine at Maryland, and Charles Reid Edwards, professor of clinical surgery at Maryland. Samuel K. Dennis, chief justice of the supreme court, Baltimore, also spoke. A bronze bust of Dr. Rowland made by his daughter, Mrs. Carl Clarke, was presented to the university by members of the family. Dr. Rowland is also professor of obstetrics.

## MASSACHUSETTS

**Personal.**—Dr. Frank H. Lahey, Boston, addressed the annual meeting of the local chapter of Alpha Omega Alpha Honorary Medical Fraternity in New Orleans, December 18, on "The Management of Biliary Tract Diseases." The meeting was open to the public.—Augustus Herman Gill, Ph.D., Belmont, professor emeritus of chemistry, Massachusetts Institute of Technology, and a member of the state board of health, died at his home, November 11, aged 72 years.

**Public Sunday Afternoon Lectures.**—A course of free public lectures will open at the Harvard University Medical School, Boston, January 10, to continue each Sunday afternoon until March 21. The following program will be presented:

Philip Drinker, Ch.E., Air Conditioning and Health, January 10.  
Dr. Soma Weiss, Blood Pressure—Low and High, January 17.  
Dr. Tracy J. Putnam, Pain and Its Treatment, January 24.  
Dr. Charles Macfie Campbell, Social Stress and Mental Health, January 31.  
Dr. William T. Salter, Cancer, February 7.  
Dr. Edward D. Churchill, Surgical Aid in Lung Diseases, February 14.  
Dr. Theodore L. Terry, The Care of the Eyes, February 21.  
Dr. Louis K. Diamond, The Anemic Child, February 28.  
Dr. William H. Robey, Preparing for a Comfortable Old Age, March 7.  
Dr. Arthur T. Hertig, Abnormal Terminations of Early Pregnancy, March 14.  
Dr. Joseph C. Aub, Glands of Internal Secretion and Human Activity, March 21.

## MICHIGAN

**Dr. Waggoner Named Professor of Psychiatry.**—Dr. Raymond W. Waggoner, associate professor of neurology, University of Michigan Medical School, Ann Arbor, has been appointed professor and director of the department of psychiatry. His appointment as director of the state psychopathic hospital was recently announced. In both positions Dr. Waggoner succeeds Dr. Albert M. Barrett, who died April 2, 1936. An alumnus of the school, he has been associated with its faculty since 1929.

**Society News.**—At a meeting of the Detroit Society of Neurology in Northville, November 19, the speakers included Thorlief G. Hegge, Ph.D., on "Psychological Variations in High Grade and Borderline Defectives."—Dr. Robert L. Schaefer, Detroit, addressed the Bay County Medical Society, November 11, on "Clinical Indications for the Anterior Pituitary-like Sex Hormone."—Dr. Martin H. Hoffmann, Eloise, discussed "Problems of Nervous Patients" before the Genesee County Medical Society, December 2.

**Memorial to Dr. Huber.**—The *Journal of Comparative Neurology* for December was designated the Huber Memorial Volume in honor of the late Dr. Gotthelf Carl Huber, who at the time of his death, Dec. 26, 1934, was dean of the University of Michigan Medical School, Ann Arbor. The issue contains primarily papers dealing with neuro-anatomic research done by the authors while working under Dr. Huber's direction. Dr. Huber graduated from the university when it was known as the University of Michigan Department of Medicine and Surgery in 1887. Identified with the school for many years in various capacities, he had been professor of anatomy and director of the anatomic laboratories since 1914 and dean since 1927.

**The Wayne County Programs.**—Dr. Logan Clendenen, Kansas City, Mo., addressed the Wayne County Medical Society, Detroit, January 4, on "Laryngological Causes of the Great War." Dr. Alice Hamilton, Boston, consultant, U. S. Department of Labor, will address the medical section, January 11, on "New Developments in the Field of Common Industrial Poisons." Dr. James B. Collip, professor of biochemistry, McGill University, Montreal, will discuss "Studies on the Anterior Pituitaries and Related Glands" before a general meeting, January 18, and Dr. Malcolm T. MacEachern of the American College of Surgeons, Chicago, "Trends in Medical Practice" before a meeting of the surgical section, January 25.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

### HOGAN SUPER-BREVATHERM SHORT WAVE DIATHERMY UNIT, MODEL 8901, ACCEPTABLE

Manufacturer: McIntosh Electrical Corporation, Chicago.

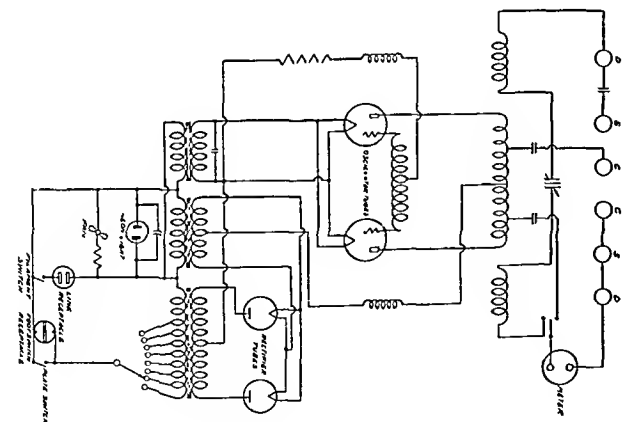
This unit is recommended for medical and surgical diathermy and for the application of therapeutic fever. It is essentially the same as the Hogan Super-Brevatherm Short Wave Diathermy Unit, Model 8898, which has been accepted by the Council.<sup>1</sup>

There has been no change in the circuit except for the inclusion of blocking condensers and such necessary wiring as found desirable for the operation of a cable electrode.

The apparatus is mounted in a wooden cabinet with a removable cabinet door, and all component parts are accessible for inspection and repairs. The circuit is of the well known tuned plate, tuned grid circuit, two tube push-pull oscillator. Two oscillator and two rectifying tubes are employed. All parts carrying short wave currents are mounted on either ceramic or other low-loss insulating materials. The patient's circuit for the inductance cable is capacitatively coupled, while the patient's circuit for the pad and cuff electrodes and surgical diathermy is inductively coupled to the oscillator. The inductively coupled patient's circuit is tuned to electrical resonance by means of a variable condenser. For regulation of the power input, primary winding of the plate current transformer is equipped with taps to vary the input current. A thermocouple ammeter is used to indicate electrical resonance. The interior of the cabinet is cooled by a forced draft motor driven fan.

The power input, under maximum load, is about 1,100 watts. The wavelength is approximately 21 meters. Since there is no acceptable method of measuring the output power of short wave machines, this value is not given. The shipping weight of the unit is 137 pounds.

The power input, under maximum load, is about 1,100 watts. The wavelength is approximately 21 meters. Since there is no acceptable method of measuring the output power of short wave machines, this value is not given. The shipping weight of the unit is 137 pounds.



Schematic diagram of circuit.

In accordance with the regular procedure of considering devices submitted to the Council, the firm was asked to present evidence to substantiate the claims made in advertising matter and descriptive literature. The evidence presented by the firm designed to substantiate efficacy in heating human tissues was obtained as follows: The thighs of two vigorous men,

aged 29 and 31, weighing 158 and 185 pounds (72 and 83 Kg.) respectively, were used for the experiments. Three observations were made on each subject—two on the left leg and one on the right of each individual. Hypodermic thermocouples manufactured by Leeds and Northrup Company and a portable precision potentiometer manufactured by the same company were employed in the investigation. The potentiometer and the thermocouples were checked against a Bureau of Standards Thermometer and the readings were accurate to within 0.1 degree C. The skin temperatures under the electrodes and the subcutaneous, the oral and the deep muscle temperatures were observed. Hypodermic needle thermometers were inserted in the thigh to a depth of from 1½ to 2 inches, depending on their thicknesses, while the other needle was inserted subcutaneously beneath the skin structure. The maximum current intensity was regulated by the skin comfort or tolerance of the patient. A reading was taken both before and after a twenty minute application of the current. After each test the thigh was permitted to cool to normal temperature. The highest temperature attained was recorded as the final temperature in each instance.

Cuff electrodes used were of the standard type furnished with the apparatus; that is, sheet metal covered with felt. They were about 2 inches wide, one-half inch thick and 24 inches long. These electrodes were placed on top of the flannel wrapping, about 8 inches apart, in most cases encircling the entire thigh. In those cases in which they did not reach

TABLE 1.—Averages of Six Observations with Cuff Application

Oral Temperature F.		Subcutaneous Temperature F.		Deep Muscle Temperature F.	
Initial	Final	Initial	Final	Initial	Final
99.11	99.09	89.08	95.25	97.38	102.96

TABLE 2.—Averages of Six Observations with Coil Technic

Oral Temperature F.		Subcutaneous Temperature F.		Deep Muscle Temperature F.	
Initial	Final	Initial	Final	Initial	Final
98.95	99.03	89.95	98.61	98.11	105.75

around the thigh, the "open space" between the ends of the electrode was always at the posterior aspect of the thigh. Flannel or toweling was used for spacing or "build-up."

The averages of the six observations with cuff application are given in table 1.

When application was made by the electromagnetic induction method, double thicknesses of toweling were used to separate the five turns of cable, which were wound around the thigh. The treatment time was twenty minutes and the current intensity was governed by the patient's tolerance. The averages of six observations with coil technic are given in table 2.

The results indicate that the temperature rise is considerably above what can be expected from conventional diathermy, which has been adopted as a minimum standard of acceptance.

Evidence has been submitted by the firm to substantiate the efficacy of this unit for the administration of hyperpyrexia.

The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is much less than with conventional diathermy.

The machine was installed in a clinic acceptable to the Council and operated under actual clinical conditions. It was reported as giving satisfactory service.

In view of the favorable report based on the performance of this unit when cuff and coil electrodes are used, the Council on Physical Therapy voted to include the Hogan Super-Brevatherm Short Wave Diathermy Unit, Model 8901, in its list of accepted devices.

1. Hogan Super-Brevatherm Short Wave Diathermy Unit, Model 8898, Acceptable, J. A. M. A. 106:2148 (June 20) 1936.

**Society News.**—A tricounty medical society was organized at a meeting in Ahsoskie in November, representing Hertford, Bertie and Gates counties. Dr. Louis K. Walker, Ahsoskie, was made president and Dr. Thomas G. Faison, Winton, secretary. —Dr. Wingate M. Johnson, Winston-Salem, addressed the Rowan County Medical Society, Salisbury, December 3, on "The Trend Toward Socialized Medicine in the United States." —Dr. George F. Cahill, New York, addressed the Guilford County Medical Society, Greensboro, December 8, on "The Present Value of Roentgenograms in Urinary Tract Injuries."

**Hospital News.**—A new building for tuberculous patients recently completed at the State Hospital for Negro Insane, Goldsboro, has been named the Linville Building in honor of Dr. W. Clinton Linville, who has been superintendent of the institution for the past ten years. The new building accommodates 150 patients. —Recent guest speakers at Duke Hospital, Durham, have been Drs. Albert Graeme Mitchell, Cincinnati, on endocrinology; Sanders L. Christian, U. S. Public Health Service, Washington, D. C., the history and functions of the service, and George W. McCoy, director of the National Health Institute, Washington, recent advances in epidemiology.

## OHIO

**Personal.**—Dr. John B. Kistler, Newcomerstown, has been appointed medical inspector in the division of communicable diseases of the state department of health.

**Dr. Schiller to Lecture in Toledo.**—Dr. Walter Schiller of the University of Vienna will be the lecturer for the thirteenth annual postgraduate course presented by the Academy of Medicine of Toledo during the week of January 11. Dr. Schiller's topics will be: obstetric pathology, gynecologic pathology, including early diagnosis of ovarian tumors, obstetric and gynecologic endocrinology.

**Society News.**—Dr. Roll H. Markwith, Akron, was elected president of the Ohio Federation of Public Health Officials at the recent conference in Columbus. —Dr. Chevalier L. Jackson, Philadelphia, addressed the Marion Academy of Medicine and the Marion chapter of the Pan American Medical Association, December 1, on indications for bronchoscopy. —Dr. Roscoe R. Graham, Toronto, addressed the Cleveland Academy of Medicine, December 18, on duodenal ulcer. —Dr. George H. Belote, Ann Arbor, Mich., addressed the Toledo Academy of Medicine at its annual joint meeting with the Toledo Dental Society, December 4, on "Lesions of the Mouth."

## OKLAHOMA

**Society News.**—Dr. Arthur C. Pattison, Oklahoma City, addressed the Garfield County Medical Society, Enid, November 27, on surgery of the chest. —Drs. Harry S. Price and Julia Florncce W. Austin, Dallas, Texas, addressed the Payne County Medical Association in Cushing, November 19, on endocrinology. —Dr. Robert C. Sullivan, Ardmore, among others, addressed the Carter County Medical Society in Ardmore, November 9, on fractures of the hip joint and of the wrist. —At a meeting of the Kay County Medical Society in Tonkawa, November 19, the speakers were Drs. Philip M. McNeill and Herbert D. Collins, Oklahoma City, on pneumonia and appendicitis, respectively.

## PENNSYLVANIA

**Society News.**—Dr. Harold L. Mitchell, Pittsburgh, addressed the Washington County Medical Society, Washington, December 9, on "Vascular Diseases of the Nervous System." —Dr. William James Gardner, Cleveland, addressed the Lawrence County Medical Society, New Castle, December 3, on disease conditions in the head.

**Study of Medical Care for the Indigent.**—Following the abandonment of emergency medical relief service in September, 1936, appointment of a commission to study medical care of the indigent and draw up a policy for subsequent development was recommended by representatives of the professional groups participating in medical relief. With the approval of the Pennsylvania Public Health Legislative Conference and the board of trustees of the Medical Society of the State of Pennsylvania, the following representatives of the state organizations comprising the legislative conference were appointed to the commission:

Dr. George Harlan Wells, Philadelphia, representing the Homeopathic Medical Society of Pennsylvania.  
Dr. Chauncey L. Palmer, Pittsburgh, Medical Society of the State of Pennsylvania.  
Charles H. Hollister, D.D.S., Pennsylvania State Dental Society.  
Dr. Charles J. Hemminger, Somerset, Pennsylvania State Eclectic Medical Society.

Mr. John C. Walton, Philadelphia, the State Pharmaceutical Association.

Mr. Melvin L. Sutley, Drexel Hill, Hospital Association of Pennsylvania.

Miss Netta Ford, R.N., York, Pennsylvania State Nurses Association.

Dr. Samuel H. Brown, Philadelphia, has been chosen as director of the survey, from which recommendations will be developed for presentation to the state legislature not later than April 1.

## Philadelphia

**County Society Sponsors a Public Meeting.**—The Philadelphia County Medical Society invites the public to attend a meeting January 27, at which Dr. Charles Gordon Heyd, New York, President of the American Medical Association, will speak on "Organized Medicine and the Public" and Dr. Maxwell J. Lick, Erie, president of the Medical Society of the State of Pennsylvania, on "Dramatic Episodes of Medicine."

**Society News.**—Drs. Henry K. Sangree and Margaret C. Sturgis addressed the Philadelphia Urological Society, December 21, on "Sterility Studies in the Male, with Their Practical Application" and "Sterility Studies in the Female" respectively. —A symposium on diseases of the colon will be presented at the meeting of the Philadelphia County Medical Society, January 13, by Drs. William A. Swalm, Bernard P. Widmann, Russell S. Boles and Henry L. Bockus.

## Pittsburgh

**Personal.**—Dr. Charles E. Ziegler has been appointed professor of obstetrics at the University of Pittsburgh School of Medicine to fill a vacancy created in 1933 by the retirement of Dr. Harold A. Miller. —Lawrence Wade Bass, Ph.D., recently director of research for the Borden Company, New York, has been appointed assistant director of Mellon Institute of Industrial Research. Dr. Bass received his doctorate at Yale University in 1922 and later studied abroad. From 1925 to 1927 he was an assistant and for the next two years an associate at the Rockefeller Institute for Medical Research, New York. From 1929 to 1931 he was associated with Mellon Institute as executive assistant.

## TENNESSEE

**Society News.**—Dr. William D. Stinson, Memphis, among others, addressed the Dyer, Lake and Crockett Counties' Medical Society recently on "Focal Infection in the Nasopharynx." —Drs. Roderick Heffron, Boston, and James K. Hall, Richmond, Va., addressed the Sullivan-Johnson Counties Medical Society in Bristol on "Serum Treatment of Lobar Pneumonia" and "Functional Nervous Diseases" respectively. —Dr. Edward L. Turner addressed the Davidson County Medical Society, Nashville, November 3, on "A Common Lesion of the Cervical Spine Responsible for Segmental Neuritis."

## TEXAS

**Dallas Clinical Society Spring Conference.**—The ninth spring clinical conference sponsored by the Dallas Southern Clinical Society will be held at the Adolphus Hotel, March 15-18. Guest speakers will include Drs. George E. Fahr, Minneapolis; Elmer L. Sevringhaus, Madison, Wis.; William F. Rienhoff Jr., Baltimore; Thomas G. Orr, Kansas City, Mo.; Joe V. Meigs and Charles F. McKhann, Boston; Francis E. Seneat, Charles M. McKenna and William J. Dieckmann, Chicago; William Mithoefer, Cincinnati; Walter I. Lillie, Philadelphia, and Chauncey D. Leake, Ph.D., San Francisco.

## WASHINGTON

**Seminar in Internal Medicine.**—Dr. Goronwy O. Brown, St. Louis, conducted a seminar in internal medicine at the Seattle General Hospital, December 29-31. His subjects were primary anemia, epidemic encephalitis, liver and gallbladder problems. At a dinner at the Rainier Club Wednesday evening he spoke on "Sugar Tolerance Studies with Particular Reference to the Findings in Epilepsy."

**Changes in Health Officers.**—Dr. James P. Mooney, Ellensburg, has resigned as health officer of Kittitas County and has been succeeded by Dr. Samuel M. Wendt, Ellensburg. Dr. Robert J. Skaife, Colfax, has resigned as health officer of Whitman County, after holding the position twenty years. Dr. John A. Kahl, Vancouver, has been appointed health officer of Clark County, succeeding Dr. Clyde B. Hutt, Vancouver, who has entered private practice.

**Society News.**—Dr. Barnet E. Bonar, Salt Lake City, presented a motion picture on fetal respiration at a meeting of the Spokane County Medical Society, December 10, and Dr. James D. Edgar, Spokane, discussed early diagnosis of



for heart disease are given greater weight than cardiac conditions. This fact produces a trend contrary to the other.

Hedley suggests that the classification of deaths from heart disease be modified to record the deaths on an etiologic basis in a manner not conflicting with the provisions of the International List of Causes of Death. The gist of the plan is that, in addition to tabulating heart disease under the existing titles of the International List, deaths due to various etiologic types of heart disease be placed in unofficial subtitles, so as to determine more nearly the causes of death. The use of an etiologic system will assure the practitioner that death certificates are tabulated more nearly as intended. It is further suggested that an additional factor of accuracy would be to allow physicians greater latitude in assigning causes of death when there is insufficient evidence to justify more exact diagnosis.

Although this study is offered as in no way a final solution of the problem, it makes increasingly obvious the unsatisfactory nature of present heart disease mortality statistics. Certainly, if the statistics are to be of real value, improvement in recording is highly necessary. As an attempt in this direction, this study by Hedley deserves immediate consideration.

#### THE CONFERENCE ON SYPHILIS

More than five hundred persons responded to the call of Surgeon General Thomas Parran of the United States Public Health Service for a three day conference in Washington last week on the control of venereal diseases, especially syphilis. Representatives of the American Medical Association, officers of state medical societies and practicing physicians attended, as well as health officers and social service workers. The conference was asked to consider the question of venereal disease control from six principal points of view. The reports that were adopted by the conference as a whole on the third day were in substance as follows:

1. Estimates were presented of the prevalence of syphilis in the United States. A minimum of 681,000 new cases of syphilis was declared to be the probable annual incidence of the disease. Prevalence in the population as a whole was estimated variously at from 5 to 10 per cent of the population, including syphilis in all its stages from initial infection to the late sequelae. It was recognized especially that all statistical data with relation to syphilis and the other venereal diseases are tentative and inadequate and that there is necessity not only for more accurate gathering of statistics but for research into possible statistical methods which might be applied to the problem of ascertaining the incidence, prevalence, trends and economic aspects of the venereal diseases.

2. The section on the public health control of syphilis stressed the necessity for carrying treatment facilities

to all persons of all economic strata. Emphasis was placed, however, on the fact that no desire existed on the part of the public health officials to undertake the treatment of all cases of syphilis at public expense. It was declared that whenever and wherever possible patients should be treated by family physicians in the usual manner and that the personal relationship of patient to physician should be maintained wherever possible. The section reported that in its judgment the treatment of indigent and borderline patients in clinics would be a necessity. Adequate social service for the clinic to ascertain the degree of ability to pay was dealt with in another section. Reporting of the venereal diseases was stressed as a necessity in their control. The section recommended that the Surgeon General request reporting by name and address as in the case of other communicable diseases. This recommendation of the section was opposed from the floor of the conference and ultimately was amended to read in effect that reporting by name and address be encouraged where practicable, but that in other localities reports by number or by initials and date of birth be accepted for the present in order to allow opportunity for overcoming the well known reluctance of physicians to report venereal diseases by name. The necessity for furnishing laboratory service gratis and for the free distribution of drugs needed in the treatment of venereal diseases through public health authorities was stressed. A recommendation to the effect that prophylaxis be regarded as an integral part of the syphilis program was opposed from the floor. The opposition, however, was overwhelmingly defeated and the report of the section therefore included the recommendation that prophylaxis be included in the antisiphilic program.

3. The section on treatment presented a voluminous report, of which the salient points were the importance of early treatment and the treatment of the pregnant syphilitic woman. Emphasis was laid on the necessity for continuous treatment except in the case of late syphilis in persons of middle age or beyond; on the importance of confining the distribution of drugs through public health departments to established preparations—namely, the arsenicals, bismuth compounds, mercury ointments, and possibly iodide preparations.

4. The section on medical follow up of the venereal disease patient reported the importance and necessity for follow up in certain types of cases. Much follow-up work can be prevented by efficient, courteous and expeditious handling of patients on their first visit to the clinic. Emphasis was also laid on the necessity for adequately trained nurses, either medical social workers or public health nurses, for follow-up procedures. Follow up is more effective if done by a person already known to the patient through previous contact. Where personnel needs to be augmented in order to take in a program of venereal disease follow up, it is better to extend the general staff to absorb the venereal dis-

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Nov. 28, 1936.

#### The National Physique

In the house of lords an important debate took place on the national physique, in which the two medical peers took part. Lord Dawson said that the question transcended all political and social divisions. Britain was not a deteriorating nation, but in our midst there were seeds of deterioration which might quickly be multiplied. The average boy and girl today were taller and heavier than those of former generations, but mere bulk of frame was not evidence of fitness. We were now reaping not only the advantages of medical science and social services but also the disadvantages. A high birth rate and a high death rate brought about a substantial elimination of weaklings. Now that the death rate was falling steadily, nature's method had been rendered nugatory. Weaklings were not eliminated to anything like the same extent. They were given maintenance and treatment and were able even to marry on their maintenance allowance. We were preventing the death of the unfit and had not planned any adequate substitute. It was essential to promote the fit, and on the other hand to take care of the inherently unfit and prevent them from vitiating the race. The unfit should be given a kindly simple shelter, but no effort should be made to raise them above their biologic level, for this would involve the risk of vitiating the race. We had 250,000 mental defectives able to hold their own economically, but unfit as parents. Physicians were being exhorted to think in terms of prevention, and they were striving to do so. Why were they not allowed by law to sterilize and so prevent the birth of children to defectives? He also advocated better physical training. We wanted a British standard of training in our schools. The physical trainer, the mental trainer and the physician should act together. What was gained at school was often lost afterward, because there were no facilities for the youth of the nation to carry out physical exercises. Modern mechanization, where no use was made of the physical attributes of the body, was producing deterioration of physique.

Lord Horder said that fitness for living, fitness for working and fitness for fighting, if it must be, could not be obtained by physical training alone. There were more basic things—food, shelter, air and leisure. Advertisement of what this nation had done in these directions would be wholesome for our self respect and be salutary reading for some other nations, but much remained to be done. Food was fundamental in all questions of fitness. Look after the accessibility of food, and nutrition would look after itself. He was not appalled by the question of expense, if the money was wisely spent on enduring benefits. We had kept the greatest of all our assets—individual liberty. One could not really plan for individual fitness; even the best physician could not make his patients healthy. He approved of centralized physical training, but he hoped that our people would not be regimented. If they were given security and sustenance, their sturdy common sense would do the rest.

Replying for the government, Earl De la Warr, undersecretary for the colonies, said that the house was apparently agreed that there was need for drastic attack on health problems. The government would mobilize voluntary effort plus the local authorities and would help and encourage them to give facilities for the promotion of greater health. If they could provide playing fields and swimming pools and the right type of instructor, these would be used. As to nutrition, if the right food and the right knowledge were available immense strides could be made.

#### Protection for Retired Physicians

It has been a matter of concern for some time to the Medical Defense Union that on retiring from practice physicians resign their membership, in spite of a letter pointing out that even after retirement they are still liable to attack for alleged misdeeds during practice. The union has therefore made a proposal offering special terms to retiring physicians. Those who have been members for ten years or less may become life members on payment of \$15; those who have been members for more than ten years but less than fifteen, on payment of \$10, and those who have been members for more than fifteen years, on payment of \$5. This arrangement will cease if the member should reengage in practice in any form other than a casual attendance dictated by the circumstances of an accident or emergency. If he reengages he must become reinstated as an ordinary member by paying the usual annual subscription until such time as he again retires, when he will become a life member without further payment. The records of the society show several cases in which an attack was made on a physician after several years of retirement—in one case as long as twenty-two years. But according to recent legislation such attack is now barred after a period of six years from the occurrence.

#### "Associate Members" of the Medical Association

A need has arisen to meet the needs expressed by certain oversea branches of the British Medical Association for the creation of a class designated "local members." These would be recruited from members of the local profession who are not registrable in Great Britain and therefore cannot become ordinary members of the association. The reasons for the proposal are apparently that the branches should have some control over these practitioners and also that the standard of the profession would be improved. The privileges of such members would be restricted to the receipt of the *British Medical Journal* and attendance at the meetings of the branch. They would have no voting rights. The organization committee of the association thinks that the proper name for such members is "associates." Amendments to the articles and by-laws of the association have been drafted to empower branches to elect as "associates" physicians who are not registered or registrable in Great Britain, the branch electing them to determine what privileges should attach and what subscriptions should be payable. It is felt that this provision might assist in the solution of some of the difficulties at present being experienced in India. The council of the association has agreed that a recommendation on these lines should be made to the representative body. In the case of the Sudan branch it has agreed that, pending settlement of this larger question, the branch should be allowed to elect as a "special class" physicians not registrable in Great Britain, their privileges being to attend addresses and take part in technical discussions and to receive the *Journal*, the subscription not to exceed \$7.50 a year, of which not more than \$6 would be payable to the central council. Inquiries on these lines have also been received from Aden and Palestine. The problem is due to the existence overseas of physicians legally qualified to practice in their localities but whose qualifications are not registrable in Great Britain and who therefore cannot join the British Medical Association as ordinary members according to its articles of association.

#### The Smoke Evil

A proposal for new legislation for smoke prevention has been brought forward by the National Smoke Abatement Society, at which the Royal Sanitary Institute, the Institute of Builders and the Department of Scientific and Industrial Research were represented. In his address the chairman said that the only effective method of controlling smoke from non-industrial premises was by the establishment of smokeless zones

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ALABAMA

**Society News.**—At a meeting of the Northwestern Division of the Medical Association of the State of Alabama in Jasper, January 8, the following speakers participated: Drs. Daniel C. Elkin, Atlanta, "Diagnosis and Treatment of Wounds of the Heart"; Audiss M. Walker, Tuscaloosa, "Sinuses, from Today's Aspect"; William W. Alexander, Florence, "Postparalytic Prior Poliomyelitis"; Ollie P. Board, Birmingham, "Treatment of Peripheral Vascular Disease," and Lewis C. Davis, Gordo, "Treatment of Lobar Pneumonia." Dr. Charles B. Jackson, Jasper, gave the invocation.

### ARKANSAS

**Society News.**—Drs. Charles T. Chamberlain and Arthur F. Hoge, Fort Smith, presented a symposium on gallbladder disease before the Sebastian County Medical Society, November 10.—At a meeting of the Mississippi County Medical Society in Blytheville, November 10, the speakers, all of Memphis, were Drs. Michael J. Roach Jr., on "Toxemias of Pregnancy"; Samuel Blackwell, "Nonsurgical Treatment of Gallbladder Disease," and Chester D. Allen, "Urethral Stricture."—The Randolph-Lawrence County Medical Society was addressed at Walnut Ridge, November 10, by Drs. Henry O. Walker, Newport, on "Acute Gangrene of the Leg" and Ellis L. Gibson, Alicia, "Infections."—At a meeting of the Benton County Medical Society in Rogers, November 12, the speakers were Drs. Sam Grantham Jr., on "Intestinal Obstruction: Diagnosis and Treatment" and Paul W. Walker, "Chronic Prostatitis: A New Method of Treatment"; both are of Joplin, Mo.—Dr. William R. Brooksher, Fort Smith, addressed the Washington County Medical Society at Fayetteville, December 1, on "Modern Trends in Roentgen Therapy."

### CALIFORNIA

**Speakers' Bureau Organized.**—The Los Angeles County Medical Association has created a speakers' bureau. Officers are Drs. Paul A. Quaintance, chairman; Lewis A. Alesen, vice chairman, and Charles E. Futch, secretary.

**Society News.**—Dr. Arthur E. Hertzler, Halstead, Kan., addressed the Los Angeles Surgical Society, December 11, on "Differentiation Between Toxicity of Degeneration and Toxicity of Hyperplasia of the Thyroid Gland."—Dr. Donald D. Lum, Alameda, among others, discussed "New Developments in the Treatment of Meningococcus Meningitis" before the Alameda County Medical Association at its meeting in Oakland, December 21.

**Medical Postage Stamp Exhibit.**—A special exhibit of postage stamps relating to medicine has been arranged in the University of California Medical School Library, according to *California and Western Medicine*. A large part of the exhibit is the property of Karl F. Meyer, Ph.D., San Francisco, director, Hooper Foundation for Medical Research, and includes stamps issued by many countries in commemoration of medical events or physicians of prominence.

### FLORIDA

**Society News.**—At a meeting of the De Soto-Hardee-Highlands County Medical Society in Wauchula, November 10, Drs. W. Wardlaw Jones, Dade City, discussed early pregnancy with special reference to abdominal pains, and Gordon H. McSwain, Arcadia, treatment of burns.—Dr. Gideon Timberlake, St. Petersburg, addressed the Pinellas County Medical Society, December 4, on "Pathology, Symptomatology and Diagnosis of Diseases of the Prostate," and Dr. Arthur J. Logie, Chattahoochee, of the state board of health, outlined plans for an antituberculosis program.

### ILLINOIS

**Quarantined for Influenza.**—The Hines Memorial Hospital at Hines has been placed under quarantine for an indefinite period on account of the prevalence of influenza, it was reported December 30. While there is no outbreak among the

1,750 patients in the hospital, the step was taken as a precautionary measure. During the quarantine, visitors will be admitted only in case of emergency.

### Chicago

**Annual Meeting of Heart Association.**—The Chicago Heart Association will hold its fifteenth annual meeting at the Congress Hotel, January 14. Dr. Thomas Duckett Jones, instructor in medicine, Harvard University Medical School, Boston, will discuss "The Natural History of Rheumatic Fever and Heart Disease with Especial Reference to Etiology and Prognosis."

**Lectures and Seminars on Psychoanalysis.**—"The History of Medical Psychology" and "The Psychology and Sociology of Suicide" will be discussed in a series of lectures by Dr. Gregory Zilboorg, New York, during the second quarter at the Institute of Psychoanalysis. During the same period a series of lectures and seminars will be offered only for members of the Chicago Psychoanalytic Society and the candidates of the institute. Lecturers will include Drs. Therese Benedek, Thomas M. French and Franz G. Alexander, director of the institute.

**Dr. Irving Cutter Appointed Medical Director of North Western Railway.**—Dr. Irving S. Cutter, since 1925 dean of Northwestern University Medical School, Chicago, and since 1934 health editor of the *Chicago Tribune*, has been appointed medical director of the Chicago and North Western Railway. He has also been medical director of Passavant Hospital since 1928. Dr. Cutter will continue to hold his other positions. He graduated from the University of Nebraska College of Medicine, Omaha, and was identified with his alma mater from 1910 to 1925, holding the deanship for the years 1915-1925. Dr. Victor H. Horning has been named assistant to Dr. Cutter in his new position.

**Branch Meetings.**—Dr. Francis D. Murphy, Milwaukee, addressed the Englewood Branch of the Chicago Medical Society, January 5, on "Management of Cardiovascular Renal Diseases."—The North Shore Branch devoted its meeting, January 5, to case reports by the staff of Swedish Covenant Hospital: Drs. Ralph A. Davis, Raymond F. Elmer, Oscar T. Roberg, Eric Oldberg and Willard Van Hazel.—At a meeting of the West Side Branch, December 17, Drs. Eugene T. McEnery and Paul H. Holinger spoke on bronchiectasis in children.—Dr. Henry F. Helmholz, Rochester, Minn., discussed "Mandelic Acid in the Treatment of Urinary Infection in Childhood" before the North Side Branch, January 7, and Dr. Charles W. Mayo, Rochester, "Digestive Qualifications of Man."

### INDIANA

**Motion Picture Operator for State Health Department.**—To meet the increased demands of health organizations for visual education programs, the Indiana State Department of Health has secured the full time services of a motion picture operator to assist in projecting lantern slides and other health programs. Mr. Noble J. Smallwood, the operator, will be available to all groups interested in health programs; there will be no charge for the service. The state department asks that requests be sent in at least two weeks in advance of the date of the program.

**Society News.**—Surgery in the treatment of pulmonary tuberculosis was discussed at the meeting of the Indianapolis Medical Society, December 22, with Drs. Charles J. McIntyre, James H. Stygall and Frank B. Ramsey as the speakers.—Dr. Verne K. Harvey, Indianapolis, discussed health aspects of the Social Security Act before the Vigo County Medical Society, December 8.—At a meeting of the Kosciusko County Medical Society in Warsaw, December 8, Dr. George L. Kress, Warsaw, discussed relief of pain in labor.—Drs. Clarence L. Bock and Theodore R. Hayes, Muncie, addressed the Jay County Medical Society in Portland, December 4, on bladder neck obstruction.—The medical and bar associations of Jasper and Newton counties met in Rensselaer, December 3; the speaker was Mr. Albert Stump, Indianapolis attorney.—Dr. Arthur B. Richter, Flora, discussed treatment of nephritis before the Carroll County Medical Society in Delphi, December 10.—At a meeting of the Fort Wayne Medical Society in Fort Wayne, December 15, Dr. David I. Schwartz, Fort Wayne, presented a paper on "Treatment of Acute Hematogenous Osteomyelitis."—Drs. Frank W. Cregor and John E. Dalton, Indianapolis, conducted a clinic on some of the commoner skin diseases before the Sullivan County Medical Society in Sullivan, December 2.

### Death of Dr. Amédée Borrel

American bacteriologists who have studied at the Pasteur Institute here will regret to learn of the death of Dr. Amédée Borrel at the age of 69 years. Since leaving Paris he had occupied the chair of bacteriology and hygiene at the University of Strasbourg. In 1892 he entered the laboratory of Prof. Elie Metchnikoff at the Pasteur Institute of Paris and soon became associated with Professor Roux in the courses in bacteriology in which many foreigners participated. Later (1894) he became one of the chief co-workers of Pasteur and with Calmette was the first to prepare a serum against the plague. In 1898 he published an important article on cerebral tetanus and proposed the injection of antitetanic serum by the intracerebral route. Since then Borrel had made a number of important contributions on experimental tuberculosis, tissue culture and the rôle of parasites in certain cancers. His work on the last named was confirmed by Fibiger and Bridie.

### BERLIN

(From Our Regular Correspondent)

Nov. 2, 1936.

#### Convention of German Physicians and Scientists

The ninety-fourth annual convention of the Gesellschaft Deutscher Naturforscher und Aerzte was held in September as usual at Dresden. Each of these conventions is accustomed to have a patron saint, usually selected from the history of medicine; this congress met under the protection of C. G. Carus, a physician, scientist and philosopher who flourished during the first half of the nineteenth century and who was the most daring representative of the "romantic medicine" of that period. The school of "biologic medicine," which exercises so powerful an influence in contemporary Germany, sees in Carus one of its most important precursors.

Most impressive was the address of this year's president, the Berlin surgeon Professor Sauerbruch, on "The Problems of Medicine and of Natural Science." Within the scope of Sauerbruch's remarks were included all the controversial points and problems that beset the German medical world today. In addition he took up the question of the place of the university and of natural science in the new state, with particular reference to the investigation of causes. This speech assumed the character of a confession of faith. Sauerbruch, for example, called attention to the fact that the criticism of the universities and their methods which was rife during the first period of National Socialist domination has now happily begun sharply to subside. The distinctive character of scientific work is now beginning to be understood once more. "Accordingly, now is the time to reestablish that state of tranquillity which is now and always will be the fundamental condition for scientific activity." And Sauerbruch uttered the further significant remark: "Reason alone is not enough; it must be supplemented by a reaction of the spirit to the unconscious patterns of nature." Then in conclusion he warned against falling into the reverse error. "The physician senses the unity of the mysterious forces of nature but the scientific disciplines he feels as particulars. From the moment he seeks to create one special science of the latter, all will be false. . . . A new medicine in the sense of something that has never yet existed is certainly not to be recommended." The regular physicians through understanding of Nature Medicine have come to adopt the methods of the latter in conjunction with older procedures. "Meanwhile, to obtain accurate results, we need data that can only be acquired by exact observation." He then quoted a dictum of Paracelsus, who is so frequently cited as an authority by present-day Germans, and this particular quotation must have caused no end of surprise among the audience or at least among the leading authoritative physicians present; it ran: "If thou wouldst not learn aught of the science of medicine,

thou art an enemy of the people." Sauerbruch went on to formulate the principle of scientific freedom and self reliance as follows: "With service to the people alone, science cannot exhaust herself. Her domain is not only of this world. The temporal and the eternal must be harmoniously combined in science; only then can science adhere to her unchanging principle: to seek the truth with sincerity." Sauerbruch closed his address with a "final confession of faith," a word to the youth of the universities: "Work and experience," he said, "must be tested and coordinated by the spirit and the understanding. The concept of the whole is designated by that somewhat overworked term 'weltanschauung.' But only the tried and tested man of maturity can be said to possess a weltanschauung and such an acquisition is not within the reach of the young. Youth possesses openmindedness, energy and hope. But the capacity for working, knowledge and experience, the insight into those realms of science that are to be comprehended only by the intellect, are also necessary." Old and young must collaborate in the performance of the most difficult tasks and deeds of genuine service.

The foregoing significant and courageous utterance, a confession of faith in the true scientific spirit by a leader of science has produced a tremendous understandable sensation both in Germany and abroad, particularly since such candid expression of opinion has become a rarity within the Third Reich. This speech of Sauerbruch's has received only fleeting mention in the German medical press. A few vague comments have appeared which can scarcely be said to show any sympathy for the main thesis of Sauerbruch's courageous utterance and which in some instances flatly reject it (as in the *Deutsches Aerzteblatt*, official organ of the entire German medical profession). Sauerbruch's address stands out as the "high spot" of this convention.

#### MEDICINE AND BIOLOGY

The topic of the first general session was "Medicine and Biology." Ludwig Aschoff of Freiburg-in-Breisgau provided a discussion of pathology and biology in which he referred to the fact that the demarcations between animate and inanimate matter have been obliterated by advances in the knowledge of the type of ultramicroscopic virus and chemical agents which form in the nuclei of cells and which conduce to cancer. Pathology, however, ought not to be regarded as a purely natural science, since the concept of evaluating life as healthy or diseased must underlie the pathologist's exact observation of phenomena. Aschoff believes that, owing to the brevity of the period of academic preparation, instruction in the recognition of diseases is of more importance than instruction in their treatment (this opinion of Aschoff's is not subscribed to by pathologists generally).

Among other speakers on the topic was Karl Kötschau of Jena, who once again said his say on behalf of Nature Medicine.

In the medical section, Franz Volhard of Frankfurt-on-the-Main as an internist and Rudolf Thiel also of Frankfurt as an ophthalmologist discussed the importance of visual examination for the understanding of disturbances due to hypertension and to diseased kidneys.

In the section on internal medicine the question of hyperthyreosis was the principal topic. Erwin Gohrbandt of Berlin pointed out that preliminary treatment with iodine has made possible a considerable decrease in the postoperative mortality. If preliminary iodotherapy has been possible, Gohrbandt performs a one-stage intervention; in the absence of this preliminary treatment a two-stage operation is performed. Sudden deaths in improperly prepared operative cases he attributes to a rapid withdrawal of flushed out toxin (somewhat as in morphinism and alcoholism).

## MINNESOTA

**Society News.**—The Hennepin County Medical Society was addressed in Minneapolis, December 16, by Edmund V. Cowdry, Ph.D., St. Louis, on "Pathogenic Viruses," and, December 9, by Drs. Charles D. Creevy and James A. Johnson on "Present Status of Transurethral Resections" and "Treatment of Carcinoma of the Rectum by Electrocoagulation" respectively.—Dr. William L. Benedict, Rochester, addressed the Minnesota Academy of Medicine in Minneapolis, December 9, on "Episcleritis in Relation to Disease of the Pelvic Organs," and Dr. Alfred Hoff, St. Paul, "Agranulocytosis."—Dr. Edwin A. Kilbride, Worthington, was elected president of the Southwestern Minnesota Medical Society at its annual meeting in Worthington, November 16; Dr. Charles L. Sherman, Luverne, vice president, and Dr. Hermann De Boer, Edgerton, secretary.

## MISSISSIPPI

**Society News.**—The Clarksdale and Six Counties Medical Society was addressed in Clarksdale recently by Drs. Wesley W. Hall, Shelby, on ruptured tubal pregnancies; Winston C. Pool, Cary, coronary artery disease, and Henry C. Ricks, Jackson, poliomyelitis. Dr. Hiram W. Kostinayer, New Orleans, addressed the banquet session on "Endocrine Therapy in Gynecology."—At a meeting of the Coahoma County Medical Society and the staff of Clarksdale Hospital in November, Dr. William P. Warfield, Clarksdale, discussed infections of the upper respiratory tract in infants and children.

## MISSOURI

**The Hodgen Lecture.**—Dr. Edward D. Churchill, John Homans professor of surgery, Harvard University Medical School, Boston, will deliver the annual Hodgen Lecture before the St. Louis Medical Society, January 12. His subject will be "Surgery of the Parathyroids." The lecture is under the auspices of the St. Louis Surgical Society and the Medical Fund Society.

**Society News.**—The St. Louis Medical Society was addressed, December 15, by Drs. Benjamin H. Orndoff, Chicago, on "Value of the X-Rays and Radiopaque Oils in the Detection of Pathology of the Cervix, Corpus Uteri and Oviducts," and Henry Schmitz, Chicago, "Prophylaxis and Early Diagnosis of Cancer of the Cervix." The society met jointly with the ophthalmic section, December 22, in a program commemorating the eightieth anniversary of Albrecht von Graefe's discovery of the efficacy of iridectomy for glaucoma. Guest speakers were Drs. William F. Petersen on "Glaucoma: Autonomic Integration and Environment" and Michael Goldenburg, who presented the ophthalmic discussion; both are of Chicago.—Dr. Iago Galdston, New York, addressed the thirtieth annual meeting of the Tuberculosis and Health Society of St. Louis, December 7, on "Science versus Human Beings."—At a joint meeting of the St. Louis Dental Society with the St. Louis County Medical Society, January 4, Ura G. Rickert, D.D.S., professor of diagnosis, dental therapeutics and radiology, University of Michigan School of Dentistry, Ann Arbor, spoke on "Twenty Years of Study of Rheumatic Diseases from the Dental Viewpoint."

## NEBRASKA

**Society News.**—Dr. Walter M. Simpson, Dayton, Ohio, addressed the Omaha-Douglas County Medical Society, December 8, on "Experiences in Artificial Fever," and Dr. Abram E. Bennett, Omaha, reported the progress of a fever therapy research project at the University of Nebraska College of Medicine.

## NEW MEXICO

**Personal.**—Dr. Elias T. Hensley, Portales, has been appointed a member of the state board of medical examiners to succeed the late Dr. Frank H. Johnson, Carrizozo.

## NEW YORK

**Dr. Sakel Lectures on Hypoglycemic Treatment of Schizophrenia.**—Dr. Manfred Sakel, Vienna, is giving a six weeks course of instruction at the Harlem Valley State Hospital, Wingdale, in the hypoglycemic treatment of schizophrenia, at the invitation of Dr. Frederick W. Parsons, commissioner of the state department of mental hygiene. Dr. Parsons has authorized each state hospital to send a physician to the Harlem Valley State Hospital for instruction in the technic of the new therapy. A paper on this subject by Dr. Julius Steinfeld,

Peoria, Ill., appears in this issue of THE JOURNAL, page 91, and one by Dr. Bernard Glueck, Ossining, was published Sept. 26, 1936, page 1029.

## New York City

**Theobald Smith Lecture.**—Dr. Hans Zinsser, Charles Wilder professor of bacteriology and immunology, Harvard Medical School, Boston, will give the annual Theobald Smith Lecture of the New York Society of Tropical Diseases, January 22, at the Cornell University Medical College, on "Rickettsia Diseases."

**Hospital News.**—A new physical therapy unit was opened recently at the New York Post-Graduate Medical School and Hospital with Dr. John D. Currence as its head. The unit includes a special tank for underwater therapy.—Dr. Manfred Sakel, Vienna, gave a lecture at Mount Sinai Hospital, November 12, on "Hypoglycemia and Its Therapeutic Effect."

**Faculty Changes at New York University.**—Among recent changes in the faculty of New York University College of Medicine were the following promotions:

Dr. Thomas A. Gonzales, to associate professor of forensic medicine.  
Drs. Milton Helpert and Benjamin M. Vance, assistant professors of forensic medicine.

Dr. James Burns Amberson Jr., professor of clinical medicine.  
Dr. Charles Gottlieb, assistant professor of radiology.  
Dr. Milton Benjamin Rosenbluth, assistant professor of clinical medicine.

Dr. Alfred Townsend Osgood, professor of urology since 1912, was made professor emeritus.

**Lectures by Professor Arcé.**—Dr. Jose Arcé, Buenos Aires, professor of surgery at the University of Buenos Aires and rector of the university, arrived in New York December 15 for a lecture tour as the guest of chapters of the Pan American Medical Association. Dr. Arcé will speak on "Pan American Medicine" before the chapters in New York, Washington, Los Angeles and San Francisco and will also observe methods of teaching graduate physicians. Dr. Joseph Jordan Eller, director general of the association, and Mrs. Eller gave a reception Sunday, December 20, in honor of Dr. Arcé and his party, which includes Drs. Adolfo F. Landivar, Antonio Egeus and Isidro Castillo Odena, all professors of surgery at the University of Buenos Aires.

**Dr. Reynolds Honored.**—The committee on medical education of the New York Academy of Medicine gave a dinner December 7 in honor of Dr. Frederick P. Reynolds, who is retiring from the secretaryship of the committee after several years' service. Dr. Carl Eggers, chairman of the committee, presided at the dinner and those present included twenty-two members of the committee; Major Gen. Charles R. Reynolds, surgeon general, U. S. Army, brother of Dr. Reynolds, and Dr. Mahlon Ashford, who has been appointed to succeed Dr. Reynolds as secretary. Dr. Reynolds spent thirty years in service with the Army Medical Corps, retiring in 1923. He was graduated from the University of Pennsylvania School of Medicine in 1890 and is now 69 years old. In addition to serving as secretary of medical education he was assistant secretary of the academy.

**Society News.**—The Medical Society of the County of New York devoted part of its meeting December 21 to a memorial session in honor of the late Dr. Daniel S. Dougherty, secretary of the society from 1917 to 1936 and director from 1929 to 1936. Dr. Orrin S. Wightman delivered a eulogy. Dr. Charles Gordon Heyd, President of the American Medical Association, made an address on "Organized Medicine" and Dr. Floyd S. Winslow, Rochester, N. Y., president of the Medical Society of the State of New York, on the current activities of that society.—Drs. Frank N. Wilson, Ann Arbor, Mich., and Maude E. S. Abbott, Montreal, will be the speakers at a scientific meeting of the Committee on Cardiac Clinics of the New York Heart Association, January 12, on "The Precordial Electrocardiogram" and "The Clinical Significance and the Differential Diagnosis of the Acyanotic and Cyanose Tardive Groups of Congenital Cardiacs" respectively.—Dr. Robert P. Wadhams was recently elected president of the New York University College of Medicine Alumni, and Dr. James W. Smith, secretary. The next alumni day will be held February 20 at the college.

## NORTH CAROLINA

**Personal.**—Dr. Bennie B. Dalton, Rockingham, has resigned as health officer of Richmond County to enter private practice in Liberty.—Dr. John McCampbell, medical superintendent of the State Hospital, Morganton, has been appointed a member of the state eugenics board, succeeding Dr. W. Clinton Linville, Goldsboro.



three periods in the development of medical literature: mixed literature from 1668 to 1773, general medical literature from 1773 to the first half of the last century, and specialized medical literature from the second half of the last century to the present.

The second official topic was "Social Functions of the Medical Press." Speakers for this topic were Professor Le Sage, of the Union Medicale of Canada, and Dr. Olivaro, who is the author of the constitution of the Association of the Italian Medical Press. The third topic was "Principles of Teaching and of Practicing Medicine." Professor Perez of the University of Rome reviewed the arrangement of medical studies, postgraduate courses and services of sanitation in Italy. When the discussions of the official topics were over the following motions were given: First that Latin and Greek be considered compulsory subjects of medical studies. Second, that postgraduate courses, for obtaining a diploma of specialization, be compulsory for practicing medical specialties.

#### Indexes of Food Consumed

According to statistics of the Istituto Centrale di Statistica, the quantity and variety of food consumed by the average Italian population during the last ten years has improved. The consumption of natural products for every man during a year increased, from 1926 to 1935, as follows: fresh rough vegetables from 40 to 54.4 Kg., fresh fruit from 28 to 37.2 Kg., and acid fruits from 8.6 to 10.9 Kg. The consumption of fresh soft vegetables, fresh fish, milk and milk products increased also. The consumption of milk for every man during a year increased from 1926 to 1935 from 24.6 to 34 liters. The consumption of cereals and meat showed no great changes.

#### Deaths

Prof. Francesco Radaeli, head of the Clinica Dermosifilopatica of the Genoa University and a well known dermatologist, is dead. He wrote important articles on Kaposi's hemorrhagic sarcoma, which he called angio-endothelioma, and on the infectious etiology of pemphigus; also a book on cutaneous diseases, of which four editions have already been published. He was the founder of a clinic in Genoa in which a school of dermatology was established. Several of his pupils in this school are teachers in Italian universities and others are directors in dermatologic clinics.

### NETHERLANDS

(From Our Regular Correspondent)

Nov. 16, 1936.

#### Transmission of Paratyphoid Infection by Ducks

A. Charlotte Ruys in the *Nederlandsch tijdschrift voor geneeskunde* calls attention to the danger of paratyphoid infection transmitted by ducks either through the eggs or through the birds themselves.

The author reports the case of a child stricken with type B paratyphoid after having played with two ducklings, one of which was taken ill and died. The surviving bird was placed under observation at the laboratory and there it remained apparently well for six days. After an examination of the feces had proved negative, the duckling was destroyed. Postmortem examination demonstrated that the animal had been a healthy carrier of *Bacterium paratyphosum B* (Aertryeke). The bacilli were obtained in cultures of the intestinal contents.

Last summer in Amsterdam several cases of food poisoning were reported among families the members of which had partaken of duck soup. In four families investigated there were sixteen cases of poisoning, one fatal. *Bacterium paratyphosum B* (three times of the Aertryeke type and once of the Gaertner type) was detected in the stools of all persons who had ingested the soup. A special investigation proved, moreover,

that the soup had been the sole source of the illness. In each instance it had been allowed to simmer over a slow fire and the boiling process had sufficed to destroy all the pathogenic organisms in the broth, since none were found in the residues examined at the laboratory. But boiling had not sufficed to destroy the bacilli within the flesh of the bird. This duck meat had all been consumed and could not be examined. The author cites a somewhat analogous case in which the ingestion of chicken broth was followed by manifestations of illness. Examination of the broth itself disclosed no pathogenic organisms but it was possible to culture the bacilli from a chicken foot which had remained uneaten and the interior of which was nearly raw.

#### Lead Poisoning and Tobacco

In the *Nederlandsch tijdschrift voor geneeskunde* appears a discussion by Jordans, Zijlmans and Broos of lead poisoning among workers in the tobacco industry. The authors had the opportunity to examine several groups of workers in various cigar factories. The general appearance of a large number of the employees denoted a state of poor health, and this could not be explained on the basis of unfavorable working conditions (the hygiene of cigar factories has undergone vast improvement) or by the fact that this type of employment does not require great physical stamina on the part of the worker (the vast majority of 4,000 cigar makers examined were of sound constitution). Chronic nicotineism was likewise ruled out, as none of the persons observed presented any symptoms of nicotine intoxication. The authors concluded that the workers in question were suffering from lead poisoning, although such an intoxication in connection with the manufacture of cigars had never before to their knowledge been described. Six hospitalized cases are reported in detail. An investigation initiated by the authors demonstrated lead poisoning in at least 25 per cent of all the workers.

The source of this intoxication ostensibly was the sheets of zinc on which the cigars were cut. These sheets contained about 1 per cent of lead. The law should require that these metal sheets be replaced by hard wooden plaques; such a substitution would in no way impede the technical process of manufacture.

#### Mortality Statistics

Statistics recently published by the central statistical bureau show that from 1840-1849 to the year 1934 the death rate declined from 26.56 per thousand of population to 8.41. Such a decrease evidences the effectiveness of public health measures and the improvement of living conditions in the Netherlands.

Fatalities among nurslings now constitute 4 per cent of all recorded deaths. In the decade from 1880 to 1889, 18 per cent of all infants born alive died while still in the nursing stage whereas in 1934 the corresponding figure was 4 per cent. This decline attests the influence of improved infant feeding.

The mortality of infants in 1934 should be considered an all-time low. The birth rate, on the other hand, tends to decline in both urban and rural areas. The various provinces of the kingdom exhibit individual differences in this regard. In the province of Friesland the infant mortality is quite low and 58 per cent of the survivors attain the age of 65. In the province of Limburg, the infant mortality is extremely high and but 40 per cent of the survivors attain the age of 65. The corresponding figure for the entire kingdom is 49 per cent.

Among causes of death tuberculosis no longer plays a preponderant part. Diseases of the heart and blood vessels are on the increase; they cause 14 per cent of all deaths (the result chiefly of the abuse of nicotine and of the nervous spirit of the times). The largest single cause of fatalities is cancer, which was responsible for 15 per cent of all the deaths recorded in 1934.

tumors.—Dr. Goronwy O. Brown, St. Louis, addressed the King County Medical Society, Seattle, December 29, on "Physiology and Pathology of Bone Marrow."—Dr. Woodard A. Niethammer, Tacoma, addressed the Pierce County Medical Society, Tacoma, recently on "Iodine in the Treatment and Prevention of Goiter."—At a recent meeting of the Yakima County Medical Society, Yakima, the speakers, all of whom are of Spokane, were Drs. John B. Plastino on "The Endocrines in Hypertension, Carbohydrate Metabolism and Obesity"; Donald A. Palmer, "Achyilia Gastrica, Pernicious Anemia and Gastric Polypi," and James M. Nelson, "Water Balance and Dehydration in Surgical Patients."

### WISCONSIN

Society News.—The Milwaukee County Medical Society and the Milwaukee Health Department sponsored a tuberculosis detection program at the South Division High School, Milwaukee, beginning December 7.—Dr. Wheelan D. Sutliff, Chicago, addressed the Milwaukee Academy of Medicine, December 15, on "Serum Treatment of Pneumonia."—Dr. Fred P. Moersch, Rochester, Minn., addressed the Milwaukee Neuropsychiatric Society, November 19, on "Neuronitis."

### WYOMING

Special Meeting of Delegates.—New President-Elect.—The house of delegates of the Wyoming State Medical Society, at a special meeting in Casper December 14, chose Dr. Victor R. Dacken, Cody, president-elect of the society to succeed Dr. John R. A. Whitlock, Powell, who died Nov. 23, 1936. Dr. Dacken was graduated from the University of Nebraska College of Medicine, Omaha, in 1919.

### GENERAL

Society News.—Dr. Fred W. Bailey, St. Louis, was elected president of the Western Surgical Association at the annual meeting in Kansas City in December. Drs. Owen H. Wangenstein, Minneapolis, and Theodore F. Riggs, Pierre, S. D., were elected vice presidents and Dr. Albert H. Montgomery, Chicago, was reelected secretary. The 1937 meeting will be in Indianapolis.

Social Hygiene Day.—The American Social Hygiene Association announces plans for the first "National Social Hygiene Day," which will be observed February 3. The association will hold its annual meeting on that day and the Social Hygiene Council of Greater New York its fifth annual conference. State and community voluntary organizations interested in the control of venereal disease also plan meetings throughout the country. The national association, which has headquarters at 50 West Fiftieth Street, New York, will be glad to assist in the formation of local programs, according to the announcement.

Radiologists Award Medals.—At the annual meeting of the Radiological Society of North America in Cincinnati, November 30-December 3, the 1936 achievement gold medals were awarded to Dr. Edwin C. Ernst, St. Louis, and Otto Glasser, Ph.D., Cleveland, in recognition of their work in developing a method of x-ray dosage. Dr. Howard P. Doub, Detroit, was named president-elect and Dr. John D. Camp, Rochester, Minn., was installed as president. Vice presidents elected were Drs. Ellis R. Bader, Cincinnati; Paul F. Titterington, St. Louis, and Robert A. Arens, Chicago. Dr. Donald S. Childs, Syracuse, N. Y., was elected secretary-treasurer. The 1937 meeting will be in Chicago in conjunction with the International Congress of Radiology, September 13-17.

Changes in Status of Licensure.—The Eclectic State Medical Board of Arkansas announces the following action:

Dr. Guy I. R. Lawless, formerly of West Memphis, license revoked, November 10, for violation of the Harrison Narcotic Act.

The State Board of Medical Examiners of Florida reports the following:

Dr. Wesley S. Miller, Palatka, license revoked for violation of Harrison Narcotic Act.

Dr. Lemuel A. Carter, Bunnell, license revoked for violating the Harrison Narcotic Act.

The Massachusetts Board of Registration in Medicine announces the following action:

Dr. Henry Daniels, Brockton, license revoked, December 10, for his conviction of the charge of abortion.

Dr. Arthur E. Brides, Stoughton, license suspended for six months, December 10, for gross misconduct in the practice of his profession.

Dr. Barney Edward Sachs, Worcester, license revoked, December 10, because of acting as principal or assistant in the carrying on of the practice of medicine with an unlicensed person.

The Minnesota State Board of Medical Examiners reports the following action:

Dr. Val Do Turner, St. Paul, license revoked, November 7, for referring a woman to an abortionist.

News of Epidemics.—More than 700 cases of scarlet fever with four deaths had occurred up to December 29 in an outbreak at Owego, N. Y., first reported December 26. The disease was traced to distribution of raw milk by a dairyman despite the illness of three members of his family. More than fifty cases were reported in Cohoes, N. Y., December 12; fifty cases with one death in New Bremen, Ohio.—An epidemic of smallpox at Dansville, N. Y., is believed to be under control. There were fifty-five cases in Dansville and adjacent communities. About eighty-five cases have occurred in a recent outbreak at Klamath Falls, Ore.—About twenty-five cases of typhoid fever with three deaths were reported from Cecil, Pa., December 8; the infection was attributed to pollution of the water supply. At Page, W. Va., about twenty cases were reported December 17; the source had not been determined.

### CANADA

Dysentery in Saskatchewan—Twenty-Eight Deaths.—Ninety-five cases of bacillary dysentery with twenty-eight deaths occurred recently in the McMahon District near Swift Current, Sask., particularly in the Mennonite village of Rosenhof. It is believed that the infection was brought into the community by persons who returned from Mexico.

Hospital News.—The Winnipeg General Hospital has received a gift of \$25,000 from Mr. John A. Forlong to provide new x-ray equipment, especially for high voltage therapy, in memory of his wife.—Dr. James Douglas Galbraith, Toronto, physician on a United Church mission boat, the *Thomas Crosby*, has been appointed medical superintendent of the Bella Coola Hospital, Bella Coola, B. C.

Society News.—Dr. Louis H. Newburgh, Ann Arbor, Mich., addressed the Academy of Medicine of Toronto, December 8, on "Important Advances in Our Knowledge of Kidney Diseases."—Dr. Allen Y. McNair, Vancouver, addressed the Vancouver Medical Association, December 1, on "Tumors of the Large Bowel." Dr. Lavell H. Leeson addressed the association, November 3, on "Respiratory Infections of Childhood."

### FOREIGN

Personal.—Sir Norman P. Walker, Edinburgh, has been reelected president of the General Medical Council of Great Britain for a term ending in 1939.—Dr. Dugald Baird, Glasgow, has been appointed regius professor of midwifery in the University of Aberdeen, succeeding Dr. Robert G. McKerron, resigned.

### Deaths in Other Countries

Sir John Bland-Sutton, consulting surgeon to Middlesex Hospital, former president of the Royal College of Surgeons, the Royal Society of Medicine and the Medical Society of London, died in London December 20, aged 81.

## Government Services

### Fines Imposed Under Poison Act

Ten druggists and paint dealers were recently fined in the District of Columbia for selling caustic or corrosive materials in containers not labeled as the Federal Caustic Poison Act requires. Apparently because all the cases were first offenses the court imposed nominal fines of \$10 after the defendants had pleaded guilty. The prosecutions were based on sales of oxalic acid, acetic acid and ammonia water.

### General Shockley Retires

Brig. Gen. M. Augustus Wroten Shockley, assistant to the surgeon general of the U. S. Army, will retire on his own application, effective February 28, according to the *New York Times*. General Shockley is 62 years of age. He graduated from the Kansas City Medical College in 1898, joining in the same year the Seventh U. S. Voluntary Infantry. He advanced through the various grades in the regular army until he was appointed brigadier general in 1935. He was director of the Field Service and Correspondence School for Medical Officers, U. S. Army, from 1915 to 1917; instructor in the School of the Line and Staff College of the army, 1919-1922, and professor of military hygiene, U. S. Military Academy, 1927 to 1931. He was awarded the Distinguished Service Medal and is an officer of the Legion of Honor of France. He is also the author of the "Outline of the Medical Service of the Theatre of Operations."

## Deaths

**Henry Stanley Plummer** \* professor of medicine, Mayo Foundation, Graduate School, University of Minnesota, died, January 1, at his home in Rochester, Minn., of cerebral thrombosis, aged 62. Dr. Plummer was born in Hamilton, Minn., March 3, 1874. He took premedical courses at the University of Minnesota and received the M.D. degree from Northwestern University Medical School, Chicago, in 1898. After practicing medicine in Racine, Minn., from 1898 to 1901, he went to the Mayo Clinic in 1901, where he became chief of the division of medicine. In the Mayo Clinic his genius for organization and his flair for mechanics had the fullest opportunity for development. In the construction of the new clinic building he labored indefatigably and many of the remarkable innovations in efficiency of operation were conceived by him. He was chairman of the Section on Practice of Medicine of the American Medical Association, 1920-1921; a past president of the American Association for the Study of Goiter; member of the American Association for Thoracic Surgery, the Central Society for Clinical Research, Association of American Physicians, Association for the Study of Internal Secretions, Medical Library Association and the American Public Health Association; fellow of the American College of Physicians. He was the author and co-author of numerous articles dealing with the physiology and diseases of the thyroid gland. In 1935 he was awarded the honorary degree of doctor of science by Northwestern University. He was a genial philosopher in medicine, a profound thinker whose views were respected everywhere.

**Samuel William Schapira** \* New York; University of the City of New York Medical Department, 1895; member of the American Urological Association; formerly professor of clinical surgery, Fordham University School of Medicine; instructor of genito-urinary diseases at the New York Post-Graduate Medical School, 1903-1913; served during the World War; at various times on the staffs of the Beth Israel Hospital and Dispensary, Sydenham Hospital, People's Hospital and City Hospital, New York, and the Sea View Hospital, Staten Island; aged 64; died, Nov. 21, 1936, of heart disease.

**Arthur Lynn Bryan**, Muscatine, Iowa; University of Illinois College of Medicine, Chicago, 1914; past president of the Muscatine County Medical Society; formerly health officer of Muscatine; on the staff of the Benjamin Hershey Memorial Hospital and formerly on the staff of the Bellevue Hospital; aged 50; died, Nov. 12, 1936, in the Methodist Hospital, Madison, Wis., of heart disease, embolus of the right leg, and gangrene.

**Edward Cary Rushmore** \* Tuxedo Park, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1886; past president of the Orange County Medical Society and the First District Branch of the Medical Society of the State of New York; health officer; surgeon for the Erie Railroad; medical director of the Tuxedo Memorial Hospital; aged 74; died, Nov. 2, 1936.

**Thomas Hawley Rockwell** \* New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; for many years chief medical director of the Equitable Life Assurance Society; past president of the Association of Life Insurance Medical Directors of America; aged 71; died, Nov. 2, 1936, in the Fair Oaks Sanatorium, Summit, N. J., of chronic nephritis.

**Andrew MacFarlane** \* Albany, N. Y.; Albany Medical College, 1887; past president of the Albany County Medical

Society; formerly professor of physical diagnosis and medical jurisprudence at his alma mater; served during the World War; on the staff of St. Peter's Hospital and formerly on the staffs of the Albany Hospital and the Memorial Hospital; aged 73; died, Nov. 10, 1936, of coronary occlusion.

**Wayland Ray Palmer**, Hollidaysburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1902; past president of the school board; medical examiner for the selective board during the World War; on the staffs of the Altoona and Mercy hospitals, Altoona, and the Nason Hospital, Roaring Spring; aged 59; died, Nov. 7, 1936, at a hunting camp near Petersburg.

**Hugh Owen Jones**, Chicago; Northwestern University Medical School, Chicago, 1902; member of the Illinois State Medical Society; assistant to the president and chief of the medical service, city health department, and formerly assistant and acting health commissioner, and chief of the division of child hygiene; aged 61; died, Dec. 24, 1936, of bronchopneumonia.

**Samuel Boughton Whitman Leyenberger** \* Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1901; fellow of the American College of Surgeons; on the staff of St. Michael's Hospital and on the adjunct staff of the Presbyterian and the Hospital of St. Barnabas; aged 57; died, Nov. 4, 1936.

**Harold William Reilly**, East Bloomfield, N. Y.; University of Buffalo School of Medicine, 1921; for many years health officer of East Bloomfield; on the visiting staff of the Frederick Ferris Thompson Hospital, Canandaigua; aged 41; died, Nov. 18, 1936, in a hospital at Cleveland, of malignant hypertension following adrenal sympathectomy.

**Thomas Charles Lippman**, Southampton, N. Y.; Cornell University Medical College, New York, 1903; member of the Medical Society of the State of New York; on the staff of the Southampton Hospital; aged 59; died, Nov. 11, 1936, in the New York Post-Graduate Hospital, New York, following an operation for disease of the gallbladder.

**Charles John Haines**, Hallstead, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1925; member of the Medical Society of the State of Pennsylvania; fellow of the American College of Physicians; City

Hospital, of a self-inflicted bullet wound.

**Russell C. Keizer**, North Bend, Ore.; University of Oregon Medical School, Portland, 1918; member of the Oregon State Medical Society; for many years county coroner; member of the school board; medical director and president of the Keizer Brothers Hospital; aged 52; died, Nov. 4, 1936, of cerebral hemorrhage.

**Meyer R. Robinson** \* New York; Columbia University College of Physicians and Surgeons, New York, 1900; fellow of the American College of Surgeons; attending gynecologist to the Beth Israel Hospital, chief gynecologist and obstetrician to the Beth Moses Hospital; aged 61; died, Nov. 2, 1936, of carcinoma of the lung.

**Hugh James Polkey** \* Chicago; Rush Medical College, Chicago, 1903; assistant clinical professor of surgery (genito-urinary) at his alma mater; member of the American Urological Association; on the staff of the Presbyterian Hospital; aged 59; died, Nov. 14, 1936, of arteriosclerosis and cerebral thrombosis.

**John Henry Kimble**, Plymouth, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; member of the Michigan State Medical Society; served



HENRY STANLEY PLUMMER, M.D., 1874-1937

in cities. In these, smoke emission should be made a legal offense. The central areas of cities could thus be cleared of smoke emission. They could not yet legislate for the smokeless city as a whole. The same principle could be applied to other selected areas, for example in the vicinity of hospitals, parks, airdromes and architectural monuments. The areas concerned would be mainly occupied by offices and business premises, where the coal fire was almost an anachronism. There need be no difficulty about hotels or clubs, as their cooking was mostly done by gas or electricity. There was already sufficient smokeless fuel on the market to supply open fires in public rooms. There was little hope of legislation for the abatement of smoke from dwelling houses, but the rapidly increasing use of gas and electricity for cooking was diminishing smoke emission from kitchen ranges. The open fire in the sitting room remained the crux of the problem. The popular demand for at least one open fire must be conceded. The line of attack appeared to be elimination by degrees of raw bituminous coal and the substitution of smokeless fuels, to which a slow but definite change was taking place without any compulsion.

### PARIS

(From Our Regular Correspondent)

Nov. 30, 1936.

#### Bureau to Provide Temporary Substitutes for Practitioners

In France, the interests of the profession are looked after by the Federation of Medical Syndicates or Unions, in which each departmental syndicate has a representative. The federation has recently purchased a building in the center of Paris and has opened an office which will aim to provide practitioners who desire a well qualified licensed member of the profession to take charge of their practice temporarily with all the necessary information. Any practitioner who desires a temporary substitute can obtain one by (1) stating the type of practice (internal medicine, general surgery or surgical specialties) and whether the substitute should be a licensed physician or a student who has passed a sufficient number of examinations to permit serving as a substitute or (2) indicating the location, remuneration and length of time during which the practitioner expects to be absent. The physician or qualified student who wishes to serve as a substitute must file his credentials with the office and agree not to begin practice in a territory that is less (in country districts) than 25 miles away from the place in which he replaces a practitioner. In this way the federation assumes the responsibility of providing substitutes whose records have been thoroughly investigated. This will avoid the complaint now existing of the employment of foreigners who do not have the necessary state license to practice and of medical students who are not qualified to act as substitutes. The work of the federation in relation to its proposed cooperation with the public health authorities has already been referred to. A plea is constantly being made by the secretary of the federation for united efforts on the part of the profession in combating the effort of the present government to create state medicine.

#### A Lecture on Postoperative Thrombosis

In the October 10 *Pragère médicale* appears a lecture on postoperative thrombosis delivered in Ghent, Belgium, by Prof. René Leriche of Strasbourg, in which the theory of Havlicek as to the etiology of this complication is discussed. The theory of Havlicek is based on the following:

1. The velocity of the circulation is a function of billions of anastomoses which permit the blood to pass directly from the arteries into the veins.

2. There are innumerable interstitial anastomoses in the liver between the portal vessels and those draining into the vena cava.

3. As the result of exertion in the postoperative period, the blood in the portal vein can flow back into the radicles of the vena cava as far as the femoral vein.

4. The blood in the portal circulation coagulates that in the systemic veins.

5. Postoperative slowing up of the circulation favors coagulation.

6. Postoperative thrombosis is due to the reflux of the blood from the portal circulation into that of the vena cava.

Now Nolf has shown that the blood in the vessels during life contains all the factors necessary for coagulation but that they are in a colloidal state of stability. This means that there is no coagulation within the vessels under normal conditions. Coagulation takes place outside the vessels under the influence of the tissue juices, white blood cells and blood platelets in the presence of calcium or when there is an extreme degree of slowing up or a complete arrest of the circulation. One should not confuse thrombosis and coagulation. Clinicians are not as aware of this as are physiologists. Thrombosis is not an anomaly of coagulation. The two processes are not the same. When a vessel is thrombosed, coagulation is a secondary phenomenon at the site of the thrombosis, the latter being primary. Coagulation is a phenomenon of precipitation, under the form of fibrin, of an albuminous body which is found in the normal blood as fibrinogen, the latter being transformed into fibrin. Thrombosis is essentially a phenomenon of agglutination of blood platelets, the fibrin playing only an insignificant part. If one wishes to know why thrombosis takes place, it is necessary to study the question of agglutination of platelets. If one admits the influence of the blood in the portal circulation on that in the vena cava as Havlicek claims, it is necessary to prove that the portal blood can precipitate the platelets in the other system. All that is known at present is that coagulation never occurs in blood vessels during life unless there has been a precedent thrombosis, even when there is slowing up or complete arrest of the circulation. When the circulation is artificially slowed up, the leukocytes first and later the platelets are seen along the periphery, but there is never agglutination of the platelets. There is a sudden marked increase of platelets during the first few days after operation, returning to normal toward the end of the second week. Now, in certain patients the increase in the number of platelets after operation is exceptionally high and does not recede at the usual time. Whether this can explain some cases of postoperative thrombosis is not proved, but it opens up a field for study. Even if that were proved, it would still be necessary to determine why certain operations stimulate excessive platelet production. Clinical observations show that thrombosis occurs as a rule after operations, especially abdominal, in an aseptic field. During the World War, thrombosis was practically never observed in infected wounds, whereas thrombosis appears like a bolt of lightning from a clear sky after clean appendicitis, hernia and uterine fibroid operations; hence infection cannot be considered as the cause of thrombosis in such cases. Rough handling of muscle tissue certainly favors postoperative thrombosis, yet it seems paradoxical that one never sees a phlebitis following the radical operation for cancer of the breast. One observes thrombosis less frequently in cases in which drainage has been employed than when the operative incision has been closed completely. Leriche is of the opinion that operations performed under ultraviolet or infra-red rays as suggested by Paschoud may lessen the frequency of postoperative thrombosis. Following a visit to the clinic of Paschoud, operations at the Strasbourg University clinic, of which Leriche is the head, are now being performed under these conditions and the use of the infra-red rays during operation has been satisfactory.

"I can appreciate your not desiring to give out the formula of Jergens Lotion or its method of manufacture, but a great many manufacturers of toilet preparations have felt no hesitancy in giving us the names of the ingredients in their products.

"The reason for our original inquiry was that we had received a letter from a dermatologist of Seattle, Wash., who stated: 'I have a patient with a contact eczema resulting from Jergens Lotion, "patch test" positive. Can you tell me the ingredients, also percentage of glycerine et al. contained in it?'

"We regret that you were unable to be of assistance to us in this matter."

In reply to this, the Andrew Jergens Company wrote the following letter to the Bureau of Investigation under date of Nov. 4, 1936, regretting their inability to be of assistance, but

## CUPID FROZE at the touch of her Chapped, Rough Hands!



but a few days later he melted



**Jergens Lotion**

All four sizes—\$1.00, 50¢, 25¢, 10¢—contain more lotion than similar sizes of other well-known lotions. You'll find the big dollar size the most economical of all.  
December 1936 Good Housekeeping

ONLY soft, appealing hands can light the flame of love. But how can you keep your hands exquisite?

Easily enough with Jergens Lotion! Even though the mercury drops. Even though you wash your hands 8 times a day and have them in water at least 8 times more, as any busy woman does!

For Jergens penetrates the deeper skin cells, over-coming their dryness. Compared with other leading lotions tested, Jergens goes into the skin faster, more thoroughly. Its two special softening ingredients make rough, red hands quickly smooth and white again!

Use Jergens whenever your hands have been in water, always after exposure to cold. Then your hands will have the tender softness that brings love!

### FREE! GENEROUS SAMPLE

Press for yourself how swiftly and thoroughly Jergens goes into the skin, conserves and renews the youth giving oils and moisture your hands need! The Andrew Jergens Co., 124 Alfred Street, Cincinnati, Ohio. (In Canada—Parr, Ontario)

Name  PRINT NAME  
Address

still assuring us of their desire to cooperate. Students of English composition will no doubt be interested in the use of the double negative. Or is it the triple negative?

"Considering that many millions of bottles of Jergens Lotion are used annually with no unfavorable reactions coming to our attention, it appears that Jergens Lotion is as nearly 'non-allergic' as anything can be and, also, it seems that few people in many millions are otherwise hypersensitive to its constituents.

"I regret, also, that we were unable to be of greater assistance to you in this particular instance. We are always glad, however, to cooperate to the fullest extent with the American Medical Association, physicians or other consumers."

Being thoroughly convinced by the last Jergens letter that the company's idea of cooperation, as compared to that held by the Bureau of Investigation, was like Kipling's "East is East and West is West," we gave up writing and purchased two original bottles of Jergens Lotion and submitted them to

the A. M. A. Chemical Laboratory for examination. The Laboratory reported:

"Two original bottles of Jergens Lotion (The Andrew Jergens Company) were submitted to the A. M. A. Chemical Laboratory by the Bureau of Investigation for examination.

"The bottles contained 190 cc. (approximately 6½ fluidounces) of a white, viscous, perfumed liquid. The mixture possessed an odor indicative of almond. The reaction toward litmus was found to be alkaline.

"No information concerning the composition of Jergens Lotion appeared on the label, except the following declaration:

"Alcohol 11%"

"Qualitative tests indicated the presence of glycerin, borates, salicylates, water and substance precipitable by alcohol, suggestive of tragacanth.

"From the foregoing tests, it was deemed not advisable to perform further work on the product. The Laboratory concluded that Jergens Lotion is essentially a white, perfumed, hydro-alcoholic preparation containing a mucilaginous substance such as tragacanth, glycerin, boric acid and salicylic acids."

It is hoped that the unfortunate sufferer with eczema recovered during the time consumed by the Jergens correspondence.

When we wrote our first letter, we were naive enough to believe that Mr. Ben Grauer would send the formula of Jergens Lotion forthwith. Those trained radio voices are so sincere. But we received no word from Mr. Grauer, no flash from Walter Winchell or even a tender from Dr. Adams of "Lotions of Love." Maybe we are just too inquisitive.

## Correspondence

### THAT GARLIC ODOR

To the Editor:—We have followed with considerable interest the articles and correspondence on garlic breath odors that have appeared in THE JOURNAL in recent months (Haggard, H. W., and Greenberg, L. A.: Breath Odors from Alliaceous Substances: Cause and Remedy, THE JOURNAL, June 15, 1935, p. 2160. Blankenhorn, M. A., and Richards, C. E.: Garlic Breath Odor, Aug. 8, 1936, p. 409. Haggard, H. W.: Eliminating Odor of Garlic, Sept. 12, 1936, p. 895. Blankenhorn, M. A.: Garlic Odor to Breath, Oct. 17, 1936, p. 1321). No one can seriously doubt that a considerable part of "garlic breath" may be due to retention in the mouth of tiny particles of garlic-tainted foods. Furthermore, as a result of experiments to be mentioned, we can confirm Haggard and Greenberg's experience that chloramine will deodorize these mouth particles. It seems to us that the crucial question to be answered is "When garlic is orally ingested in the customary manner, does a sufficient amount of its volatile oils accumulate in the blood to cause fouling of the breath?" Three different lines of experimentation have led us to the same answer to this question. These experiments comprised (1) the ingestion of garlic in double gelatin capsules, with observation of the appearance time and intensity of garlic odor on the breath, (2) the repetition of the foregoing supplemented by mouth cleansing, shown to be adequate after chewing of garlic, and (3) testing the breath of new-born babies whose mothers had received capsules of garlic during labor.

1. In twelve experiments on ten normal adults, garlic was ingested in gelatin capsules in doses of from 0.5 to 1.5 Gm. The capsules were freshly filled with slightly bruised kernels of raw garlic and were then enclosed in a second capsule so that no odor permeated to the outside. At least two observers, often more, noted the breath of each subject before and during the experiment. It seems superfluous to caution that a subject who has taken garlic cannot detect the garlic breath of others and therefore cannot serve as an observer. The dosage used was chosen because such amounts are frequently ingested in the dietary of certain large groups of our population and was that employed in comparable experiments by Haggard and Greenberg. The sense of smell alone was used to detect the presence of garlic odor. This extremely sensitive method is obviously adequate for the purpose of answering our proposed



Hans-Wilhelm Bausi, one of Golirbandt's co-workers, discussed the limitations of internal therapy in hyperthyreosis. Operative treatment is indicated if any of the following conditions are presented: paroxysmal tachycardia or absolute arrhythmia traceable to a cardiac lesion (but not an ordinary cardiac acceleration), cardiac dilatation, a hepatic lesion, compression of the trachea, manifest exophthalmos, incipient coma of exophthalmic goiter often appearing in the guise of myasthenia, and finally if the disorder has been present and has advanced for a period of from one year to one and a half years. Slightly increased basal metabolism is a contraindication of surgical treatment.

Ferdinand Sauerbruch contributed some important observations on this topic. He feels that severe exophthalmic goiter is virtually always attributable to a psychic trauma, and especially to a sexual complex in the widest application of the term, to childlessness, for example. In some cases the etiological factors are to be sought in the domain of the endocrines. Psychogenic cases should receive psychic and climatic treatment, but at the same time an indication for operation, a cardiac lesion, for example, should not be overlooked. Sauerbruch, like other clinicians, has wholly dispensed with radiotherapy; he found that it was rarely of material help and that its use rendered a subsequent intervention more hazardous. Operation should always be radical and only a small portion of the thyroid allowed to remain. Thyroidectomy must still be considered a major operation. Thyroxine has been recommended as a postoperative adjuvant.

Brief mention remains to be made of a session at which the question of virus was discussed. Kurt Herzberg, Düsseldorf hygienist, spoke of the great progress that has been made by the use of the most finely porous filters and by the further development of the types of virus cultures which are found only in living cells. It has also been possible to stain these agents and to visualize their propagation within the cells and even to measure their size (from 10 to 175 microns). Whether the virus should be considered a living substance is debatable, yet its ability to divide, for example, suggests an affirmative supposition. According to Otto Waldmann of Insel Riems, progress has also been made in the study of influenza and specifically in the discovery of a transmissible virus that, together with the influenza bacillus of Pfeiffer, produces influenza in man. It has been possible to cultivate this virus in vitro.

## ITALY

(From Our Regular Correspondent)

Oct. 31, 1936.

### Duodenitis and Splenomegaly

Professor Greppi in a lecture before the Accademia Medica of Rome spoke on several cases of suppuration of the spleen and sometimes also of the liver, complicated by duodenitis. The speaker discussed the significance of the association of gastro-duodenal and splenic diseases. Professor Frugoni of Rome asked if the liver is not of the same or of more importance than the spleen in the origin of duodenal disease. He said that in the majority of cases of hemorrhage, associated with chronic splenomegaly, the anatomic examination and the clinical symptoms (violent vomiting of blood) seem to point out that the hemorrhages are of esophageal and gastric origin rather than of duodenal.

Professor Matronola said that the roentgen examination of a patient showed the presence of a duodenal niche. In this case the presence of duodenal ulcer was suspected and the patient had intestinal hemorrhage. During operation no ulcer was found. The spleen was in a pathologic condition, and it was removed. The anatomic diagnosis could not be made by the histologic examination of the spleen and of a large ganglion,

which was removed during the operation. At present, the patient is suffering from slight jaundice, and he is under observation.

Professor Greppi said that he did not consider the association of the mentioned diseases as a new syndrome. He called attention to the fact that duodenal and pyloric disturbances frequently complicate splenomegaly and hepatomegaly in the same manner in which esophagocardial circulatory alterations occur. Duodenal and pyloric complications are associated with dyspepsia, gastric disturbances and hemorrhages. They originate on a congestive phlogosis of the mucosa and may simulate duodenal ulcer.

### Gastric Ulcer of the Lesser Curvature

Professor Durante of Genoa gave a review of a large number of cases of ulcer of the lesser curvature treated by surgery in the Ospedali Civili of that city. The operation of selection is gastric resection followed by reconstruction. There are, however, certain patients who cannot stand this type of operation because of poor general conditions. In these cases performing of a simple section of the vascular arcade of the juxta-ulcerous curve, a wedged resection with or without gastro-enterostomy or a longitudinal resection is indicated. The speaker made a comparative study of the results of wedged and longitudinal resection. He found that the results of resection in a saddle form, without gastro-enterostomy, are unsatisfactory. Frequently they are complicated by stenosis because of the proximity of the pylorus to the cardia or by the slight elevation of the pyloro-antral segment with consequent gastric dilatation and diminution of motility. In some cases the ulcer recurs at the segments near the point at which resection was made.

### Society Reunion

The Società Medico-Chirurgica of Pavia met in that city under the chairmanship of Professor Pensa. Professor Sala spoke on the collection of unpublished letters of Antonio Scarpa, the anatomist. He presented a motion on publishing Scarpa's letters in celebration of the fiftieth anniversary of the foundation of the society.

Dr. Pellegrini discussed the behavior of the cardiac output during experimentally induced fever. When the latter is high a condition of cardiovascular insufficiency appears which is analogous to vascular collapse rather than to cardiac hypodynamia. This behavior of the cardiac output is frequent although it may be lacking in some cases.

Drs. Ferrari and Bertola discussed some of the organic modifications induced by pneumoperitoneum. When small amounts of air are injected by the common technic, the modifications of circulation and respiration are slight and transient, the pulse rate diminishes, arterial pressure frequently diminishes and venous pressure does not change. Some of the organic changes that follow pneumoperitoneum can be included within the picture of transient and incomplete shock. The speakers reported, also, results of studies on the concentration of proteins in the blood serum and the velocity of sedimentation of erythrocytes. The former diminishes and the latter increases after performance of pneumoperitoneum. The changes of the proteins in the blood and of the velocity of sedimentation of the erythrocytes may be considered within a picture of hemoclastic crisis.

### Congress of the Medical Press

The Fourth International Congress of the Medical Press was held in Venice, presided over by Dr. Davide Giordano, a senator. The minister of national education was present. The first official topic discussed was "History of the Medical Press in Latin Countries." Official speakers on this topic were the delegates from Belgium, France, Spain and Switzerland. Professor Pazzini, the Italian delegate, described

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### DEATH FROM HYPERTYREXIA IN HEAT TREATMENT OF SYPHILIS

To the Editor:—For approximately six years I have had as a patient a man suffering from syphilis. When he first consulted me he had secondary manifestations and a four plus Wassermann reaction. He was given neosarsphenamine, intramuscular bismuth and mercury. A course of treatment consisted of twelve to fifteen weeks and then a rest period varying from four to six weeks, when a blood test was made to determine the progress. In December 1933 his blood Wassermann reaction was negative. At this time a spinal puncture was made and this was negative. I informed my patient that he was cured of syphilis so far as medical science was able to determine but advised blood tests every six months for the next three years. Later the patient moved to the east coast. He consulted me again in 1935 and stated that he had had no blood tests made while away. Wassermann, Kolmer and Kahn blood tests made at this time were all reported four plus. Not being satisfied with the report of one laboratory, I sent his blood to another. This report was the same. There was no history of new infection. Treatment was again instituted, it being the same as the earlier courses except that after a time I changed to marpharsen, giving him 0.06 Gm. once every week along with sodium iodide. But I was never again able to obtain a negative Wassermann reaction. A few months ago I called to this patient's attention the reports appearing in THE JOURNAL regarding the good results obtained by hyperpyrexia and had him read a few of these articles. We decided on this therapeutic measure. The patient's height was 5 feet 7 inches (170 cm.), weight 154 pounds (70 Kg.) and age 49 years. As far as I was able to determine he was in perfect physical condition. The blood pressure was normal. The urine was normal. There were no cardiac murmurs. The lungs were normal. There were no masses or tenderness in the abdomen. The reflexes were all normal. In other words, my impression was that I was dealing with a man in perfect health, his only disability being the reaction of the blood. He was particularly insistent that he obtain a negative Wassermann reaction if possible. Nov. 29, 1936, I had him report to a physical therapy technician who has given more than 500 hyperpyrexia treatments and has treated other patients of mine with excellent results. The method of application was through the electric blanket. The time, temperature by mouth and pulse were as follows:

Time	Temperature	Pulse
9:10 a. m.....	97 F.	80
9:42 a. m.....	98.4 F.	98
10:05 a. m.....	100.6 F.	108
10:20 a. m.....	102 F.	120
10:40 a. m.....	104 F.	138
10:45 a. m.....	104.4 F.	140
11:10 a. m.....	106 F.	104

At this time I gave the patient morphine sulfate one-fourth grain (0.016 Gm.) hypodermically, with instructions to hold the temperature at that level for three hours and then permit a gradual cooling off in the afternoon.

Time	Temperature	Pulse
11:45 a. m.....	106 F.	130
12:10 p. m.....	106 F.	132
1:00 p. m.....	106 F.	140

At that time the current was turned off, the blanket loosened and the patient permitted to cool slightly. At 2 o'clock his temperature was 105.8 and pulse 120. In the early afternoon I was called to a nearby city to see a patient suffering from angina pectoris. On my return I found that the patient had died at 2:55 p. m. At 2:20 his heart first showed evidence of weakness. Efforts were made to cool him rapidly. Stimulation was applied as much as a technician could apply. The postmortem was performed by the coroner on my refusal to sign the death certificate. The examination showed the brain, spleen, liver and kidneys to be normal, although the coroner did think that there was some evidence of myocardial weakness. The lungs showed passive congestion of the right lower lobe. Autopsy was performed by a surgeon of vast experience and his conclusions were that death was due to hyperpyrexia due to hypersusceptibility to heat being used in treating syphilis. Please omit name.

M.D., California.

ANSWER.—This case presents a complicated problem which does not lend itself to ready solution from the evidence presented. The patient appeared to be an excellent risk despite his age of 49 years, and the treatment seems to have been uneventful until 2 p. m. A satisfactory fever was produced within a reasonable time and was maintained at a constant level. The pulse rate as recorded was never alarming. In the absence of an excessive pulse rate the evidence of cardiac weakness is puzzling. Cyanosis, dyspnea or a poor volume pulse would have been preceded or accompanied by an increased pulse rate. At any event, something unusual was observed at 2:20 p. m. A satisfactory explanation of developments from this time until death supervened at 2:55 is impossible without further knowledge of details.

A temperature of 106 F. by mouth is equivalent to 106.6 or 106.8 by rectum. At such temperatures a moderate amount of physical exertion may cause a rapid elevation of fever. When the heart first showed evidence of weakness, the patient probably developed restlessness, mania or even convulsions, with a substantial increase in heat production due to muscular work and a rapid rise in body temperature. Efforts made to cool such a patient rapidly by applying cold to the skin produce marked vasoconstriction, effectively preventing heat radiation. What happened in this case is unknown, but the following sequence of events has been observed three times and may be analogous to the case under discussion: During the course of a fever treatment at 107 F. which had been well tolerated up to this time, the patient suddenly became restless and uneasy and the temperature began to rise. In ten or fifteen minutes the patient became disoriented and maniacal and soon lapsed into deep coma. While efforts at resuscitation were being made the respirations became shallow and infrequent, the blood pressure fell to a very low level, even to zero, and the peripheral pulse became imperceptible. The skin was hot and cyanotic and the rectal temperature rose to over 109 F. Precordial activity was increased and the heart was very rapid with a rate of 180 to 200 per minute, but the heart sounds were of good quality. Except for the fever and the hot and cyanotic skin, the condition strongly suggested profound surgical shock. With the prompt administration of epinephrine and caffeine with sodium benzoate and the injection of 100 cc. of 50 per cent dextrose solution intravenously the pulse volume improved, the blood pressure rose very promptly, and the patient came out of coma in a few minutes. If this condition simulating surgical shock was to persist for a short while, even from fifteen to thirty minutes, death from anoxemia probably would result.

In the case under discussion, undue restlessness may have resulted from impending tetany. Hyperventilation during fever therapy occurs as the result of stimulation of the respiratory center from direct heating of the skin. This may produce tetany because of the profound depression of the carbon dioxide content of the blood. Hyperventilation probably was not a factor here because of the morphine effect in depressing respiration. The loss of chlorides through the sweat may result in the production of alkalosis and tetany. It has been established that about 20 Gm. of sodium chloride is excreted through the skin during a five hour fever treatment. No mention is made of the fluid or chloride intake during the treatment.

It seems evident that death in this case was due to hyperpyrexia. The diagnosis of hypersusceptibility to heat, however, seems unreasonable. This patient was able to tolerate a very high body temperature for several hours. It seems likely that he died only after his body temperature reached an extremely high level, a level which frequently causes death in cases of heat prostration. Death probably resulted from anoxemia due to circulatory and respiratory collapse. A satisfactory pathologic diagnosis in such cases often cannot be made. Death occurs so rapidly that organic changes are scarcely to be expected and even passive hyperemia may be slight or absent. Because of the circulatory collapse, petechial hemorrhages are not produced.

### CLIMATIC CHANGE AFTER PNEUMONIA

To the Editor:—A youth, aged 17, had an attack of lobar pneumonia in December 1935, which was aborted by the use of bivalent antipneumococcus serum. Recovery was rapid, but three months later lobar pneumonia again developed. Because of a severe reaction during the administering of serum, this manner of treatment was not continued. A rather typical course ensued with the temperature returning to normal about the ninth day by lysis. The temperature remained normal for days, when he began to have severe pain in the right lower part of the chest anteriorly about the same site in which the process began. He raised bloody sputum and the temperature was above normal for about five days. The highest point it reached during this attack was 101 F. I thought this was a relapse. The chest signs have all cleared up and he seems to be in excellent condition. His family, which is in relatively moderate circumstances, has asked as to whether or not a change to a warmer and more equable climate would be advisable for the winter months. Such a change would be quite an economic strain. Please omit name.

M.D., West Virginia.

ANSWER.—Lobar pneumonia as a rule clears up completely or it leaves rather obvious complications. The question does not state the location of the first attack, but one wonders whether the entire process was not a continuation of the original infection.

It is true that some persons are much more susceptible to pneumococcal infection than are others, so information regarding previous attacks of pneumonia would have a bearing on this case.

Violent deaths accounted for 3 per cent of the total; by far the largest number of such fatalities were due to traffic accidents involving automobiles.

### The Antituberculosis Campaign

Included in the annual report of the Antituberculosis Society of Amsterdam is a résumé by Mr. Heynsius Van Den Berg of the society's activities during 1935.

The results have been gratifying. The mortality from all forms of tuberculosis has declined from 4.88 to 4.34 per 10,000 of population and the mortality from pulmonary tuberculosis has declined from 3.54 to 3.4.

In 1918 the corresponding figures were still 22.65 and 18.03, respectively.

The present figures for Amsterdam (5.25 and 3.75) are among the lowest in the world and are still below the rate for the entire kingdom.

An extended examination was made in the course of the same year (1935) in order to ascertain the earliest stage of life at which tuberculosis may be detected. The subjects were infants and young children aged from 0 to 4 years. Establishment of a tuberculous condition was possible in 50.8 per cent of the children.

Miss Ruys has been able to determine at Amsterdam that in 12.9 per cent of tuberculosis cases among children, infection from bovine bacilli has taken place.

### BUENOS AIRES

(From Our Regular Correspondent)

Nov. 1, 1936.

#### Action of Acetylcholine

Prof. A. Lanari, in a lecture before the Sociedad Argentina de Biología, reported on the reactions of the muscles of the forearm and the hand following the injection of 0.04 Gm. of acetylcholine in the humeral artery at the level of the fold of the elbow. In muscles with the electrical reaction of degeneration, a contracture that lasts for half a minute takes place. In hemiplegic pyramidal contracture the contracture in flexion is exaggerated. In extrapyramidal rigidity there is either no contracture or only a slight flexure of the hand and the fingers. In myotonic myopathy a local intense contracture is obtained. In normal persons and in progressive muscular dystrophy no contracture takes place. In normal persons and in persons who recently have had sympathectomy performed, local pain, rubor, perspiration and increase of the arterial oscillations take place. In some persons who have had sympathectomy performed several months before administration of acetylcholine injection, pain and slight rubor persist, perspiration is lacking and the arterial oscillations diminish (which shows vasoconstriction of the arteries and arterioles).

#### Hospital Physicians To Be Paid

The campaign carried on by more than 2,000 physicians of Buenos Aires who up to the present have given their services to the public in the hospitals of the city without any remuneration has succeeded. A bill has been approved by the national congress by which an allowance of 5,000,000 pesos (about \$2,500,000) will be given every year from now on to pay physicians in public hospitals for the work they do.

#### Society News

The first Argentinian Congress of Ophthalmology, which was organized by the Sociedad Argentina de Oftalmología and presided over by Dr. Damel, took place recently in Buenos Aires. Ophthalmologists from Brazil, Uruguay and Bolivia were present at the congress.

The second Medico Gremial Argentinian Congress took place in Buenos Aires, October 30. The following topics were dis-

cussed: economic distress of physicians, biologic conditions of the average population (food, salary, housing and work), unification and coordination of medical services, societies of mutual insurance and of medical cooperation, social work and medical studies. The problems that originate in the plethora of physicians and in the interference of the state in controlling the administration of medical services were discussed. The meetings lasted longer than was expected because of the many articles presented and the breaking in of speakers with political or social views into the discussions.

The eighth Argentinian Congress of Surgery took place in Buenos Aires, October 4. Dr. Alejandro Ceballos was the chairman. An exposition with surgical instruments, items of pathologic anatomy and roentgenograms in connection with the subjects discussed was opened. The topics discussed were renal lithiasis, tuberculosis of female genital organs and cancer of the rectum.

#### Personals

Professors Castex, Houssay, Arce and Martinez have been appointed members of the Academia Rumana of Medicine.

Prof. B. A. Houssay has been given the degree of Doctor honoris causa by Harvard University. Dr. Houssay was invited to Cambridge to participate in the celebration of the three hundredth anniversary of the university. He has also been given the degree of Doctor honoris causa by the University of São Paulo and named one of the seventy members of the new group Pontificia Academia Scientiarum of Rome.

The national prizes of medical sciences of 1931 and 1934 were awarded as follows: The first prize, 20,000 pesos (about \$10,000) to Prof. Pedro Belou for his studies of the arterial system. The second prize of 12,000 pesos (about \$6,000) was given to Prof. Enrique Hug of Rosario for his studies on hydrocyanic poisoning and its treatment. The third prize of 8,000 pesos (about \$4,000) was given to Dr. O. Ivanisovich for his work on hydatidosis of the bones.

Drs. Mario Soto, Osvaldo Loudet and Marcelino Sepich were appointed professors of pharmacology and therapeutics, psychiatry and neurology, respectively, at the new faculty of medicine of La Plata.

#### Deaths

Dr. Juan Carlos Navarro, ex-president of the National Academy of Medicine and extraordinary professor of pediatrics, is dead.

Dr. José Borda, ex-professor of psychiatry and former director of the Hospicio de las Mercedes and member of the National Academy of Medicine, is dead.

## Marriages

JAMES HAROLD MACART, East Orange, N. J., to Miss Beatrice Elsa Birkenhauer of Maplewood, in Newark, Sept. 12, 1936.

ALMER RUSSELL AANES, Red Wing, Minn., to Miss Irene Lucille Persgard of Duluth, in Minneapolis, Sept. 26, 1936.

SAMUEL M. BEALE JR., Sandwich, Ont., Canada, to Miss Mabelle H. Slayton in New York, Oct. 2, 1936.

JOHN RAYMOND MALLOY, Brattleboro, Vt., to Miss Bernice Harriet O'Neal of Waterbury, Conn., recently.

RUSSELL EVAN MORGAN, Annville, Pa., to Miss Elizabeth Johanna Wenzinger of Philadelphia, recently.

EDWARD LEE GILBERT to Miss Ernestine Flynt, both of Winston-Salem, N. C., in October 1936.

LEWIS W. GLATZAU to Mrs. Winnifred McDonald, both of Daytona Beach, Fla., Nov. 12, 1936.

RUDOLPH FARMER, State Park, S. C., to Miss Bernice Turner in Columbia, Sept. 25, 1936.

JAMES FORTIN MINNES to Miss Margaret Whitehead, both of Baltimore, Oct. 3, 1936.

it is better to avoid the use of milk of this type. As this is not always possible, such milk should be boiled before being used in the feeding mixture. In most instances, the changes are in all probability physical, for in the freezing of the water the emulsion breaks and the fat becomes separated. When the milk is thawed, the fat globules coalesce and form a thick layer of butter fat which may cause a gastric and intestinal upset. Milk that has been frozen is less likely to show changes in the fat emulsion if the process of thawing goes on slowly in a cool room. Pennington and her collaborators also found that changes occurred in the protein of milk that was held for a considerable period at a temperature of 0 C. These changes resulted in proteolysis of the casein and of the lactalbumin."

#### IRRITATION FROM BENZEDRINE INHALER

*To the Editor:*—A man, aged 26, during the course of half an hour, took twelve large sniffs from a benzedrine inhaler, in spite of the warning not to overdose. The usual clearing of the nasal passages occurred. One hour later, on going out into the open air, he was suddenly seized with an attack of violent sneezing, a burning, stinging, itching and sharp intermittent lancinating pain, which passed through his nose and up into the frontal region, together with severe lacrimation and a profuse seromucous discharge from the nasal passages. The sneezing was relieved by mouth breathing but the other symptoms persisted. There was no feeling of anxiety and no other symptoms were noted. The patient had just recovered from a severe cold and sinusitis of about ten days' duration, during which time he had used the benzedrine inhaler according to directions. He had not used the inhaler for about four days prior to the present episode. Examination revealed a markedly injected conjunctiva, hyperemic nasal mucosa and much swollen turbinates. There was profuse lacrimal and nasal secretion. The temperature was 98.6 F., pulse 108, respiration 18. The blood pressure was not taken but as estimated by palpation was slightly elevated. Physical examination was not remarkable otherwise. Smears revealed the absence of eosinophils. One and one-half hours after the onset, the patient was given atropine  $\frac{1}{120}$  grain (0.5 mg.) for relief of profuse secretion, and liquid petrolatum was dropped into the nose. The atropine only served to increase the discomfort by adding to the dryness when the patient breathed through his mouth. The liquid petrolatum had no effect. Three hours after the onset the nasal mucosa was sprayed with epinephrine and 0.5 per cent cocaine solution. These failed to shrink the turbinates and the hyperemia persisted, but the anesthetic properties of the cocaine relieved the distressing symptoms for about forty-five minutes. Epinephrine 1:1,000 hypodermically had no effect in relieving the symptoms. The burning, itching, stinging, lancinating pain, lacrimation and hyperemia have persisted for forty-eight hours but have decreased slightly in severity. No relief has been obtained except through the use of 0.5 per cent cocaine. Consultation of the literature in the local medical library has revealed nothing in the way of therapy. Can you offer any suggestions as to therapy in future cases of this sort? Is it logical to assume that the overdose of benzedrine was responsible for the symptoms and what was the nature of the action? Could it be that the menthol in the inhaler was responsible? Is benzedrine habit forming? Thank you for any information you may offer.

M.D., Ohio.

*ANSWER:*—The symptoms described are obviously due to irritation, which might have been caused by the rather excessive use of the inhalant or might have been due indirectly to the medicament but directly to the extension of inflammation that was present. A soothing mucous membrane ointment containing tragacanth or even cold cream, possibly with the addition of a small amount of cocaine, might give the greatest degree of relief. Benzedrine is not habit forming in the sense a narcotic is; but, of course, it is merely a symptomatic remedy and does not cure the disturbance.

#### USE OF ELECTROCARDIOGRAPH IN DETERMINING AURICULAR AND VENTRICULAR RATES

*To the Editor:*—Please state methods for determination of auricular and ventricular rates from electrocardiographic tracings. Please omit name.

M.D., West Virginia.

*ANSWER:*—The modern electrocardiograph is equipped with a standard timer which produces vertical lines at intervals of 0.04 second. Every fifth vertical line is registered heavier and marks intervals of 0.2 second. Some electrocardiographs with motors run by clockwork have omitted the time lines, the time being obtained by inserting the record under a transparent scale which the manufacturers have provided. There are two common methods used to estimate the heart rate. The first is to determine the time interval for a number of beats between homologous points on the QRS complexes, in the case of ventricular rate, and on the P waves for auricular rate, and from these compute the average. The heart rate can then be determined by dividing sixty seconds by the duration of the average cycle. The second method is to determine the number of beats occurring in five, ten or fifteen seconds and then multiplying by 12, 6 or 4 respectively; in this way the average rate may be obtained. Rulers have recently been marketed by which

the latter method is facilitated, but these rulers require that the camera speed be at a fixed and uniform rate. When the auricles are fibrillating the calculation of the fibrillating rate is more difficult, but approximations may be obtained in the leads in which the fibrillating waves are clearly discernible. When the rhythm is disturbed by ectopic beats, it is customary to ignore these beats and determine only the rate of the predominant rhythm.

#### CRYING OF FETUS IN UTERO

*To the Editor:*—On the morning of Sept. 30, 1936, I had an obstetric call to a patient who had had no antepartum care, was anemic, and had the appearance of having uremic poison. Eighteen hours prior to this she had had an opiate. On making a vaginal examination, I found a breech presentation in the cervix dilated about 2 inches in diameter. While I was examining the patient, the amniotic sac ruptured. I waited two hours and no progress had been made. The patient being too weak to deliver, I decided to try forceps. Just as I had everything ready and the nurse started to give the anesthetic, the baby began crying; it could be heard all over the room and by an uncle in the adjoining room. We postponed giving the anesthetic, because it was such an unusual occurrence. It cried for three minutes and then there was a pause for about two minutes; then it started crying again, this time for about two and a half minutes. At this time the cervix had not dilated any more than at my previous examination two hours prior. There was no part of the baby's body out of the uterus and I questioned whether I was going to be able to deliver her at this time without considerable difficulty on account of the cervix not being dilated any more than it was. I delivered the baby and it weighed 6½ pounds (2.9 Kg.). It was a normal healthy baby and the mother recuperated nicely. I have never heard of a case like this before and wondered whether any one else had ever had the same experience. The father stated that the baby had cried three months before, but there is no proof of this. I know that the baby cried in the uterus during delivery and have three people who will sign affidavits to this effect.

J. H. CORBETT, M.D., Jasper, Fla.

*ANSWER:*—There are many cases of crying by the fetus in utero. Vagitus uterinus is the term for it. When air gains access to the uterus (as it did in this case during the time the examination was made) the baby may inspire some and emit cries. Usually the babies are dyspneic and therefore breathe, but cases are on record in which the baby was well (as in the case reported) and was delivered even several days after the crying episode.

Kristeller reported a case in which the child cried each time the forceps was closed on its head, eight times in all. It is said that Mahomet and St. Bartholomew cried while in the uterus. Unless the child shows signs of distress, the case should be left to nature. The subject has been discussed by von Klein (*Monatschr. f. Geburtsh. u. Gynäk.* 60:154 [Oct.] 1922).

#### COMPOUND SPIRIT OF HORSERADISH

*To the Editor:*—Several years ago I used to write a prescription containing compound spirit of horseradish made from the dried root, but now it seems the druggists can't get this made from the dried root. Do you know where I might procure this, because I can't possibly use the fresh root spirits? The druggist who filled this prescription is dead, and I have no idea where he got the dried root. If you can give me this information I will very much appreciate it.

FRANKLIN H. BROYLES, M.D., Bethany, Mo.

*ANSWER:*—The compound spirit of horseradish, spiritus armoraciacae compositus, is made, according to the British Pharmacopoeia, from

Horseradish root, scraped.....	125 Gm.
Dried bitter orange, well bruised.....	125 Gm.
Nutmeg, bruised .....	31.5 Gm.
Alcohol .....	625 cc.
Distilled water .....	750 cc.

This mixture is subjected to distillation until 1,000 cc. is secured. It is obvious that it is the fresh and not the dried root that is desirable, because the latter would have but little of the volatile products. If, however, the spirit made from the dried root is desired, it is barely possible that the dried root might be secured from some dealers; but, if not, there is no reason why horseradish root might not be dried before being used.

#### TETANUS ANTITOXIN AND TOXOID

*To the Editor:*—Please advise me how long continued the effect of tetanus antitoxin is and how frequently it may be administered in cases warranting its use on account of receipt of new injuries, as a prophylactic measure. The standard textbook on medicine and therapeutics which I have referred makes no mention of the duration of the passive immunity conferred by use of this agent.

FRED M. DULA, M.D., Lenoir, N. C.

*ANSWER:*—The passive immunity conferred by tetanus antitoxin lasts for a period up to six weeks but should not be depended on for more than two weeks. For the production of more permanent protection, tetanus toxoid should be employed.

during the World War; aged 69; died, Nov. 15, 1936, in the Harper Hospital, Detroit, of carcinoma of the bladder.

**James Francis Lawson**, Chicago; Howard University College of Medicine, Washington, D. C., 1907; served during the World War; member of the city board of health; aged 51; died, Nov. 3, 1936, in the Veterans Administration Facility, Hines, Ill., of hypertension and valvular heart disease.

**Bertram Goldstein**, New York; University and Bellevue Hospital Medical College, New York, 1923; member of the Medical Society of the State of New York; on the staffs of the Gouverneur Hospital and the Beth David Hospital; aged 37; died, Nov. 19, 1936, of pulmonary tuberculosis.

**John Robert A. Whitlock** Ⓢ Powell, Wyo.; Medical College of the State of South Carolina, Charleston, 1899; president and formerly secretary of the Wyoming State Medical Society; president of the Whitlock Hospital; aged 64; died, Nov. 23, 1936, of cerebral hemorrhage.

**William B. Percival**, Pasadena, Calif.; Medical College of Ohio, Cincinnati, 1883; professor of chemistry and toxicology, University of Southern California School of Medicine, Los Angeles, from 1884 to 1885; aged 75; died, Oct. 7, 1936, of paralytic ileus and chronic myocarditis.

**John Walter Hardy Jr.** Ⓢ Joplin, Mo.; Northwestern University Medical School, Chicago, 1929; secretary of the Jasper County Medical Society; on the staffs of St. John's and the Freeman hospitals; aged 33; died, Nov. 8, 1936, of injuries received in an automobile accident.

**Francis Adams Barber**, Clear Lake, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1911; member of the Iowa State Medical Society; aged 70; died, Nov. 4, 1936, in Rochester, Minn., of cholecystitis with stones and pulmonary atelectasis.

**Robert William Petrie** Ⓢ Murphy, N. C.; University of Maryland School of Medicine, Baltimore, 1903; fellow of the American College of Surgeons; aged 60; owner and medical superintendent of the Petrie Hospital, where he died, Nov. 17, 1936, of acute myocarditis.

**Walter Thomas Woolley** Ⓢ Seattle; Harvard University Medical School, Boston, 1904; for many years district chief medical examiner of the New York Life Insurance Company; aged 59; died, Nov. 9, 1936, in the Maynard Hospital, of cerebral hemorrhage.

**Henrietta Pauline Johnson**, Bath, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1892; formerly medical inspector in public schools in New York; aged 96; died, Nov. 1, 1936, of chronic myocarditis.

**Arthur Edmund Southward**, Seattle; Bellevue Hospital Medical College, New York, 1896; member of the Washington State Medical Association; aged 62; died, Oct. 23, 1936, in the Virginia Mason Hospital, of poison, self administered.

**John Lyman Beard** Ⓢ Santa Monica, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1913; aged 48; died, Nov. 9, 1936, in the Alta Bates Hospital, Berkeley, of chronic myocarditis and nephritis.

**Herbert W. Lewis**, Dumbarton, Va.; University College of Medicine, Richmond, 1903; member of the Medical Society of Virginia; aged 59; died, Oct. 16, 1936, of pulmonary edema and coronary occlusion.

**Erasmus E. Birney** Ⓢ Nora Springs, Iowa; College of Physicians and Surgeons, Keokuk, 1887; aged 80; died, Nov. 4, 1936, of cerebral hemorrhage, arteriosclerosis and heart disease.

**John Robin Blair**, Richmond, Va.; University College of Medicine, Richmond, 1908; member of the Medical Society of Virginia; aged 53; died, Nov. 1, 1936, of nephritis.

**Harold Henry Beiermeister**, Needham, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1909; aged 52; died, Nov. 6, 1936, of coronary occlusion.

**Edward Truman Boyes**, Hamilton, Ont., Canada; Trinity Medical College, Toronto, Ont., 1890; aged 74; died, Nov. 20, 1936.

**Clarence E. Axline**, Peoria, Ill.; Louisville (Ky.) Medical College, 1881; aged 80; died, Nov. 1, 1936, of arteriosclerosis and myocarditis.

#### CORRECTION

The information in THE JOURNAL, Dec. 5, 1936, page 1908, that Dr. William Edgar Hover of Sarasota, Fla., was a graduate of the Medical School of Maine, Portland, 1888, was incorrect. It should have been Medical College of Ohio, Cincinnati, 1888.

## Bureau of Investigation

### JERGENS LOTION

#### A Lesson in the Art of Correspondence

The Andrew Jergens Company, makers of "Jergens Lotion" and radio sponsor for gossip Walter Winchell, just will not say what is in it, even to help out a lady who seems sensitive.

The Bureau of Investigation received from a dermatologist a letter which read:

"I have a patient with contact eczema resulting from Jergens Lotion, 'patch test' positive. Can you tell me the ingredients, also percentage of glycerine et al. contained in it?"

The Bureau maintains files regarding all sorts of proprietary preparations. The first item in the Jergens collection was a 1914 soap wrapper bearing a reproduction of the "neckless head" of John H. Woodbury, with the word "Dermatologist" beneath his signature. Attached was a 1903 advertisement of the John H. Woodbury Dermatological Institute of New York City, promising permanent and safe removal of "freckles, tan, moth blotches, liver spots, moles, warts, tattoo, powder or birth marks, superfluous hair, scars, wens, cysts, and all disfiguring, humiliating blemishes, on, in or under the skin, without leaving a trace of their former existence."

Next came a clipping from the *Oil, Paint and Drug Reporter* of Oct. 30, 1922, detailing some litigation between the Andrew Jergens Company and William A. Woodbury, Inc., in which it was brought out that in 1901 the Jergens Company acquired from John H. Woodbury and the Woodbury Dermatological Institute the right to make facial soap and toilet preparations, with the right to use the "neckless head" trade-mark.

So a letter was written to the Jergens Company on Oct. 16, 1936, stating, in substance, that our files seemed to contain no data on Jergens Lotion, and that we would appreciate some information on the subject. On October 20 the Jergens Company replied:

"A satisfactory reply to your letter of October 16th is difficult because we have no idea what it is your correspondents wish to know about Jergens Lotion.

"If you can particularize it, we shall be glad to endeavor to supply a suitable answer.

Your truly,  
THE ANDREW JERGENS CO.  
(Signed) Robert V. Beucus  
Advertising Manager"

RVBeucus  
EG

The reason for not particularizing in our first letter to the Jergens Company arose from a desire to spare the feelings of Mr. Ben Grauer, commercial announcer on the Walter Winchell-Jergens Program. Having frequently listened to that gentleman lamenting the disadvantages of red and chapped hands, we were afraid of the acute mental shock Mr. Grauer would suffer on learning that a case of contact eczema had developed following the use of Jergens Lotion. He sounds just that sincere on the air. However, being forced to "particularize," we wrote:

"I regret that I did not make myself clear in my letter to you of October 16 regarding Jergens Lotion. We should like to have information regarding the ingredients contained in Jergens Lotion. It is not necessary, however, to have the exact amounts."

We then received the following letter, dated October 24, from Philip D. Adams, Ph.D., of the Jergens Company:

"Mr. R. V. Beucus has just placed before me your own and his correspondence of October 16th, 20th and 22nd, relative to the constituents of Jergens Lotion, with the request that I take up the matter for further cooperation with the Bureau of Investigation. For obvious reasons, we do not disclose the composition of Jergens Lotion.

"Having already examined all the known reports on the pharmacologic effects of Jergens Lotion constituents and, with the guidance of our advisory dermatologists, it is very likely we can supply satisfactory information to you on all other specific inquiries.

"In a preliminary way, we can assure you of the following: Jergens Lotion contains no metallic substances, as mercury or lead; it contains no substances to which many people are allergic or hypersensitive, as proteins or their decomposition products; it contains no materials such as hormones or other animal organ extracts.

"If we can in any way cooperate further with the Bureau of Investigation, please write me again concerning your specific inquiries."

Being considerably confused by the Jergens idea of cooperation, we wrote to Dr. Adams on October 27 as follows:

"I appreciate having your letter of October 24, but am sure you realize that it contained no information of value to this Department. Knowing what something does not contain is of little use in answering inquiries.



University of Michigan Department of Medicine and Surgery.....	(1913)	Michigan
University of Cincinnati College of Medicine.....	(1932)	Ohio
University of Pennsylvania School of Medicine.....	(1928)	N. B. M. Ex.
Meharry Medical College.....	(1922)	Alabama
Vanderbilt University School of Medicine.....	(1934)	N. B. M. Ex.
University of Virginia Department of Medicine.....	(1931)	Maryland,
(1933) Virginia		

\* Verification of graduation in process.

## Book Notices

**Modern Treatment of Diseases of the Respiratory System.** By A. Lisle PUNCH, M.B., M.R.C.P., Senior Physician, Royal Northern Hospital, and F. A. Knott, M.D., M.R.C.P., D.P.H., Director of Bacteriological Department and Lecturer in Bacteriology to Medical and Dental Schools, Guy's Hospital. Cloth. Price, \$5. Pp. 295, with 127 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

This volume is a practical handbook for the physician. The first eleven chapters are devoted to nontuberculous conditions of the upper respiratory tract, lungs, bronchi and pleura. Although emphasis is placed on the treatment of these conditions, considerable space is given to diagnosis and prevention. The diagnostic and therapeutic values of iodized oil and the methods of administration are fully discussed and the subject is illustrated by roentgenograms of the chest after iodized oil has been introduced. In the chapter on bronchial asthma and hay fever, considerable emphasis is placed on desensitization. The chapter on pneumonia presents the modern methods of treatment, such as serum therapy, administration of oxygen, and blood transfusion. Artificial pneumothorax is given a place for the almost instant relief of pain but is not thought to have any beneficial influence on the pneumonic process itself. A profusely illustrated chapter is devoted to intrathoracic tumors, and the more modern methods of diagnosis are adequately described. The various fungous diseases, asbestosis, silicosis, syphilis and fibrosis of the lung are included in one short chapter. Eighty-eight pages are devoted to chronic, pulmonary tuberculosis, in which diagnostic points are presented and the various methods of treatment described. Tuberculosis among children is described under the term "epituberculosis," which in reality is a part of the primary complex. Attention is called to the fact that this condition "invariably clears up without special treatment." Under the subject of artificial pneumothorax the ambulatory method of treatment, which is rapidly gaining in popularity in this country, is considered of value when it is impossible for the patient to be hospitalized or to remain in bed long at home. A good many workers in the United States will disagree with the statements concerning the length of time artificial pneumothorax should be continued, particularly in advanced cases with large cavities. The authors look on sanatorium treatment as only the first step in the management of the tuberculous patient and call attention to the care that must be provided after discharge from the institution. All the modern surgical procedures employed in the treatment of pulmonary tuberculosis are presented. In discussing the prevention of tuberculosis, the authors make the following statement: "Therefore application of BCG in the prevention of systemic tuberculosis in man is still unattempted in this country. The situation presents most difficult problems, and these are as yet sufficiently far from practical solution to make it unlikely that BCG or any allied preparation will in the immediate future be advocated for use by practitioners in England."

**Begabung im Lichte der Eugenik: Forschungen über Biologie, Psychologie und Soziologie der Begabung.** Von Dr. Josef Somogyi, Hochschulprofessor in Szeged. Paper. Price, 14 marks; 22.68 Austrian schillings. Pp. 518, with 47 illustrations. Leipzig & Vienna: Franz Deuticke, 1936.

Although this is a Hungarian work, it follows the Teutonic pattern of massiveness and thoroughness and treats largely with literature of the subject rather than with original research. The author has made a thorough study into the subject of special talents and, as the title indicates, has approached it from the standpoint of eugenics. The subject of talent is taken up from almost every point of view. The volume begins with a discussion of the genetics of talent, discussing heredity and eugenics with particular regard to psychologic features. The author takes up the matter of talent from the standpoint of body build and associated physical characteristics, laying great

stress on Kretschmar's work, and he interrelates with this part a discussion of talent as found in the various races.

The second of the three main divisions of the book takes up in great detail the matter of psychologic traits such as intelligence, emotional factors and the various degrees of talent, with special reference to genius. There is a discussion of the various means of testing talent and also a discussion of the classification of different types of talented individuals. The point of view of the psychologic part of this volume is rather conventional. There is little included which cannot be found in other works, such as that of Terman, dealing with genius, yet one can find here a thorough analysis of the literature in French, German and English. While it is possible that the American work which has been done on this subject has been somewhat neglected, it cannot be gainsaid that Somogyi has touched on most of the important material. He does not hesitate to cite parallelisms determined on lower animals and he also presents historical and other material which, although related, is not strictly scientific.

The last part of the work deals with the sociological angle of the problem of talent. In his introduction the author stresses the fact that this is a democratic world and that, while all people are given an equal chance to develop, those with talent seem to get further, and it is worth while making a study of what it is that makes these people stand out. Since that is the angle which he takes, one can see that a sociological presentation in which he discusses individual and family relationships, group and race characteristics, and other similar features must be of importance.

Somogyi closes the book with a discussion of his ideas on what should be done about developing talent. He points out the need for the eugenic approach to induce the improvement of inherent characteristics, and also an educational approach for the development of existing talent. He has done an excellent and thorough piece of work, and much material is collected here which cannot be found easily in any other single volume.

**A Textbook of Obstetrics.** By Edward A. Schumann, A.B., M.D., F.A.C.S., Professor of Obstetrics, School of Medicine, University of Pennsylvania. Cloth. Price, \$6.50. Pp. 780, with 581 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

The author has succeeded in writing a book on obstetrics which seems to omit little, if anything, of much practical importance. It is about half the size of the usual textbook of obstetrics. This has been accomplished by leaving out discussions of unproved theories and limiting those on the historical side of obstetrics. Great weight has been given to the mechanics of childbirth and its common complications, but the rarer conditions are only briefly sketched. The book is well illustrated. Among the numerous and fitting illustrations, one recognizes many that have been adapted from other books, but always with the proper credit line. There are chapters on the physiology of the fetus, the physiology of pregnancy, the diagnosis of pregnancy, the anatomy and physiology of labor, and the conduct of labor. In the chapter on analgesia and anesthesia in obstetrics, it is stated that the morphine-scopolamine combination was first advocated by Steinbuechel in 1902 and was much lauded by Gauss in 1906, who coined the happy term "dammerschlaf," or twilight sleep. Unfortunately the lay press took up the subject of relief of pain during labor and exaggerated its successes. The author believes, however, that morphine and scopolamine, with a modification of the original conduct of twilight sleep, gives more uniformly satisfactory results than any other form of analgesic agent of which he has knowledge. He also discusses the Gwathmey method, the use of nitrous oxide and oxygen, the use of the barbiturates, the use of ether, chloroform or ethylene, and spinal anesthesia. There are chapters on the toxemias of pregnancy, abortion, the extra-uterine pregnancy, placenta praevia, anomalies of the birth canal, postpartum hemorrhage, puerperal sepsis, injuries and accidents of the infant, the obstetric forceps, and others.

The maternal mortality during the process of reproduction is said to vary from 0.4 to 0.7 per cent throughout the civilized world; in spite of the improvements in obstetric methods and teaching, these figures have not been lowered appreciably during the past quarter century. Lea has said that advances in sepsis and in surgical technic have been nearly balanced by the increased tendency to unwise operative intervention as the result of the confidence inspired by these advances. The author's object in preparing the book was to present the art and science

question. In the last analysis, it is the olfactory sense which determines whether or not a person who has eaten garlic is guilty of "offensive breath."

In all twelve experiments, the garlic odor unquestionably appeared on the breath. The appearance time varied from twenty to 120 minutes after ingestion of the capsules. The odor increased in intensity for from one to two hours, maintained a plateau of varying duration, and then gradually waned. The longest persistence of odor noted was twenty-six hours. No definite correlation was found between dosage and appearance time, intensity or duration of odor. In five of the experiments on four subjects, the encapsulated garlic was given directly after a large meal, and the results could not be differentiated from those in which the vegetable was taken on an empty stomach. In two instances the garlic odor was detectable in single specimens of urine passed several hours after ingestion of the capsules.

The fact that there was no odor detectable for some time after swallowing the capsules would appear to rule out any contamination of the mouth or throat. Several subjects were asked to belch soon after swallowing the capsules, and at such times a strong garlic odor was momentarily detectable. The transient character of this odor indicates that regurgitation of this sort does not contaminate the mouth. The exhaled air, therefore, would seem to be the source of the garlic odor noted in all these experiments.

2. Another group of experiments leads to the same conclusion. In each of two subjects, 1 Gm. of garlic was thoroughly chewed and then spit out; the breath was immediately and markedly fouled. Vigorous gargling and brushing of the teeth for five minutes with 50 cc. of a 1 per cent solution of freshly prepared chloramine (Chlorazene, Abbott) completely and permanently removed the odor. Three other subjects were now given garlic in capsules in the dose of 1 Gm., and as soon as the garlic odor was detected on their breath the chloramine washing was performed. Although the chloramine odor was sufficiently pronounced to prevent completely the detection of the garlic odor for from twenty to forty-five minutes, the latter was again strongly apparent after the mouth-wash odor faded. The garlic odor is obviously coming from some source not reached by chloramine; i. e., the expired air. It appears that chloramine can remove only that fraction of the garlic odor which is contributed by the mouth contamination by the vegetable and masks but temporarily the part contributed by the volatile oils excreted from the blood through the lungs.

3. Finally, a third group of experiments was performed, suggested by Dr. W. C. Moloney in his communication to *THE JOURNAL* (Sept. 5, 1936, p. 809). We are indebted to Drs. A. H. Morse and Herbert Thoms for the privilege of using the obstetric wards for certain of these tests. In eight women in the first stage of labor, garlic was given orally in capsules in the manner outlined, in doses of from 1 to 1.5 Gm. In each case the breath was previously free of any garlic-like odor. The patients had not ingested solid food for at least four hours. The same results as recorded for the larger group were observed in these cases; the garlic odor was quite evident within twenty to eighty minutes. These eight patients were delivered of living babies from twenty-five minutes to twenty-one hours after ingestion of the capsules. On the breath of six of the eight babies, garlic odor was definitely present. This was verified in each instance by at least four neutral witnesses who had no knowledge of the experiment. Numerous other new-born babies were used as controls, and in no instance was any control baby mistaken for a garlic subject. Anesthesia odors were not involved, as only nitrous oxide-oxygen was used, and then in only four of the cases. The garlic odor persisted on the breath of the infants for from four to twenty hours. In the two negative experiments, one child was delivered twenty-five minutes after the mother took the garlic and at a time when her breath

was as yet but feebly tainted; in the second case the delivery occurred after twenty-one hours, when the mother's breath no longer showed the odor. It must be obvious that the volatile oils in garlic not only accumulate in the mother's blood in sufficient concentration to taint her breath by excretion through the lungs but also to pass the placental barrier and "perfume" the breath of the fetus. The problem of mouth contamination is excluded by these experiments.

From these data, in conjunction with what is already known about the absorption, fate and excretion of the volatile oils of garlic, it is apparent that the garlic breath odor after the oral ingestion of the vegetable is due not only to contamination of the mouth by particles of garlic but also in part to the absorption of these oils from the intestinal tract into the blood, their transportation to the lung capillaries, and consequent excretion into the alveolar air. The latter factor alone, under the conditions of our experiments, can result in fouling of the breath which is not obliterated by specific mouth washes. In the light of this evidence, it appears possible in agreement with Blankenhorn and Richards to answer the postulated question only in the affirmative.

We have discussed at length these results with Drs. Haggard and Greenberg and they agree with us that the problem is largely a quantitative one; that is, that the main and immediate odor after eating garlic is due to mouth contamination and that the odor contributed by the blood depends on numerous factors, all of which determine the final concentration of volatile oil reached in the blood. The most important of these factors, naturally, is the amount of garlic ingested. Again, the expressions "fouling" and "offensive breath" are certainly terms which are open to different interpretations. To have a faint garlic odor on one's breath which can be detected only by intimate contact is obviously quite a different matter than contaminating the air of an entire room.

We have done no experiments with onions, but Drs. Haggard and Greenberg permit us to report their recent finding that 30 Gm. of raw domestic onion can be swallowed in capsules and no odor detected on the breath.

LOUIS GOODMAN, M.D.

PHILLIP BEARG, B.A.

New Haven, Conn.

Laboratory of Pharmacology and Toxicology,  
Yale University School of Medicine.

#### SALMONELLA SUIPESTIFER

To the Editor:—The communication from Dr. John R. Mohler in the Nov. 21, 1936, issue of *THE JOURNAL*, the second of two communications on the subject which you have received, referring to an article (*THE JOURNAL*, Aug. 1, 1936) by the undersigned, requires an answer.

The statement at issue in our article is as follows:

Until the World War, the *Salmonella suipestifer* organism was known to be the cause of hog cholera.

We do not feel that any inference can be drawn from this sentence to lead any one to believe that the present-day concept of the etiology of hog cholera is anything else but a filtrable virus.

In our case report we do not raise the issue of filtrable viruses but call attention to the relationship of the organism *Salmonella suipestifer* to human disease.

No statement was made by us as to the transmissibility of hog cholera as such to man but that the secondary invader, so commonly associated with that disease, is of definite pathogenicity for man.

LESTER COHEN, M.D.

HAROLD FINK, M.D.

IRVING GRAY, M.D.

Brooklyn.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Wills: Dysfunction of Endocrine Glands in Relation to Testamentary Capacity.**—Clara Diesing executed a will bequeathing the major portion of her property to the defendants. She died about a year later and her will was probated. The plaintiffs brought this action to set aside the probate on the ground that the testatrix lacked testamentary capacity. From a judgment in favor of the plaintiffs, the defendants appealed to the Supreme Court of Iowa.

The theory of the case presented by the contestants was that, while the testatrix was not afflicted with any disease of the mind itself, "she was suffering from a congenital faulty development of the body and mind, associated with a perverted activity of the internal glandular system of the body, particularly the pituitary and thyroid glands." To establish their contention, the contestants propounded to expert witnesses hypothetical questions based on the testimony of lay witnesses with respect to the physical and mental characteristics, changes and developments of the testatrix from childhood to shortly before her death. The life history embodied in these questions, said the court, was adequate to form a valid basis for the expression of an opinion by the expert witnesses. Furthermore, the testimony of the expert witnesses, in the opinion of the court, was sufficient to show a permanent progressive impairment of mental as well as physical ability and to indicate that, at the time of the execution of the will, this impairment had proceeded to such an extent that the testatrix was a person of unsound mind and incapable of executing a valid will. The judgment in favor of the contestants was, therefore, affirmed. —*Diesing v. Spencer (Iowa)*, 266 N. W. 567.

**Paternity: Admissibility of Blood Grouping Tests to Determine Paternity.**—The prosecutrix gave birth to an illegitimate baby and the defendant was named as the father. In a prosecution for rape, the defendant asked the trial court to require the prosecutrix and her baby to furnish a few drops of blood for the purpose of having it tested and compared with the blood of the defendant. By this test, the defendant maintained, it might be possible to demonstrate as a scientific fact the impossibility of his paternity. The trial court refused to order the test and the defendant was convicted of second degree rape. On appeal, the Supreme Court of South Dakota upheld the refusal of the trial court to order the test, holding:

"That it does not sufficiently appear from the record in this case that modern medical science is agreed upon the transmissibility of blood characteristics to such an extent that it can be accepted as an unquestioned scientific fact that, if the blood groupings of the parents are known, the blood group of the offspring can be necessarily determined, or that, if the blood groupings of the mother and child are known, it can be accepted as a positively established scientific fact that the blood group of the father could not have been a certain specific characteristic group."—*State v. Damm (S. D.)*, 252 N. W. 7.

A rehearing was granted in the case, limited to the ruling of the trial court with respect to the blood test.

Our former opinion, said the Supreme Court on rehearing, seems to have been widely accepted and understood as a holding that the reliability of the blood test was not as yet generally established or recognized by the consensus of expert opinion in the particular field of science wherein the matter lies. There was no intention in that opinion to express a conviction one way or the other on the abstract question of the reliability of the test as a matter of science. Our former opinion, continued the court, went no further than to hold that the record itself failed to establish the reliability of the blood test. In view of this misunderstanding of the purport of its former decision, the Supreme Court considered it advisable, on rehearing, to state that, in its opinion, the reliability of the blood test is definitely established as a matter of expert scientific opinion entertained by authorities in the field, and that the time has undoubtedly arrived when the results of such tests, made by competent persons and properly offered in evidence, should be deemed admissible in a court of justice whenever paternity is in issue. The foregoing statement was

made because, in the words of the court: "We do not wish any misapprehension as to the views of this court by any possibility to deter other courts from accepting and acting upon a tenet of biological science which we are convinced is now fully ripe for acceptance in medico-legal cases."

All judicial powers, said the court, are vested in the courts, and the judiciary constitutes a separate, distinct and coordinate department of the government of the sovereign state. The primary function of the judiciary is the administration of justice, and justice can never be rightly administered unless truth is first ascertained as nearly as may be. The citizen holds his citizenship subject to the duty to furnish to the court from time to time and within reasonable limits, such assistance as the courts may demand of him in their efforts to ascertain truth in controversies before them. This is just as much a part of the citizen's inescapable duty of supporting his government as is military service in time of war, or any other like obligation. The court could perceive no valid reason why courts of record may not require of any person within their jurisdiction the furnishing of a few drops of blood for test purposes when so to do will or may materially assist in administering justice in a pending matter. The order for such test should be adequately safeguarded. The order should not issue as a matter of absolute right but in the sound discretion of the court. A trial judge should not be a mere umpire presiding over a game of skill conducted by counsel, and the court could conceive of no valid reason why a trial judge might not of his own motion in a given case, if he thought it likely to be helpful, order the making of a blood test by a competent person and a report thereon under oath subject to cross-examination by both parties. Recapitulating its views, the court said—

We think (1) the reliability of the blood test is universally conceded by competent scientific authorities; (2) a trial court of record in this state has inherent power and authority, in its reviewable discretion, to order the taking of blood for such purposes in cases where paternity is an issue and where, in the opinion of the court, the making and reporting of such test will be, or is likely to be, helpful in ascertaining the truth.

Notwithstanding the foregoing views, the Supreme Court felt impelled to hold that the trial court did not err in refusing to make the order requested. The case, the Supreme Court observed, was tried in October 1931, and the literature on the topic of the scientific reliability of the blood test appeared for the most part subsequent to that date. We are far from willing, the court said, to say that it was error for a trial judge in South Dakota, at the time of the trial of this case, to fail or refuse to take judicial notice of such reliability. If such reliability was not, at the time of the trial of the case, a matter which the trial court was obligated judicially to notice, then it was necessary for the applicant for the order to prove such reliability by proper and satisfactory expert testimony. This he failed to do. Furthermore, there was no adequate showing that if the requested order was granted the defendant could and would have the tests made by a competent, capable and experienced person. The judgment of the trial court was consequently affirmed.—*State v. Damm (S. D.)*, 266 N. W. 657.

## Society Proceedings

### COMING MEETINGS

- American Academy of Orthopedic Surgeons, Cleveland, Jan. 11-13. Dr. Philip Lewin, 55 East Washington St., Chicago, Secretary.
- American Orthopsychiatric Association, New York, Feb. 18-20. Dr. George S. Stevenson, 50 West 50th St., New York, Secretary.
- Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15-16. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.
- Middle Section, American Laryngological, Rhinological and Otolaryngological Society, Chicago, Jan. 11. Dr. Alfred Lewy, 25 East Washington St., Chicago, Chairman.
- Mid-Western Section, American Laryngological, Rhinological and Otolaryngological Society, Chicago, Jan. 11. Dr. Frederick A. Figg, 436 Terh Ave., S.W., Rochester, Minn., Chairman.
- Pacific Coast Surgical Association, Seattle, Wash., and Victoria, B. C., Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.
- Southern Section, American Laryngological, Rhinological and Otolaryngological Society, Memphis, Tenn., Jan. 13. Dr. Charles D. Blasingame, Physicians and Surgeons Bldg., Memphis, Tenn., Chairman.
- Western Section, American Laryngological, Rhinological and Otolaryngological Society, San Diego, Calif., Jan. 30-31. Dr. David R. Hight, 324 Fourth Ave., San Diego, Calif., Chairman.

If this patient has not had previous attacks of pneumonia, if he is in good health now, if the physical and x-ray examinations give normal results, it would seem unnecessary to send him away.

If these conditions are not all fulfilled, a change to a more equable climate for one or two winters should be considered.

#### EXTRASYSTOLES

*To the Editor:*—What are present conclusions regarding drug therapy and mode of action in functional cardiac disturbances? An active man of 75 has had noticeable extrasystoles for fifteen years, increasing in frequency and discomfort recently. The blood pressure is 105 systolic, 70 diastolic. The pulse is 70 and very irregular in strength. Quinidine hydrochloride 3 grains (0.2 Gm.) three times a day sometimes relieves and sometimes aggravates symptoms. Does this drug act through the thyroid in such cases? Please omit name.

M.D., California.

**ANSWER.**—To confine the discussion to the specific case described here, it must be pointed out that the extrasystoles may not be on a functional or neurogenic basis.

Extrasystoles may be ascribed to neurogenic and to organic causes. The neurogenic type is common in younger persons, is frequently not associated with other cardiac disturbance and may often be linked up with specific reflex disturbances.

Extrasystoles making their original appearance after fifty years and increasing in severity as time goes on raise a suspicion of organic cardiac disease. Most commonly this consists of ischemic areas of the heart muscle resulting from coronary changes. The case described here would seem to fall into this group.

Quinidine is believed to act on the heart muscle directly and not through the thyroid. It depresses the cardiac irritability and for this reason is the drug of choice in the neurogenic extrasystole. Because it depresses other functions of the heart muscle, it must be used with some care when cardiac disease is present.

The extrasystole that is produced by coronary disease is more likely to yield to the drugs of the theobromine or theophylline group.

Was this arrhythmia confirmed by the electrocardiogram? The question states that the pulse is very irregular in strength. Very frequent extrasystoles are often confused with other arrhythmias, notably auricular fibrillation, and can be differentiated only by the electrocardiogram.

#### THERAPY OF COUGHS

*To the Editor:*—A man, aged 72, has had a chronic cough for more than two years. In the last two months the cough has become much worse. It usually comes on in paroxysms in the evening and the patient expectorates large quantities of greenish mucus of thick consistency. Analysis of the sputum disclosed no acid fast organisms; Micrococcus catarrhalis predominated. Ordinarily cough mixtures and other preparations have no effect. The man has had a mitral insufficiency for several years and bronchitis. I am now considering a bronchiectasis. Any suggestions for diagnosis and treatment, especially to lessen the amount of secretion, will be appreciated.

BENJAMIN GOLOBERG, M.D., Chicago.

**ANSWER.**—The discussion of the "Therapy of Coughs," published in THE JOURNAL, Feb. 1, 1936, might contain a number of useful suggestions for diagnosis and treatment.

#### INABILITY TO EMPTY BLADDER OF ELDERLY PATIENT AFTER PNEUMONIA

*To the Editor:*—A man, aged 85, had a right lobar pneumonia two months ago. Two weeks later he was unable to urinate and was catheterized. For the past six weeks he has needed a retaining catheter. This rubber catheter passes easily; his prostate is apparently normal but still he cannot urinate. Irrigations are clearing up a chronic cystitis; the bladder holds from 6 to 8 ounces and the output is good. He is still in bed, too weak to sit up; his knee jerks are hyperactive and I have diagnosed his case as a cord bladder following pneumonia. Is there any way to overcome this by operation or medication so he can urinate? Please omit name.

M.D., Minnesota.

**ANSWER.**—It is not uncommon for elderly males to develop urinary retention while confined to bed. This should disappear when the patient gets back on his feet. If not, a more thorough urologic examination must be performed, as it is to be remembered that obstruction by the prostate cannot always be determined by rectal examination. Treatment by means of the various drugs used to stimulate neurogenic bladders, such as ergotamine tartrate or mecholyl, should not be tried until the diagnosis of cord bladder is confirmed by cystoscopic or cystometric study. Certainly the treatment of choice in this case is the continuation of drainage by urethral catheter until the patient is out of bed.

#### PERCOL

*To the Editor:*—I have come across a product sold under the trade name of "Percol" which is manufactured by the Ernst Bischoff Company, Inc., 135 Hudson Street, New York City. In looking through the copy of the N. N. R. and its supplement I find no reference either to the product or to the company. According to the pamphlet enclosed with the preparation it is supposedly indicated for "irritating and spasmodic coughs," and its ingredients are listed as:

Piscidia erythrina  
Thymus vulgaris  
Castanea dentata

but the concentrations of each are not given. Piscidia, so far as I can determine, was introduced at one time as a sedative, hypnotic and analgesic, but later it was proved practically useless (Tyrode and Nelson, 1905). The thyme oil, if present in sufficient concentration, is commonly accepted as an irritant. As for the castanea, presumably the fluid-extract, I can find no reference to it in recent pharmacologic textbooks. The product seems to be enjoying quite a popular enthusiasm in this region, both in self medication and in legitimate practice, but I am perplexed as to the rationality of it as a therapeutic agent and wonder whether the foregoing are all of the ingredients. I would appreciate any information that is available relative to the product, as well as references to recent literature, if there are any.

ADAM J. RAPALSKI, Student (Syracuse '38), Nutley, N. J.

**ANSWER.**—Neither the Council on Pharmacy and Chemistry nor the A. M. A. Chemical Laboratory has made an investigation of Percol. The preparation does not stand accepted by the Council for inclusion in New and Nonofficial Remedies nor has the Ernst Bischoff Company requested the Council to consider the product.

Our information regarding the composition of Percol is limited to the inadequate statements appearing in the advertising material issued by the Ernst Bischoff Company. According to this advertising the ingredients of Percol are piscidia erythrina, thymus vulgaris, pinguicula alpina, and castanea dentata. Piscidia erythrina is described in Sollmann's Manual of Pharmacology as "practically useless." Castanea dentata (chestnut leaves), according to the U. S. Dispensatory, "were recommended a half a century ago in the treatment of whooping cough and the superstition still survives to a certain extent. There is, however, no sufficient reason to believe them to possess any therapeutic value except that of a mild astringent which is due to their tannic acid." Thymus vulgaris, of course, supplies the well known oil of thyme. Pinguicula alpina (alpine butterwort) is not described in any of the standard textbooks on pharmacology or therapeutics available to us. From this information it would appear that Percol is an unscientific mixture of obsolescent drugs, the use of which, in the absence of scientific evidence of their value, is not in the interest of rational medicine.

It is interesting to note that the Ernst Bischoff Company for more than twenty years has marketed another treatment for spasmodic coughs. This preparation, known as "Diatussin," is stated to be "an alcoholic extract of the active principles of two recognized medicinal plants indigenous to the Alps"—thymus vulgaris and pinguicula alpina! A note on Diatussin appearing in THE JOURNAL, May 17, 1913 (Propaganda for Reform, Vol. 1, p. 293). More recently, THE JOURNAL published an abstract of a Notice of Judgment (No. 17767) issued by the federal authorities charged with the enforcement of the Food and Drugs Act. This appeared in THE JOURNAL, Jan. 7, 1933, page 58, and called attention to the misbranding of Diatussin and Diatussin Syrup because of false and fraudulent claims. One wonders whether this unfavorable publicity may explain the decision of the Ernst Bischoff Company to add two obsolescent drugs to its Diatussin formula and call the resulting mixture "Percol."

#### FROZEN MILK

*To the Editor:*—My associates and I were much interested in your reply to an inquiry on the use of frozen milk in infant feeding on page 562 of THE JOURNAL for Feb. 15, 1936. In connection with this subject you may be interested in the enclosed reprint, "The Food Value of Frozen Evaporated Milk," by Louder and Smith, from the JOURNAL of Dairy Science, March 1932. You will note that the Louder and Smith study is not in absolute agreement with the statement in THE JOURNAL. Would you favor us with the reference in the literature on which the statement in THE JOURNAL is based?

CHARLES DILLON, Evaporated Milk Association, Chicago.

**ANSWER.**—The references in the literature on which the statement in THE JOURNAL is based are found in "Milk," by Paul G. Heineman (Philadelphia, W. B. Saunders Company, 1919) and "Principles and Practice of Infant Feeding," by Julius H. Hess (Philadelphia, F. A. Davis Company, 1922).

On page 87 of the latter, in the paragraph on frozen milk, it is stated that "vomiting and not infrequently diarrhea follow the feeding of milk that has been frozen. So far as possible,

matory processes and infection that accompany the malignant condition. Treatment with divided doses of radium affords a good opportunity to forestall or control these complications. The treatments are given gradually during three weeks and the dosage is attuned to the radiosensitivity of the lesion and to the strength of the individual to tolerate the procedure. At the first intimation of danger, the treatment should be discontinued and the proper steps should be taken to overcome the impending complication.

**Radiation Sickness.**—In their search for an extraneous factor other than ozone or other gases as the cause of radiation sickness, Friedman and Drinker determined the ion concentration of their treatment rooms and the quantity and quality of the gases present. These experiments showed a high concentration of ions with the positive ions predominating and traces of ozone and nitrous gases; the probability of any one or all of them being a cause of radiation sickness could be determined easily. Through a number of experiments it was found that by wearing a simple type of mask, one that was known to absorb ozone and other gases, several patients who were subject to radiation sickness were relieved. A commercial make of chemical cartridge respirator with a charcoal cartridge was furnished to one patient and gave her immediate relief. The cartridge containing charcoal was replaced by wire cloth of a very fine mesh, which was inserted at the entrance to the mask and grounded. This device was found to be just as satisfactory as the mask with charcoal. The experiments tend to show that of the air factors only ions enter into the production of radiation sickness. These in high concentration in addition to roentgen irradiation to the body are necessary for the production of true radiation sickness. The factor of gases has been eliminated. A mask with a rubber face piece and wire cloth is the simplest and cheapest. The face piece can be wiped off with alcohol or washed and reused immediately. It is advisable to use a face piece with both inhalation and exhalation valves, as then there is no rebreathing.

### American Review of Tuberculosis, New York

34: 561-712 (Nov.) 1936

- Oleothorax in Collapse Therapy of Pulmonary Tuberculosis: Experimental and Clinical Study with Review of Literature. M. Joannides, Chicago.—p. 561.
- Manometric Readings of Intrapleural Pressures in Artificial Pneumothorax: Discussion of Principles and Factors Involved, with Plea for Uniform Methods of Reading and Recording Intrapleural Pressures. A. Peters, Springfield, Mass.; A. S. Pope, Boston, and J. C. Hudson.—p. 614.
- \*Influence of Artificial Pneumothorax on Bacillary Count in Open Cases of Pulmonary Tuberculosis. E. Bunta, Chicago.—p. 627.
- Blocked Pulmonary Cavity: Anatomic, Roentgenologic and Clinical Study. D. Salkin, A. V. Cadden, Hopemont, W. Va., and R. B. McIndoe, Howell, Mich.—p. 634.
- Postmortem Bronchography. D. Salkin, A. V. Cadden, Hopemont, W. Va., and R. B. McIndoe, Howell, Mich.—p. 649.
- \*Punch Biopsy in Diagnosis of Tuberculosis of Knee Joint. M. Burman, H. Finkelstein and L. Mayer, New York.—p. 663.
- Tuberculous Tracheobronchitis: Role of Bronchoscopy. P. S. Samson, Ann Arbor, Mich.—p. 671.
- Anthraxosis and Tuberculosis. M. J. Sokoloff, Philadelphia.—p. 700.

**Influence of Artificial Pneumothorax on Bacillary Count in Pulmonary Tuberculosis.**—Bunta discusses the influence of artificial pneumothorax, in relation to time, on the bacillary count preceding conversion in positive sputum cases of pulmonary tuberculosis, particularly those showing unilateral cavitated lesions with and without complicating pleural adhesions on the collapsed side, and those showing bilateral pulmonary cavitation. The material for study included 13,839 sputum reports on 506 pneumothorax-treated open cases of pulmonary tuberculosis, and 4,993 sputum reports on 642 officially registered open pulmonary cases in which no form of collapse therapy was given. A decrease in the bacillary count with increments of time was observed in both pneumothorax-treated and nonpulmonary collapse or control patients. Pneumothorax-treated patients in general showed a more direct and sustained decrease in the number of tubercle bacilli and advancement toward the conversion level with clapping time, as compared to the control group. All treated cases, except the group with bilateral pulmonary cavitation, showed a more direct reduction in bacillary numbers from the seventh to the ninth month than in the succeeding months of treatment. From the standpoint of time, the most direct decrease in the bacillary

count and earliest approximation to the conversion level was evidenced in nonpleural adhesion cases with cavities limited to the treated lung, and the least diminished count or approach to the conversion level in the pneumothorax cases with bilateral pulmonary cavitation. Pleural adhesions, on the other hand, exercised an inhibiting influence on bacillary reduction, though relatively less so than the cases with bilateral cavitation.

**Punch Biopsy in Diagnosis of Tuberculosis of Knee.**—Burman and his associates obtained six biopsy specimens positive for tuberculosis in eight cases of tuberculosis of the knee joint, through the same puncture wound used for arthroscopy. In a woman of 35, who had been treated for villous synovitis for two years, a frozen section of the biopsy specimen revealed the presence of tuberculosis and an immediate fusion was accordingly done. No guinea-pig inoculation or tuberculin test had been done previously in her case. The biopsy specimen is a tolerably accurate measure of the specificity or nonspecificity of the disease process within the joint. It is sometimes quite difficult to prove the tuberculous nature of the disease process in the knee joint. Any method that offers a fair chance of success, both negatively and positively, should be used. Guinea-pig inoculation and the demonstration of the tubercle bacillus are the only other positive methods, besides the histopathologic picture of tuberculosis. The authors procure material from a joint suspected of being tuberculous for culture and guinea-pig inoculation by using the saline washings of the joint, after the fluid has been instilled into the joint for some minutes. In a child in whom the removal of a biopsy specimen was objected to, the saline washings injected into a guinea-pig confirmed a suspected diagnosis of tuberculosis. They can offer no exact figures of failure or success; but, if it succeeds once, it can succeed again, especially in joints without fluid. The trauma of examination by arthroscopy followed by the removal of biopsy specimens is not damaging to the knee. In two acutely inflamed joints, these procedures were done without perceptible alteration in the state of the joint or alteration of the temperature curve for the worse.

### Annals of Medical History, New York

8: 477-576 (Nov.) 1936

- Benjamin Smith Barton. W. S. Middleton, Madison, Wis.—p. 477.
- History of Digitalis Therapy. M. S. Jacobs, Philadelphia.—p. 492.
- Brief Consideration of History of Development of Mastoidectomy. R. Sonnenschein, Chicago.—p. 500.
- Psychiatry in Art. C. E. Trapp and Mary C. Trapp, Boston.—p. 511.
- Forerunner of Psychiatric Nursing: Joan-Baptiste Pussin (1746-18—?). Elizabeth S. Bixler, Worcester, Mass.—p. 518.
- The Doctor on the Stage: Medicine and Medical Men in Seventeenth Century English Drama. H. Silvette, University, Va.—p. 520.
- A Meeting Which Never Took Place: A Play in Half an Act. W. B. Howell, Montreal.—p. 541.
- Historical Notes on Foreign Bodies in Air Passages. L. H. Cleff, Philadelphia.—p. 547.
- Pulmonary Pathology in the Talmud. H. H. Harris and T. N. Harris, Philadelphia.—p. 553.
- War and Science: Rudolph Virchow. L. Goldman, Cincinnati.—p. 557.

### Annals of Surgery, Philadelphia

104: 801-960 (Nov.) 1936

- \*Destruction of Cerebral Cortex Following Nitrous Oxide-Oxygen Anesthesia. K. Lowenberg, R. Waggoner, Ann Arbor, Mich., and T. Zbinden, Toledo, Ohio.—p. 801.
- Physiology of Massive Pulmonary Embolism: Experimental Study of Changes Produced by Obstruction to Flow of Blood Through Pulmonary Artery and Its Lobar Branches. J. H. Gibbon Jr., Philadelphia, and E. D. Churchill, Boston.—p. 811.
- Pulmonary Embolism. P. Shambaugh, Chicago.—p. 823.
- Acute Perforation of Gastrojejunal Ulcer: Report of Ten New Cases and Review of Ninety-Three Collected Cases. C. G. Teland and H. L. Thompson, Los Angeles.—p. 827.
- Late Results in Acute Perforated Peptic Ulcer Treated by Simple Closure. M. A. Sallick, New York.—p. 853.
- Obstructions About Mesentery in Infants. J. J. Morton and T. E. Jones, Rochester, N. Y.—p. 864.
- \*Splenectomy for Hemoclastic Crisis. G. M. Curtis, C. A. Dean and B. K. Wiseman, Columbus, Ohio.—p. 892.
- Anatomic Restudy of Pelvic Lymphatics. J. P. Nesselrodt, Rochester, Minn.—p. 905.
- Transurethral Resection. H. L. Kretschmer, Chicago.—p. 917.
- \*Relief of Pain by Peripheral Nerve Block in Arterial Diseases of Lower Extremities. B. C. Smith, New York.—p. 934.
- Nerve Injury in Fracture of Pelvis. C. R. Lam, Detroit.—p. 945.
- Influence of Heredity in Cancer. H. F. Graham, Brooklyn.—p. 952.
- Destruction of Cerebral Cortex Following Nitrous Oxide-Oxygen Anesthesia. —Lowenberg and his associates report three cases in which there was destruction of the cortex



## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

**ALASKA:** Juneau, March 2. Sec., Dr. W. W. Council, Juneau.  
**CALIFORNIA:** Los Angeles, Feb. 8-11. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.  
**CONNECTICUT:** *Basic Science.* New Haven, Feb. 13. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Homeopathic).* Derby, Feb. 13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regulator).* Hartford, March 9-10. *Endorsement.* Hartford, March 23. Sec., Dr. Thomas P. Murock, 147 W. Main St., Meriden.  
**DISTRICT OF COLUMBIA:** Washington, Jan. 11-12. Sec., Commission on Licensure, Dr. George C. Rulland, 203 District Bldg., Washington.  
**IDAHO:** Boise, April 6. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.  
**ILLINOIS:** Chicago, Jan. 26-28. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.  
**INDIANA:** Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.  
**IOWA:** *Basic Science.* Des Moines, Jan. 12. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.  
**MAINE:** Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.  
**MINNESOTA:** Minneapolis, Jan. 19-21. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.  
**MONTANA:** Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.  
**NEBRASKA:** *Basic Science.* Omaha, Jan. 12-13. Director, Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.  
**NEVADA:** *Reciprocity.* Carson City, Feb. 1. Sec., Dr. John E. Worden, Carson City.  
**NEW HAMPSHIRE:** Concord, March 11-12. Address Board of Registration in Medicine, State House, Concord.  
**NEW MEXICO:** Santa Fe, April 12-13. Sec., Dr. Le Grand Ward Box 693, Santa Fe.  
**NEW YORK:** Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.  
**PUERTO RICO:** San Juan, March 2. Sec., Dr. O. Costa Mandry, Box 536, San Juan.  
**SOUTH DAKOTA:** Pierre, Jan. 19-20. Dir., Division of Medical Licensure, Dr. B. A. Dyar, Pierre.  
**VERMONT:** Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.  
**WASHINGTON:** *Medical.* Seattle, Jan. 11-13. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.  
**WEST VIRGINIA:** Charleston, March 1. Sec., Public Health Council, Dr. Arthur E. McClure, State Capitol, Charleston.  
**WISCONSIN:** Madison, Jan. 12-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.  
**WYOMING:** Cheyenne, Feb. 1. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

**NATIONAL BOARD OF MEDICAL EXAMINERS:** *Parts I and II.* Feb. 9-11, May 10-12, June 21-23, and Sept. 13-15. *Part III.* New York, Jan. 11-13 and Chicago, Jan. 19-21. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### SPECIAL BOARDS

**AMERICAN BOARD OF INTERNAL MEDICINE:** *Written examination will be held simultaneously in different centers of the United States and Canada in March. Practical examination will be given in St. Louis in April and at Philadelphia in June.* Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210 Des Moines.  
**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY:** *Written examination for Group B applicants will be held in various cities throughout the United States and Canada, March 6. Practical, oral and clinical examinations for Group A and B applicants will be held at Atlantic City, N. J., June 7-8. Applications must be received at least sixty days prior to the examination dates.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).  
**AMERICAN BOARD OF OPHTHALMOLOGY:** Los Angeles, Jan. 23. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.  
**AMERICAN BOARD OF OTOLARYNGOLOGY:** Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.  
**AMERICAN BOARD OF PATHOLOGY:** Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.  
**AMERICAN BOARD OF PEDIATRICS:** New York, Jan. 23. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

### Michigan June Examination at Ann Arbor

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 11-12, 1936. The examination covered 14 subjects and included 1,000 questions. An average of 75 per cent was required to pass. One hundred and twenty-one candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists.....	(1936)	82	85
Stanford University School of Medicine.....	(1935)	83.5	84.8
George Washington University School of Medicine.....	(1935)		85.5
Loyola University School of Medicine.....	(1936)		79.5

Northwestern University Medical School.....	(1934)	83.9	*
(1936) 80.9, * 82.2†			
Rush Medical College.....	(1935)	83.6	*
(1936) 83.6, 83.7			
University of Illinois College of Medicine.....	(1936)	84.1	*
Boston University School of Medicine.....	(1935)	85	
Harvard University Medical School.....	(1928)	77.6	
Tufts College Medical School.....	(1935)	80.6	*
University of Michigan Medical School.....	(1936)	80.3	*
81.2, * 81.4, * 81.7, * 81.7, * 81.8, * 82.1, * 82.1, * 82.2, * 82.3, * 82.4, * 82.5, * 82.5, * 82.5, * 82.5, * 82.6, * 82.6, * 82.6, * 82.7, * 82.8, * 82.9, * 83, * 83.1, * 83.2, * 83.2, * 83.2, * 83.3, * 83.3, * 83.4, * 83.4, * 83.5, * 83.5, * 83.5, * 83.5, * 83.5, * 83.6, * 83.6, * 83.6, * 83.6, * 83.8, * 83.8, * 83.8, * 83.8, * 83.9, * 84, * 84, * 84.2, * 84.2, * 84.2, * 84.2, * 84.3, * 84.3, * 84.3, * 84.4, * 84.4, * 84.4, * 84.4, * 84.5, * 84.5, * 84.5, * 84.6, * 84.6, * 84.6, * 84.7, * 84.8, * 84.9, * 84.9, * 85, * 85.1, * 85.2, * 85.2, * 85.2, * 85.4, * 85.4, * 85.5, * 85.5, * 85.6, * 85.8, * 85.9, * 86, * 86, * 86.1, * 86.2, * 86.2, * 86.2, * 86.6, * 86.6, * 86.7, * 86.9, * 87, * 87, * 87.5,†			

University of Minnesota Medical School.....	(1934)	82.9	
Columbia University College of Physicians and Surgeons.....	(1932)	83.5	*
Marquette University School of Medicine.....	(1936)	84.8,†	84.8
University of Wisconsin Medical School.....	(1935)	85.2	*
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....	(1931)	80.3	§

\* License has not been issued.

† This applicant has completed the medical course and will receive the M.D. degree on completion of internship. License has not been issued.

‡ Did not complete his senior work—degree at a later date. License has not been issued.

§ Verification of graduation in process. License has not been issued.

### Michigan June Examination at Detroit

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, June 9-10, 1936. The examination covered 14 subjects and included 1,000 questions. An average of 75 per cent was required to pass. Ninety-seven candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists.....	(1936)	84.9	
Loyola University School of Medicine.....	(1936)	83.1	
Northwestern University Medical School.....	(1936)	81.6	*
81.7, * 82.8, * 84.6*			
Rush Medical College.....	(1936)	81, * 83.6	
Harvard University Medical School.....	(1936)	87.3, * 88.3	*
Wayne University College of Medicine.....	(1936)	83.6,	
(1936)† 76.1, 78.5, 79, 79.6, 79.9, 79.9, 80, 80, 80, 80.3, 80.3, 80.4, 80.6, 80.6, 80.8, 80.8, 80.8, 80.8, 80.9, 80.9, 81.1, 81.1, 81.4, 81.5, 81.5, 81.6, 81.6, 81.7, 81.7, 81.8, 81.8, 81.9, 82, 82.1, 82.1, 82.3, 82.3, 82.4, 82.4, 82.5, 82.5, 82.6, 82.6, 82.6, 82.7, 82.9, 83, 83, 83, 83.1, 83.2, 83.2, 83.2, 83.4, 83.4, 83.5, 83.5, 84, 84.1, 84.2, 84.2, 84.2, 84.3, 84.5, 84.5, 84.6, 84.6, 84.7, 84.7, 84.9, 85, 85, 85, 85, 85.5, 85.7, 85.8, 86.2, 86.2, 86.8, 87.6			
University of Minnesota Medical School.....	(1936)	83.3	*
Syracuse University College of Medicine.....	(1935)	82.1, * 84.8	
University of Rochester School of Medicine.....	(1934)	80.8	
McGill University Faculty of Medicine.....	(1934)	82.3	*

\* License has not been issued.

† These applicants have received the M.B. degree and will receive the M.D. degree on completion of internship. Licenses have not been issued.

### Tennessee September Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, Sept. 29-30, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Twenty-eight candidates were examined, 27 of whom passed and 1 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
Loyola University School of Medicine.....	(1935)	83.4	
Tulane University of Louisiana School of Medicine.....	(1936)	85.3, 85.9	
University of Tennessee College of Medicine.....	(1936)	80.9,	
82.5, 82.6, 82.8, 83.3, 83.9, 84.1, 84.5, 84.6, 84.8, 84.9, 85.1, 85.3, 85.3, 85.4, 85.4, 85.8, 86.8, 87.8, 88.3, 88.4, 90.9			
Vanderbilt University School of Medicine.....	(1935)	88	
School	FAILED	Year Grad.	Number Failed
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....	(1910)*		1

Twelve physicians were licensed by endorsement from September 1 through October 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists.....	(1935), (1936, 2)	N. B. M. Ex.	
Rush Medical College.....	(1931)	Illinois	
Tulane University of Louisiana School of Medicine.....	(1933)	Louisiana	

bc hemoglobin or its derivatives. The blood pressure was not elevated, and generalized edema appeared in two patients, but only after infusion of large amounts of saline and dextrose solutions. While the ultimate cause of some of the manifestations must be considered as still unexplained, there can be little doubt that the syndrome is initiated by hemolysis of the donor's red blood cells. There is a striking similarity to the suppression of urine and uremia seen in cases of severe black-water fever, even with regard to the histopathologic changes in the kidneys. The essential lesions consist of tubular dilatation and some degeneration (particularly affecting the epithelium of Henle's loop and the distal convoluted tubule) with interstitial edema, a picture suggestive of mercurial nephrosis. The degree of tubular damage observed varies with the time of death. The distinctive feature is the formation of peculiar obstructing pigment casts in the distal tubular segments. The changes observed in the tubules in the fatal cases apparently represented late stages in the events following a hemolytic reaction. The peculiar eosinophilic casts present in the convoluted tubules and in the Henle loops must contain hemoglobin or one of its degradation products, because of the color of these casts in unstained sections and their positive reaction with benzidine by Lepelne's method for staining hemoglobin in histologic preparations.

### California and Western Medicine, San Francisco

45: 377-448 (Nov.) 1936

- Injection Treatment of Hernia: Its Experimental Basis. F. I. Harris and A. S. White, San Francisco.—p. 382.  
Treatment of Hernia by Injection Method. F. R. Girard, San Francisco.—p. 385.  
Injection Treatment of Hernia: Its Present Day Status. F. I. Harris and A. S. White, San Francisco.—p. 391.  
Arthritis: A Medical Problem. R. S. Peers, Oakland.—p. 399.  
Hyperpyrexia as an Adjunct in Treatment of Cerebrospinal and Kahn-Fast Syphilis. J. E. Potter, Bremerton, Wash.; F. H. Redewill and E. G. Longley, San Francisco.—p. 402.  
Cancer Clinics in Small Hospitals. Zera E. Bolin, San Francisco.—p. 409.  
Falcious Trends in Psychiatry. W. Edler, Pasadena.—p. 412.

### Canadian Medical Association Journal, Montreal

35: 475-592 (Nov.) 1936

- The Mind and Character of Lister. E. Archibald, Montreal.—p. 475.  
Radiologic Treatment of Cancer 1929-1935: IV. Carcinoma of Lips. G. E. Richards, Toronto.—p. 490.  
Effect of Administration of Estrogenic Hormones on Nasal Mucosa of Monkey (*Macaca Mulatta*). H. Mortimer, R. P. Wright and J. B. Collip, Montreal.—p. 503.  
Studies in Mineral Metabolism: II. Calcium and Kidney: Experimental I. B. Chown, Margaret Lee and J. Teal, Winnipeg, Manit.—p. 513.  
Certain Interesting Cases of Hematuria. N. E. Berry, Kingston, Ont.—p. 516.  
\*Tuberculosis of the Breast. W. E. B. Hall, St. Joseph, Mo.—p. 520.  
\*Insulin, Old and New, in Treatment of Diabetes. E. P. Joslin, Boston.—p. 526.  
Present-Day Methods of Treatment of Carcinoma of Breast: Indications for Use of Each Method. R. M. Jancs, Toronto.—p. 531.  
Etherington-Wilson Technic in Intrathecal Segmental Analgesia. W. Bourne and P. E. O'Shaughnessy, Montreal.—p. 536.  
Mental Hygiene and Its Relation to Infants and Children. R. P. Kinsman, Vancouver, B. C.—p. 540.  
Vitamin A Content of Some Medicinal Cod Liver Oils Sold in Edmonton. W. D. McFarlane and L. Rudolph, Edmonton, Alta.—p. 542.

**Tuberculosis of Breast.**—Hall cites three cases of tuberculosis of the breast that demonstrate the pathologic mode of invasion and infection. To date there has been no report of a necropsy in which tuberculosis has been confined to the breast with no evidence of infection elsewhere. The disease appears most frequently between the ages of 20 and 50. There is little difference with regard to the breast involved. Child bearing does not appear to be a gross factor, since 201 of 545 were nulliparous patients. It has been the belief of many that this type of infection is due to the bovine type of tubercle bacillus. The infection is transmitted to the breast tissue by various channels: contiguity, surface contact, ductal, blood borne and lymphatic. Tuberculosis of the breast is similar to the infection elsewhere in the body, as acute milary mastitis, nodular tuberculous mastitis, sclerosing tuberculous of the breast and chronic obliterative tuberculous mastitis occur. Excluding those patients who are evident victims of a generalized infection, tuberculosis of the breast may be subdivided according to the rate of involvement and to the fibrous tissue

response. The signs and symptoms vary widely, but the first and most important is a lump in the breast. Pain usually appears very late in the disease and was reported in only 6 per cent of the early cases. An occasional early complaint is that of tender nipple. The lump usually develops steadily, sometimes rapidly, and in no case has spontaneous regression been known. The disseminated nodular type grows very slowly and is painless. The sclerosing type exhibits a distorted breast with retracted nipple. Definite diagnosis is difficult at all times and must be differentiated from galactocoele, chronic mastitis, and benign and malignant breast tumors. The prognosis is hopeless if untreated, usually following a rapid and fatal course, but if the lesion or lesions are excised totally it may be excellent. Treatment is always surgical, with immediate frozen section to establish the diagnosis and remove the patient's fear of cancer; also removal is essential, as the disease, once started, never regresses, whether it is left alone or treated by any of a number of means. Excision of the tumor, dissection of axillary glands and partial mastectomy may be satisfactory if the lesion is benign or if the diagnosis of tuberculosis of the breast is reasonably certain as determined by biopsy or culture of the pus from a sinus, or if the operation is supplemented by frozen section. Summarized, excision of tuberculous breast lesions together with whatever obvious lymphatic extensions are present will be quite satisfactory. If a considerable part of the breast is involved, mastectomy is advised. If there is any suggestion of axillary involvement, these glands should be removed. Only healthy tissue should be left, careful hemostasis effected and well nourished tissue brought in contact with well nourished tissue, obliterating all dead space. Drains, if used, are removed the first day after operation. An immobilizing bandage, affording light pressure, is applied, and, when possible, the wound is left alone for from twelve to fourteen days.

**Old and New Insulin in Treatment of Diabetes.**—Joslin has computed the expectation of life of his diabetic patients at 10, 30 and 50 years of age for two periods, 1897-1914 and 1926-1929. For children at 10 years in the earlier period the average expectancy was 1.5 years, but now it is 31.7 years. The expectancies for the two similar periods at 30 years of age are 4.2 and 22.7 years, and for the age of 50 years 8.1 and 13.2 years, respectively. A study of the records of diabetic physicians shows that it is worth while to teach a diabetic patient a good deal about his ailment. Since the introduction of insulin, diabetic coma has practically disappeared as a cause of death among physicians. It has amounted to but 3 per cent. This is all the more notable because diabetic coma when it develops in adult life is a serious complication, and recoveries are far less frequent than in childhood. The education of diabetic patients can be accomplished by books, moving pictures, class teaching and individual instruction, but perhaps most of all they can profit from contact with other patients. The personal element and the spoken word are the most important, because what one type of diabetic subject needs would be superfluous for another. Of more than 100 patients receiving protamine insulin not one has developed coma, acidosis or any complication common to the diabetic, such as lesions of the feet or skin. The number of doses has been reduced from six to one or two daily. The author considers protamine insulin a real advance in the treatment of diabetes, but he does not believe that the best methods of employing it are known, nor does he think that it should be distributed yet for general use. The old insulin is understood and it is known that it always works. Confidence in insulin must not be undermined by giving to practitioners a preparation the action of which is not thoroughly understood, though it may be better in some respects. The technic of manufacture of protamine insulin is improving and the results with the newer preparations are becoming more uniform. Administration of protamine insulin can be improved. It is not a matter of indifference to inject 20 units of old insulin twice a day and then change over to the injection of 40 or 50 units of protamine insulin in a single dose. More pains must be taken with the actual technic of injection, and the sites for the injection must also be selected more carefully. The strength of the preparation may be important. The single doses of protamine insulin are larger and therefore U-40 insulin is too bulky, but just how U-80 protamine insulin will act the author does not know. Perhaps one should never inject more

of obstetrics as it is regarded at this time. He mentions only to condemn the time honored custom of massaging the uterus after delivery, as well as the less harmful custom of holding the fundus. Nothing is gained, he says, by either practice and much harm from unnecessary traumatism may result. We are told that episiotomy was proposed by Ould as early as 1742 and has been followed "more or less" ever since. The author considers episiotomy valuable but by no means necessary in all patients. It is said that multiple births must be regarded as a reversion to lower mammalian forms and therefore in a measure pathologic. Since the Dionne quintuplets were born, there has come to light, it appears, the birth certificate of a family of sextuplets named Bushnell, who were born in Chicago, Sept. 15, 1866, which birth certificate, "if genuine," states that three boys and three girls were born. Of the six, three were living in January 1935, a fourth died a few years ago, and the two others considerably before, but all lived beyond infancy. Statistics are said to show that 3 per cent of cesarean scars rupture in succeeding labors, but these figures are subject to much correction. While the average gross maternal mortality following cesarean section, the author says, is somewhere near 10 per cent in the United States, the mortality in the great clinics of the country will range between 2 and 4 per cent. The elective cesarean section, if done before the onset of labor or immediately after labor in a well organized hospital, will carry a mortality of considerably under 1 per cent, but in the section of necessity, in neglected cases, this figure will rise to 6 or 7 per cent.

The author endeavors to avoid the use of proper names throughout the book but has appended a bibliography and index in the back. This book can be recommended for students and practitioners of medicine.

*Chemie und Technik der Gegenwart.* Herausgegeben von Dr. H. Carlsolin, Dozent an der Universität Leipzig. Band XV: Vitamine und Hormone und ihre technische Darstellung. Teil I: Ergebnisse der Vitamin- und Hormonforschung. Von Dr. Hellmut Brederick, Dozent an der Universität Leipzig. Paper. Price, 6 marks. Pp. 101. Leipzig: S. Hirzel, 1936.

The author of this treatise has attempted to cover the extremely difficult subjects of the chemistry of vitamins and hormones in the brief compass of a hundred page book. Considering the limitations of space and the voluminous literature on the subject, he has managed to include a surprising amount of valuable information; those desiring such a brief summary will find this book useful. Certain phases of the material considered here are more adequately presented elsewhere, in particular that relating to the sterols (vitamin D, estrogens, androgens, progesterone and the like); the recently published American monograph on the latter subject by Fieser (*Chemistry of Natural Products Related to Phenanthrene*, reviewed in *THE JOURNAL*, Aug. 29, 1936) is unsurpassed in any language. However, for a brief and graphic presentation of the broad fields of vitamins and hormones Brederick's condensation may be recommended, provided the limitations of brevity are kept in mind.

*The Fortieth Report on Food Products and the Twenty-Eighth Report on Drug Products, 1935.* Connecticut Agricultural Experiment Station, Bulletin 388. Paper. Pp. 653-695. New Haven, 1936.

This is a brief summary of the control work and investigation during 1935 of the Department of Analytical Chemistry at the first experiment station to be founded in the United States. As usual, the bulletin of the Connecticut station contains information of interest to all health officials and to physicians and others interested in nutrition. There are tables showing the vitamin C content of orange juice and other orange products as determined by chemical titration, investigations on olive oil, spray residue on apples, an interesting statement on oranges bearing the stamped mark "color added" and numerous other items of interest. A number of drugs were tested to ascertain whether they came up to standard; it is encouraging to note the large number of products examined which were found satisfactory. There are brief summaries of the analyses of a number of "patent medicines" and cosmetics that were examined. The range of subjects covered is wide. The composition of a number of fruits of wild plants on which birds and other animals feed was determined in collaboration with the Bureau of Biological Survey. The report closes with a

splendid description of the work of the Committee on Foods, now called the Council on Foods, of the American Medical Association.

*On the Classification of Vibrio Cholerae and the Cholera-Like Vibrios.* By Bjørge Helberg. Translated from Danish by Dr. Gerdn Seidelin Schnoör, with the assistance of Dr. G. Gregory Kayne. Paper. Pp. 181. Copenhagen: NYT Nordisk Forlag: Arnold Busck, 1935.

This study was conducted on the suggestion of Dr. Thorvald Madsen following a meeting in 1932 of the cholera committee appointed by the Office international d'hygiène publique, at which was discussed the problem of producing a standard cholera agglutinating serum for diagnostic purposes. A study was made of 384 strains collected from districts where cholera and cholera-like diseases are epidemic. Biochemical as well as agglutination tests have been made with these strains. The author concludes that at the present time it does not seem possible to produce a standard agglutinating serum, since many vibrios termed cholera-like have not been demonstrated to be pathogenic or to produce the clinical picture called Asiatic cholera. This work contains forty-three tables and a good bibliography.

*Brain Reflexes and Laws of Existence.* By William D. Hoffman. Cloth. Price, \$10. Pp. 308. Los Angeles: Parkman Press, 1936.

This volume "endeavors to make clear all the branches of human actions and reactions, not only as applying to therapeutic principles, but to glimpse the principles that operate the universe" (p. 7). An ambitious aim, surely. But the informed reader closes the book with the conviction that the author has not been equal to either task. The central theme of the book is the well known fact that a happy and hopeful state of mind is favorable in the recovery from disease. But this well known principle, whatever the physiologic mechanisms may be, is so exaggerated by the author as to make fear a cause of cancer and relief from fear a cure of cancer. The author's mastery of neurology, physiology, physics and chemistry is not striking. His explanations of man's behavior in health and in disease are mainly verbalism. That a doctor's "personality" is a factor in inducing confidence and hope in his patients and that the latter are favorable to recovery is true, but why run this truth into the ground by making it a panacea? We do not serve science or society nor do we discourage quacks by going the latter 50-50 in unproved claims.

*Aktive Entspannungsbehandlung: Ein neues therapeutisches Prinzip mit Berücksichtigung der Sprache und Atmung.* Von Dr. med. Joh. Faust. Boards. Price, 5 marks. Pp. 112, with 20 illustrations. Stuttgart & Leipzig: Hippokrates-Verlag G. M. B. H., 1936.

This brochure deals with so-called active relaxation. Voluntary muscular relaxation is now well founded by physiologic experimentation and it seems to be of some therapeutic significance. The author attempts to show that the training of relaxation is in no way related to the methods of suggestion or hypnosis. He prescribes relaxation for various neuroses, especially those involving the breathing apparatus.

*Urology in Women: A Handbook of Urinary Diseases in the Female Sex.* By E. Catherine Lewis, M.S., F.R.C.S., Surgeon to the Royal Free Hospital, London. Second edition. Cloth. Price, \$2.25. Pp. 100, with 31 illustrations. Baltimore: William Wood & Company, 1936.

This small monograph discusses in an excellent manner those urologic lesions which in a particular manner affect women. In this edition, sections are devoted to vesical neck obstructions and to endometriosis. Treatment has been accorded greater space and amplified discussion of the ureteral changes in pregnancy, and of prolapse and dilatation of the ureters, is acceptable. The illustrations are excellent and the arrangement and physical aspect of the book all that could be hoped for. The book will prove of value as a work of reference and will be especially appreciated by the experienced urologist and gynecologist.

*Tonzilyarni zakhvoryuvannya: Khronichnyi tonzillit, khroniosepsis, sepsis pilsya angini.* [By] A. I. Geshelin. [Tonsillar Infection: Chronic Tonsillitis, Chroniosepsis and Postanginal Sepsis.] Paper. Price, 1 ruble, 20 kopecks. Pp. 95. Kiev: Derzhavne medichne vidavnistvo, 1936.

This is a monograph written in the Ukrainian language. It contains chapters on the anatomy, pathology, bacteriology and treatment of tonsillar infections. The author discusses sepsis of tonsillar origin and reviews the various concepts. The subject matter is well presented and the field is adequately reviewed.

are not increased in infectious mononucleosis; namely, rabbit, pig, dog and guinea-pig. The most reliable method besides the absorption of sheep agglutinins by rabbit blood corpuscles (Stuart) is the absorption of horse agglutinins by beef blood corpuscles. By the first method, almost no absorption of the agglutinins is obtained in infectious mononucleosis; by the second, almost complete absorption. In normal serums and in serums after the injection of serum the reverse is true. The differential diagnosis of infectious mononucleosis cannot always be made serologically after the injection of serum.

**Peripheral Blood Flow in Surgical Shock.**—Freeman and his co-workers stabilized the metabolic demands of the tissues of the hand by maintaining it at a constant temperature. Traumatic stimuli such as cold, pain and fear produced a decrease in the volume flow of blood. With asphyxia, a variable effect was observed. In the hand with vasomotor control intact a decrease in blood flow was observed in six cases, while an increase in circulation was found in eleven cases. The blood flow decreased in regions subject to vasomotor control. It was simultaneously increased in the sympathectomized hand. The systolic blood pressure was raised but slightly, while the diastolic blood pressure more frequently was lowered during the period of asphyxia. In the twelve experiments in which the blood pressure was determined, the maximal rise in systolic pressure was only 10 mm. of mercury. The flow of blood is modified by the metabolic demand of the tissues. Two forces are therefore simultaneously called into play—reflex vasoconstriction and local vasodilatation. The final result depends on which of the two forces is dominant. When the subject was apprehensive, a decreased blood flow was generally observed. In asphyxia not only does the reduced oxygen saturation of the arterial blood necessitate a more rapid circulation but through reflex vasoconstriction the supply of blood at the same time may even be reduced. In the more severe cases of shock the oxygen saturation of the venous blood was below 50 per cent. The inability of the tissues to obtain an adequate supply of blood was indicated by the observations on reactive hyperemia. In the normal subject the circulation increased rapidly after release of the tourniquet. In patients who were in shock a comparable increase was not observed. If the blood volume is reduced, the blood pressure may still be sustained by increasing the peripheral resistance through vasoconstriction. With vasoconstriction, however, the nutrient flow to the tissues becomes reduced. The use of epinephrine or ephedrine in the treatment of surgical shock furnishes an example of this fact. The blood pressure may be increased, but only at the expense of the blood flow. When the lowered blood pressure is the result of a reduced volume of blood in the vascular bed, physiologic treatment necessitates the administration of blood or some blood substitute. The reduced blood flow in the hand, observed in clinical cases of surgical shock, represents a deficiency of circulation that is probably general throughout the body. If the reactions to a crisis are too severe and protracted, vasoconstriction, the very mechanism by which the organism strives to survive, may lead to its destruction.

**Glycemic Response to Protein and Carbohydrate.**—Conn and Newburgh show that ingested protein causes a very much smaller increase in the blood sugar than results from an equivalent amount of dextrose or carbohydrate food. They believe that the explanation involves a principle that has received but little attention. One is accustomed to measure the capacity of a diabetic patient to dispose of dextrose in terms of the total number of grams of dextrose released from his diet in twenty-four hours. The number of grams of dextrose that just fails to produce glycosuria is taken to be a measure of the largest amount of dextrose that the patient can utilize in a period of twenty-four hours. Since maximal tolerance without glycosuria depends on the rate at which the body is able to remove dextrose from the blood stream by oxidation, deposition as glycogen and transformation to fat, the time element assumes an importance at least equal to that of total yield of dextrose in grams. During the metabolism of protein there occurs a slow yield of dextrose, which approximates 50 per cent of the weight of the ingested protein. Since protein in the diet represents a large source of dextrose, a comparison was made between the blood sugar levels and glycosuria produced by ingestion of equivalent amounts of dextrose derived from

protein and from dextrose and carbohydrate foods. The studies were made on fifteen diabetic patients and three normal fourth year medical students. Each subject was maintained aglycosuric for at least two weeks before the study was begun. In the process of protein metabolism, the complex protein molecule is split in the intestinal tract to amino acids. These are absorbed into the blood stream and transported to the liver, where oxidative deamination occurs. Here the glycogenic amino acids are split to form urea and dextrose. That this process is a slow one is shown by the slowly rising blood urea nitrogen. Dextrose is therefore liberated into the blood stream in this process at a slow and even rate over a prolonged period. Under these conditions the diabetic patient is able to utilize a greater total amount of dextrose without glycosuria in a period of eight hours. Therefore the inability of a diabetic subject to dispose of large quantities of dextrose is partially compensated if the dextrose is presented for utilization slowly and evenly. There appears, then, to be some advantage to the patient in this slow liberation of dextrose from protein foods.

## Journal of Immunology, Baltimore

31: 257-346 (Oct.) 1936

- Refractometric and Chemical Study of Diphtheria Toxin. C. Sielmann, Toronto.—p. 257.
- Study of "Vi" Antigen of Felix and Pitt. Lois Almon and W. D. Stovall, Madison, Wis.—p. 269.
- Studies on Mechanism of Immunity in Typhus Fever: Complement Fixation in Typhus Fever. M. Ruiz Castaneda, Boston.—p. 285.
- Localization and Concentration of Blood-Borne Antibodies and Colloidal Dye in Areas of Inflammation of Various Ages. J. P. Fox, Chicago.—p. 293.
- Study of Antigenic Properties of Certain Normal and Pathologic Lymphoid Deposits in Tissues of Chickens. C. Olson and A. Zeisig, Ithaca, N. Y.—p. 309.
- \*Blood Grouping in Forensic Medicine. A. O. Gettler and H. E. Kramer, New York.—p. 321.
- Studies on Acquired Immunity in Rabbits to Intranasal Infection with Type I Pneumococcus. T. E. Walsh and P. R. Cannon, Chicago.—p. 331.

**Blood Grouping in Forensic Medicine.**—Gettler and Kramer admonish against the use of blood grouping of partially decomposed (and contaminated) blood stains, since their experiments showed discrepancies. Fresh blood samples of known groups were smeared on cloth, paper and metal implements and allowed to stand for various intervals. The dried blood stains were then again tested. When putrefaction of the blood samples set in before they dried, as many as fourteen out of eighteen wrong groups were obtained. Not only were agglutinin or agglutinin destroyed during the drying or aging of the blood stains, but in some instances changes occurred which yielded reactions simulating those of some particular agglutinin.

## Journal of Urology, Baltimore

36: 305-468 (Oct.) 1936

- Duplication of Kidney and Ureter. G. Y. Char, H. E. Shih and I. C. Wen, Peiping, China.—p. 305.
- Congenital Solitary Kidney with Perinephric Abscess: Report of Two Cases. R. L. Davis and A. G. Cowles, San Antonio, Texas.—p. 327.
- Present Status of Renal Sympathectomy. T. E. Gilson, San Francisco.—p. 334.
- \*Vascular Obstruction of Ureter in Children. M. F. Campbell, New York.—p. 366.
- Primary Carcinoma of Epididymis. G. A. Williamson Jr. and T. E. Barry, Knoxville, Tenn.—p. 388.
- Carcinoma of Epididymis. J. A. May, San Diego, Calif.—p. 391.
- \*New Operations for Relief of Incontinence in Both Male and Female. O. S. Lowsley, New York.—p. 400.
- Histopathologic Study of Female Bladder Neck and Urethra. D. W. MacKenzie and S. Beck, Montreal.—p. 414.
- Endoscopic versus Blind Litholapaxy: Report of Accident with Endoscopic Method. A. Pulido, A. De La Peña and E. De La Peña, Madrid, Spain.—p. 443.
- Relationship Between Chemical Composition of Renal Calculi and Associated Bacteria. J. T. Priestley and A. E. Osterberg, Rochester, Minn.—p. 447.
- Infections of Urinary Tract of Obscure Etiology. E. N. Cook, Rochester, Minn.—p. 460.
- Device for Controlling Drainage of Bladder Following Cystotomy. J. E. Tillotson, Woodland, Calif.—p. 466.

**Vascular Obstruction of Ureter in Children.**—Campbell illustrates the point that the greatest field for preventive medicine in urology lies in the early recognition and treatment of congenital urologic handicaps by reporting eighteen cases of

## Current Medical Literature

### AMERICAN

The Association Library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American J. Obstetrics and Gynecology, St. Louis

32: 727-910 (Nov.) 1936

- Rôle of Lower Uterine Soft Parts in Labor. W. E. Caldwell, H. C. Moloy and A. D'Esopo, New York.—p. 727.  
Clinical Review of 110 Cases of Ovarian Carcinoma. F. W. Lynch, San Francisco.—p. 753.  
\*Iliac Lymphadenectomy Plus Radiation in Borderline Cancer of Cervix. F. J. Taussig, St. Louis.—p. 777.  
Premature Rupture of Membranes as Means of Inducing Labor. E. D. Plass and C. W. Seibert, Iowa City.—p. 785.  
Study of One Thousand Placentas. W. B. Harer, Philadelphia.—p. 794.  
Bacteriologic Study of 500 Consecutive Abortions, with Treatment and Results. T. K. Brown and G. A. Hunt, St. Louis.—p. 804.  
Similarity in Cervix of Rhesus Monkey and Woman. R. L. Dickinson, New York, and C. G. Hartman, Baltimore.—p. 813.  
Observations on Ovulation in Primates. A. H. Morse and G. van Wagenen, New Haven, Conn.—p. 823.  
Size and Shape of Pelvic Inlet as Determined by Direct Measurement. E. A. Schumann, Philadelphia.—p. 832.  
\*Investigation of New Pentavalent Arsenical, Aldarsone, in Treatment of Trichomonas Vaginitis. P. B. Bland and A. E. Rakoff, Philadelphia.—p. 835.  
Management of Secondary Amenorrhea of Functional Origin. A. B. Tamis, New York.—p. 845.  
Cell Volume Following Delivery and Its Relation to Blood Loss and Postpartum Infection. J. B. Pastore, New York.—p. 859.  
Traumatic Gynastresia. F. A. Kassebohm and M. J. Schreiber, New York.—p. 869.  
Parental Age Difference and Conception of Congenitally Malformed Children: Study of 600 Families. D. P. Murphy, Philadelphia.—p. 873.  
Critical Analysis of First 3,060 Cases Delivered at the Bronx Hospital. J. I. Kushner, New York.—p. 874.  
Interstitial Pregnancy: Case with Early Rupture, Treated by Vaginal Operation. T. K. Reeves, Pittsburgh.—p. 880.  
Epithelioma of Clitoris. Sonya Arina Momen, Brooklyn.—p. 882.  
New All Metal Umbilical Cord Clamp. C. E. Ziegler, Pittsburgh.—p. 884.

**Iliac Lymphadenectomy and Irradiation in Cancer of Cervix.**—Taussig has combined irradiation of the primary lesion with surgical removal of a large portion of the tributary lymph glands in forty-six cases of borderline cancer of the cervix. The first case, done in October 1930, with cancer metastasis in the hypogastric lymph glands, is still free of recurrence. Careful selection of cases is a prime requisite to success. The patient must be a good operative risk. Disease of the heart or kidneys, obesity, debility and extreme age are contraindications. There have been two deaths among the forty-six patients operated on. Recently when heavy irradiation preceded the operation the author found that the lymph glands were more likely to be adherent and difficult to remove. Hence he advises from 1,000 to 1,500 roentgens of high voltage therapy spread over two weeks. Two weeks after this series is concluded, iliac lymphadenectomy is done. Two weeks after operation an intra-uterine application of 150 mg. of radium in gold capsules totaling from about 4,000 to 5,000 mg. hours is made. An additional 2,000 to 2,500 roentgens of high voltage therapy should follow the radium treatment. Glandular metastasis was found fifteen times in the forty-six cases. In these cases 194 glands were removed and subjected to careful microscopic study. Of the nineteen patients operated on two or more years ago, compared with seventy-six patients treated with a similar dose of radiation but without lymph gland removal, the survival curve remains definitely higher in the group of lymphadenectomies. Of ten patients treated more than four years ago compared with thirty-five patients whose cancer showed the same stage of involvement not operated on but irradiated by the same method during the same period, the percentage of survival was found to be approximately twice as great in the operative cases as in those in which irradiation alone was given. His experience of the last five years has convinced the author that iliac lymphadenectomy in the hands

of a competent surgeon, done on patients that are good operative risks with only partial cancerous involvement of the broad ligaments, is a relatively simple and harmless procedure and gives an increased chance of survival and cure that definitely justified the surgical intervention.

**New Arsenical in Treatment of Trichomonas Vaginitis.**—Bland and Rakoff used sodium methylenesulfonaminohydroxyphenylarsonate in the treatment of 100 cases of Trichomonas vaginitis. Studies in vitro indicated that the compound has a definite trichomonadocidal power, which is many times that of acetasone and is not inhibited by human blood serum. Treatment consisted of the insufflation of 0.5 Gm. of the drug, diluted with kaolin, following preliminary cleansing of the vagina and vulva with a diluted tincture of green soap and water, and instillation of tincture of metaphen into the cervix and of aqueous solution of metaphen, 1:500, into the urethra. Ninety-one women remained free from Trichomonas vaginitis during a period of from three to nine months following treatment. Of the eighty-four women who remained negative after a series of six treatments, five required an additional series of six treatments and two were cured after two additional series of treatments. Of twenty-five women treated by a similar technic with acetasone, only twelve remained free from Trichomonas vaginitis while thirteen had repeated recurrences. Clinical experience and laboratory studies indicate that the new drug is superior to acetasone in the treatment of Trichomonas vaginitis.

#### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

36: 437-574 (Oct.) 1936

- Early Experiences with Radium: Janeway Memorial Lecture. C. F. Burnam, Baltimore.—p. 437.  
Qualifications for Practice of Radium Therapy. G. W. Grier, Pittsburgh.—p. 453.  
Limitations of Radium Therapy in Cancer of Cervix. P. Findley, Omaha.—p. 457.  
Clinical Results and Histologic Changes Following Radiation Treatment of Cancer of Corpus Uteri. A. N. Arneson, St. Louis.—p. 461.  
Calculation of Dosage in Radium Treatment of Carcinoma of Cervix. C. D. Lucas, Charlotte, N. C.—p. 477.  
\*Serious Complications Encountered During Treatment of Carcinoma of Uterine Cervix. H. H. Bowing and R. E. Fricke, Rochester, Minn.—p. 490.  
Late Effects of Irradiation of Thymus. D. S. Polk and Elizabeth Kirk Rose, Philadelphia.—p. 498.  
\*Radiation Sickness: Its Possible Cause and Prevention. H. F. Friedman and P. Drinker, Boston.—p. 503.  
Causes of Roentgen-Ray Dermatitis Among Physicians. E. T. Leddy, Rochester, Minn.—p. 510.  
Osteopoikilosis: Five Year Study. L. E. Holly, Muskegon, Mich.—p. 512.  
Cholecystic-Colonic Fistula. I. S. Startz, Elmhurst, N. Y.—p. 518.  
Thoracopagus: Case Report. A. R. Maddox and W. E. Allen Jr., St. Louis.—p. 521.  
Aneurysm of Abdominal Aorta: Report of Case Exhibiting Annular Calcifications. A. S. Unger and M. H. Poppel, New York.—p. 523.  
Characteristics of Roentgen-Ray Equipment at Voltages in Excess of 200,000. M. J. Gross, Chicago.—p. 525.  
Factors Influencing Quantitative Measurement of Roentgen-Ray Absorption of Tooth Slabs: VI. Miscellaneous Film Factors. H. C. Hodge, G. Van Huysen, R. B. Wilsey and S. L. Warren, Rochester, N. Y.—p. 531.

**Complications of Carcinoma of Cervix.**—Bowing and Fricke planned radium treatment for 495 patients who had carcinoma of the cervix. In about 90 per cent of these cases the lesions were inoperable. In spite of careful studies of each patient and the planning of treatment that would not unduly tax the patient's reserve, major complications occurred in 5.6 per cent of these cases, and death occurred in six cases. Much in the way of prevention of serious pelvic cellulitis and peritonitis can be accomplished by daily cleansing of the cervical lesion if considerable infection is evident. Hemorrhage requires more vigorous management. Rectovaginal or vesicovaginal fistulas are rarely seen except as a late result of the malignant process. Proctitis is another serious complication which often is attributable to irradiation, although it may result from perirectal extension of the growth. Lymph stasis with edema of one or both legs is occasionally encountered in late stages of the disease, in cases in which massive infiltration and a "frozen pelvis" are present. Rest and elevation of the part, and the administration of sedatives offer some alleviation. Elevation of temperature, which frequently is seen in the course of treatment, in most cases is the result of the infected cervical lesions. Major complications usually are the result of acute inflam-



## New York State Journal of Medicine, New York

36: 1587-1698 (Nov. 1) 1936

- \*Treatment of Sydenham's Chorea with Typhoid Paratyphoid Vaccine. D. Weisman and C. Leslie, New York.—p. 1587.
- Endocrine Glands: Problem of Therapeutics in Diabetes. H. R. Geyelin, New York.—p. 1600.
- Id.: Ovarian Therapy in Gynecology. C. A. Elden, Rochester.—p. 1607.
- Id.: Diagnosis of Tumors In and Around Pituitary Gland. L. M. Davidoff, New York.—p. 1610.
- Cancer of Esophagus. W. L. Watson, New York.—p. 1615.
- Factors Which Influence Formation of Urinary Calculi: Clinical Application to Prevention of Recurrent Renal Calculi. C. C. Higgins, Cleveland.—p. 1620.
- Treatment of Alopecia Areata. H. H. Bauckus, C. F. Siekmann and A. V. Kwak, Buffalo.—p. 1629.
- Oxygen Consumption in Organic Psychoses. J. Notkin, Poughkeepsie.—p. 1633.
- Surgical Treatment of Acute Cholecystitis. G. J. Heuer, New York.—p. 1643.
- Relationship of Mitral Stenosis to Pulmonary Tuberculosis. L. F. Bishop Jr. and A. Babey, New York.—p. 1651.
- Increasing Importance of Undulant Fever. J. Kogan, Stamford.—p. 1653.
- Vasomotor and Atrophic Rhinitis: Relation to Body Fluids and Sodium Metabolism. S. Kaplan, Brooklyn.—p. 1655.
- Between Mental Health and Mental Disease. B. Liber, New York.—p. 1658.

**Treatment of Chorea with Vaccine.**—Weisman and Leslie treated fifty children who had moderately severe to violent chorea with New York City typhoid paratyphoid vaccine or its equivalent. The initial dose is always 0.05 cc. of undiluted vaccine, intravenously. Tolerance to the vaccine increases with each day's treatment in the large majority of cases. A dose that produces the first day the satisfactory temperature of 105 F. will in all probability produce only the unsatisfactory temperature of 103 F. the next day. Therefore the dosage must be constantly increased in accordance with the patient's previous reactions. The treatment should be given daily and stopped only when all the signs of chorea have disappeared except for the commonly found residual hypotonia. If seven or eight consecutive treatments do not effect a cure, the child should be given a rest for from two to four days before resuming treatment. On the first day of the second series of treatments the same dose should be used as that of the last day of the first series. The child generally loses from 1 to 4 pounds (0.4 to 1.6 Kg.) during the period of treatment. Patients are given a nourishing high caloric and high vitamin diet, and occupational therapy. The treatment should not be undertaken unless it is possible for all the nursing orders to be carried out in a meticulous fashion. The average duration of symptoms from the inception of treatment was 12.2 days for the moderate group, 13.8 days for the severe group and 22.5 days for the violent group. The average length of hospitalization was twenty-six days for the moderate group, 28.4 days for the severe group and forty-two days for the violent group. Children who had an elevated sedimentation rate after their course of treatment were kept in bed until the rate became approximately normal. In the twenty-two cases of clinical rheumatism, the average duration of chorea was 11.7 days, the hospitalization period twenty-six days and the number of treatments eight. On discharge, forty-six of the patients, or 92 per cent, were completely symptom free. Five of the patients have had a total of six recurrences in the follow-up period of from one to three years.

## Ohio State Medical Journal, Columbus

32: 1049-1168 (Nov. 1) 1936

- Bacterial Asthma. S. E. Dorst and Ethel L. Hopphan, Cincinnati.—p. 1065.
- \*Motor Derangements of Gastro-Intestinal Tract After Operation. A. G. Sar-Louis, Cleveland.—p. 1071.
- Reconstruction of Bile Ducts. F. T. Gallagher, Lakewood.—p. 1074.
- Longevity of Physicians. R. G. Paterson, Columbus.—p. 1076.
- Dermatitis Seborrhoica. H. L. Claassen, Cincinnati.—p. 1077.
- Cardiac Asthma. S. Hurwitz, Jamestown, N. Y.—p. 1082.
- Trichomonas Vaginalis Infestation in Male Genito-Urinary Tract. E. A. Ockuly, Toledo.—p. 1086.
- Mild Migratory Myelitis. J. L. Fetterman, Cleveland.—p. 1090.
- Use of Ergot in Puerperium. A. Cline, Dayton.—p. 1094.

**Postoperative Derangements of the Gastro-Intestinal Tract.**—Sar-Louis suggests that the mild form of postoperative gastro-intestinal motor disturbance, "gas pains," is caused by the excessive stimulation of the splanchnic nerve, whereas the

severe manifestation, paralytic ileus, represents an advanced stage of the same disturbance which has resulted in a paralytic reaction to excessive stimulation. If gas pains are the result of increased peristalsis from vagus stimulation, drugs that augment intestinal movements are contraindicated. They are of value, however, in the severe forms of motor disturbances due to vagus paralysis. Prophylactic treatment consists of avoiding preoperative purges, careful operative technique and the postoperative avoidance of liquids by mouth. Prevention of dehydration and loss of inorganic salts, as well as restoration of the acid-alkali balance, are accomplished by suitable solutions administered subcutaneously and intravenously. Drugs that have been shown to stimulate the small intestine include hypertonic saline solution administered intravenously, dimethyl carbamic ester of hydroxy phenyl-trimethyl ammonium methyl sulfate, the physostigmine derivative, oil of tansy, acetylcholine and morphine.

## Radiology, Syracuse, N. Y.

27: 391-520 (Oct.) 1936

- Hepatosplenography with Stabilized Thorium Dioxide Sol: Follow-Up Study of 200 Patients Examined over a Period of Five Years. W. M. Yater, L. S. Otell and H. H. Hussey, Washington, D. C.—p. 391.
- Radiation Therapy of Bone Tumors. O. N. Meland, Los Angeles.—p. 410.
- \*Gliomas Roentgenologically Considered. C. W. Schwartz, New York.—p. 419.
- Study of Effect of Skull Rotation on Roentgenologic Measurements of Pineal Gland. W. W. Fray, Rochester, N. Y.—p. 433.
- Problems in Radiation Therapy. J. L. Weatherwax, Philadelphia.—p. 442.
- Posterior Dislocation of Hip: Roentgenographic Study in Anterior Oblique View. C. K. Hsieh, Peiping, China.—p. 450.
- Ionization of Air by Lenard Rays. L. S. Taylor, Washington, D. C.—p. 456.
- Effect on Roentgen Rays and Hydrogen Peroxide on Tissue Lipase. Helen Quincy Woodward, New York.—p. 463.
- Improved Method for Treatment of Cancer Statistics. L. G. Jacobs, Minneapolis.—p. 468.
- \*Air in Hepatic Ducts: X-Ray Sign of Biliary Fistula. R. A. Powers, Palo Alto, Calif.—p. 474.
- Porphyria and Porphyrinuria: Warning Regarding Their Importance in Roentgen Therapy. I. S. Trostler, Chicago.—p. 479.
- What Is the Best Way in Which to Treat Breast Cancer? G. Perry, Evanston, Ill.—p. 481.
- \*Calcified Mesenteric Lymph Nodes: Their Incidence and Significance in Routine Roentgen Examination of Gastro-Intestinal Tract. S. Schechter, New York.—p. 485.

**Roentgen Consideration of Gliomas.**—Schwartz analyzes the operatively proved gliomas that had preoperative roentgen examinations at the Neurological Institute during the last ten years. The recognition of a glioblastoma multiforme depends on a short malignant history and evidences of intracranial disease. Untreated these tumors result fatally within about a year, but with the application of from 2,500 to 4,000 roentgens in divided doses the survival time may be doubled, with an occasional remission of symptoms. The astrocytoma constitutes about 30 per cent of the glioma group. Its location can be estimated closely from the study of stereoscopic films. The roentgen diagnosis of an astrocytoma in a child depends on a history of a few months of gradually progressive symptoms, signs of increased intracranial pressure, and little or no atrophy of the sella turcica. In the adult there is a history of many months, even years, of gradually progressing symptoms with perhaps remissions, signs of increased intracranial pressure, a shift of the pineal body, atrophy of the sella turcica, and striated or punctate deposits of calcium usually situated in the like or temporal lobe or in the temporo-frontoparietal region. Postoperative empirical irradiation is to be advised. Medulloblastoma is of rapid growth and has the tendency to spread widely through the leptomeninges. The only roentgen evidence of its presence is usually increased intracranial pressure. The medulloblastoma will have a short malignant history and is sensitive to x-rays. The astroblastoma is found almost without exception in the cerebrum of adults and grows rapidly. Cystic degeneration is common and it calcifies frequently. X-rays are of about the same efficiency as in the treatment of a glioblastoma multiforme. The oligodendroglioma is found with few exceptions in the cerebral hemispheres of adults of from 40 to 50 years of age. The tumors are solid, not apt to become cystic or degenerate, and fairly well demarcated from the surrounding brain tissue. Calcification is usually found to be perivascular, streaky or somewhat flocculent. Roentgen therapy

and basal ganglions following the use of nitrous oxide-oxygen anesthesia. Death during nitrous oxide-oxygen anesthesia has occurred following narcotics of varying duration. In some instances the duration of the narcosis is not given, but it can be assumed that it was not long, since the anesthetic was used for minor operations; for example, extraction of teeth. In fatal cases the respiration ceases suddenly and without warning. The relation of the failure of circulation to that of respiration varies. Three of the authors' cases belong to the group with a fatal outcome after hours, days or weeks. The respiration ceased suddenly in two patients and gradually in one, but the failure of respiration was not permanent. It was reestablished after ten minutes in one patient and after forty minutes in two. In none of these cases did respiration or circulation return to normal. The respiration was labored. The pulse rate varied from 120 to 160. The blood pressure dropped slightly in two patients but soon returned to normal. There was a marked elevation of temperature in all instances (from 105 to 108 F.). Convulsions, muscular twitchings and hypertonicity of the extremities and the trunk were present in all three cases. Death occurred after sixty, seventy-two and 119 hours, respectively. From the neurologic observations in the three fatal cases, the authors assume that death was due to the destruction of brain parenchyma. The two possible causes of this destruction may be asphyxia and the toxic effect of the gas. The asphyxia might be produced by anoxemia due to low oxygen content of the blood or to anoxemia due to collapse of the brain capillaries. Anoxemia due to oxygen deprivation should be relieved promptly by the administration of oxygen and is therefore not dangerous. Collapse of the capillaries associated with stasis and anoxemia as a responsible cause of degeneration of the parenchyma is suggested by the histologic picture, in that a definite selective destruction is noted, the cortex and the basal ganglions being much more severely damaged than the brain stem and the cerebellum, resulting in a clinical picture of decortification. Destruction of this type is frequently a toxic manifestation, and a similarity has been observed in cases of poisoning by excessive doses of pantopon (a mixture of opium and alkaloids) or/and morphine. Therefore, death may be due to extensive destruction of the cortex and basal ganglions rather than to involvement of the respiratory area alone.

**Splenectomy for Hemoelastic Crises.**—Curtis and his collaborators present the clinical evidence of eight patients in whom splenectomy was successful during an acute hemoclastic crisis. Six of the patients had congenital hemolytic icterus; two had thrombopenic purpura. The outcome supports the rationale of splenectomy in the treatment of properly selected and prepared patients suffering from hemolytic icterus or thrombopenic purpura of splenic origin. The authors attribute their success to careful differential diagnostic studies, optimal preoperative management and the application of modern surgical knowledge to the problem.

**Relief of Pain in Arterial Diseases of Lower Extremities.**—Smith treated forty-six cases of ulceration and gangrene in the lower extremities caused by occlusive arterial diseases by peripheral nerve block in the lower third of the leg. The operations were performed by exposing the nerves and blocking them with either injection of alcohol and crushing, division, or division and sutures or by crushing from 2 to 6 mm. of the nerve. Peripheral nerve block is an anatomic operation and should not be attempted until the operator has familiarized himself with the exact local anatomy. Poor wound healing may be attributed to extensive dissection because of lack of anatomic knowledge and failure to appreciate the amount of operative trauma these tissues will tolerate. Perfection of operative technic on anatomic specimens is recommended before the operation is attempted clinically. The procedure saved 50 per cent of the arteriosclerosis patients and 20 per cent of the arteriosclerotic with diabetes from a major amputation. No leg amputations were performed in the thrombo-angiitis group. The release of vasoconstriction by block increased the local temperature in the anesthetized area to varying degrees in the thrombo-angiitis cases, depending on the degree of arterial occlusion and spasm in the wall of the vessel. It made dressings, treatments, postural exercises, warm whirlpool baths, irrigation with diluted solution of sodium

hypochlorite, excision of sloughs and osteomyelitic sequestrums and drainage of local abscesses possible without subjecting the patient to multiple general anesthetics. Proper foot hygiene and shoes are necessary in order to prevent trophic ulceration in the insensitive member. Patients should be particularly warned not to expose the insensitive part to any form of heat. The relief of pain during wound healing has freed patients from sedatives, improved their appetites, increased their weight and permitted normal function of their gastro-intestinal and genito-urinary tracts which were interfered with by sedatives. Restful sleep has improved cerebral disorientation. Paralysis of the intrinsic muscles of the foot, which follows any type of nerve block, has not interfered with normal locomotion.

### Archives of Internal Medicine, Chicago

58:765-956 (Nov.) 1936

Can Neurologic Complications of Pernicious Anemia Be Prevented? W. Needles, New York.—p. 765.

\*Postural Hypotension, with Particular Reference to Its Occurrence in Disease of Central Nervous System. L. B. Ellis and Florence W. Haynes, Boston.—p. 773.

Treatment of Typhoid with Antitoxic Antityphoid Serum. G. Schwartzman and G. Baehr, New York, and W. Y. Hollingsworth, Detroit.—p. 799.

Alteration of Heart Sounds. P. Cossio, M. Lascalea and E. G. Fongí, Buenos Aires, Argentina, South America.—p. 812.

\*Nephrosis with Uremia Following Transfusion with Incompatible Blood: Report of Seven Cases with Three Deaths. W. Goldring and I. Graef, New York.—p. 825.

Hyperparathyroidism Complicated by Hyperthyroidism: Report of Case. J. F. Noble and J. F. Borg, St. Paul.—p. 846.

Clinical Significance of Cholesterol Partition of Blood Plasma in Hepatic and in Biliary Diseases. E. Z. Epstein and E. B. Greenspan, New York.—p. 860.

Actions of Diuretic Drugs and Changes in Metabolites in Edematous Patients. A. B. Stockton, San Francisco.—p. 891.

Syphilis: Review of Recent Literature. P. Padget and J. E. Moore, Baltimore.—p. 901.

**Postural Hypotension and Disease of Central Nervous System.**—Ellis and Haynes observed six patients with postural hypotension. In four there was definite evidence of neurologic disease (tabes dorsalis, syringomyelia and hematomyelia), and in an additional case there was some evidence of involvement of the central nervous system. The vascular responses were tested, and in two patients measurements of the circulatory dynamics were made. The total blood flow was found to be well maintained when the patient was in the erect position. Ephedrine was the most effective in relieving the symptoms. The effect of postural change on the blood pressure of patients with tabes dorsalis, combined system disease and miscellaneous neurologic lesions was studied. Ten of seventeen successive tabetic patients had an abnormal postural response of the blood pressure. Postural hypotension results from a failure of the normal sympathetic vasomotor reflex to produce vasoconstriction when the subject assumes an erect position. The center controlling this reflex lies in the brain and not in the spinal cord. Since the disturbance is widespread, the site of the lesion is either in a sympathetic center or in an afferent pathway controlling the entire response, or it is generalized throughout the efferent pathways or nerve endings. It is probable that multiple etiologic causes exist, but many instances of postural hypotension are associated with disease of the central nervous system.

**Nephrosis Following Transfusion with Incompatible Blood.**—Goldring and Graef point out that of about 2,000 transfusions performed during the last six years in the third medical and surgical divisions of Bellevue Hospital seven reactions of incompatibility occurred. There appeared to be no striking relationship between the amount of blood transfused and the severity of the reaction. Two patients who received 400 cc. died, whereas three patients who received 500 cc. recovered. Furthermore, a patient who received 200 cc. had a more severe and protracted course than one who received 500 cc. Three patients died, on the seventh, fourteenth and nineteenth days respectively. A prompt and marked diminution in the output of urine occurred in every instance. The longest duration of marked oliguria before the onset of diuresis and recovery was sixteen days. Slight but distinct icterus appeared in five of the seven patients and lasted for from five to fourteen days. When some urine was voided directly after the transfusion it invariably contained what was believed to

the start of the expiration until the breaking point is reached. After a rest period of at least five minutes the inspiratory phase is determined; a maximal inspiration is taken, followed at once by a maximal expiration, and the ensuing maximal inspiration is held, with compression of the nares as before. The duration is measured from the start of the final inspiration, since some persons fill their lungs more rapidly than others. The duration of the inspiratory phase is then placed over the duration of the expiratory phase and the fraction thus obtained expresses the duration of voluntary apnea. The arithmetical value of the fraction, that is, the index of stability, tends to approach a value of 1. Clinical improvement is accompanied by a reversion toward the normal range, from 1.8 to 2. Like many other methods of investigation of the deranged physiology of thyrotoxicosis, the estimation of duration of voluntary apnea is not necessary to the safe handling of only mildly hyperthyroid patients. But it is invaluable in making the decision between subtotal thyroidectomy and two stage operation for the severely thyrotoxic individual. After becoming thoroughly familiar with the use of the test, one need not expect to find a close, constant parallel between changes in the duration of voluntary apnea, pulse rate, basal metabolism, and the like, in the progress of a case. There is a general correlation in these and other criteria as the patient grows better or worse, but there is so obviously a selective mechanism at work in thyrotoxicosis, in that the chief expression of the disease varies among different organ systems from case to case, that the patient is rare who improves in all respects at the same rate. The various clinical criteria in thyrotoxicosis, to which the breath holding ability test is an addition, probably measure quite dissimilar facets of this many sided disease.

**Production of Vaginal Acidity by Estrogen.**—In view of the well known fact that, *in vitro*, the gonococci grow best in an alkaline medium and usually do not survive if it is rendered acid below a hydrogen ion concentration of 6, Lewis and Weinstein suggest that a change of reaction, to acid, of the vaginal secretions of children by treatment with estrogen similar to that found in monkeys might easily account for the destruction of the gonococci. In seventeen normal children, the youngest of whom was 4 months and the oldest 10 years, they found the vaginal secretions to have an average hydrogen ion concentration of 7.2. In ten children with gonococcal vaginitis, measurements of the vaginal acidity gave an average hydrogen ion concentration very near the neutral point. Eleven consecutive cases of vaginitis in which *Neisseria gonorrhoeae* was still present in smears and in which the vagina was found to have a hydrogen ion concentration of 6.2 or more were treated by inserting gelatin capsules containing 75 rat units of amniotin into the vagina at night, just before retiring. As a rule approximately two weeks of such treatment will result in a vaginal acidity of hydrogen ion concentration 6 or below. In no case (twenty-four in all) in which the vaginal secretions were found to have a hydrogen ion concentration of 6 or below for any length of time could the gonococci be found in the smear. The acidity of the vaginal secretions is in all likelihood the important factor concerned in doing away with gonococcal infections, when children so infected are treated with estrogen. Doederlein's organism was present in only a few of the children examined and its presence or absence could not be correlated with the acidity or alkalinity of the vaginal tract.

### Tennessee State Medical Assn. Journal, Nashville

29: 377-416 (Oct.) 1936

- Poliomyelitis. W. L. Poole, Johnson City.—p. 377.  
Ocular Tuberculosis. E. C. Ellett, Memphis.—p. 382.  
Evaluation of Radiation in Certain Diseases of Female Pelvis. W. D. Anderson and W. S. Lawrence, Memphis.—p. 388.  
Local Anesthesia in Reduction of Fractures. E. D. Newell, Chattanooga.—p. 394.  
\*Interfering Agent in Human Blood Grouping. C. G. Ransom, Nashville.—p. 398.

**Interfering Agent in Human Blood Grouping.**—Ransom refers to an enzymatic agent that is often encountered but is frequently overlooked by the routine methods of blood grouping. The iso-agglutinogens being dominant mendelian characteristics and the finding of an interfering agent in several specimens of blood, which changed the groups, prompted

the investigation. The term iso-agglutinin is defined as being a substance in blood serum of an individual which has the power to agglutinate (or clump) the red blood cells of another individual belonging to the same species. While conducting a research problem with special regard to the blood groups, he encountered a most unusual phenomenon among six specimens of blood, all from different individuals of the same family and belonging to either group AB or B with parents of groups A and O. Stepchildren and illegitimacy were ruled out. Second specimens did not reveal the peculiar reaction but did disclose the bloods to belong to the groups that were possible for their parents to produce, such as A and O. Two of the first samples were preserved in the refrigerator, making it possible to correlate the first specimens with the second. Case 1 was found to be agglutinated by the standard serum A and failed to be agglutinated by the standard serum B; therefore, results of this test would place the person in group B. The second examination proved the blood to belong to group O. Case 2 was found to be agglutinated by the standard A and B serums. This person was considered to belong to group AB. These reactions took place at room temperature, although they could be greatly accelerated at lower temperatures. Cultures of the supernatant fluid from the first specimens of both cases disclosed a gram-negative bacillus which corresponds very closely to the description of Thomsen's B. He stated that this organism was an accentuating factor and would allow what he called an agglutinin (L) to act. The observations are not in entire agreement with those of Friedenreich, as only half of the bloods proved to be in false group AB and half in group B. Hence it may be concluded that the B typing serum was weak in agglutinin T, or L, as Thomsen named it. Although the serums possessed a strong titer for agglutinins A and B, it is not correct in the light of these experiments to consider this phenomenon as a panagglutination in all serums. Neither can it rightfully be called the normal cold-agglutinin, but it does seem plausible that these cells may have been sensitized by the enzyme, thereby allowing the cells to be agglutinated by the cold-agglutinin at a higher temperature. In order to overcome this particular source of error with the interfering agent, the blood must be examined within twelve hours after withdrawal if collected by the suspension method. The second method of detecting this phenomenon is by withdrawing the supernatant fluid from the suspicious cells and placing it in a refrigerator for twelve hours or longer with known O cells. If the cells agglutinate in any serum, the agent is acting. The third and best method is to test the cells in doubt with AB serum and, if agglutination takes place, the agent is acting and allowing the third agglutinin (L) to act on the red blood cells.

### Wisconsin Medical Journal, Madison

35: 853-936 (Nov.) 1936

- Diagnosis and Treatment of *Trichomonas Vaginalis*. R. M. Koster, Racine.—p. 869.  
Pityriasis Rosea. S. M. Markson and H. L. Miller, Milwaukee.—p. 873.  
Treatment of Menopause at Milwaukee County Dispensary. W. Houghton and Mary Neville, Milwaukee.—p. 879.  
Significance of Essential Hypertension in General Practice. F. D. Murphy, Milwaukee.—p. 881.  
Conditions Causing Constipation: Mechanisms of Production and Methods of Management. J. A. Barga, Rochester, Minn.—p. 887.  
\*Jaundice in Arthritis: Report of Two Cases. M. C. Berman, Milwaukee.—p. 890.  
Basis of Psychopathology. S. A. McCormick, Madison.—p. 891.  
Estimation of Blood Platelets as an Aid in Diagnosis. O. O. Storer, Madison.—p. 894.  
Complete Congenital Absence of Vagina and Uterus. D. N. Wilson and C. L. Qualls, Fond du Lac.—p. 895.

**Jaundice in Arthritis.**—In the last two years Borman has seen two patients suffering from a diffuse myofibrositis and peri-arthritis, whose pain was appreciably diminished with the development of jaundice. Neither patient had used alcohol prior to the development of jaundice. The reason for the analgesia and the mechanism of its action is not clear. Although an intense degree of jaundice was present in both patients and the degree of rheumatic pain from which they suffered was graded two plus on a basis of four, the analgesic action of jaundice, although definite, was incomplete. It continued, however, during the time the patients have been under observation.

than 1 cc. of insulin at any one site. Protamine insulin works successfully even if the carbohydrate in the diet varies from 100 to 275 Gm. The more complete control of the disease, which the new insulin makes possible, may so raise the standard of bodily health that the diabetic patient will be less subject to the various so-called diabetic complications and will resist them more successfully.

### Illinois Medical Journal, Chicago

70: 397-492 (Nov.) 1936

- Group Hospitalization. C. B. Reed, Chicago.—p. 413.  
Chest Roentgenography: New Standards and Improved Technics. D. O. N. Lindberg, Decatur.—p. 415.  
Plastic Surgery of Orbit: Notes. M. L. Folk, Chicago.—p. 419.  
Pelvic Endometriosis. W. A. Malcolm, Peoria.—p. 424.  
Postpartum Hemorrhage in Outpatient Obstetrics. H. Buxbaum and I. C. Udesky, Chicago.—p. 428.  
Neurolithiasis, from Standpoint of the Roentgenologist. E. L. Rypins, Bloomington.—p. 431.  
Roentgen Therapy of Cellulitis. B. C. Cushway and R. J. Maier, Chicago.—p. 436.  
Intrapelvic Protrusion of Acetabulum or Otto's Pelvis. L. M. Hilt, Springfield.—p. 443.  
Elliott Machine in Treatment of Prostatitis. L. W. Riha, Chicago.—p. 444.  
Use of Obturator in Treatment of Chronic Antrum Infections. G. C. Otrich, Belleville.—p. 449.  
Syphilis: Problem in Prenatal Care. Carolyn N. Macdonald, Chicago.—p. 452.  
The Radiologist and the Hospital. W. M. Hartman, Macomb.—p. 458.  
Occupational Therapy in Mental Hospitals. B. Lemchen, Chicago.—p. 461.  
\*Incidence and Clinical Significance of Various Types of Diphtheria Bacillus in Illinois. T. C. Grubb and H. J. Shaughnessy, Springfield.—p. 462.  
Public Health Problems of Southern Illinois. B. E. Montgomery, Harrisburg.—p. 469.  
Pneumothorax for Outpatients. F. M. Meixner, Peoria.—p. 474.  
Few Simple Recommendations to the General Practitioner in His Care of Arthritides. R. Penherton, Philadelphia.—p. 479.  
Cross Infection: Its Prevention in a Children's Hospital. M. L. Blatt, Chicago.—p. 483.

**Types of Diphtheria Bacillus in Illinois.**—Of the 162 strains of *Corynebacterium diphtheriae* that Grubb and Shaughnessy isolated from 109 cases and carriers, 5.5 per cent were grave, 78 per cent intermediate, 2.9 per cent mild and 4 per cent atypical strains, based on their colonial morphology on chocolate-tellurite agar. Two or more types of organisms were found in approximately 9 per cent of the cases and carriers. Repeated cultures from thirty cases and carriers showed that the original type was recovered at each of two, three, four or nine repeated examinations in 80 per cent of the cases and carriers. A change of type on repeated examination occurred in 20 per cent of the cases or carriers. Correlation of the type of organisms isolated with the clinical severity of the case indicated that the majority of the mild, moderately severe and severe cases were caused by the intermediate strains. Grave strains were not isolated in any of the severe or moderately severe cases. The percentage incidence of the grave, mild and intermediate types of the diphtheria bacillus may vary greatly in different localities. It also seems apparent that, where the prevailing type of diphtheria is mild in character, the incidence of the grave strain is low and it is not associated with severe cases of the disease.

### Johns Hopkins Hospital Bulletin, Baltimore

59: 213-306 (Oct.) 1936

- Effect of Ventricular Asystole on Respiration. H. M. Thomas Jr., Baltimore.—p. 213.  
Salmonella Suispestifer Infection in Myomas of Uterus: Report of Case. L. A. Gray, Baltimore.—p. 231.  
\*Hemophilic Pseudotumor: Diagnosis, Pathology and Surgical Treatment of Hemophilic Lesions in Smaller Bones and Joints. W. M. Firor and B. Woodhall, Baltimore.—p. 237.  
Adenoma of Parathyroid with Renal Insufficiency: Case Report. B. M. Baker Jr. and J. E. Howard, Baltimore.—p. 251.  
Lupus Erythematosus Associated with Visceral Vascular Lesions: Series of Autopsied Cases. S. Jarcho, Baltimore.—p. 262.  
Steatorrhea with Unusual Intestinal Lesions. S. Jarcho, Baltimore.—p. 275.  
Association of Hyperthyroidism and Pernicious Anemia: Note. E. C. Andrus and M. M. Wintrobe, Baltimore.—p. 291.

**Hemophilic Pseudotumor.**—Firor and Woodhall cite the case of a hemophilic patient with a clotting time of from four to five hours, who presented an extraordinary instance of bone and joint involvement of the right thumb, in whom a roentgen

diagnosis of bone sarcoma was given on two separate occasions. However, the lesion represented the end result of hemophilic bleeding into a small articulation and into its adjacent osseous structure, as contrasted with the previously reported instances of similar disorders in large bones and joints. The pathologic sequence of events was similar to that taking place in large bones and joints, but instead of regression and eventual ankylosis in the small bones and joints there may be also progressive destruction and cutaneous rupture. The roentgen diagnosis of hemophilic bone and joint lesions must be qualified in the future by these anatomic differences. Amputation of the pseudotumor was successfully accomplished with the electrocautery, and postoperative healing was essentially normal. This technic, with the supplementary aid of blood transfusions, appears to offer a distinct advance in the surgery of the patient with hemophilia. The favorable influence of cauterization of hemophilic tissue on reduction of the clotting time has been suggested by the observations in the case and is being studied further.

### Journal of Clinical Investigation, New York

15: 591-736 (Nov.) 1936

- \*Heterophile Antibodies in Infectious Mononucleosis and After Injection of Serum. P. Beer, Boston.—p. 591.  
Influence of Changes of Abdominal Tension on Pulmonary Function. W. B. Kountz, L. Gottlieb and R. King, St. Louis.—p. 601.  
Studies on Circulation in Pregnancy: I. Velocity of Blood Flow and Related Aspects of Circulation in Normal Pregnant Women. M. E. Cohen and K. J. Thomson, Boston.—p. 607.  
Blood Lipids of Diabetic Children. I. L. Chaikoff, F. S. Smyth and G. E. Gibbs, Berkeley, Calif.—p. 627.  
Hematologic Studies in Hypothyroidism Following Total Thyroidectomy. Beatrice Stern and M. D. Altschule, Boston.—p. 633.  
Work of Left Ventricle in Aortic Insufficiency. E. B. Bay, Chicago.—p. 643.  
\*Peripheral Blood Flow in Surgical Shock: Reduction in Circulation Through Hand Resulting from Pain, Fear, Cold and Asphyxia, with Quantitative Measurements of Volume Flow of Blood in Clinical Cases of Surgical Shock. N. E. Freeman, J. L. Shaw and J. C. Snyder, Boston.—p. 651.  
\*Glycemic Response to Isoglycogenic Quantities of Protein and Carbohydrate. J. W. Conn and L. H. Newburgh, Ann Arbor, Mich.—p. 665.  
Advantage of High Protein Diet in Treatment of Spontaneous Hypoglycemia: Preliminary Report. J. W. Conn, Ann Arbor, Mich.—p. 673.  
Metabolism of Human Erythroblasts. W. Kempner, Durham, N. C.—p. 679.  
Salt and Water Metabolism of Adrenal Insufficiency and Partial Starvation in Rats. M. I. Rubin and Elizabeth T. Krick, Philadelphia.—p. 685.  
Intracellular Fluid Loss in Hemorrhage. J. D. Stewart and G. Margaret Rourke, Boston.—p. 697.  
Effect of Dietary Protein on Urea Clearance of Children with Nephrosis. L. E. Farr, New York.—p. 703.  
Therapeutic Serum for Pneumococcus Type V (Cooper) Pneumonia. J. G. M. Bullock and Clare Wilcox, New York.—p. 711.  
Observations on Development of High Blood Sedimentation Rate in Rheumatic Carditis. A. F. Cohurn and E. M. Kapp, New York.—p. 715.

**Heterophile Antibodies in Infectious Mononucleosis.**—Beer made a study of the heterophile antibodies in serums from normal persons, from patients with infectious mononucleosis and from individuals who have received injections of serum. He found that in infectious mononucleosis the antigen with which the so-called heterophile antibodies react is found in horse, goat, sheep and beef blood corpuscles. The agglutinins for the blood corpuscles of sheep, horse and goat are markedly increased. In the case of beef blood corpuscles the hemolysins are increased but the agglutinins are not. Each of these kinds of blood corpuscles can absorb almost completely the agglutinins for the blood cells of each of these species. On the other hand, these antibodies are almost non-absorbable by any antigen for which the corresponding agglutinins are not increased. After injection of serum, the increased agglutinins for many kinds of mammalian blood corpuscles show about the same sequence in their titer as is found in serums of persons without a history of injections of serum. Serum from patients with infectious mononucleosis can be differentiated from normal serums and from those obtained after the injection of serum by absorption of the sheep, horse and goat agglutinins with sheep, beef, horse and goat blood corpuscles or by the resistance of these increased agglutinins to absorption by any of the blood corpuscles the agglutinins for which

**Edinburgh Medical Journal**

43: 657-716 (Nov.) 1936

- Clinical Recollections and Reflections: VII. Retinal Circulation in Cardiovascular Renal Disease. A. M. Ramsay.—p. 657.  
Normal Variations in Cutaneous Temperature of Extremities. P. W. Ingram.—p. 672.  
Sex Hormone Therapy in Gynecology. R. W. Johnstone.—p. 680.  
The Morbid Miner. D. E. Dickson.—p. 696.

**Indian Medical Gazette, Calcutta**

71: 565-628 (Oct.) 1936

- \*Biologic Method for Control of Dracontiasis. V. N. Moorthy and W. C. Sweet.—p. 565.  
Guinea-Worm Infection of Cyclops in Nature. V. N. Moorthy and W. C. Sweet.—p. 568.  
Pellagra in Vizagapatam. G. Dinker Rau and T. K. Raman.—p. 570.  
Typhus Fever in Burma and Their Distribution: Note on Cases. G. C. Maitra and P. N. Sen Gupta.—p. 572.  
Changes in Certain Chemical Constituents of Blood in Kala-Azar. K. V. Krishnan, N. G. Pai and P. N. Bose.—p. 574.  
Comparative Study of Modified Kline Test with Wassermann and Kahn Tests on 946 Blood Samples. N. Seshadrinathan and R. V. Rajam.—p. 577.  
Drop Pipet for Use in Kahn Test. N. Seshadrinathan and B. Timothy.—p. 579.  
Proximate Analysis of Native Beer Pachwai of Ahoriginal Tribes in Bengal. S. Neogi.—p. 580.  
Etiology of Primary Glaucoma. B. G. S. Acharya and J. N. Jaswal.—p. 582.  
Observations on Intra-Ocular Pressure in Cats. J. N. Jaswal.—p. 583.  
Sedimentation of Red Blood Cells in Glaucoma and Other Ocular Diseases. J. N. Jaswal.—p. 584.

**Biologic Method for Control of Dracontiasis.**—Moorthy and Sweet point out that the following six species of small fish were found to be of use in guinea-worm control: *Barbus (Puntius) puckelli*, *Barbus (Puntius) ticto*, *Lepidocephalocythus thormalis*, *Rasbora doniconius*, *Barbus sophore* and *Barbus chola*. To these fish have since been added a species of *Gambusia*, imported from Italy, which has also been found useful. All these species of fish feed on such copepods as cyclops, daphnia, cypris and diaptomus, under both laboratory and field conditions, although *Barbus puckelli* and *Barbus ticto* are the most active in this respect. Any species of fish to be useful in dracontiasis control should feed on and digest copepods, especially cyclops, should be a prolific breeder and should have its breeding season just before or coincident with the guinea-worm transmission season. Since 1934 fish have been introduced into step-wells in thirty-five infected villages, with the result that guinea-worm disease has disappeared in six and been markedly reduced in four. In certain of these villages the fish have not survived. Investigation has shown that this may be due to the bailing out of water to remove silt, to the drying up of the well in summer, to unexpected chemical treatment or to the catching of the fish for eating when the water is low. It is also probably true that certain waters because of their chemical or biologic peculiarities will not support these fish. The abolition of step-wells is the only permanent and fool-proof measure for the control of this disease.

**Journal of Laryngology and Otology, London**

51: 683-754 (Nov.) 1936

- Pathologic Changes in Ear in Late Congenital Syphilis. O. Mayer and J. S. Fraser.—p. 683.

**Journal of Tropical Medicine and Hygiene, London**

39: 233-244 (Oct. 15) 1936

- Simple Method of Rearing and Maintaining *Anopheles Maculipennis* Throughout the Year in the Laboratory. P. G. Shute.—p. 233.  
\*Experimental Transmission to Man of *Treponema Pertenu* by Fly *Musca Sorbens*, Wd. W. A. Lamborn.—p. 235.

**Experimental Transmission to Man of *Treponema Pertenu*.**—Lamborn outlines the habits of the hematophagous group of Muscid flies, as typified by *Musca sorbens*, the commonest representative in East Africa, which suggest the likelihood of their especial responsibility for the dissemination of pathogenic organisms present in skin lesions. A study of the precise manner in which such infections could be spread by the fly was carried out, with regard to *Bacillus leprae*, in the first place. It was then ascertained that, after regurgitation has taken place from an infecting meal and the vomit drop has been withdrawn, these organisms may be laid down on whatever food material to which the insect may happen to apply its

proboscis shortly afterward. *Bacillus leprae* may be deposited up to twenty-four hours from the infecting meal. It was further ascertained, as a result of the observation of a trypanosome, *Trypanosoma rhodesiense*, also may be deposited by the fly, and in viable condition up to half an hour. It has been proved conclusively that this fly must play a very definite part in the transmission of yaws as a result of the habit. The chance fall either of the excreta or of the vomit drop in the right situation plays a minor part in producing such infection compared with this definite purposeful act on the part of the fly. Full data on the transmission of the causative organism from one human subject to another by the fly are given.

**Lancet, London**

2: 893-960 (Oct. 17) 1936

- Anorexia Nervosa. J. A. Ryle.—p. 893.  
\*Storage of Cystine in Reticulo-Endothelial System and Its Association with Chronic Nephritis and Renal Rickets. Dorothy S. Russell and H. J. Barrie.—p. 899.  
Radiography of Hand in Chronic Rheumatic Diseases. G. R. P. Allen Brown and G. D. Steven.—p. 905.  
Test for Mobility of Mediastinum: Unilateral Plugging of a Main Bronchus. J. Holló and L. Laub.—p. 908.  
Aortic Triangle: Radiologic Landmark in Left (or II) Oblique Position. J. Parkinson and D. E. Bedford.—p. 909.  
Clinical Immunity. W. Wilcox.—p. 911.

**Storage of Cystine.**—Russell and Barrie cite three cases in which advanced chronic interstitial nephritis was associated with a disturbance of cystine metabolism. In two instances cystine was stored in the reticulo-endothelial system, the deposits being visible to the naked eye as opaque ochraceous flecks and streaks. In the third, cystinuria and stone formation were recognized in early childhood; no cystine was found in the tissues at necropsy. Only four cases are on record with a similar storage in the tissues. In none of the six cases in which storage of cystine in the tissues has been found at necropsy had cystinuria been established clinically before death. The association of underdevelopment and rickets with a disturbance of cystine metabolism in Lignac's three cases and in one of the authors' cases raises the question of the nature of the relationship of these conditions. A disorder in which the metabolism of this substance is impaired might well be accompanied by a retardation of growth. Yet underdevelopment is not a recognized feature of cystinuric subjects, being intermittent in cystinuric children. Likewise the association of rickets with cystinuria is shown by the same cases to be inconstant. Yet the identification of a disturbance of cystine metabolism combined with rickets in Lignac's cases and in one of the present cases suggests that the association cannot be dismissed as coincidental. Lignac's experience suggests that cystine storage would be found much more often in rickets, or in any rate renal rickets, if the possibility of its presence were kept in mind and steps taken for its detection. There are clinical considerations which suggest that the cystine diathesis may not be excessively rare in renal rickets as a class. The occasional record of glycosuria in renal rickets recalls the report of pentosuria, and later slight glycosuria in one of Lignac's cases and of glycosuria in the authors' case. The familial occurrence not only of cystinuria but of renal rickets and the not uncommon record of calculi of unspecified chemical composition in the urinary tract in cases of renal rickets and infantilism again suggest the linkage of faulty skeletal growth with cystinuria. It appears likely that renal rickets rests on a basis of renal injury, whether this is due to chronic interstitial nephritis or to nephritis consequent on demonstrable obstruction in some part of the urinary tract, or on dilatation indicated solely by dilatation and hypertrophy of the urinary tract. The similarity in the nephritis found in the authors' three cases raises the question whether the continual excretion of cystine in the urine may give rise to chronic nephritis and hence, in some instances at any rate, to renal rickets. There is experimental evidence, from the oral administration of cystine to rats and rabbits, that the kidneys are damaged thereby. The suggestion that the kidneys of young growing animals are more susceptible to this kind of injury than are the kidneys of adults agrees with the data so far available in the human species.



vascular obstruction of the ureter in children treated surgically. The youngest patient was 14 months old. He finds that vascular compression of the ureter is not uncommon in children. Vessels that produce the obstruction are congenitally anomalous. Hydronephrosis is the important uropathy and is usually infected. Pain in the renal region, pyuria, hematuria, a mass in the loin and, with the advent of infection, fever are the commonest symptoms. Most children with vascular obstruction of the ureter are treated for months for chronic pyelitis. In the absence of infection the renal changes as interpreted by urinalysis regularly cause the diagnosis of chronic interstitial nephritis to be made. Yet the correct diagnosis can usually be made preoperatively by a complete urologic examination. The probable diagnosis is often suggested by excretory urographic observations. Delayed diagnosis and radical surgical treatment are usually reciprocal. Conservative surgical treatment may be expected to save a gratifying number of injured kidneys. Unfortunately the medical profession is as yet insufficiently alert to the high incidence and importance of urologic disease in children. Because of the consequent delay in making the diagnosis, nephrectomy will necessarily be the treatment in fully half of all children with vascular ureteral blockage.

**Operations for Relief of Incontinence.**—His new operation for impotence, in which Lowsley uses three figure-of-eight ribbon-gut stitches to tighten the bulbocavernosus muscle in the male, has resulted in the inability of many patients to void. One patient, who was both impotent and incontinent, was entirely cured of both conditions by the operation. This accidental result prompted the use of the method in certain cases of incontinence. The patient is placed in the lithotomy position and a 20 French sound is inserted into the urethra. A median or Y shaped incision is made in the perineum and deepened through fat and Colles fascia, exposing the bulbocavernosus muscle, which is then dissected free on its sides. Chronic ribbon gut, studded with an atraumatic needle, is inserted well down on the lateral surface of the muscle. It is then fixed in a similar manner on the opposite side, pulled tightly across the posterior surface, and tied in a square knot. This is repeated at two other points over the bulbocavernosus muscle, resulting in a rather firm plication of the entire muscle. The sound is removed and the fascia and skin are closed with plain catgut and fixation sutures, respectively. It is usually necessary to catheterize the patient every eight hours for two or three days after the operation. In cases of preexisting incontinence, the patient is instructed to void every two or three hours while up and about and to use suprapubic pressure if necessary. The choice of operation for incontinence in the woman depends on the situation. If the urethra is very large and patulous and the patient is entirely incontinent, the ventral surface of the urethra is plicated. If, on the other hand, the patient merely loses a few drops of urine on coughing or other violent muscular activity, encircling the urethra with a piece of ribbon gut and tying it snugly will be all that is necessary to effect a cure. Operations were performed in thirty-five cases of incontinence; six of these were reported previously. The ages of the twenty-nine patients varied from 4 to 66 years. Twenty were women. The operations performed on the women were: suprapubic cystostomy with plastic repair of the vesical orifice, and the roof of the urethra, eight cases; Kelly urethroplasty, four cases, and Lowsley urethroplasty with ribbon gut, eight cases. The operations performed on the nine males were: suprapubic cystostomy and plastic repair of the vesical orifice, six cases, and perineal plication with ribbon gut, three cases. The operative result was favorable in all but four cases. These patients had to be reoperated on, one of them three times.

### Kentucky Medical Journal, Bowling Green

34: 485-522 (Nov.) 1936

- Hemangioma of Orbit: Case Report. A. L. Bass, Louisville.—p. 499.  
Primary Carcinoma of Middle Ear. E. C. Yates, Lexington.—p. 501.  
Ascending Paralysis: Report of Case. P. F. Barbour, Louisville.—p. 506.  
Cardiac Manifestations of Hyperthyroidism. F. W. Rankin and A. E. Grimes, Lexington.—p. 509.  
Evaluation of Reducing Diets. G. Fulton, Louisville.—p. 513.  
Mimicry and Insidious Nature of Thyroid Disease: Case Report. B. B. Baughman, Frankfort.—p. 520.

### Maine Medical Journal, Portland

27: 213-234 (Nov.) 1936

- Radium in Treatment of Malignancy. W. Holt, Portland.—p. 213.  
X-Ray Treatment of Malignancy. S. A. Wilson, Lewiston.—p. 214.  
Early Recognition and Treatment of Mental Disorders by the General Practitioner. C. J. Hedin, Bangor.—p. 217.  
Quo Vadis. R. J. Collins.—p. 223.

### Michigan State Medical Society Journal, Lansing

35: 689-768 (Nov.) 1936

- Society and Organized Medicine. C. G. Heyd, New York.—p. 689.  
Comparative Anatomy and Pathologic Physiology of Adrenal-Sympathetic Complex with Relation to Genesis and Surgical Treatment of Essential Hypertension. G. W. Crile, Cleveland.—p. 694.  
Organized Medicine. H. E. Perry, Lansing.—p. 697.  
Allergic Shock. Merle Pierson, Detroit.—p. 699.  
"Pus Tubes" Discovered After Opening Abdomen: The Problem, Some Statistics. S. W. Hartwell, Muskegon.—p. 700.  
When Shall a Patient Be Discharged from the Tuberculosis Sanatorium? Some Criteria. E. Kupka, Pontiac.—p. 702.  
Pellagra. I. W. Brown, Kalamazoo.—p. 707.  
Artificial Fever Therapy of Gonorrheal Ophthalmia: Case Report. J. M. Berris, M. K. Newman and L. E. Grant, Detroit.—p. 708.  
Von Pirquet Test Technic. D. S. Brachman, Detroit.—p. 709.

**Allergic Shock.**—Pierson warns that the frequency of severe reactions following such usually innocuous procedures as skin testing by the scratch method, the injection of diphtheria toxoid or the taking of certain drugs, as antipyrine, is not generally appreciated. Waldbott has reported a series of such reactions. To these the author adds brief summaries of six such cases seen in private practice. Scratch testing, the injection of diphtheria toxoid, the giving of prescriptions containing such drugs as ipecac, antipyrine, aminopyrine and phenolphthalein or the employment of home remedies such as mustard by mouth or in a plaster should not be undertaken without a knowledge of the family allergic background and the child's previous history. Especially should one be careful in scratch or intradermal tests with such atopens as egg, cottonseed or kapok seed, buckwheat, horse dander, fish glue and mustard.

### Minnesota Medicine, St. Paul

19: 633-694 (Oct.) 1936

- Age Factor and Intensity or Extent of Gall Tract Disease as Therapeutic Determinants. E. L. Tuohy, Duluth.—p. 633.  
Myxedema: Its Nervous and Mental Manifestations. G. N. Ruhberg, St. Paul.—p. 637.  
Clinical Importance of Hypothyroidism. D. E. Morehead, Owatonna.—p. 641.  
Gastroscopy, Another Method of Examining Stomach. A. Kerkhof, Minneapolis.—p. 647.  
Use of Flexible Gastroscope. J. B. Carey, Minneapolis.—p. 652.  
Various Drugs Used to Supplement Barbiturates in Production of Obstetric Analgesia and Amnesia. J. J. Swendsen, St. Paul.—p. 656.  
Diagnostic Problems in Heart Disease in Children and Young Adults. M. J. Shapiro, Minneapolis.—p. 659.  
Benign Lymphocytic Meningitis or Acute Aseptic Meningitis. O. P. Thorson, Northfield.—p. 664.

### Nebraska State Medical Journal, Lincoln

21: 361-400 (Oct.) 1936

- Surgical Aspects of Disease of Gallbladder. W. T. Coughlin, St. Louis.—p. 361.  
Clinical Aspects of Cholecystic Disease. P. W. Brown, Rochester, Minn.—p. 367.  
Gallbladder: Evaluation of Roentgen Findings in 297 Cases. H. B. Hunt, Omaha.—p. 372.  
Review of the Problem of Coagulation and Its Clinical Aspects. E. B. Reed, Lincoln.—p. 376.  
Infections of Kidney. P. S. Adams, Omaha.—p. 379.  
Aberrant Thyroid Tumors. T. J. Greteman and B. C. Russum, Omaha.—p. 384.  
Transient Methemoglobinemia: Case Report. J. K. Miller and C. H. Farrell, Ingleside.—p. 386.  
Thyroid "Poisoning" in Children. H. M. Jahr, Omaha.—p. 388.

### New England Journal of Medicine, Boston

215: 743-804 (Oct. 22) 1936

- Necessity for Use of Splints at Certain Stages in Treatment of Infections of Hand, with Demonstration of Some of the Newer Types. W. E. Browne, Boston.—p. 743.  
Diseases and Injuries of Hip Joint. R. N. Hatt, Springfield, Mass.—p. 749.  
Some Considerations of Problems of Wound Healing. M. R. Reid, Cincinnati.—p. 753.  
Cord Bladder: Its Definition, Treatment and Prognosis When Associated with Spinal Cord Injuries. D. Munro, Boston.—p. 766.  
Roentgen Ray Findings in Diaphragmatic Hernia. J. H. Marks, Fall River, Mass.—p. 777.  
Undulant Fever: Unusual Case with Necropsy. J. S. Gottlieb, Iowa City.—p. 781.

## Annales de Médecine, Paris

40: 185-316 (Oct.) 1936

- Recent Information on Leukocytic Formula in Tuberculosis. F. Bezançon and J. Bousser.—p. 185.
- \*Corpuscle of Leukemic Blood. N. Fiessinger and C.-M. Laur.—p. 212.
- Leukemia and Traumatism. P. Emile-Weil and J. Bousser.—p. 220.
- Crypto-Erythroblastic Splenomegaly. P. Emile-Weil, P. Isch-Wall, S. Perlès and Scemama.—p. 235.
- Hemolytic Disease. R. Debré, M. Lamy, G. Sée and Mme. St. Schrameck.—p. 251.
- Masked Forms of Biermer's Anemia. E. Benhamou.—p. 286.
- Purpura and Tuberculosis. V. Oumansky and W. Pescarolo.—p. 306.

**Small Corpuscle in Chronic Leukemic Blood.**—Fiessinger and Laur describe a small corpuscle that can be found in the blood in certain leukemic patients. In smears stained by the May-Grünwald method it appears as a small body most often regularly round, colored a pale blue like the cellular cytoplasm and without any trace of azurophilic chromatic particles. Its dimensions are between 4 and 8 microns. It is usually smaller than an erythrocyte. It is found in the microscopic field at about a ratio of 1:500 or 1:1,000 red cells. It appears in the form of a homogeneous disk, more refractile than the blood cells but less brilliant than the platelets. The nature of this body is considered from the standpoint of the circumstances of its appearance and the conditions that lead to its formation. It cannot be found in the blood in early leukemia. It is seen in chronic lymphatic leukemia and chronic myeloid leukemia relatively late in the course of the disease, and generally it is contemporary with the period of radioresistance, which fact seems to possess a serious prognostic significance. Its appearance in the circulating blood seems to be related to the presence of indifferent cells and affected by certain technical conditions. The circumstances of appearance of these corpuscles direct investigation toward the conditions of their formation. It is incontestable that this terminal radioresistant phase of the leukemia corresponds to a multiplication in the circulating blood of embryonal cells. Thus the effect of the cytoplasmic fragility of the embryonal cells produces either by direct bleeding, by direct aspiration into the pipet or in making the smear a localized segmentation of the cytoplasmic portion of the cell. This results in a "lost body," which is the corpuscle discussed. Hence, they believe that the cell is an artefact; nevertheless, consideration of the special conditions that lead to its formation possesses value as a test of leukocytic fragility, and this explains its prognostic gravity.

## Bronchoscopie, Oesophagoscopie et Gastroscopie, Paris

Oct. 1936 (No. 4) Pp. 329-404

- \*Remarks on Diagnosis of Cancer of Esophagus. A. Soulas.—p. 329.
- Indications and Technique of Endobronchial Applications of Radium. P. Mounier-Kuhn.—p. 347.
- Importance of Bronchoscopy in Pulmonary Tuberculosis. M. C. Myerson.—p. 352.

**Diagnosis of Cancer of Esophagus.**—Soulas reports the study of ten patients with regard to the early diagnosis of cancer of the esophagus and concludes that the irrefutable diagnosis of cancer of the esophagus and its histologic type can be established only by biopsy and histologic examination. Biopsy is sometimes impossible in the early phase, especially in submucous cancer and in the cervical location. Strictly speaking, this importance of the biopsy cannot be compensated for by other signs. Thus there are disorders which are harmless but which may give signs and symptoms characteristic of those classically believed to represent cancer of the esophagus. Nevertheless the early recognition of dysphagia must suggest cancer in an early phase and has a presumptive diagnosis which may later be confirmed by biopsy. In cancer of the cervical esophagus, this presumptive diagnosis may become a sufficient indication for exploration or treatment.

## Bulletin de l'Académie de Médecine, Paris

116: 249-279 (Oct. 27) 1936. Partial Index

- \*Examination for Tubercle Bacilli by Stool Culture. F. Bezançon, P. Braun and Mlle. Aveline.—p. 259.
- Cervitamic Acid and Multiple Sclerosis. J. Lépine, F. Arloing, A. Morel and A. Jossierand.—p. 274.

**Tubercle Bacilli in Stool Cultures.**—Progress in recent years in developing satisfactory methods of culturing tubercle bacilli led Bezançon and his colleagues to investigate the pos-

sible value of taking cultures of the stools for these organisms. Their investigations were made on 231 specimens of stools. In 174 of these it was not possible to find acid-resisting bacteria either by direct examination or by cultures. Thirty-five of these constituted merely a simple control for verification of the value of the method. In nine, definite pulmonary tuberculosis was present but examination of the sputum had not demonstrated the bacilli. They believe that cultures of the stools, if not exposed to causes of possible error and if kept in a practical form, can be used as a laboratory analysis comparable to cultures of the sputum but may give positive results when the latter are negative.

## Bull. et Mém. de la Soc. Méd. des Hôpitaux, Paris

52: 1303-1341 (Oct. 26) 1936. Partial Index

- Multiganglionic Tuberculosis of Adult. J. Troisier, M. Bariéty and J. Dugas.—p. 1304.
- \*Late Prognosis of Cirrhosis of Liver. E. Chabrol and J. Sallet.—p. 1311.
- Cushing's Syndrome: Case. H. Metzger, Mlle. G. Hoerner and C. Maurer.—p. 1316.
- Obliterating Thrombosis of Pulmonary Artery in Tuberculous Subjects. Ameuille, J. M. Lemoine, Mlle. H. Delhomme and M. Nouaille.—p. 1326.

**Prognosis of Cirrhosis of Liver.**—According to Chabrol and Sallet, the uncertainty of the late prognosis of cirrhosis of the liver necessitates study. With this in mind they attempted to use the quantity of polypeptides in the blood as a prognostic index. The method of Goiffon and Spay was used for determining the polypeptides, and the phosphovanilla method for measuring the cholic acid of the blood. Their investigations concerned 300 patients, of whom 124 had cirrhosis. With this method of measuring polypeptides, a level of 21 mg. could serve as the dividing line of prognostic classification. When above 21 mg., the evolution is favorable in 75 per cent; when below this level, it is fatal in 70 per cent. Parallel examinations of the cholesterol and cholic acid of the blood were made in 111 cirrhotic patients. When the level of blood cholesterol fell below 1.2 Gm. per thousand, the prognosis was unfavorable in almost all. Inversely, when the level was above 2 Gm. per thousand, the prognosis was good in 88 per cent of the cases. These observations, the authors hope, will aid considerably in forming a satisfactory opinion as to the late prognosis in cases of cirrhosis.

## Schweizerische medizinische Wochenschrift, Basel

66: 1153-1200 (Nov. 21) 1936. Partial Index

- "Upward Colpocleisis" in Vesicovaginal Fistulas. H. Martius.—p. 1154.
- \*Primary Mammary Cancers in Axilla. H. Matti.—p. 1159.
- Posteczematous True Vitiligo. O. Naegeli.—p. 1167.
- \*Significance of Porphyrinuria for Diagnosis of Extra-Uterine Pregnancy. W. Neuweiler.—p. 1169.
- \*Depressive Conditions in Puerperium and Their Treatment. L. Nünberger.—p. 1170.
- Clinical Aspects and Pathologic Anatomy of Nonsuppurating Thyroiditis. F. de Quervain.—p. 1174.
- \*Significance of Manual Dilatation of Os Uteri in Treatment of Disturbances in Dilatation of Soft Parts During Birth. A. Reist.—p. 1176.

**Primary Mammary Cancers in Axilla.**—Matti points out that the ectopic mammary tumors deserve attention because their diagnosis may cause considerable difficulties. He reports a case in which the previous history caused an erroneous diagnosis. Two decades previously the patient had been operated on for tuberculosis of the cervical glands; therefore a gradually increasing swelling in the left axilla was at first diagnosed as tuberculosis of the lymph nodes. Treatment with roentgen rays considerably decreased the glandular swelling in the axilla, but later there was a renewed enlargement. A progressive change in the skin finally suggested the possibility of a neoplasm, and an exploratory excision revealed a mammary carcinoma with metastases in the axillary lymph nodes. However, careful palpation of the left breast gave no indication of its involvement. Following removal of the mammary carcinoma from the axilla, changes appeared in the breast but seemingly had no connection with the axilla. Nevertheless, amputation of the breast became necessary. The author emphasizes that this and other cases indicate that in cases of axillary mammary carcinoma the breast is likewise threatened and should be removed together with the axillary carcinoma even though palpation fails to reveal involvement.

will slow the growth in case of incomplete surgical removal or inaccessibility. The spongioblastoma polare is slow growing and situated in the cerebral axis and brain stem. It is the most common form of glioma found involving the optic chiasm and is frequently associated with von Recklinghausen's disease. If calcification is seen in a position close to the clivus and obviously in the pons with or without evidence of increased intracranial pressure, if the patient is young and the history long and slowly progressive, a diagnosis of spongioblastoma would be highly probable. Roentgen therapy is often the only form of treatment, as the growths are surgically inaccessible. The ependymomas occur as ependymoma and ependymoblastoma. The ependymomas often occur in children and frequently calcify sufficiently to cast a shadow in the roentgenogram. Calcification, if present, will usually be found as a small flocculent amorphous deposit near the midline in the posterior fossa or possibly near the position occupied by the lateral ventricles. Operation should be resorted to, followed by intensive irradiation to forestall a recurrence. The roentgen diagnosis of a pineal tumor is usually difficult without air studies. Roentgen therapy or surgical intervention has little to offer. Papillomas of the choroid plexus are rarely encountered in patients more than 10 years of age and their site of election is the fourth ventricle. The diagnosis is aided by air studies. The shadow cast by calcification in a large glomus of the choroid plexus should not be confused with a papilloma. In a large percentage of benign choroidal calcifications they are bilateral, but papillomas have been found simultaneously in the two lateral ventricles. The tumors are vascular and irradiation has been known to reduce the vascularity and the rate of growth.

**Air in Hepatic Ducts as Roentgen Sign of Biliary Fistula.**—Powers believes that air in the bile ducts must be a common observation, as it was present in three of the four cases observed by him. Air shadows are usually tubular or branched, and follow the general direction of the common duct. Air may surround a calculus in the gallbladder and cause a crescentic shadow. On two occasions he has observed tubular transparent shadows arising near the spine and extending downward from left to right. He can find no adequate explanation of these pseudo air shadows. They may be due to fat in the ligamentum teres hepatis. One of the patients was operated on for a perforating duodenal ulcer and no fistula was present. Air or barium rarely enters the hepatic ducts except through a biliary fistula. Not infrequently one sees the opening of the ampulla outlined bluntly, but barium is never seen to enter the duct. In case of a recently passed gallstone or malignant infiltration, the ampulla may be gaping open. He has found no previous mention of a solitary faceted gallbladder calculus being the basis for a diagnosis of biliary fistula. Such a diagnosis appears almost fool proof, but it is possible that one stone might have a high calcium content and the other be almost pure cholesterol. In the case that he describes there was a minimum of calcium in the missing stone. In cases of intestinal obstruction, careful search should always be made for air shadows.

**Calcified Mesenteric Lymph Nodes.**—Schechter found calcified mesenteric lymph nodes in 1.7 per cent of 2,119 routine gastro-intestinal roentgen surveys. Comparative incidence observations are 1.9 per cent in 1,000 consecutive cases of lumbosacral spine roentgenograms and 2.8 per cent in 1,000 consecutive roentgen examinations of the urinary tract. In 60 per cent of the cases the site of the calcified nodes was the right lower quadrant of the abdomen. An increased percentage incidence of both local and general symptoms is noted, but a relation to calcified lymph nodes is not apparent. In 80 per cent of the cases in the series, abdominal pain and tenderness was absent or these symptoms were localized at sites other than that of the calcified nodes. Of this number, 28.5 per cent had no abdominal pain or tenderness. Abdominal pain and tenderness, which are considered prominent symptoms in the clinical evidence of calcified mesenteric lymph nodes, do not appear to bear this symptom relationship when these nodes are found in routine roentgen studies of the gastro-intestinal tract. The relationship to the general symptoms of nausea and vomiting is also indefinite.

## Surgery, Gynecology and Obstetrics, Chicago

63: 561-688 (Nov.) 1936

- Intrinsic Factors Altering Absorption of Catgut. C. J. Kraissl, New York.—p. 561.
- \*Obstructive Jaundice: Differential Diagnosis by Roentgen Ray. F. S. Foote and J. L. Carr, San Francisco.—p. 570.
- \*Duration of Voluntary Apnea in Thyrotoxicosis: Index of Stability and Criterion of Operative Risk. W. Bartlett Jr., St. Louis.—p. 576.
- Acute Pelvic Appendicitis. H. Brunn, San Francisco.—p. 583.
- Intervals Between Pregnancies of Mothers Giving Birth to Congenitally Malformed Children: Study of 531 Families. D. P. Murphy, Philadelphia.—p. 593.
- Effects of Calculous Biliary Obstruction on Structure and Functions of Liver. A. M. Snell, Rochester, Minn.—p. 596.
- Therapeutic Study of Bromsalizol in Chronic Arthritis. D. I. Macht and R. W. B. Mayo, Baltimore.—p. 603.
- Consideration of Nutritional Status of Surgical Patient. J. A. Wolfer, Chicago.—p. 607.
- Rôle of Thoracoscopy in Diagnosis and Management of Lung Tumors. R. C. Matson, Portland, Ore.—p. 617.
- Surgical Treatment of Deep Seated Nonresectable Ulcers of Duodenum: New Plastic Method of Approach. M. E. Steinberg, Portland, Ore.—p. 625.
- Use of Fascia Lata in Repair of Hernia. G. V. Foster, Pittsburgh.—p. 632.
- Cow Horn Fixation in Bone Surgery: Its Use in Forty Cases. W. B. Carrell, Dallas, Texas.—p. 636.
- \*Production of Vaginal Acidity by Estrin: Its Importance in Treatment of Gonorrheal Vaginitis. R. M. Lewis and L. Weinstein, New Haven, Conn.—p. 640.
- Preparation of Safe Intravenous Solutions. C. W. Walter, Boston.—p. 643.
- Diffuse Cavernous Angioma of Leg. F. C. Kidner, Detroit.—p. 647.
- Simple Technic for Cure of Hypospadias. Gatewood, Chicago.—p. 655.
- Surgical Correction of Flexion Deformity of Knees Due to Spastic Paralysis. M. Cleveland and D. M. Bosworth, New York.—p. 659.
- Femoral Hernia. A. R. Dickson, Battle Creek, Mich.—p. 665.
- Intussusception in Adults: Two Additional Cases. F. Christopher, Evanston, Ill.—p. 670.
- Generalized Peritonitis Secondary to Rupture of Appendix, with Especial Reference to Serum Therapy. J. T. Priestley and C. J. McCormack, Rochester, Minn.—p. 675.

**Obstructive Jaundice.**—A method is presented which, Foote and Carr believe, will reduce the percentage error in differentiating operative from nonoperative cases. It is a modification of the Graham-Cole roentgen technic and is dependent on the fact that, even though the common bile duct has been completely blocked, dye will still be excreted by the liver and concentrated in the gallbladder, where it will remain visible by x-rays for several days. Dye (iodikon, intravenously in divided doses, from 250 to 750 mg., with dextrose) was given to seventeen patients suffering from well developed jaundice, twelve of whom were blocked completely. The dye held in the gallbladder over a long period is often unevenly distributed or gathered in pools, giving a false appearance of stones. It also may settle to the tip of the fundus, giving a dense, semilunar shadow if the patient has remained quietly in bed. On the other hand, the dye given to patients with jaundice due to intrahepatic obstruction fails to visualize the biliary system in a single case after forty-eight hours. Although normal shadows of the gallbladder may be seen at twenty hours, the gallbladder empties at forty-eight hours and no shadow is cast. Two of three such patients with clinical pictures of common duct stone proved at operation to have catarrhal jaundice. The gallbladder and bile ducts were normal. The diagnosis without the x-rays is uncertain in many cases of jaundice in spite of the fact that full hospital and laboratory facilities are at hand but may be made by this method in some instances. With their present meager experience with this method, the authors feel that it offers an effective means of differentiating intrahepatic from extrahepatic biliary obstruction in most cases. When such tests give positive evidence, operation is not advised.

**Duration of Voluntary Apnea in Thyrotoxicosis.**—Bartlett confirms the previous observation that in thyrotoxicosis there occur (1) a decrease in the duration of the apneic interval in inspiratory and expiratory phases and (2) a characteristic alteration of the relationship between their numerical values and a return toward normal values as the patient improves and achieves sufficient stability to withstand operation. The test is performed under basal conditions. The duration of the apneic interval after expiration is usually made first. A maximal inspiration is taken, followed immediately by a maximal expiration and the nares are lightly compressed by the examiner's fingers; the duration is counted with the watch from

and pustules. It is characterized by a moldlike pseudomembranous coating, superficial ulceration and pyofibrinoid infiltration of the epithelial and subepithelial layers of the mucous membrane. More serious lesions are not observable. The glycogen of the vaginal epithelium is greatly reduced. The trichomonas organism lives only in the cast-off, necrotic tissue detritus, for it could not be found in the intact tissues. The vaginal flora and the vaginal chemistry (lactic acid content and hydrogen ion concentration) are not noticeably influenced by the parasite. It lives in symbiosis with the Doederlein bacillus and it produces lactic acid. This explains the comparatively slight pathogenic significance and the fact that it is denied by many. The irritation of the vaginal wall and the leukorrhea are the results of the irritative action of the protozoon. The development of pathologic changes and their degree is dependent on the virulence of the parasite and on factors in the patient's organism. Although Trichomonas prepares the way for the entrance of pyogenic cocci, it inhibits their virulence by the production of lactic acid. In the puerperal morbidity, Trichomonas plays no important part.

**Menstrual Cycles and Physical Exercises.**—Škerlj analyzed the menstrual records of young women attending a school for gymnastics. In some of the young women the period of observation covered twenty-one or twenty-two months, in others only half that time. Dysmenorrheas were comparatively frequent and in some of the cases their appearance indicated a connection with bathing and swimming in cold water. Amenorrheas seemed to be more frequent during the cold period, but apparently there was a connection with the skiing courses, whereas camping trips in the summer time seemed to have no such influence. Only 20 per cent of the women showed no changes in their menstrual cycles, whereas the remaining 80 per cent showed temporary or "constant" changes. The author thinks that this high incidence proves a direct connection between the changes in the menstrual cycle and the intensive physical exercises. He advocates the prohibition of intensive training and of athletic contests and advises against all forms of heavy gymnastics during the menstrual period, emphasizing that the possibility that the menstrual changes produced by intensive physical exercises are only temporary and do not cause permanent damage should not change this attitude.

### Deutsche medizinische Wochenschrift, Leipzig

62: 1905-1944 (Nov. 20) 1936. Partial Index

- Significance of Diencephalic Centers for Water Exchange. H. Pette.—p. 1905.  
Spirographic Control of Cardiac Activity. N. Tsamhoulas.—p. 1908.  
\*Rapidly of Growth and Disintegration of Follicle in Ovaries: Studies on Accelerated Development in Human Subjects. E. W. Koch.—p. 1912.  
Angiography of Cerebral Vessels. H. Köbcke.—p. 1915.  
\*Dietetic Treatment of Neurodermatitis. P. Mulzer and H. Sörensen-Petersen.—p. 1918.  
Detachment of Spinous Process. E. Metge.—p. 1922.

**Studies on Accelerated Development.**—Koch directs attention to the fact that measurements during recent years have revealed an increase in the height of children. Moreover, the second dentition, the change of voice and particularly the menarche occur earlier. However, the author maintains that the average size of adults has not noticeably increased in recent years and so he concludes that not so much the external appearance as the course of the development of man has undergone a considerable modification. He cites another investigator who made practically the same observations; namely, that in spite of the considerable increase in the size of young persons the average size of adults is not increased, because of a compensatory shortening of the duration of growth. The author further discusses the factors responsible for the accelerated growth and then describes animal experiments on this problem. By various diets and by additional ultraviolet irradiations, great differences in the lengths of various groups of rats were achieved. The experiences were interrupted on the same day; that is, when the animals were of the same chronological age. The ovaries of the animals were cut in sections and the primordial follicles were counted, for it is known that young females have more and old females have fewer primordial follicles. It was found that the number of follicles was in inverse ratio to the rapidity of growth. From this the conclusion was drawn that, although all the animals were of the same chronological age, those with

the smaller number of follicles were "biologically older" and those with the greater number of follicles were "biologically younger." Thus it seems that an accelerated growth corresponds to a premature aging process.

**Dietetic Treatment of Neurodermatitis.**—Mulzer and Sörensen-Petersen emphasize that the regulation of the diet is one of the most important factors in the treatment of neurodermatitis and that a restriction of sodium chloride and its replacement by some other type of salt is of primary importance. They show that, in contradistinction to the local treatment, the diet is to a certain extent a causal measure and prepares the way for an effective local therapy. The latter should supply fat for the usually dry skin. The itching is often effectively counteracted by tamenol or by tar preparations.

### Wiener klinische Wochenschrift, Vienna

49: 1417-1448 (Nov. 20) 1936. Partial Index

- \*Lymphatic Reaction and Encephalomeningitis. Anna Sucher and E. Schwarz.—p. 1417.  
Relation of Certain Functions to Bilateral Symmetrical Structure of Body. M. Sachs.—p. 1424.  
Differential Diagnosis of Appendicitis and of Hemorrhages from Follicle or Corpus Luteum. M. D. Manizade.—p. 1428.  
Treatment of Tachycardias. F. Faltischek.—p. 1432.  
\*Pathogenesis of Diaphragmatic Relaxation. M. Schumann.—p. 1434.

**Lymphatic Reaction and Encephalomeningitis.**—Sucher and Schwarz direct attention to meningo-encephalitic complications in infectious diseases, pointing out that, if the symptoms of the primary infectious disease are fully and clearly developed the diagnosis is not difficult but that the appearance of the cerebral symptoms during the first stage may mask the primary disorder. The authors describe the history of a girl, aged 15, who two years previously had had a mild tuberculous process in the pulmonary apex. She suddenly became ill with fever, headache, glandular swellings, splenic tumor and symptoms of meningeal and encephalic irritation. The examination of the blood disclosed a severe lymphoblastic-plasmacytic reaction with simultaneous deviation to the left of the neutrophilic leukocytes. Roentgenoscopy of the lungs revealed swellings of the lymph nodes at the hilus and a few small spots in the subclavicular region of the lung, which suggested the possibility of a hematogenic dissemination and of the tuberculous nature of the meningeal disorder. However, a blood culture according to Löwenstein remained sterile and all the symptoms disappeared in a comparatively short time. But ten days later the swellings of the lymph nodes of the spleen and of the liver and the high fever recurred. The changes in the blood were even more pronounced than in the beginning. Four days later the symptoms of the central nervous system recurred and severe convulsions developed. After seven hours of an epileptiform condition a pulmonary edema developed and the patient seemed to be in an agonal state. Spinal puncture disclosed high pressure, increased protein content and a considerable number of lymphatic cells in the spinal fluid. Gradually the symptoms as well as the blood changes disappeared and the patient recovered. The authors point out that this case is an example of a so-called metastatic encephalomeningitis which completely masked the nature of the acute infectious disease. They show that such cerebral complications are most frequent in those infectious diseases the pathogenic agents of which are not as yet completely understood and which probably take a special position in the microbiologic system. To this group belong measles, chickenpox, whooping cough and epidemic parotitis. Opinions are still divided regarding the relationship between the primary infectious disease and the cerebral complications. The authors give their attention chiefly to the changes in the blood and reach the conclusion that this case represents an encephalomeningitic complication of Pfeiffer's glandular fever. They also succeeded in detecting certain pathogenic relations between primary disorder and the cerebral symptoms to the effect that the virus of the glandular fever is responsible also for the inflammatory disorder in the central nervous system; that is, the condition is a true metastatic encephalomeningitis.

**Pathogenesis of Diaphragmatic Relaxation.**—Schumann reports the clinical history of a man whose symptoms resembled those of a sinister pleurisy. However, roentgenoscopy revealed a diaphragmatic relaxation. The author mentions the most important symptoms of diaphragmatic relaxation and stresses

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Brain, London

59: 277-394 (Oct.) 1936

- Clinical Picture of Minor Cord Lesions in Association with Injuries of Cervical Spine, with Especial Reference to Diagnostic and Localizing Value of Tendon Reflexes of Arm (Inversion of Radial Reflex). F. M. R. Walshe and Jean Ross.—p. 277.
- Tumors Involving Ventral Aspect of Pons and Medulla, Including Two Chordomas. L. D. Stevenson and E. D. Friedman.—p. 291.
- Effects of Diencephalic Stimulation on Urinary Bladder Tonus. J. Beattie and A. S. Kerr.—p. 302.
- Further Observations on Grasping Movements and Reflex Tonic Grasping. F. M. R. Walshe and J. H. Hunt.—p. 315.
- Effect of Prolonged Occlusion of External Jugular Veins on Cerebrospinal Fluid and Torcular Venous Pressures of Dog. T. H. B. Bedford.—p. 324.
- Primary Tumors of Root of Fifth Cranial Nerve: Their Distinction from Tumors of Gasserian Ganglion. H. Krayenbühl.—p. 337.
- Neuromyelitis Optica. B. H. Balser.—p. 353.
- Significance of Individual Differences in Berger Rhythm. F. Lemerc.—p. 366.
- Pathology of Senile Chorea (Nonhereditary). N. S. Alcock.—p. 376.

## Minor Cord Lesions and Injuries of Cervical Spine.—

Walshe and Ross deal with injuries in which the spinal cord loses sustain some relatively slight damage, either a momentary tipping when there is displacement of cervical vertebrae in relation to one another, or a momentary stretching over the posterior aspect of the vertebral bodies when the head is forcibly flexed, as in a fall in which the vertex strikes the ground first. Of the six cases which form the material of the present study, only one had been recognized, though more than one had been submitted to neurologic examination. The diagnoses actually made included progressive muscular atrophy, myotrophic lateral sclerosis, primary lateral sclerosis and arthritis of the shoulder. It is the history of injury which is in a measure responsible for directing attention away from the cervical spine and cord, since it is the head which first receives the violence and not the neck. The common story given by the patients is that, when the resumption of activity begins after recovery from the immediate effects (e. g., concussion) of the injury, they find the arms alone or both arms and legs weak. This weakness may persist unchanged, may gradually and partially clear up, or may even slowly increase with the passage of time. In the authors' experience it cannot be assumed that the relatively moderate degree of the initial disability means that complete recovery may be looked for within a short or measurable period. The appearance of muscular wasting in the upper limbs is not invariable, and when it occurs it may not be noticed by the patient for some weeks. The essential elements in the clinical picture are: (1) limitation of movement of the head and neck, with pain and stiffness on movement; (2) some general weakness of the upper limbs, sometimes associated with special weakness and wasting of muscles supplied by the fifth and sixth cervical segments; (3) characteristic differential changes in the tendon jerks in the arms, usually including inversion of the radial reflex; (4) slight hypertonus of the extensor group in the legs, with increased knee and ankle jerks, and in some cases ankle clonus and extensor plantar responses; (5) an absence of sensory loss; (6) absence of defects of sphincter control, and (7) slow and imperfect recovery.

## Tumors in Ventral Aspect of Pons and Medulla.—

Stevenson and Friedman present two cases of tumor at the base of the brain and two cases of chordoma, a tumor derived from the remains of the notochord. Chordomas may grow from either end of the remains of the notochord. The growths are usually not malignant but, if removed surgically, tend to recur. Occasionally they give rise to metastases in other parts of the body. One cannot establish a definite syndrome for tumors located in this region, but the authors believe now that signs of involvement of one or both hypoglossal nerves, or others of the lower cranial nerves, might help to place the tumor in front of the pons and medulla rather than in the fourth ventricle. Moreover, these tumors differ in several important respects from tumors invading the pons (e. g., glioma), from acoustic neuromas and from tumors of the fourth ventricle. Tumors of the fourth ventricle itself usually give rise to the von Bruns sign (sudden vertigo with change in

posture), signs of internal hydrocephalus with perhaps evidence of distant pressure on the chiasm owing to herniation of the floor of the third ventricle. These cases, as a rule, are characterized by the absence of cranial nerve phenomena. Many of the tumors at the base are latent and symptomless, but they may involve any of the lower cranial nerves from the eighth to the twelfth. They are frequently accompanied by disturbances in respiration and heart rate and by the presence of intermittent glycosuria. Some of the more characteristic signs and symptoms include occipital headache, attitudinizing of the head, cerebellar ataxia and an intermittent course. Syphilitic meningitis at the base might enter into the differential diagnosis, but it is more apt to give rise to the picture of an angle lesion. Vascular lesions of the pons and medulla are apt to give rise to more definite and clearly defined syndromes, involving the distribution of the superior cerebellar artery, the posterior inferior cerebellar artery, the vertebral artery or the basilar artery with its branches.

## British Journal of Physical Medicine, London

11: 101-118 (Oct.) 1936

- \*Physical Deformities Commonly Regarded as Due to Rickets. E. Pritchard.—p. 102.
- Treatment of Erysipelas with Ultraviolet Light. N. E. Titus, New York.—p. 104.
- Summer Sunlight Deficiency. Mary E. Ormsby.—p. 107.
- Low Intensity Short Wave. E. Weissenberg.—p. 108.
- Problems of Ionification: Theories and Work by Medical Men in Soviet Russia. E. Stolkind.—p. 109.

**Physical Deformities and Rickets.**—Pritchard believes that, according to the more modern acceptance of the term "rickets," this appellation should properly be confined to the group of symptoms which are directly attributable to a deficiency of vitamin D and are due to a failure in the fixation of calcium in growing bone. Not all bony deformities, however, are the result of deficiency of vitamin D. Many are of a congenital nature, and others are due to the mechanical effects of laxity of ligaments and muscular weakness. Many of the common deformities, such as flatfoot, knock knee, bandy legs, lordosis, kyphosis and pigeon chest, the sort of deformities which most frequently come under the notice of the pediatric physician and which are generally described as "rickety deformities," are clearly not due to this cause. Flatfoot is generally due to laxity of ligaments, muscular atony and an excessive bodily weight due to overfeeding, imposed on the arches before they are in a condition to withstand the strain. Knock knee is due to very much the same causes, with the additional factor of straddling of the legs, owing to difficulties which the child experiences in maintaining equilibrium when it begins to walk. Bandy legs generally represent the persistence of the intra-uterine tibial curvature, which is caused by the crossing of the legs on the abdomen in a cramped position. Mentally defective, degenerate and otherwise debilitated infants remain inactive, and the legs continue in the uterine position, and consequently the curves are not obliterated and when the child begins to walk there is a tendency for the tibial curves to be exaggerated. Most varieties of spinal curvature are due to muscular atony and laxity of the ligaments, with resulting faults in posture. Pigeon chest is seldom traceable to a true rickety origin; although due to mechanical causes, there is nearly always some congenital or familial element in the pathogenesis. Faulty methods of feeding, with various deficiencies and excesses, are generally discoverable. Wrong methods of breathing, excessive coughing and respiratory obstruction may play a part in the pathogenesis. The so-called rickety deformities, like many others of the reputed symptoms and signs of rickets, are really due to one or the other of the many combinations of deficiencies and excesses that may occur in any maladjusted dietary, and the cure for them is not the specific treatment for rickets but the correction of the primary cause.

## British Medical Journal, London

2: 793-850 (Oct. 24) 1936

- The Background to Harvey. W. Langdon-Brown.—p. 793.
- Clinical Experiences with New Alkaloid, Ergometrine. C. Moir.—p. 799.
- The Care of the Sea-Sick. J. Hill.—p. 802.
- Glaucoma and Sepsis. R. Kerry.—p. 808.
- The Sedimentometer: Photographic Apparatus for Automatic Recording of Blood Sedimentation Rate. T. Lee.—p. 809.



## Norsk Magasin for Lægevidenskapen, Oslo

97: 1113-1272 (Nov.) 1936

- Bronchoscopy in Patients with Pulmonary Tuberculosis. H. Rasmussen.—p. 1113.
- \*Anemia in Patients with Pulmonary Tuberculosis. H. Rasmussen.—p. 1125.
- Combination of Gold Treatment and Pneumothorax in Tuberculous Cavities of Lung: Casuistic Report. A. H. Brinckmann.—p. 1134.
- Gold Intoxications. K. Hübner.—p. 1144.
- Indication for Thoracoplasty from Internal Standpoint. A. Tuxen.—p. 1152.
- Röntgen Examination of Lungs in Patients with Thoracoplasty. J. Frimann-Dahl.—p. 1163.
- \*Total Thoracoplasty in Pulmonary Tuberculosis. M. H. Gjessing.—p. 1171.
- \*Partial Thoracoplasty in Pulmonary Tuberculosis. C. Semb.—p. 1194.
- \*Surgical Treatment of Pulmonary Tuberculosis. J. Holst.—p. 1211.

**Anemia in Patients with Tuberculosis.**—Rasmussen says that of 460 patients with pulmonary tuberculosis 12 per cent had anemia, and of the 343 with positive tubercle bacilli in the sputum, 15 per cent. There was no difference between the kind or extent of the tuberculous process in the 409 non-anemic and the fifty-seven anemic patients and there is little evidence that the tuberculous process in itself has a deleterious effect on erythropoiesis. Treatment with iron resulted in recovery from the anemia in 60 per cent of the cases. The reaction to iron, together with the frequency of achlorhydria or hypochlorhydria, indicates a disturbance in the iron metabolism. In thirteen cases the anemia depended on spread of the tuberculosis to other organs, particularly intestinal tuberculosis with diarrhea. In ten cases the anemia was due partly to complications, partly to unknown causes. Since the majority of the anemias in pulmonary tuberculosis respond to iron therapy, systematic hemoglobin examinations and treatment of the anemias with iron seem to be of importance in the treatment of pulmonary tuberculosis.

**Total Thoracoplasty in Pulmonary Tuberculosis.**—Gjessing reports the results in ninety-seven cases of total and subtotal thoracoplasty. The operative mortality was 9.3 per cent. He says that the indication for this intervention includes patients for whom it is a last resort. It offers the patient about a 45 per cent chance of becoming capable of working and free from symptoms and about a 75 per cent chance of improvement with ability to work for a longer or shorter time, while the chance of unchanged condition or fatal outcome is about 25 per cent. He believes that improved results may be obtained by (1) operation in a quiescent phase of the disturbance and adequate observation after operation, calling for extension of the cooperation between surgeon and internist, and (2) timely collapse treatment in men with pulmonary tuberculosis on the right side, so that the intervention may be as small as possible, as the highest mortality occurred after thoracoplasty in one session of treatment in these cases. Further, while the technical performance of total thoracoplasty is usually not difficult and rarely the determining factor in the operative mortality, it does affect the degree of collapse produced. Extirpation of the upper ribs, together with exarticulation of the ribs in the costovertebral joint in cases of larger cavities at the top of the lung, is a technical advance.

**Partial Thoracoplasty in Pulmonary Tuberculosis.**—Semb's material consists of 147 cases of thoracoplasty with extrafascial apicolysis, with ten deaths within two months. Examination of ninety-nine patients after from one to three and three-fourths years shows sixty-seven free from bacilli and fifty-nine wholly or partly capable of working. One of the advantages of the method is access to collapse of the other lung. Particularly individualized treatment in short sessions have been given in forty-five cases during the last year and a half, with one death within two months, or 2 per cent mortality, and with complete collapse of the cavity for the time being and freedom from bacilli in forty-two cases.

**Surgical Treatment of Tuberculosis.**—Holst's principle is radical resection of the upper ribs, plastic operation of the soft tissues, consisting in division of the periosteum and soft tissues of the upper ribs, and a radical apicolysis. A flap of periosteum is produced which forms a lid over the collapsed lung apex. In this position the ribs are regenerated. The large wound cavity over the apex of the lung is filled with exudate and air. This wound cavity pneumothorax and the exudate press together the pulmonary apex, the wound cavity

exudate acting as a natural filling. It is resorbed after two or three months. The material comprises ninety-two cases in which operation was performed according to the technic described, with two deaths, and 157 cases, including more unfavorable cases than the first group, in which operation was done by other methods, with about 8 per cent mortality. The author states that in uniform cases the mortality rate is probably not higher in Semb's extrafascial modification of apicolysis than with the technic here presented.

## Ugeskrift for Læger, Copenhagen

98: 1049-1084 (Oct. 29) 1936

- Clinical Investigations on Occurrence of Sheep Blood Corpuscle-Agglutinin (Heterophile Antisubstance). O. Bang and M. Kristensen.—p. 1049.
- \*So-Called Recurrence of Scarlet Fever. E. Gottlieb.—p. 1054.
- \*Pulmonary Tuberculosis Caused by Bovine Type of Bacillus: Thirty-Three Cases. P. Mourier.—p. 1058.
- Remission During Course of Acute Aleukemic Leukemia, Observed in Two Cases During Treatment with Cevitamic Acid. P. Plum and S. Thomsen.—p. 1062.
- \*Attempts at Treatment with Cevitamic Acid in "Schönlein-Henoch's Purpura." Alice Lönberg.—p. 1067.
- Significance of Alpha Dinitrophenol in Treatment of Obesity. E. Gudiksen.—p. 1072.
- Process of Healing in Free Transplantation. E. Dujardin.—p. 1073.
- Pellagra, Achylia, Night-Blindness: Short Travel Letter. Johanne Christiansen.—p. 1073.

**So-Called Recurrence of Scarlet Fever.**—Thirty cases of recurrence of scarlet fever in hospitalized children during the last two and a half years are reported. The cases occurred from the ninth to the fifty-sixth day after the first onset of scarlet fever, mostly between the twentieth and thirtieth days. In nineteen cases peeling took place twice. No deaths resulted, but the second cases were on the average more grave than the first and were followed by complications in 60 per cent as against from 18 to 20 per cent in the first cases, milder complications being included. In Gottlieb's opinion the most probable explanation of the recurrence is cross infection from other patients with streptococci of different type than that which caused the original attack of scarlet fever. This assumption seems to him supported by the finding of different types of streptococci in different scarlet fever patients (Smith, Griffith) and by the occasional establishment in children in hospital wards of streptococci of different type than that originally established, to which the disorder was presumably due.

**Pulmonary Tuberculosis from Bovine Type of Bacillus.**—Determinations of type of these thirty-three cases were made by the State Serum Institute. Mourier thinks that transmission from cattle to man may have occurred in twenty-nine of the cases. The clinical course and prognosis, he says, apparently resemble those in pulmonary tuberculosis due to tubercle bacilli of the human type.

**Cevitamic Acid in "Schönlein-Henoch's Purpura."**—Daily intramuscular injections of cevitamic acid, in all 3,800 mg., administered to Lönberg's patient, a boy aged 4, had no effect on the course of the disease. There was no cevitamic acid deficiency before the start of treatment.

98: 1127-1148 (Nov. 12) 1936

- Indication for Simple Chiseling of Mastoid Process to Preserve Hearing. S. F. Nielsen.—p. 1127.
- Eye Movements in Reading. H. Ehlers.—p. 1131.
- Treatment of Fluor Flavus with Hexylresorcinol and Estrogenic Substance. M. Nielsen.—p. 1133.
- Acute Phosphorus Intoxication: Case. H. Brocks.—p. 1134.
- \*Remission During Course of Leukemia. S. Heinild and E. Schjeldt.—p. 1135.

**Remission During Course of Leukemia.**—In Heinild and Schjeldt's case of acute myeloblastic leukemia, the number of white blood corpuscles became normal after treatment with cevitamic acid; at the end of the treatment the number of white blood corpuscles increased. In their case of chronic lymphatic leukemia, cessation of the tendency to hemorrhage and rise in the thrombocyte count occurred during the first treatment with cevitamic acid, which was accompanied by roentgen treatment; the hemorrhages also ceased on the second course of treatment with cevitamic acid. In their two cases of chronic myeloid leukemia, no direct effect of the treatment with cevitamic acid was seen, but the remission after the succeeding roentgen treatment was more complete than is usual in such cases.

**Medical Journal of Australia, Sydney**

2: 481-516 (Oct. 10) 1936

- The Physician and the Future of Clinical Science. C. T. Champion de Crespigny.—p. 481.  
Results of Treatment of Antral Infections: Analysis of Cases. T. G. Millar.—p. 487.  
Allergy and Antral Infections. C. Sutherland.—p. 492.  
Physical Therapy in Antral Infections. F. May.—p. 495.

2: 517-552 (Oct. 17) 1936

- Manipulative Surgery. C. H. Hembrow.—p. 517.  
Id. S. H. Seongall.—p. 523.  
Treatment of Cancer of Cervix Uteri at the Royal Prince Alfred Hospital from Jan. 1, 1930, to Dec. 31, 1935. H. H. Schlink and C. L. Chapman.—p. 527.  
Experiences in Treatment of Carcinoma of Cervix Uteri with Radium and Deep X-Ray Therapy at Sydney Hospital. H. K. Porter.—p. 533.

**Medical Press and Circular, London**

193: 367-390 (Oct. 28) 1936

- Modern Methods of Preventing Infant Mortality. Victoria E. M. Bennett.—p. 370.  
\*Relationship of Infected Tonsils and Rheumatism in Children. Janet K. Aitken.—p. 373.  
Acute Abdomen in Children. G. F. G. Batchelor.—p. 377.  
Duke-Fingard Method of Medication as Applied to Respiratory Tract. D. F. Fraser-Harris.—p. 381.

**Infected Tonsils and Rheumatism in Children.**—Aitken declares that there is much evidence in support of the theory that an acute infection of the nasopharynx by hemolytic streptococcus has a definite relationship to attacks of acute rheumatism, and some evidence to support the opinion that chronically infected tonsils have an injurious effect on the rheumatic child in the sense that, although their removal may not prevent the onset of the disease, it does minimize the chance of serious cardiac complications and recurrences. A preliminary tonsillectomy, or one performed early during the course of the infection, may possibly, in the case of arthritis, render the heart less liable to be attacked, but not so in the case of chorea. Tonsillectomy in the case of carditis following arthritis seems to have a beneficial effect on the progress of the disease, but not in carditis following chorea. The analysis of 117 cases seems to show that the progress in those cases which did not require tonsillectomy and those in which tonsillectomy was done before the onset of juvenile rheumatism was rather more satisfactory than in those in which tonsillectomy was required at the onset of juvenile rheumatism. The patients who had not been tonsillectomized but who did not require tonsillectomy had the most satisfactory result, but those who had had complete tonsillectomy before the onset of the disease had nearly as good results.

**Quarterly Journal of Medicine, Oxford**

5: 287-444 (July) 1936

- Respiratory Efficiency Tests in Asthma. J. L. Livingstone and Marjorie Gillespie.—p. 287.  
Review of Recent Work on Whooping Cough. R. E. Smith.—p. 307.  
Pulmonary Congestion Following Artificial Pneumothorax: Its Clinical Significance. R. V. Christie.—p. 327.  
\*Role of Calcium in Spontaneous Overbreathing Tetany. C. G. Barnes and R. I. N. Greaves.—p. 341.  
Chemical and Clinical Findings in Beriberi, with Especial Reference to Vitamin B<sub>1</sub> Deficiency. B. S. Platt and G. D. Lu.—p. 355.  
Secondary Thrush of Bronchi. J. F. D. Shrewsbury.—p. 375.  
Raynaud Phenomena: Critical Review. J. H. Hunt.—p. 399.

**Role of Calcium in Tetany.**—Barnes and Greaves state that spontaneous overbreathing tetany occurs chiefly in neurotic and highly strung women. It is a manifestation most frequently of hysterical overbreathing, but in these patients it may show itself also after slight exertion, owing to overactivity of the respiratory center. Overbreathing tetany can be relieved either by the injection of calcium salts or by the production of an acidosis. It would seem, therefore, that two factors are involved in the production of the syndrome: the level of the calcium and the  $pH$  of the blood. The object of the authors' investigations was to show that in their cases there was a definite alkalosis during tetany, and then to determine whether the onset of tetany was or was not associated with a fall in the calcium content of the cerebrospinal fluid, and hence of the diffusible calcium of the blood. The calcium in the plasma, serum and cerebrospinal fluid was estimated by a modification of the method of Kramer and Tisdall, as advised

by Beaumont and Dodds. Experimentally it was found that about thirty minutes of overbreathing is required before symptoms of this tetany start. This time was greatly reduced in all clinical cases. In the two clinical cases in which the alkali reserve was estimated it rose during tetany, as opposed to a fall in the experimental cases. This may be accounted for by the fact that either the time factor is insufficient to allow complete compensation by the transposition of alkalis to the tissues or it is a fundamental lack of ability on the part of these patients to perform this reaction which predisposes to overbreathing tetany. That alkalosis was present during tetany in the patients was shown by the rise of alkali reserve and by the increased  $pH$  of the urine. It becomes a matter for speculation as to why some patients with alkalosis develop tetany while others do not. The authors believe that the fact that they were able to relieve overbreathing tetany by the injection of a solution of a calcium salt with a  $pH$  greater than that of the blood seems to them to be strong evidence that the tetany is not the result of alkalosis alone. They suggest, therefore, that the onset of tetany may be dependent on the total calcium present in the circulation and the reaction of the blood. The common factor is the level of the diffusible calcium, which is greatly affected by slight changes in the reaction of the blood. If this is so it can be explained why tetany should not necessarily occur when the calcium of the blood is low, provided it is the protein bound fraction of the calcium which is reduced or that there is an acidosis, as in the cases of chronic nephritis described by de Wesselow. The premonitory symptoms of overbreathing tetany may pass unrecognized if they do not develop further. Only when voluntary hyperpnea is shown to lead rapidly to the onset of tetany does the true significance of these symptoms become apparent.

**Japanese Journal of Gastroenterology, Kyoto**

8: 171-256 (Dec.) 1936

- \*Application of Richardson's Law to Disposal of Fructose by Liver. Y. Iida.—p. 171.  
Influence of Aliphatic Alcohols on Pigment-Excreting Function of Liver and Kidneys: II. Effect of Methyl Alcohol Perorally Administered. Y. Iida.—p. 175.  
Id.: II. Comparison of Effects of Aliphatic, One-Basic, Saturated Alcohols. Y. Iida.—p. 179.  
Experimental Study on Mutual Relation Between Pancreatic and Hepatic Functions. T. Yuasa.—p. 187.  
Glycolytic Action of Liver and Other Organs in Renal Disturbances. S. Numa.—p. 196.  
Roentgenologic Studies on Esophagogram. N. Mizuta, I. Ri and H. Ishida.—p. 203.  
Oxidoreduction and Reduced Glutathione in Liver and Kidneys in Renal Disturbances. B. Nakai.—p. 210.  
Glycolytic Action of Various Organs in Hepatic Disturbances. S. Numa.—p. 215.  
Contribution to Knowledge of Hyperhepatism, with Especial Reference to Synthesis of Hippuric Acid. S. Sasaki.—p. 218.

**Disposal of Fructose by Liver.**—Twenty-four hours after the administration of  $19_{460}$  mol of each of the aliphatic monovalent, saturated alcohols (methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, n-amyl, i-amyl and n-hexyl) Iida injected intravenously 1 Gm. of fructose per kilogram of body weight into rabbits and found that the curve of fructosemia after the administration of these alcohols was usually higher than before, and the difference of the height of the two curves was enlarged in accordance with an increase of carbon atoms of the alcohol; that is, the ascent of fructosemia was marked and its descent was retarded. Only methyl alcohol was the exception. Judging from the curve of fructosemia following the intravenous injection of fructose as a liver function test, he concludes that, with the exception of methyl alcohol, the toxicity of aliphatic monovalent saturated alcohols for the liver is in general gradually strengthened with an increase of the number of carbon atoms and molecular weight of the alcohol; in other words, that Richardson's law is applicable to the disposal of fructose by the liver as well as to the azorubin-S-excreting function of the liver. It is possible that the blood sugar may be influenced to some extent immediately after the administration of alcohol, and, accordingly, fructose closely connected with dextrose may also be changed more or less at this moment. However, twenty-four hours after the administration of alcohol any direct effect of alcohol on fructose is probably negligible, though alcohol may primarily injure the liver and secondarily influence the curve of fructosemia.

ently susceptible to breast carcinoma, the occurrence of which is held in abeyance by the absence of breast function.

It will be shown later that with proper dosage and sufficient length of treatment the genital and pituitary responses to estrogens can be duplicated under certain

TABLE 1.—The Rate of Absorption and Excretion of Estrogens in Castrated Women with Administration of a Single, Hypodermic Dose

Substance and Quantity of Single Dose in Oil	Number of Rat Units of Active Estrogen in Daily Output of Urine				
	Days After Administration of Single Hypodermic Dose				
	I	II	III	IV	V
Theelin					
1,000 R. U. ....	13.3	10*	8	6.6	0
1,250 R. U. ....	..	20	12	15	6.6
Estradiol benzoate					
1,000 R. U. ....	23	16	16*	13.3	
1,000 R. U. ....	..	16*	..	18.4	
1,000 R. U. ....	..	22	18	13	6.6
5,000 R. U. ....	60	..	30	....	18.6
5,000 R. U. ....	..	42	35.6*		
10,000 R. U. ....	171	100	36	13.3*	
10,000 R. U. ....	160	80	53.3*	13.3	
10,000 R. U. ....	100	26	20*	17.6	4.8
10,000 R. U. ....	53	26.6*	20	13.3	13.3
10,000 R. U. ....	40	25*	15.4	4	4

\* Frank and Goldberger test performed on same date with positive result.

conditions in the human being. It is, however, obvious that the choice of the clinical dose ultimately depends on many factors totally unrelated to animal experimentation. The dosage of estrogens cannot be computed purely on the basis of comparative weights, not only because there is a definite species variability in the response of organs to the principle but also because existing pathologic conditions in human organs often change the tissue response to a given dose of the substance.

METHOD OF STUDY OF RATE OF ABSORPTION AND EXCRETION OF ESTROGEN

For the purpose of studying these problems from the clinical standpoint, we selected forty-two hospital patients convalescing from various pelvic operations which included removal of both ovaries. That the blood

TABLE 2.—The Rate of Absorption and Excretion of Estrogens in Castrated Women with Administration of a Single, Oral Dose

Substance and Quantity of Single Dose in Oil	Number of Rat Units of Active Estrogen in Daily Output of Urine				
	Days After Administration of Single Oral Dose				
	I	II	III	IV	V
Estriol					
650 R. U. ....	3.3	0	0	0	0
1,300 R. U. ....	6.6	3.3	0	0	0
Estradiol					
10,000 R. U. ....	92.3	66.6*	10	9.3*	0
10,000 R. U. ....	..	..	..	3.3	..
20,000 R. U. ....	..	..	..	21.6*	..
50,000 R. U. ....	100	256	171	56	13.3

\* Frank and Goldberger test performed on same date with positive result.

and urine of castrated women, maintained on an average hospital diet, contain only insignificant amounts of estrogen was verified in each instance. It was therefore assumed that the minimum quantity of estrogen capable of producing and maintaining in the blood and urine of the castrate a concentration of the substance comparable to that current during the premenstrual phase of regularly menstruating women would be an ideal substitution dose in patients with deficiencies of estro-

gen. This quantity may conveniently be called the "human castrate unit," which naturally varies with the product employed and the mode of administration. This quantity of the substance, being relatively within the limits of natural production, should not inhibit the gonadotropic function of the anterior pituitary lobe and therefore would not nullify the effects of other agents simultaneously employed in the hope of reestablishing a normal pituitary-ovarian balance. With the establishment of the maintenance dose of estrogen, larger doses may be employed when inhibition of the several functions of the anterior pituitary lobe is clinically indicated.

As a basis for comparative study, we utilized arbitrarily the accepted normal premenstrual ratio of 1 mouse unit of the active hormone in 40 cc. of blood<sup>13</sup> and 15 rat units in the twenty-four hour output of urine.<sup>14</sup> In more than 100 parallel analyses of blood and urine of women under treatment with varying doses of estrogen, we found this quantitative relationship undisturbed regardless of the amount of estrogen administered.

Since the urine content of active estrogens reflects fairly accurately the amount present in the circulating blood and since daily blood-estrogen tests are obviously impossible, this study on the rate of absorption and excretion of the product is based mainly on daily

TABLE 3.—The Rate of Absorption and Excretion of Estrogens in Castrated Women with Administration of a Daily, Hypodermic Dose

Substance and Quantity of Daily Dose in Oil	Number of Rat Units of Active Estrogen In Daily Output of Urine											
	Days of Administration						Days After Withdrawal					
	I	II	III	IV	V	VI	I	II	III	IV		
Theelin												
500 R. U. ..	32	32	20*	..	20.6	13.3	....	5	0			
Estradiol benzoate												
500 R. U. 20	80	40	40	26.6	20	20*	....	6.6	0			
1,000 R. U. 26.6	80	40	26.6*	32	26.6	....	13.3	8	6.6			

\* Frank and Goldberger test performed on same date with positive result.

extraction of the entire output of urine. Blood studies were made intermittently in every instance and proved, with an occasional exception, corroborative of the urinary changes.

In this study on the rate of absorption and excretion of estrogen, oily solutions of estradiol benzoate (progyonon-B), estradiol (progyonon-DH), theelin (estrone) and theelol (estriol) were administered to the castrated women either hypodermically or orally in doses of from 300 to 50,000 rat units over periods varying from one to ten days.<sup>15</sup> The products were tested in our laboratory by the Allen-Doisy method.

OBSERVATIONS ON THE ADMINISTRATION OF A SINGLE HYPODERMIC DOSE OF ESTROGEN

In order to determine the proper interval for the hypodermic use of estrogen, a single dose of from 1,000 to 10,000 rat units was given to twelve surgically castrated women and the entire output of urine was extracted daily for a period of five days. Discounting

13. Frank, R. T., and Goldberger, M. A.: VI. Demonstration of Female Sex Hormone in the Human Blood: Technic: Clinical Applicability, J. A. M. A. 87: 1719 (Nov. 20) 1926.  
14. Kurzrok, Raphael, and Ratner, Sarah: Relation of Amenorrhea Accompanied by Genital Hypoplasia to Follicular Hormone in Urine, Am. J. Obst. & Gynec. 23: 689 (May) 1932.  
15. We are indebted to Drs. Gregory Stragnell and Erwin Schwert of the Schering Corporation for the generous supply of progyonon-B and to Dr. E. A. Sharp of Parke, Davis & Co. for the supply of theelol.

**Porphyria in Diagnosis of Extra-Uterine Pregnancy.**—Neuweiler shows that the diagnosis of extra-uterine pregnancy may cause difficulties, as in the case of perforated extra-uterine pregnancy with the formation of hematocele. In this condition the symptoms are not alarming, the pains are not severe and the mild internal hemorrhages are not readily demonstrable; in short, the entire symptomatology is not characteristic, so that even the experienced examiner finds it difficult to differentiate it from adnexitis. The author directs attention to a chemical test, which demonstrates the presence of ether-soluble porphyrin (coproporphyrin) in the urine and which he found positive in cases of hematocele. He admits that an excessive coproporphyrinuria occurs frequently in prolonged febrile conditions, but in hematocele it appears after a relatively short time. In adnexitides, however, if they are not accompanied by severe, prolonged fever, the porphyrin reaction in the urine is normal. Since it is the differentiation between adnexitis and hematocele that is especially difficult, the appearance of coproporphyrin in the urine together with the general symptoms of the disorder is an important, perhaps the decisive, sign in the diagnosis of extra-uterine pregnancy. Since it may be accepted that porphyrin develops as the result of the decomposition of blood, its increased elimination may be expected also in other hemorrhagic abdominal tumors, such as ovarian tumors with torsion of the pedicle or myomas with extensive hemorrhagic infarction. This is actually the fact and it is therefore impossible to base the differentiation between hemorrhagically infarcted tumors and extra-uterine pregnancy on the outcome of the porphyrin test. However, the diagnosis of these tumors is usually possible without much difficulty.

**Depression in the Puerperium.**—Nürnberg describes the clinical histories of three women who in the first few days of the puerperium developed a more or less pronounced depressive mood with anxiety, hypochondria and feelings of inferiority. The author thinks that, in view of its appearance shortly after delivery, the condition may be grouped with the depressive puerperal psychoses. To be sure, the symptoms in the reported cases were not as pronounced as in those recorded in the psychiatric literature. No definite cause could be found for the depressive states, but in the three women the psychic disturbances disappeared following the subcutaneous injection of extract of the anterior lobe of the hypophysis. The author admits that the prognosis of these conditions might be favorable even without treatment, but he considers it helpful to know that they can be promptly counteracted by extract of the anterior lobe of the hypophysis.

**Manual Dilation of Os Uteri.**—Reist shows that, if a careful technic is employed and asepsis is preserved, manual dilation of the os uteri produces in suitable cases the desired results; that is, a rapid termination of the period of dilatation. It is helpful in certain cases in which the dilatation is retarded or has completely stopped, because it permits a spontaneous delivery in a manner that involves no danger for either mother or child. Manual dilation of the os uteri can be used also for the rapid opening of the soft parts for the purpose of an immediate delivery in cases in which danger appears suddenly for either mother or child. The author uses it in from 4 to 6 per cent of all deliveries and says that, if the method is used according to the indications outlined by him, there is no danger that it will become an uncritically employed obstetric intervention. On the contrary, its use will reduce the more extensive vaginal obstetric interventions and the infant mortality during birth.

### Prensa Médica Argentina, Buenos Aires

23: 2541-2582 (Nov. 11) 1936

- Bouillaud's Rheumatism and Intensive Salicylate Therapy. R. A. Bullrich.—p. 2541.  
Extensive Congenital Nevus of Face of Pilose Semisoft, Verrucous, Pigmented Type Cured by Diathermocoagulation: Case. E. L. Lanari and J. Cateula.—p. 2544.  
Prefibrillation Disturbances of Auricles. M. Benarós.—p. 2547.  
Acute Anterior Poliomyelitis: Clinical Forms. A. Garay and J. J. Reboiras.—p. 2551.  
Anesthesia of Stellate Ganglion and of Upper Thoracic Ganglions: Technic. A. R. Albanese.—p. 2561.  
\*Short Waves in Inflammation. E. V. Salerno.—p. 2563.

**Anesthesia of Ganglions.**—Albanese says that anesthesia of the stellate ganglion has to be associated with that of the second and third thoracic ganglions to establish the criteria for indica-

tions of resection of the ganglions. Leriche's technic has several disadvantages and only the stellate ganglion is anesthetized. In the author's technic the needle follows a short and direct course through an area which has no important nerves and vessels, the points of reference (neck of the first and second ribs) are easy to find and the stellate as well as the upper thoracic ganglions can be anesthetized. The technic is as follows: The patient is placed in the dorsal decubitus with a small pillow under the shoulders and the head in extension and rotation toward the opposite side to that in which the needle is to be introduced. A line is drawn from the tip of the angle of the lower jaw to the central point on the clavicle. The needle, which is 8 cm. long, is introduced on the line, or a few millimeters in front of it, and two fingerbreadths above the clavicle. If the external jugular vein is found at that point, the needle is introduced a few millimeters in front of it. The needle is directed inward, downward and backward, passes the anterior scalenus muscle and touches the neck of the first rib. The stellate ganglion is slightly forward. A dose of 5 or 10 cc. of a 2 per cent solution of procaine hydrochloride (without epinephrine) is injected. The needle is then slightly withdrawn, directed in front of the neck of the first rib and gently pushed in to touch the neck of the second rib. The second thoracic ganglion is injected at this point. By repeating the maneuver with the needle directed in front of the neck of the second rib to touch the third rib, the third thoracic ganglion can be injected at this point. The author does not specify the dose of 2 per cent solution of procaine hydrochloride that is injected in the second and third thoracic ganglions.

**Short Wave Irradiation in Treatment of Inflammation.**—Salerno reports satisfactory results from short wave irradiations in the treatment of several processes of chronic, subacute and acute inflammation as well as in certain diseases with angiospasm or viscerospasm of the smooth muscles. The number of irradiations varied from seven to ten given daily or every other day for a duration of from ten to forty minutes. Short waves constitute the best physical therapeutic agent against inflammation.

### Archiv für Gynäkologie, Berlin

162: 371-646 (Oct. 23) 1936. Partial Index

- Living and Healthy Child in Case of Ovarian Pregnancy. W. Schorsch.—p. 371.  
\*Vitamin C and Placenta. W. Neuweiler.—p. 384.  
Tubal Changes Following Madlener's Sterilization Operation. K. Hartmann.—p. 407.  
\*Morphologic and Biologic Changes Caused by Trichomonas Vaginalis in Vagina of Pregnant Women. B. Szendi.—p. 479.  
Eclampsia as Latent Disease of Female Organism Elicited by Pregnancy. G. von Bud.—p. 497.  
\*Menstrual Cycles and Physical Exercises. B. Škerlj.—p. 516.  
Effect of Continuous Administration of Unphysiologic Quantities of Estrogen on Genitalia of Female Rats. C. Kaufmann and E. Steinkamm.—p. 553.

**Vitamin C in the Placenta.**—Neuweiler was able to demonstrate vitamin C in the placenta by titration with indophenol, with methylene blue, according to the ferment method and by animal experiment. He found that the concentration of vitamin C in the extract is largely dependent on the method of extraction and that the technic of Fujita does not give reliable values. During the early part of pregnancy the vitamin C content seems to be slightly higher, but the author admits that this contradicts former observations and cannot be definitely proved. It appears that in the maternal side of the placenta the vitamin C content is higher than in the portion that is under the chorion plate. The vitamin C content of the placenta is dependent on the vitamin C supply available to the maternal organism. Histologic studies seem to indicate that vitamin C is stored chiefly in the outer layer of the chorionic villi. Thus the placenta seems to be a storage organ for vitamin C, probably to insure a vitamin supply for the fetus.

**Trichomonas Vaginalis in Pregnant Women.**—In studies on pregnant women, Szendi investigated the incidence of infestation with Trichomonas vaginalis. The infestation with Trichomonas vaginalis was discovered in 44 per cent of the 200 cases examined. In about one third of the cases the infestation caused no symptoms, in others there was foamy discharge and in about 30 per cent there was inflammation (vulvovaginitis). The discharge is caused by an acute suppurating inflammation of the vaginal wall with intradermal and subepidermal vesicles

inally intended for hypodermic use, is more readily absorbed from the gastro-intestinal tract than either estriol or estradiol.

Most significant is the comparison of observations on the ratio between the hypodermic and the oral doses of estrogenic substance in the human being. Analysis of the figures in tables 3 and 4 shows that the hypodermic administration of estrogen in the human being is only twice as effective as the oral route when judged by the rate of absorption and excretion. It varies considerably with the product employed—theelin being most readily absorbed from the gastro-intestinal tract and yielding a ratio of even less than 1 to 2. These observations clearly illustrate the fallacy of broadly interpreting animal experimentation in terms of human applicability. In the rhesus monkey, for instance, the ratio between the hypodermic and the oral doses of estrogen is deemed to be 1 to 5.<sup>16</sup> It will be shown later, however, that even in the human being the ratio of 1 to 2 is not applicable in the treatment of gonorrheal vulvovaginitis of children, in whom an oral dose five times the hypodermic is required to produce a comparable clinical effect on the vaginal mucosa.

#### THE CLINICAL USES OF ESTROGEN

Therapeutically, estrogen may be administered in various conditions with the following objectives in mind:

1. To overcome uterine hypoplasia resulting from a natural deficiency of estrogen, as seen in most instances of amenorrhea, hypomenorrhea and dysmenorrhea and occasionally in the dysfunctional sterility of regularly menstruating women. In order to avoid the undesirable, though temporary and totally harmless, pituitary inhibition from excessive and prolonged administration of the product, the daily dose should theoretically be computed on the basis of complementing actual or relative deficiency of production, as indicated by the size of the uterus and the hormone content of the blood and urine of the patient.

2. To inhibit one or more of the several functions of the anterior pituitary lobe by inducing a constant hyperestrinemia in the treatment of such conditions as the severe menopausal syndrome,<sup>17</sup> the lobular form of abnormal breast hyperplasia,<sup>18</sup> premenstrual migraine,<sup>19</sup> pituitary hyperthyroidism<sup>20</sup> and selected cases of diabetes mellitus.<sup>21</sup> The utility of employing in these conditions a dose of estrogen totally incapable of inhibiting the respective hyperfunctional states of the anterior hypophysis is shown by the experience of Pratt<sup>22</sup> in climacteric patients and of Collens<sup>23</sup> in the treatment of diabetes mellitus. Both employed quantities of the substance which, according to the foregoing studies on optimal dosage, could only slightly

increase the estrogen content of the blood even in women with adequate ovarian activity.

3. To produce a purely local growth effect in the vaginal mucosa of children suffering from vulvovaginitis<sup>24</sup> and of postmenopausal women suffering from senile vaginitis.<sup>25</sup> It seems that for this purpose the local application of the substance in the form of vaginal pessaries is most effective.<sup>26</sup>

4. To evoke a pituitary-ovarian response in cases of severe amenorrhea by employing intermittently massive doses, such as 300,000 rat units over a period of one week.<sup>9</sup>

#### EFFECT ON AMENORRHEA

Estrogens produce no stimulative effect on the ovaries. They are usually employed in conjunction with other measures, such as low-dosage irradiation of the hypophysis and gonads,<sup>27</sup> to overcome the associated hypoplasia of the uterus. When employed alone, they are most effective when the uterine atrophy is merely the residuum of a previously existing ovarian deficiency—the so-called hyperhormonal amenorrhea of Zondek.<sup>28</sup> The latter is a condition wherein there is a normal supply of the estrogen, not sufficient, however, to overcome the uterine atrophy acquired during a previously existing ovarian deficiency of long duration. Theoretically, the maintenance dose of 500 rat units daily when given orally or 1,000 rat units every fourth day when administered hypodermically (vide supra) should be effective substitution therapy. But, owing to the pathologic state of the uterus, far larger doses are required to produce an impression. It was shown by Kaufmann<sup>29</sup> and Clauberg<sup>30</sup> and amply verified by our experience that the minimum quantity of estrogen capable of evoking an adequate proliferative phase in the atrophic endometrium of the castrated woman is 50,000 rat units per month. Smaller quantities, administered over a long period of time, may produce an effect in the form of uterine bleeding, but the endometrial growth is far below the natural state.<sup>31</sup>

Of twenty-eight amenorrheic patients treated with large doses of estrogen alone, five had never menstruated (primary amenorrhea), nine had no menstrual periods during the year preceding treatment and fourteen had menstrual intervals of four or more months but less than twelve months. The five patients with primary amenorrhea presented a hopeless degree of uterine atrophy. They were given 10,000 rat units of estradiol benzoate hypodermically at intervals of four days for periods varying from two to eight months. Two of the five patients menstruated almost cyclically during treatment; the remaining three failed to respond even temporarily. The patient who received the largest quantity of the substance—a total of 675,000 rat units—showed, on repeated uterine curettages, no endo-

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that roentgenoscopy is the most reliable diagnostic method. He points out that some authors are of the opinion that a congenital defect of the diaphragmatic musculature is the most important factor in the pathogenesis of diaphragmatic relaxation. This theory is based on necroptic observations during early childhood, on the frequent occurrence of diaphragmatic relaxation with other congenital defects, such as harelip, cleft palate and spina bifida, and on the almost exclusive sinistral development of the relaxation. The author points out further that another group of investigators considers diaphragmatic relaxation the result of lesions of the phrenic nerve. It has been stated that processes which cause changes in the phrenic nerve should be searched for chiefly in the region of the fourth cervical vertebra. They may be tumors, spondylitis, fractures, luxations, pachymeningitis, spinal hemorrhages and tuberculous and syphilitic meningeal processes. In the present patient the diaphragmatic relaxation was the result of a paralysis of the phrenic nerve, which in turn was produced by a tumor of the fourth cervical vertebra.

### Polska Gazeta Lekarska, Lwów

15: 925-940 (Nov. 29) 1936

- Neurosis and Sympathetic Nervous System. M. Zieliński.—p. 925.  
Monocytic Leukemia as Disease of Hematopoietic System. J. Kowalczykowska and A. Sokolowski.—p. 927.  
Thrombosis and Embolism in Obstetric and Gynecologic Cases at Clinic of Lwów (1925-1935). J. Lenczowski.—p. 933.  
\*Local Anesthesia in Some Minor Gynecologic Operations. F. Raubberger.—p. 936.

**Local Anesthesia in Minor Gynecologic Operations.**—Raubberger calls attention to the fact that local anesthesia in gynecologic cases has lately attained wide application, especially in cases of miscarriage or abortion and in cases in which the neck of the uterus has to be dilated, which usually is an extremely painful ordeal necessitating a general anesthetic and more adequate assistance and which often results in a disturbance of the lungs. All this has been done away with by application of local anesthesia. During the last two years the author has performed operations of various types in 340 cases with satisfactory results: some were plastic operations and there was even a cesarean section. Although he has tried other preparations for local anesthesia, he found none as satisfactory as that made up of 0.2 Gm. of procaine hydrochloride, 2 drops of epinephrine solution, 0.03 Gm. of potassium sulfate, 0.06 Gm. of sodium chloride and 20 cc. of distilled water.

### Sovetskaya Khirurgi, Moscow

Pp. 377-552 (No. 3) 1936. Partial Index

- Surgery of Cardiac Diseases. P. A. Gertsen.—p. 379.  
\*Transfusion of Conserved Blood. D. N. Belenkiy.—p. 394.  
Treatment of Clean Postoperative Wounds Without Dressings. A. A. Lebedev.—p. 424.  
Four Hundred Punctures of Posterior Cystern of Brain. I. S. Royzen.—p. 427.  
Postganglionic Peritonitis. V. V. Popov.—p. 434.

**Transfusion of Conserved Blood.**—According to Belenkiy, conserved blood undergoes in vitro biochemical and morphologic alterations of a destructive character terminating in a complete loss of its functional characteristics. These alterations depend to some extent on the character of the medium in which it is conserved. Blood undergoes less deterioration in a dextrose-citrate solution than in a citrate-saline solution. Because of the progressive character of the deterioration, the author feels that conserved blood should be regarded as a medium containing morphologic and chemical components of the blood rather than blood tissue. The properties of the conserved blood permit its use for the purpose of blood replacement as well as for that of stimulation. Excellent therapeutic effect was obtained in chronic anemia of various types in which the usual medicinal and dietetic regimens failed. It likewise proved its efficiency in diseases associated with disturbed metabolism and trophic dysfunction of the nervous system. A comparative study of the effect of fresh blood transfusions in the same type of disease demonstrated the inferiority of the conserved blood, especially when kept for twelve or more days. The effect of transfusion of conserved blood in acute hemorrhage with or without shock was prompt and efficient. The gravely lowered blood pressure rapidly rose to normal levels and remained so. This effect was always more pronounced

when a relatively freshly conserved blood, such as that of from three to seven days, was used. Cases of acute anemia or of traumatic shock are less likely to have a reaction following the transfusion of conserved blood than following that of fresh blood. The hemostatic effect of conserved blood in hemorrhagic diathesis was found to be inferior to that of fresh blood. The author concludes that transfusion of fresh blood is still the method of choice but that under certain conditions, such as mass traumatism in a combat, the use of conserved blood may have certain advantages over the former.

### Folia Medicinæ Internæ Orientalia, Jerusalem

2: 87-176 (April) 1936. Partial Index

- Diabetes Mellitus in Jews. H. Strauss.—p. 87.  
Convalescent Serum in Treatment of Poliomyelitis. A. Netter.—p. 101.  
\*New Neurologic Syndrome Occurring in Palestine During Summer Months. H. Zondek and H. Stark.—p. 109.  
Clinical Aspects of Pulmonary Blastomycosis. J. Weiser.—p. 115.  
Serodiagnosis in Diseases of the Liver. L. Schindel.—p. 149.  
\*Disinfection Experiments on Fruits from Various Origins and Comparative Studies on Efficacy of Various Methods of Disinfection. L. Olitzki and J. Gurevitch.—p. 157.

**Neurologic Syndrome Occurring in Palestine.**—Zondek and Stark describe a neurologic disorder that they observed in a considerable number of persons during the hot summer months in Palestine. An attempt failed to identify the disorder as one already known. It is characterized by violent headache, pains in the limbs, increased psychic irritability, spastic disturbances in the reflexes and occasional subfebrile temperature. There are no other disturbances on the part of the central nervous system. The disorder is transient. It is assumed that the disorder is caused by an increase in cerebral pressure resulting from abnormal insolation. The authors give the clinical histories of six cases.

**Disinfection Experiments on Fruits.**—Olitzki and Gurevitch demonstrate that the disinfection of fruits before consumption is an indispensable hygienic measure in Palestine. In order to prevent bacillary infections, the authors recommend that the fruits be dipped three times into a 1:10,000 solution of potassium permanganate with 0.5 per cent of acetic acid. After each dipping the fruits should be rinsed, but the potassium permanganate should act each time for five minutes. However, the authors admit that chemical disinfectants as a rule have only a slight effect on protozoa and worm eggs. Like other investigators, they found that boiling water is the only effective agent against amebas. They reach the conclusion that, whenever there is an increase in cases of typhoid and bacillary dysentery, fruits should be disinfected with dilute potassium permanganate. On the other hand, disinfection with boiling water is imperative in all cases in which there is a possibility of infection with intestinal protozoa.

### Hospitalstidende, Copenhagen

79: 1137-1148 (Oct. 27) 1936

- \*Investigations on Sedimentation Reaction in Dementia Paralytica. K. H. Fremming and J. Madsen.—p. 1137.

**Sedimentation Reaction in Dementia Paralytica.**—Fremming and Madsen state that certain normal sedimentation reaction was found in only 20 per cent of fifty-three cases of recent cerebrospinal syphilis, mainly dementia paralytica; the sedimentation reaction was definitely increased in about 50 per cent. Intercurrent somatic disorders were established in only three cases as being the cause of the high reaction. Low sedimentation reaction and marked changes in the spinal fluid point to a more superficial form of cerebral syphilis and constitute a favorable prognostic sign, while low sedimentation reaction and slight changes in the spinal fluid indicate an older stationary process with but slight prospect of remission after malaria treatment. High sedimentation reaction in a patient with weak changes in the spinal fluid points to a complicating medical disorder. High sedimentation reaction, if not due to intercurrent diseases, does not contraindicate malaria treatment. Under malaria treatment a marked rise in the sedimentation reaction occurs, but in differing degrees. In some cases the sedimentation reaction falls after the fourth or fifth attack of fever, in spite of continued rises in temperature; further investigations are necessary to determine whether this depends on hepatic injury with consequent lowered fibrin production.

EFFECT ON THE ALVEOLAR TYPE OF ABNORMAL  
BREAST HYPERPLASIA

Leriche<sup>35</sup> and Whitehouse<sup>36</sup> obtained considerable success with the use of estrogen in the treatment of painful, nodular breasts (mazoplasia or adenosis). The nipple bleeding, which is present in 7 per cent of breast adenosis,<sup>37</sup> was found by one of us<sup>18</sup> to be equally responsive to the administration of the substance. Four of five patients thus treated have remained free from symptoms since 1933. The fifth patient, who apparently had a duct papilloma, as shown by the appearance of blood when pressure was applied in the vicinity of the nipple, was unaffected by the treatment. Nevertheless, she still shows no evidence of a malignant condition of the breast.

Nipple bleeding, moreover, often occurs without palpable breast nodularity. Its benignancy is thus characterized by Bloodgood:<sup>38</sup> "I have no evidence that a woman who has a discharge from one or both nipples, and whose breasts on palpation are found free from tumors, runs any more risk of cancer than a woman who has pain and no palpable tumor or any female who has neither." There is no doubt that conservative surgery is indicated in cases of nipple bleeding associated with a palpable mass or a well circumscribed opacity under transillumination but, in the absence of a palpable nodule or in the presence of numerous, widely scattered nodules, recourse to operative measures entails useless sacrifice of the breast, since nipple bleeding, as shown by Deaver,<sup>39</sup> is the first symptom in only 1 per cent of cases of mammary carcinoma.

Thus far, we have followed up for a period averaging sixteen months three more women similarly treated for nipple bleeding and multiple nodules of the breast. One of them was relieved in the course of a month with the use of 29,000 rat units of the substance. The second patient had bilateral nipple bleeding and galactorrhea for ten months prior to treatment. She was given a total of 324,000 rat units of estradiol benzoate hypodermically in the course of seven months and remained free from both the galactorrhea and the nipple bleeding during a follow-up period of nine months. The third patient had profuse unilateral nipple bleeding with multiple nodules in the axillary portion of the left breast. She received a total of 590,000 rat units of estradiol benzoate hypodermically over a period of six months without improvement of the nodularity or the associated nipple bleeding. She refuses removal of the lesion, which has existed nearly two years.

## EFFECT ON VULVOVAGINITIS

The treatment of gonorrheal vaginitis of children by means of estrogen, first suggested by Lewis,<sup>24</sup> provoked considerable discussion in the medical literature, some favorable and others entirely unfavorable. Thus, for instance, Witherspoon<sup>40</sup> found this form of treatment entirely ineffective. From the discordant reports, it is

evident that difference in dosage, length of treatment, mode of administration and the failure to recognize extragenital foci of infection, not within the influence of the substance, account for the discordant results reported.

Experimentally, Berger<sup>41</sup> has shown that one tenth of the necessary hypodermic dose of estrogen is capable of evoking estrus in the castrated adult rat when instilled directly into the vaginal canal. Clinically, TeLinde<sup>26</sup> observed that estrogen (amniotin) administered in the form of vaginal suppositories is superior to any other method of treating vulvovaginitis. Thus far, our experience with this form of treatment has been too limited to warrant a conclusion as to its effectiveness. A detailed report concerning the relative merits of the various methods of treating vulvovaginitis will be prepared shortly under the supervision of the Philadelphia Institute for Medical Research.

Thus far, we have followed up for a period of from four to thirty-two months ninety-three children with gonococcic vulvovaginitis observed in private practice, in the clinic and in hospital wards. Sixty of the children received hypodermic injections of from 1,000 to 1,500 rat units of estradiol benzoate every other day for a period of eight weeks, though four or five consecutive negative vaginal smears were usually obtained after the third or fourth week of treatment. Only five of the sixty (8 per cent) showed a recurrence of the infection during a follow-up period of four or more months. Nine children received hypodermic injections of from 1,000 to 1,500 rat units of the same substance every other day for a period of only four or five weeks. Four of the nine had recurrences during the first four months of the follow-up period. Eighteen children received 500 rat units of the substance every other day during a period of from five to eight weeks. Six (33⅓ per cent) had a recurrence of the infection during a follow-up period of four or more months. Six children were given 1,500 rat units of estradiol (progy-non-DH) orally, twice daily, for a period of eight weeks. Three of the six had a recurrence of the infection during a follow-up period of four or more months. None of the children received any local treatment other than cleansing of the external genitalia.

From the foregoing data, it seems that the optimal dose and length of treatment of gonorrheal vulvovaginitis is 1,000 or more rat units given hypodermically every other day for a period of not less than eight weeks.

The safety of administering such large doses of estrogen to children of tender age is yet to be determined. Only one of the treated children has thus far reached the age of puberty. The menarche appeared at the usual time. She has been menstruating regularly for a period of a year. Five of the ninety-three children had some uterine bleeding for one or two days during the period of treatment; nineteen showed definite enlargement of the breast while under treatment and for a period of a month thereafter; nine, the youngest of whom was 2 years old, showed evidence of growth of pubic hair, which disappeared after withdrawal of treatment. No constitutional effects were observed in any of the children.

Twenty-First and Spruce streets—2116 Spruce Street.

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## STUDIES ON THE OPTIMAL DOSAGE OF ESTROGENS

AN EXPERIMENTAL AND CLINICAL EVALUATION

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With the recent availability of chemically pure and highly concentrated estrogenic products, the medical profession is confronted with the problems of the margin of safety, therapeutic indications and optimal dosage. In a previous study on the constitutional effects of relatively large doses of estrogens, we<sup>1</sup> found that the administration of from 100,000 to 260,000 rat units of the principle, given in divided doses over a period of from two to three months, produces no appreciable changes in body weight, basal metabolism, blood pressure, blood count, coagulation and bleeding times, blood chemistry and urine. The present study was undertaken in an attempt to evaluate the indications for the clinical use of estrogens, their respective optimal dosage and the most effective modes of administration.

### THE PHYSIOLOGIC EFFECTS OF ESTROGEN IN THE EXPERIMENTAL ANIMAL

Clinical studies in optimal dosage of a new therapeutic agent are by necessity based primarily on the varied responses of animal organs to different quantities of the product. An analysis of the authentic current literature on the effects of estrogens in laboratory animals permits the following deductions:

1. The uterine growth response to the principle is directly proportional to the quantity administered and the length of treatment but varies considerably with the product employed and the mode of administration. Thus, for instance, on the basis of the rat unit, estriol is least effective<sup>2</sup> and estradiol benzoate most potent in producing uterine growth and vascularity.<sup>3</sup>

2. The substance has no direct effect on the gonads even when administered for a relatively long time and

in quantities far greater than the ovaries normally produce. Indirectly, it does produce ovarian damage through inhibition of the gonad-stimulating function of the anterior pituitary lobe.<sup>4</sup> The ovarian damage is, however, temporary<sup>5</sup> and without effect on future fertility.<sup>6</sup> Relatively large doses also inhibit the diabetogenic function of the hypophysis.<sup>7</sup> The principal factors productive of pituitary inhibition are the size of the dose and the length of treatment. Twenty rat units (100 mouse units) injected in infantile rats twice weekly over a period of four months produces no ill effects. When, however, the dose is increased to 200 or more rat units (1,000 mouse units), both the gonadotropic and the growth-producing functions of the anterior pituitary lobe are markedly inhibited, as evidenced by the development of gonadal atrophy and dwarfism.<sup>8</sup> Single or multiple doses of 500 or more rat units given over a period of only one week produce an opposite pituitary-ovarian effect in the infantile rat and rabbit; namely, increased gonad-stimulating function and secondary ovarian growth.<sup>9</sup>

3. Administration of estrogen, in adequate quantities, prevents and corrects the morphologic and hyperfunctional castration changes of the hypophysis.<sup>10</sup>

4. The substance produces extensive growth of the duct system of the mammary glands of male and female animals and prepares the acini and terminal ducts for the action of the pituitary lactogenic principle.<sup>11</sup> In male mice of a strain in which only the females ordinarily develop spontaneous mammary adenocarcinomas, long continued administration of estrogen leads to the development of malignant tumors.<sup>12</sup> It is, however, evident that the males of this strain of mice are inher-

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From the Department of Gynecology, Mount Sinai Hospital. Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

The international unit (weight unit) of estrogen is one-tenth microgram. The ratio between the rat unit and the international unit varies with the chemical composition of the product and its purity. In our laboratory various samples of estrone yielded from 500,000 to 1,000,000 rat units per gram; estriol, 150,000 rat units per gram; estradiol, 6,500,000 rat units per gram, and estradiol benzoate 5,500,000 rat units per gram. It is therefore evident that the use of the rat unit is preferable when dealing with the several estrogens.

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Lancereaux, who in 1866 differentiated between interstitial and gummatous syphilis and described white and yellow areas of connective tissue throughout the heart. Ehrlich in 1880 described a myocardium containing small gray-white foci, which he thought were caused by syphilis and had resulted from syphilitic obliteration of the arteries. During 1894 Hektoen,<sup>3</sup> who was at Chiari's clinic, reported syphilis involving the muscle of a child's heart characterized by round white areas as large as 1 cm. in diameter. His description of the cellular changes is quoted and is in accord with those later described by Warthin: "There were extensive infiltrations into and between the muscular bundles with rounded and oval nucleated cells, usually embedded in fairly circumscribed districts and seems to proceed in the main from the adventitia of the smaller vessels immediately around which the proliferation is most marked."

Coronary artery disease and syphilis were not associated by the earlier pathologists, although Lancereaux must have known that these arteries were affected, for he mentioned the occurrence of an obliterating endarteritis. Saphir noted in his review that Billings in 1911 found that syphilis caused endarteritis of the coronaries and that similar reports of coronary disorder were made by Brooks in 1921, Maher in 1930 and Moritz in 1931.

Since 1910, reports of myocardial syphilitic disease have been numerous and thorough. Scientific and convincing descriptions have been given by Warthin<sup>4</sup> (1911 and 1912), and to him is given the credit for the modern conception of a process characterized by the presence of irritative or inflammatory processes with lymphocytic and plasma cell infiltration in the stroma and about the blood vessels. Cabot<sup>5</sup> in 1914 observed thirty-two myocardial syphilitic cases in a group of 600. Allbutt<sup>6</sup> in 1915 made the statement that syphilis was frequently present simultaneously in the heart and the aorta. Lemann and Mattes<sup>7</sup> in 1920 examined fifty hearts presenting aortic lesions and found lymphocytic infiltrations in the hearts of twenty-four; and in 1923 Reid,<sup>8</sup> after finding seven syphilitic hearts in 100 necropsies, stated that every case of syphilis was potentially one of heart disease. Since 1925 only a few reports have been made: two by Paullin<sup>9</sup> in 1930 and another by myself<sup>10</sup> in 1933 in which I made an attempt to give adequate pathologic descriptions of the coronary lesions involved in myocardial syphilis. In May 1935 Magill<sup>11</sup> reported twenty patients under 46 years of age who had cardiac decompensation without any explanation as to the cause other than syphilis. The clinical features were enlargement of the heart without hypertension, arteriosclerosis and organic valvular damage. Sections from the hearts of all patients

in this group showed round cell infiltrations, and each patient had a positive blood Wassermann reaction.

Saphir's<sup>2</sup> monograph on the problem offers many aggressive arguments against myocardial syphilis. He thoroughly attacks the histologic criteria and feels that other conditions such as typhoid, streptococcal infections, pneumonia, diphtheria and arteriosclerosis may cause a cellular response similar to that caused by syphilis. He indicates very reasonably and scientifically his doubts as to the finding of spirochetes in heart tissue. He feels that spirochetes described as being "broken up" or "drawn out" or "fragmented in type" should be disregarded. Still further, he recalled a true fact: that no one could find spirochetes as easily as did Warthin and his assistants. Finally, he gives his personal experience in which he stained sections from 130 aortic syphilitic hearts, in which forty-one had involved coronary arteries. In none of the 130 hearts did he find typical spirochetes. He ended this interesting experiment by examining coverslips according to the Warthin-Starry technic and demonstrated artefacts that resembled spirochetes.

While willing to agree that I could not find the spirochetes with Warthin's facility, I feel that years of experience had taught Dr. Warthin more about heart forms of spirochetes than was known by any other living pathologist, and on this fact one is treading on thin ice when one presumably suspects that Warthin saw artefacts and called such artefacts spirochetes. A few practical facts about spirochetes that are remembered by histologists in general must also be considered. Spirochetes, in my opinion, do elongate, separate and fragment in syphilitic lesions, and at times they may obscure themselves by their twists, spirals and dissimilar appearances as compared to spirochetes in fetal or acute syphilitic ulcerations. One must admit further that as the syphilis grows older the spirochetes become hidden, quiescent and inactive. Treatment also tends to obscure them.

Thus, the controversy seethes in authoritative responsibility, and while I admire Saphir's splendid negative observations I feel that I must accept Warthin's contentions as correct; I feel supported by my own observations and by the similar acceptance of his work by other investigators. One cannot help but be greatly impressed by the statement in which Stokes<sup>12</sup> said: "Personally, and from a number of experiences in spirochete staining, and through Warthin's courtesy in allowing me to see a number of his preparations, I believe that we must yield to him as our master in the matter, and ascribe to technical difficulties many of the reported failures to confirm his findings."

#### INCIDENCE AND OCCURRENCE, TYPES AND METHODS OF MANIFESTATION AND ONSET

Syphilitic myocarditis in our community is more commonly found in the Negro male, yet as our records enlarge in number there seems an increasing total of females with the disease. In a former study of my records prior to 1932 I found syphilitic heart disease in 20 per cent of 110 necropsies and that the myocardium was probably involved in twenty of that group. Since 1932 we have had an active therapeutic clinic, and syphilitic heart diseases of all types appear to be on a decline. A recent review of 300 autopsies revealed seventeen grossly involved hearts and aortas in which twelve showed marked aortitis with six aneurysms. A

3. Hektoen, Ludwig: On a Case of Multiple Foci of Interstitial Myocarditis in Hereditary Syphilis, *J. Path. & Bact.* 3:473-474, 1896.

4. Warthin, A. S.: Congenital Syphilis of the Heart, *Am. J. M. Sc.* 141:398, 1911; Focal Fatty Degeneration of the Myocardium Associated with Localized Colonies of Spirochaeta Pallida, *J. A. M. A.* 58:409 (Feb. 10) 1912. Warthin, A. S., and Snyder, E. J.: Localization of Spirochaeta Pallida in the Heart Muscle in Congenital Syphilis, *ibid.* 58:689 (March 9) 1912.

5. Cabot, R. C.: The Four Common Types of Heart Disease, *J. A. M. A.* 63:1461 (Oct. 24) 1914.

6. Allbutt, C. A.: Diseases of Arteries, Including Angina Pectoris, New York, Macmillan Company, 1915.

7. Lemann, I. L., and Mattes, A.: Syphilis of the Heart and Aorta, *South. M. J.* 13:623 (Sept.) 1920.

8. Reid, W. D.: Cardiovascular Syphilis, *M. Clin. North America* 5:1319 (March) 1922.

9. Paullin, J. E.: Syphilitic Myocarditis, *South. M. J.* 23:928-929 (Nov.) 1930.

10. Norris, J. C.: Myocardial Syphilis, *South. M. J.* 26:399-407 (May) 1933.

11. Magill, F. P.: Syphilitic Myocarditis, *Bull. Johns Hopkins Hosp.* 57:22-31 (July) 1935.

12. Stokes, J. H.: Modern Clinical Syphilology, ed. 2, Philadelphia, W. B. Saunders Company, 1934, chapter XX, p. 1024.

slight individual variations, a perusal of table 1 shows that the hypodermic administration of a single dose of 1,000 rat units of theelin or estradiol benzoate in oil maintains a normal level of estrogen in the blood, as reflected by the amount excreted in the urine, for a period of four days. Larger doses of from 5,000 to 10,000 rat units produce a temporary hyperestrinemia, which invariably reaches the normal premenstrual level on the fourth or fifth day.

On the basis of only two observations, it seems probable that theelin is as slowly absorbed from the skin as its chemically modified counterpart, estradiol benzoate. The latter is, however, far more soluble in oil and can be given in larger doses when necessary.

It is interesting to note the quantitative relationship between the amount of estrogen administered and that excreted (chart 1). The rate of excretion is so proportionate with the dose administered that all the demonstrable estrogen is eliminated by the fifth day,

TABLE 4.—The Rate of Absorption and Excretion of Estrogens in Castrated Women with Administration of Daily, Oral Doses

Substance and Quantity of Daily Dose in Oil	Number of Rat Units of Active Estrogen in Daily Output of Urine					
	Days of Administration					
	I	II	III	IV	V	VI
<b>Estriol</b>						
200 R. U.....	3.3	5	6.6	10	7.1	6.1
500 R. U.....	...	6.6	10	6.6	6.6	
750 R. U.....	...	16	...	6.6		
750 R. U.....	6.6	13.3	6.6	13.3	6.6	13.3*
<b>Theelin</b>						
500 R. U.....	22.2	21.6	25.8	14.6*	20	
500 R. U.....	...	13.3	20	40	23.2*	23.2
500 R. U.....	23.2	16	23.2	20*	18	
1,000 R. U.....	16	40	40*	16	...	16
1,000 R. U.....	40	60	56	40	33*	30
2,000 R. U.....	96	80	80	80	80	
<b>Estradiol</b>						
500 R. U.....	...	13.3	...	13.3	20	18.8
500 R. U.....	13.6	11.8	14.1*	12.3	18	13.1*
500 R. U.....	11.8	13.1	12.5*	8.1	8.3	10
500 R. U.....	16	16	20*	13.3	20*	20
1,000 R. U.....	13.3	...	13.3	...	16	
1,000 R. U.....	20	13.3	13.3*	20	16	13.3
1,000 R. U.....	30	30.8	20	20*	20	13.3
1,000 R. U.....	...	13.3	...	23.3	13.3	20*
1,000 R. U.....	13.3	17.7	10	17.7	17.7*	17.3
3,000 R. U.....	...	...	26	...	42	
6,000 R. U.....	...	58	...	...	80	

\* Frank and Goldberger test performed on same date with positive result.

irrespective of the size of the dose. This is true also when an adequate quantity of the substance is administered orally as a single dose (table 2).

OBSERVATIONS ON THE ADMINISTRATION OF A DAILY HYPODERMIC DOSE OF ESTROGEN

Although the daily administration of estrogens hypodermically is not at all feasible in private practice, it seemed advisable to include a small series so treated in this study for the purpose of comparison. Analysis of table 3 shows that even 500 rat units administered hypodermically daily produces an abnormally high concentration of the principle in the blood, as reflected by the amount excreted by the kidneys daily.

OBSERVATIONS ON THE ADMINISTRATION OF DAILY ORAL DOSES OF ESTROGEN

Our largest series of observations are based on the most practical mode of administration of relatively small doses of estrogens—the oral route. Data relative to oral dosage to supplant the better known hypodermic variants are urgently needed. To that end, twenty-one surgically castrated women were given estrogens orally in doses of from 200 to 6,000 rat units daily in the

form of an oily solution on buttered bread. From the data recorded in tables 2 and 4, it is apparent that estrogens are readily absorbed from the human gastrointestinal tract. The degree of absorption, as reflected in the blood and urine levels of the principle, varies considerably with the product and the amount admin-

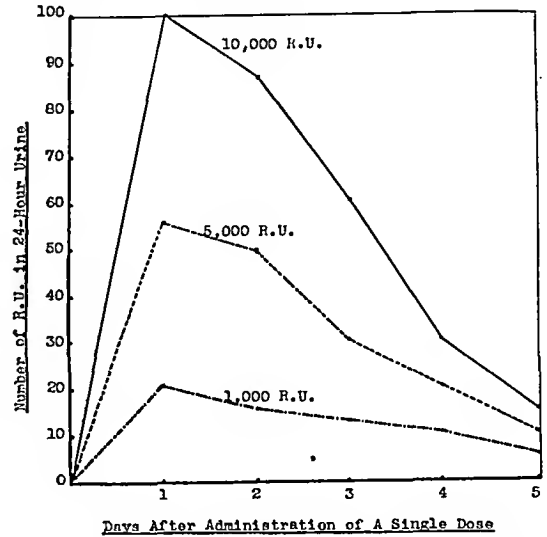


Chart 1.—Schematic representation of the quantitative relationship between the size of a single dose of estradiol benzoate and the amount excreted daily by the kidneys. Note that, regardless of the size of the dose, within the limits mentioned, the amount excreted on the fifth day is the same.

istered. That the commercially available products yield quite different rates of absorption, as reflected by the amount excreted in the urine, is visualized in the composite graph (chart 2). It demonstrates the average excretion values for each of the three products employed at an average daily dosage of 1,000 rat units. It is herein emphasized that no inference concerning the relative therapeutic effectiveness of the three substances administered orally may be drawn from this

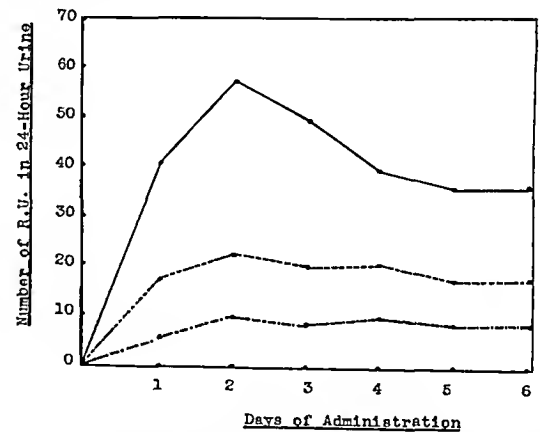


Chart 2.—Schematic representation of the differences in the rates of excretion of the three estrogenic substances—theelin (solid line), estradiol (broken line) and estriol (dots and dashes)—when administered orally in daily doses of 1,000 rat units.

study. A careful analysis of table 4 shows that the minimum daily oral dose of either theelin or estradiol capable of maintaining a premenstrual level in the blood of the castrated woman is approximately 500 rat units and that the claim of greater absorbability of estriol when administered orally is not supported by this study. On the contrary, it seems that theelin, orig-



base is seen. The coronaries are most often involved at their openings, which are narrowed, presumably by the effects of the aortic distortion; but the coronaries may be, and often are, involved by narrowing of the lumens, puckering, corrugations, swellings and small sacculations, with interspersing yellow depositions extending for a distance of 5 or more centimeters. At

## CLINICAL OBSERVATIONS

Seven of the patients were males and three were females. The eldest was a man of 56 and the youngest a man of 26; the group had an average age incidence of 37 years.

The blood pressures ranged from 160 systolic and 100 diastolic with an average blood pressure of 130 systolic and 73 diastolic. Four of these patients had a mild aortic deficiency, but the diastolic pressure never dropped below 40 mm. of mercury.

It has been difficult to get from patients an accurate story that would give a definite idea of the earliest symptoms of myocardial syphilis. I have, however, studied a number of them sufficiently to believe that the earliest symptoms are slight cardiac pain, which is variable in duration and severity, associated with extra beats (and skipping heart). Those symptoms, however, are usually not severe enough to incapacitate the patient completely but do cause a diminishing muscular power, and the patient has observed his inability to work or exercise with his former facility and realizes that extra activity on his part, such as excessive walking, lifting or climbing stairs, would exaggerate his pain and produce rapid heart action.

At a later period in the patient's life comes the final onset in cardiac syphilis, and according to my obser-



Fig. 3 (case 2).—Gross appearance of heart, showing syphilitic cavity with two openings in muscle at point near aortic base. The aorta appears quite normal except for small lesion near one cusp.

different times I have observed one of the coronaries extensively damaged and the other artery apparently normal.

In one or more instances I have found small aneurysms to be present a short distance from the aortic ostium. Not infrequently the coronaries have the effects of arteriosclerosis and syphilis combined, and only microscopic study will permit differentiation of the lesions. Usually in such lesions the arteries are diffusely damaged from ostia to deep terminals and are inclined to brittleness and have an unusual amount of spotty yellow color. Undoubtedly, as a differentiation point, sclerosis seems to begin in the terminals and goes to the openings of the large vessels. Syphilis is a reverse process and begins first in the mouths of the vessels and spreads downward to the small arterial ends.

In a previous report I<sup>10</sup> classified all the coronary groups that I have observed and to date have no reason to add to or change those observations.

Occasionally I have found occluded coronary twigs with subsequent inflammation in the muscle, and microscopic study would show early infiltrations of leukocytes with a good number of lymphocytes. Often I have found that in occlusion of the coronaries the processes of syphilis and atheroma are associated.

Histologically, I am in total agreement that the typical and constant tissue reaction is one in which lymphocytes, plasma cells and fibroblasts are usually around the vessels and in the connective tissue stroma, with the added fact that in the coronaries most often the picture is one of intimal thickening by endothelial proliferation, hyalinization and scarring by fibroblasts in the media, with considerable collection of islands of lymphocytes in the adventitia.



Fig. 4 (case 2).—Low power magnification showing large island of lymphocytes and fibroblasts in degenerated area of involved muscle.

vations it is characterized by a precipitate cardiac insufficiency, characterized by shortness of breath, edema of the extremities of a mild degree, and cardiac pain, which may be quite severe and may radiate down one or both arms so that angina pectoris may be simulated. However, pain may be entirely absent, and the outstanding features of the illness are those of the enlarged heart with diminished cardiac power. Usually these

metrial growth, indicating the presence of an inherent lack of uterine responsiveness to the substance.

Fifteen of the twenty-three patients with secondary amenorrhea were given 10,000 rat units of estradiol benzoate hypodermically at intervals of four days for from two to four months. All but one menstruated almost cyclically during the period of treatment. Only three, or 20 per cent, of the group of fifteen continued to menstruate regularly after withdrawal of treatment for a follow-up period averaging one year.

Eight patients were given massive doses of from 70,000 to 100,000 rat units of the substance three times in the course of one week of the month for two or three consecutive months. Uterine bleeding, clinically indistinguishable from the normal, followed in each instance within two weeks after the last of the triweekly injections. One patient conceived during the month following the second course of treatment and bore a healthy child, and two of the remaining seven patients have been menstruating regularly during a follow-up period of seven months. The remaining five patients have lapsed into their former state of amenorrhea.

It is evident from this study that the administration of large doses of estrogen, employed as the sole agent in the treatment of amenorrhea, yields about 20 per cent cures and that short courses of massive doses (300,000 rat units in three divided doses) repeated monthly are probably more effective than continuous treatment with the substance.

#### EFFECT ON HYPOMENORRHEA

Hypomenorrhea (regular but short and scanty menstruation) is often a precursor of amenorrhea. Two of six hypomenorrheic women who had taken daily from 225 to 1,200 rat units of estriol either as theol itself or as its combined form, emmenin, and three of eight additional patients who had received parenterally from 5,000 to 10,000 rat units of estradiol benzoate at intervals of four days for approximately three months have been menstruating normally during a follow-up period averaging fifteen months.

Two of the three cured patients in the latter group were subjected to premenstrual curettages before and after treatment. In both there was a conversion of an atrophic endometrium into a normal premenstrual pattern—a phenomenon which Kaufmann<sup>29</sup> also observed with the use of substitution treatment. These observations justify the assumption that the hypomenorrhea in these two patients was mainly due to lack of uterine response, which was corrected by the administration of estrogen.

#### EFFECT ON PRIMARY DYSMENORRHEA

This phase of our study on the clinical uses of estrogenic substances was recently reported by one of us.<sup>32</sup> It was shown that only one of sixteen patients benefited from daily administration of 225 rat units of estriol in combined form (emmenin) daily for periods averaging four months. Large doses, such as from 5,000 to 10,000 rat units of estradiol benzoate given hypodermically every fourth day over a period of from three to four months, produced no effect in three of thirteen patients and complete relief during the course of treatment in the remaining ten patients.

An analysis of the foregoing data on the treatment of amenorrhea, hypomenorrhea and dysmenorrhea with large doses of estrogen permits the conclusion that the

resultant correction of the associated uterine atrophy produces temporary relief of the respective symptoms. Permanent relief is relatively rare and occurs only in instances in which the uterine atrophy is merely the residuum of a previously existing ovarian deficiency which, in the course of time, was corrected either spontaneously or through the mediation of other measures acting directly on the pituitary-ovarian mechanism. Estrogen is, nevertheless, a valuable adjunct to other remedial agents in the management of these conditions.

#### EFFECT ON FERTILITY

It is reasonable to assume that relatively small doses of estrogen—purely a substitutive quantity—can have no deleterious effect on fertility. What harmful effects, if any, do massive doses produce? It is premature to answer this question. However, four of our patients who had received from 30,000 to 430,000 rat units of estradiol benzoate in the course of from one to two months for the relief of amenorrhea or hypomenorrhea conceived soon after withdrawal of treatment. Two of the four were delivered of healthy offspring; the other two have not yet reached full term of pregnancy. When one recollects the increasingly high concentration of the substance normally present in the blood during advanced pregnancy (approximately 1 mouse unit per cubic centimeter), it is difficult to concede more than temporary pituitary-ovarian inhibition from the administration of large doses of the substance.

#### EFFECT ON THE SEVERE MENOPAUSAL SYNDROME

The most impressive results with the use of estrogen are obtained in patients suffering from severe symptoms of the artificial or natural menopause. This phase of our study on the clinical uses of estrogens was reported in a recent publication.<sup>33</sup>

Only large doses, quantities producing a definite hyperestrinemia, are effective in inhibiting the hyperfunctional state of the anterior pituitary lobe current in this condition. As emphasized by us<sup>33</sup> and corroborated by Albright<sup>37</sup> and Frank,<sup>34</sup> amelioration of the symptoms is concomitant with a definite decrease in production of the gonadotropic factor of the hypophysis. Our best results were obtained with the use of 10,000 rat units of estradiol benzoate given hypodermically every fourth day until the major symptoms had subsided. Withdrawal of treatment at this juncture almost invariably resulted in recurrence of the symptoms. We have therefore continued treatment with gradually reduced doses for a period of from four to six months, in order to accustom the economy to function on minimal doses or on none at all.

We have thus far followed up, for an average period of thirteen months, fifty-one patients who received the full course of treatment. Twenty reported complete relief of symptoms, twelve experienced a return of some symptoms after four or five months, fourteen were relieved only during treatment, and the remaining five were unrelieved even during the administration of the substance. The associated diabetes mellitus of three patients was totally controlled without insulin as long as they received 2,000 or more rat units of the substance every fourth day. On smaller doses the hyperglycemia and glycosuria reappeared.

32. Israel, S. L.: Evaluation of Endocrine Therapy in Primary Dysmenorrhea, *J. A. M. A.* 106: 1698 (May 16) 1936.

33. Mazer, Charles, and Israel, S. L.: The Symptoms and Treatment of the Menopause, *M. Clin. North America* 19: 205 (July) 1935.

34. Frank, R. T., and Salmon, U. J.: Effect of Administration of Estrogenic Factor upon Hypophyseal Hyperactivity in the Menopause, *Proc. Soc. Exper. Biol. & Med.* 33: 311 (Nov.) 1935.

The left heart wall was distinctly thickened and hypertrophied.

The aorta, at the base of its leaflets, measured 8 cm. and was moderately dilated. About and just posterior to the leaflets there was noted a bluish roughening and swelling, edema and a tendency to minute corrugation of the wall. The coronaries showed ostial narrowing and a roughening and swelling very indicative of syphilis. The coronary change also had a slight



Fig. 7 (case 3).—Gross appearance of heart, showing large open necrotic aneurysmal cavity in heart wall. Aorta practically not damaged.

yellow atheroma of a moderate degree and the more extensive syphilitic involvement was in the first part of the coronaries.

Microscopic study of the heart made from the infected area showed a diffuse inflammatory process within and between the muscle fibers, characterized by numerous aggregations of densely packed lymphocytic cells, plasma cells, occasional eosinophils and innumerable fibroblasts, and a large supply of newly forming blood vessels. Acid-fast stains on these sections failed to reveal tubercle bacilli, and Dr. C. V. Weller of Ann Arbor, Mich., stated that in his opinion the process was syphilitic; he found spirochetes in sections from this heart.

The coronaries showed a thickening of the intima by proliferation and hyaline changes. There were also lymphocytes in the vessel adventitia.

CASE 2.—E. H., a Negro, aged 45, a laborer, admitted to the hospital Feb. 21, 1934, complained of shortness of breath and precordial pain.

February 6, while working, the patient had a sharp left axillary pain, which radiated to the elbow and scapula and in a few moments concentrated in the precordium, where it remained. Thirty minutes later he was weak, and "shortness of breath" developed. That night the dyspnea and pain returned again quite severely. He tried to work the following day but could not do so on account of cardiac pain and weakness. February 13 severe dyspnea and cardiac pain recurred, associated with palpitation and dizziness. February 19 he began to have edema of the extremities.

On physical examination the patient was well developed and well nourished and was at rest, elevated in bed, in a state of moderate dyspnea. The temperature was 98 F., pulse 114, respiration 28, blood pressure 150 systolic, 50 diastolic. The essential informative changes were confined to the chest and heart. The chest expansion was equal on the two sides. Râles

were heard in both lungs. The heart was enlarged 12 cm. to the left and 4 cm. to the right. The apex beat was thrusting and diffuse. Auscultation revealed a to and fro murmur just to the left of the sternum. The rate was regular but quite fast and of the Corrigan type. Otherwise of importance, the patient had an enlarged liver, an enlargement of the lymphatic glands and an edema of the lower extremities. He also had a secondary anemia (hemoglobin 60 per cent), a trace of albumin in the urine with casts, and a four plus blood Wassermann reaction. The blood chemistry was normal.

At necropsy the heart was enlarged and hypertrophied and weighed 600 Gm. The wall of the left side of the heart measured 2 cm. The muscle showed diffuse grayish yellow areas. The aorta was smooth except for slight wrinkling, but unquestionably there was a syphilitic process about the left coronary artery ostium and the basal part of the aorta, where a swelling, edema and bluish discoloration of the intima were noted. At an area within the auriculoventricular septum, and partly extending around the aorta, there was a cavity in the muscle that had two sacculations, one above the other. One of these measured 4 by 2.5 cm. and the other 4 by 3.5 cm. in diameter. They had shaggy, irregular, wrinkled walls and were filled with seminecrotic hemorrhagic material. The coronaries were both narrowed at the ostia and neither of the sacculations communicated with a coronary artery. The entire process seemed to have spread directly from the aorta. Spirochetes were found by Dr. Weller in the heart, and the usual areas of lymphocytes, plasma cells and new blood vessels admixed about necrotic areas were found to be present.

CASE 3.—F. M. J., a Negress, aged 27, was admitted to the hospital Feb. 23, 1935, with a complaint of dyspnea and edema of the feet.

For the past two years she had had shortness of breath and swollen feet. For one year she had noted that the abdomen

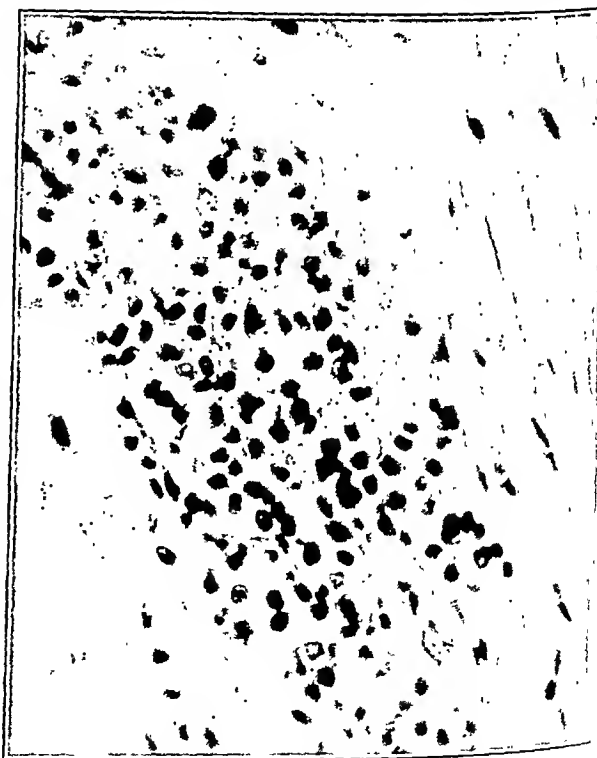


Fig. 8 (case 3).—Section showing infiltrating lymphocytes in area of scar tissue.

was swollen. At four o'clock on the afternoon of admission she complained of numbness of the left side of the body, but it was not paralyzed. However, she talked only with difficulty. She made no complaint of cardiac pain at this time.

The physical examination revealed a poorly developed, emaciated body with suggestive skin lesions of pellagra. The temperature was 101, pulse 123, blood pressure 144 systolic, 94 diastolic. Her heart was enlarged slightly to the left. At

## ABSTRACT OF DISCUSSION

DR. J. P. PRATT, Detroit: Much of the confusion in endocrinology is due to the failure to develop and recognize standards. The authors are to be commended for their effort to establish a standard for the utilization of the estrogenic substances. Another commendable effort is their demonstration of the effectiveness of the various estrogenic principles when administered orally. The usefulness of theelin (estrone) has been restricted because administration has been limited to injections. Oil as a vehicle for theelin sometimes causes unpleasant reactions because it acts as a foreign body. Furthermore, the inconvenience of frequent office calls for injections can be eliminated if theelin can be satisfactorily used orally. As criteria for judging the effectiveness of estrogenic substances, objective signs in the treatment of vaginitis and bleeding from the nipples are mentioned. The value of these concrete symptoms may well be contrasted with the vague subjective symptoms of the menopause, which are favorably influenced by a great number of therapeutic agents, the most effective of which is psychotherapy. Subjective symptoms are not satisfactory criteria for standardization. When a measured amount of estrogen given by mouth yields a measurable amount of theelin in the urine, the ability of the body to break down and excrete the hormone can be estimated. This cannot be interpreted, however, as measuring the potency of the hormone. There is apparently variation in susceptibility among different individuals and in the same individual at different times. Nevertheless the average excretion rate and amount taken from a large number of individuals may serve as a useful basis in judging dosage. Final judgment of the effectiveness of the principles must be made from the objective changes in the individual receiving them, just as the required amount of anesthetic, sedative or stimulant is determined.

DR. MARGUERITE S. WILLIAMS, Tucson, Ariz.: I wish to ask whether the authors have used this material in an endeavor to relieve the pain and hasten the process of drying up breasts when it was necessary to wean a baby.

DR. ELMER L. SEVRINGHAUS, Madison, Wis.: The differences between various products obviously cannot be interpreted as differences in absorption, because some of the curves are based on the hypodermic administration of the different materials. Therefore it leaves the question open as to whether part of this material is destroyed or permanently stored within the body, because from the data that were shown in a hasty survey far from 100 per cent recovery was indicated within a week or so after the administration of these larger doses. I think that point needs some attention in the interpretation of this sort of work. I should like further to amplify Dr. Pratt's comments by asking whether the authors have attempted a correlation of the perfection of control of the menopause with the size of the doses employed. Were the larger doses any more successful in control than the smaller doses, or, conversely, were doses just adequate to control the menopause still inadequate to keep up the urine and blood concentration to somewhere near the normal level?

DR. LEONARD G. ROWNTREE, Philadelphia: I wish to say a word of appreciation for the clinical investigation the authors have been carrying on in the last few years. I have had the opportunity of watching them at work. I admire both the way they planned and carried out their clinical investigation in the field of gonorrheal vaginitis in children. When one considers the terrific difficulty that has surrounded the control of this terrible affliction of children in times gone by and the immediate control within eight weeks, which will be permanent if treatment is continued, by the administration of theelin, it represents real advance. If theelin had accomplished nothing else in the field of therapeutics, it would have been worth all the time and effort that has been expended in its development.

DR. CHAUNCEY D. LEAKE, San Francisco: This is an admirable discussion of the clinical measurement of what is no longer a crude drug but a definite chemical agent. I would therefore suggest that in the use of a definite chemical agent such as theelin (estrone) or theelol (estriol) it might be better to express dosage of that agent in terms of milligrams rather than in terms of rat units. The situation is quite comparable to such a proposition as prescribing morphine in terms of pain-relieving units; no one does that. One should remember,

of course, that bio-assay is merely a method of estimating chemical concentration by means of a biologic end point. It is true that one can estimate the estrogenic substances as they occur in the blood or urine only by a biologic method and then one has to express the concentration in rat units. But when one is administering a definite chemical agent in crystalline form I think it would be preferable for the purpose of scientific standardization in clinical work to give it in milligram dosage.

DR. CHARLES MAZER, Philadelphia: The several estrogenic substances employed in our experimental work were of necessity standardized biologically in our laboratory by the Allen-Doisy method, since we had no means of determining their relative values on the basis of the international unit. The international unit, which is 0.1 microgram, varies widely with the product employed. Thus, for instance, 1 Gm. of estradiol yields 6,500,000 rat units, as compared with the 1,000,000 rat units which a gram of theelin yields. I was able to read only part of the paper, the contents of which cover most of the questions raised in the discussion. May I, however, emphasize the importance of employing massive doses, such as 10,000 rat units every fourth day, in conditions such as the severe menopausal syndrome wherein inhibition of anterior pituitary lobe activity is the objective. Usually there is a subsidence of the major symptoms of the menopause within a month or six weeks. Gradually reduced doses can then be given until the patient becomes accustomed to function normally on minimal doses or on none at all. The advisability of employing large doses of estrogenic substance in suppressing milk secretion at the time of weaning the infant is doubtful not only because of the high cost of the product but also because of the ease with which this is accomplished by the usual methods. In some cases of abnormal milk secretion (galactorrhea) the use of large doses of estrogenic substance was found to be effective.

SYPHILIS OF THE MYOCARDIUM  
AND CORONARY ARTERIES

JACK C. NORRIS, M.D.

ATLANTA, GA.

Syphilitic infection of the myocardium has been observed for more than a hundred years. The hearts most often described were those in which gummas were present. Little thought was given to the interstitial tissue changes until the years 1866 to 1894. In 1927 reports were made which indicated that myocardial syphilis is of rare occurrence, and some investigators have intimated that the myocardium is never affected by syphilis. Varied opinions and observations made by excellent pathologists have therefore given rise to considerable controversy concerning the disease.

According to Conner,<sup>1</sup> who has recently published an excellent summary of the development of the knowledge concerning cardiovascular syphilis, Morgagni, in his dissections of syphilitic bodies during his lifetime (1682-1771), observed syphilis of the heart, pericardium, aorta and other arteries. In a woman, aged 22, he observed ulceration of both ventricles. Conner refers further to Ricord, who in 1845 first found a gummatous mass in the heart wall with an associated thickening of the endocardium and likewise mentions the fact that Virchow in 1858 found a similar case of syphilis of the heart. Saphir<sup>2</sup> made a careful historical review of the subject and mentions

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Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints.

Read before the Section on Pathology and Physiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Conner, L. A.: Development of Knowledge Concerning Role of Syphilis in Cardiovascular Disease, J. A. M. A. 102: 575-581 (Feb. 24) 1934.

2. Saphir, Otto: Syphilitic Myocarditis, Arch. Path. 13: 266 (Feb.), 436 (March) 1932.

decidedly that aside from the occasional gumma of the myocardium the only cardiovascular syphilis is that which affects the aortic orifice and aorta with involvement of ostia of the coronary arteries. I have not been convinced that interstitial changes in the myocardium can be produced by the spirochetes. Certainly many investigators have repeatedly failed to demonstrate the spirochetes in the myocardial lesions. The feeling of the pathology department is that the interstitial changes are secondary to the myocardial ischemia resulting from the coronary orifice involvement and are not inflammatory in origin. My own study on the coronary arteries convinces me that syphilis plays no part in coronary disease. In going over several hundred autopsies in which there was occlusive coronary disease, the incidence of syphilitic aortic involvement was very low (approximately the same as that of the general autopsy material). Again, the most common structural bases for angina pectoris is coronary disease, and there are a number of clinical studies which show that the incidence of a positive serologic reaction in angina pectoris is no higher than that of the general population.

DR. HENRY C. SWEANY, Chicago: I want to ask Dr. Norris if any extensive attempts have been made to culture other micro-organisms from the lesions he has described.

DR. JACK CLAYTON NORRIS, Atlanta, Ga.: I know that I am dealing with a controversial subject. I approve of everything that has been said concerning the treatment. The speakers follow very much the program I do in these cases. I do not give arsenicals. I did make every attempt to find other organisms to explain these lesions and could not do so. Everything was excluded and the patients had all the histologic, serologic and bacteriologic principles confirmed, with the added finding of the spirochetes in the hearts. Heart syphilis does occur, and one may have a patient die from a syphilitic myocarditis and think that he has had something else.

## INTRAPLEURAL PNEUMOLYSIS IN CLOSING TUBERCULOUS CAVITATION

### INDICATIONS AND LIMITATIONS

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The closure of a tuberculous cavitation by the elimination of pleuropulmonary adhesions necessitates a complete study of the intrathoracic cavity by intrapleural thoracoscopy. Thoracoscopy visualizes the contents of the pneumothorax cavity in the living subject

### Average Results of Compression in One Hundred Cases of Artificial Pneumothorax

- 10 cases—complete collapse—satisfactory
- 10 cases—selective collapse—satisfactory
- 20 cases—partial collapse—eventually may be satisfactory
- 20 cases—incomplete collapse—unsatisfactory—pneumothorax given only to prolong life
- 15 cases—unsatisfactory collapse—unsuitable for intrapleural pneumolysis—other surgery indicated (25 cases, provisionally accepted for pneumolysis)
- 3 cases—accepted for intrapleural pneumolysis but found unsuitable at time of thoracoscopy
- 22 cases—declared appropriate by thoracoscopy for intrapleural pneumolysis

and defines the anatomy of the lung and chest wall with a richness of true color that is distinctive. These studies are illustrated by reproductions from actual pictures taken at the time of thoracoscopy. My discourse will be confined to a few significant indications, which, occurring during the course of pneumothorax therapy, suggest the employment of intrapleural pneumolysis.

Owing to lack of space this article is abbreviated here. The complete article appears in the author's reprints.  
Read before the Section on Surgery, General and Abdominal, at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

As a preliminary study I shall consider the average results of compression in 100 cases of artificial pneumothorax in which some degree of collapse has been obtained. A complete collapse is established in approximately ten of these 100 cases. A selective collapse of the diseased area giving satisfactory results may be attained in another ten cases so treated. As a result of



Fig. 1 (B. M. L.).—Anteroposterior (A) and lateral (B) views. The lung is held to the chest wall by many adhesions.

pleural adhesions that unite the lung and chest wall, eighty cases remain in which lung collapse is ineffectual. It should be emphasized that not all these patients are potential subjects for intrapleural pneumolysis. Twenty of these eighty cases may be classified as a group in which, by continuous cautious pneumothorax therapy, a satisfactory partial collapse may be brought about. Another twenty cases will show by roentgenologic examination the pathologic process so far advanced or so complicated that therapeutic pneumothorax is given only to prolong life.



Fig. 2 (B. M. L.).—Thoracoscopic picture of an old lung, fixed with eight adhesions to the chest wall.

Forty cases remain, therefore, in which pleuropulmonary adhesions constitute mechanical obstruction that prohibit, even with the most careful pneumothorax technic, a satisfactory closure of cavitation. These patients are referred to the thoracic surgeon as possible subjects for intrapleural pneumolysis. This does not



careful study will therefore reveal that from 10 to 20 per cent of aortic syphilitic patients have involved muscles; yet this figure, as I have previously stated, is a low index of incidence and with more complete investigation it is believed that every patient with aortic syphilis will also be found to have myocardial syphilis. However, at this time I cannot positively substantiate this opinion with accurate observations.



Fig. 1 (case 1).—Gross appearance of heart, showing gray-white area of syphilis in myocardium.

Many writers seem to think that muscle involvement depends largely on aortic damage and Paullin<sup>9</sup> feels that coronary narrowing encourages muscle lesions to occur because of nutritive interference. His thought fits in well with the impression that all patients with aortic syphilis have an associated myocarditis. Recently, several reports have been made of mitral valve syphilis, which I have never seen at necropsy. Blackman<sup>13</sup> reported two such cases, one of which seems a classic type. His patients had aortic and mitral insufficiency and he traced the involvement by histologic methods to the mitral valve.

He found syphilitic infiltration in the intraventricular and the membranous septums. This observation is of importance in that it gives rise to etiologic speculation: if the infiltration spreads from the aortic lesions into the intraventricular septum, why could it not infiltrate into other areas of the heart?

Based on a careful study of the postmortem examinations of fifty patients with syphilitic heart disease, I<sup>16</sup> found that, out of twenty-four who had primary chancres, cardiovascular symptoms with incompetence occurred most often seven years after the occurrence of the primary lesion.

13. Blackman, S. S.: Syphilis of the Mitral Valve and Membranous Intraventricular Septum of the Heart, *Bull. Johns Hopkins Hosp.* 57: 111-117 (Sept.) 1935.

16. Norris, J. C.: Cardiovascular Syphilis in the Negro, *Clin. Med. & Surg.* 38: 872-874 (Dec.) 1931.

#### GENERAL GROSS PATHOLOGIC CHANGES

As a rule syphilitic hearts are enlarged by hypertrophy and dilatation and have an average weight of 570 Gm. each. Externally they often have a pink-red, bronze color. As a rule the muscle is moderately soft and does not have the firm resistant feel and appearance of the hypertensive heart. The auricles are usually thin, roughened and dilated. The epicardium occasionally is covered with thin, pink, edematous adhesions but never has the shaggy, exudative adhesions of the more common types of pericarditis. Incision into the muscle usually reveals a thin wall from 2 to 2.5 cm. in thickness. The typical syphilitic processes in the muscle are most often seen in the wall of the left side of the heart, somewhere near the base, and are recognized as gray-yellow or gray-white, variably sized, irregular areas, usually not surrounded by hyperemic zones but well defined in type, and which gradually merge into the adjacent tissues. The gray or yellow spots may be quite extensive and numerous, or, on the other hand, only one circumscribed area of involvement may be found. Occasionally there is a diffuse involvement with areas of a lighter nature causing the ventricular muscle to have a mottled appearance. The endocardium may be white and definitely thickened. As a rule, fibrous tissue streaks may also be seen. The intraventricular septum muscle is often involved. Occasionally, as illus-



Fig. 2 (case 1).—Section showing lymphocytes and other cells in muscle between fibers, with many destroyed muscle cells.

trated in this paper, bizarre muscle damage of an aneurysmal nature may occur in syphilitic myocarditis, and large myolytic cavitations with irregular, hemorrhagic, degenerated yet well defined walls may be present. Two such unusual hearts have been observed.

When the aorta is involved, elevation, nodulation, corrugation and wrinkling of the intima at the aortic

operation and that no serious involvement of other organs is present to hinder the patient's ultimate recovery.

Conversely, factors such as lung tissue and blood vessels in adhesions, noninterfering or flaccid adhesions, marked flexibility of the mediastinum, advanced contralateral lung infections and chronic empyema are contraindicative.



Fig. 7 (L. H.).—Two adhesions easily diagnosed roentgenographically.

nated. This procedure is not essential and, in fact, may constitute an element of danger. In my work I have refrained from cutting adhesions that do not exert a restraining influence, because of the possibility of unavoidable complications.



Fig. 8 (L. H.).—Thoracoscopic study of the two adhesions in figure 7, with a picture of an early disease.

#### ASSOCIATION OF THE ROENTGEN WITH THE THORACOSCOPIC STUDY

Fluoroscopy and a study of the stereoroentgenogram, in the majority of cases, will indicate that closure of cavitation depends on the removal of one or more adhesions that prevent satisfactory collapse.

Roentgenology should always be considered a valuable aid in the interpretation of pleuropulmonary adhesions but seldom will establish accurately the size and

contents of the adhesions. However, it will determine the most suitable location for the introduction of the thoracoscope.

To illustrate the association of the roentgen with the thoracoscopic study, I present figures 4, 5 and 6.

The actual conditions within the thoracic cavity, as viewed by the thoracoscope, frequently differ from those shown on the x-ray film. Favorable operative work may be accomplished in spite of an adverse roentgenologic appearance.

There are many cases that apparently conform to all indications for intrapleural pneumolysis, yet thoracoscopy will reveal them unsuitable for operation. Viewing the adherent lung and knowing that intrapleural pneumolysis would be of no avail will satisfy the operator that the procedure of thoracoplasty should be adopted.

#### DURATION OF THE PULMONARY DISEASE

The duration of the disease may be determined roughly by a correlated study of the history, the stereo-



Fig. 9 (J. McD.).—Adhesion to the lateral chest wall.

roentgenograms and serial films and the thoracoscopic abnormalities.

In early cases in which the duration of the disease is estimated at less than two years the adhesions, if severed within three to six months after the initial pneumothorax, will be found to consist of soft connective tissue, white or pale red, quite freely

movable and containing only a few small blood vessels. They may be severed without difficulty. An example of early disease is shown in figures 7 and 8.

When the pulmonary disease is of longer duration than two years, the adhesions are more organized, firm to the touch, usually short, round or fan shaped, cover considerable rib surface and frequently contain large blood vessels and lung tissue. Figures 9, 10 and 11 are examples of old pulmonary disease.

#### THE EFFECT OF SEVERING MULTIPLE ADHESIONS

When many adhesions retard the closure of a large cavity and all are severed at one operation, the effect of this sudden complete compression of the lung may occasion bronchiogenic spread into the contralateral lung. A two or three stage operation is the preferred surgical technic. An example is shown on the roentgenograms reproduced in figure 12.

It is impossible to prognosticate with certainty the suitability of adhesions for severance until thoracoscopy is performed. The technical success of intrapleural pneumolysis will often depend on further observation, which is possible only as the operation proceeds.

#### THE EFFECT OF TENSION ON ADHESIONS

The presence of adhesions alone is not an indication for intrapleural pneumolysis unless there is positive assurance that tension is present and that closure of cavitation is prevented by the stress exerted on the cavity wall. In cases in which cavitation is not present

patients have increased heart rates, most often from about 90 to 100 beats per minute, and without fail they also have variable cardiac irregularities which are described as palpitating, flooding or skipping beats of the heart with pulses of poor volume. Auscultation will frequently reveal the presence of soft distant systolic murmurs, with the beating heart action fairly

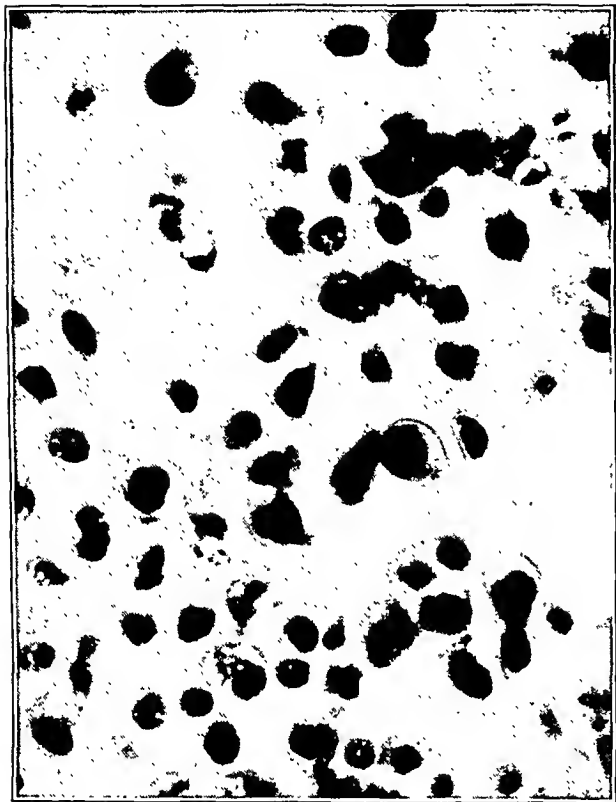


Fig. 5 (case 2).—Oil immersion study of lymphocyte and plasma cells.

slow and regular, and then suddenly the rate may change and the heart action becomes quite fast and irregular. On one or more occasions fibrillation has been observed, and heart block has been encountered. Following the deficiency in muscular power and the disturbed heart action comes the final failure, usually within two years from the onset, and the feet become edematous and general anasarca results. Congestion of the liver, spleen, lungs and other tissues occurs, and death follows in short order, frequently caused by a terminal pneumonia or angina, or sudden cardiac failure, presumably of heart dilatation. Other causes of death have been seen, such as pulmonary thrombosis, coronary occlusion or rupture of an aortic valve.

To summarize, one should suspect myocardial syphilis whenever a young person with syphilis complains of cardiac pain and irregular heart action and a fast irregular pulse, with an inability to meet his physical demands as he formerly met them; who has an enlarged heart and a normal or slightly elevated blood pressure, with soft systolic murmurs and diminished muscular heart tones, and whose story fails to reveal any other cause for his cardiac indisposition.

It is not my intention at this time to give a complete differential study of myocardial syphilis from that of other heart diseases, yet it is proper to remember that the disease is most often confused with hypertensive, arteriosclerotic and rheumatic heart maladies.

The following new cases are presented:

CASE 1.—A. M. M., a Negress, aged 42, admitted to the hospital Sept. 22, 1933, complained of shortness of breath.

She had had no other serious complaint until September 14, at which time she began to have palpitation of the heart after eating. Twenty-four hours later the palpitation returned accompanied by "shortness of breath," with a feeling of constriction about the heart. A few days later all her symptoms had become progressively worse with the added discomforts of vertigo and dizziness. Three days before admission she noted a very distinct dyspnea with a very rapid action of the heart.

Physical examination revealed that the patient was well developed and in a state of mild dyspnea. The temperature was 97, pulse 60-120, respiration 24, blood pressure 160 systolic, 92 diastolic. The head, neck, eyes, thyroid and mouth were essentially normal. Pulses were irregular in rate and rhythm. The lungs were normal except for mild congestion.

The heart was apparently normal in size, but it was quite irregular in rhythm and rate, beating slowly for a few minutes and then increasing its rate quickly to from 100 to 120 beats per minute. The heart tones were of poor muscular quality and no murmurs were heard by auscultation.

The first hospital day she had only moderate dyspnea, and on the second a fever of 101 F. was charted. On the morning of the third day, after three days of irregular heart action, she died suddenly.

The necropsy revealed the pericardium to contain about 100 cc. of a straw colored fluid. The heart weighed 425 Gm. and was a pinkish bronze that was reflected through a considerable quantity of yellow epicardial fat. The muscle was rather firm to the feel but was pale. At a point just below the left auricle

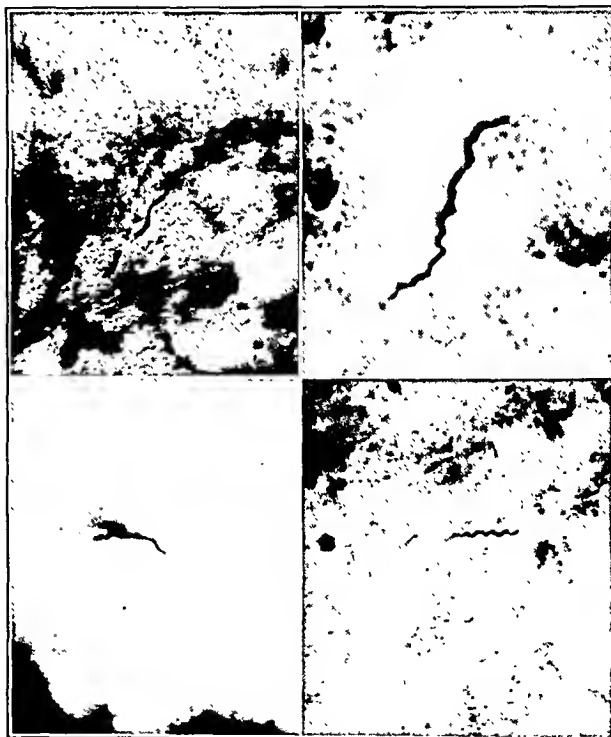


Fig. 6.—Different forms of spirochetes that are found in syphilis of the heart. Upper left, organisms from valve lesion. Upper right, from case 1. Lower left, from heart in case 2.

there was seen a peculiar grayish, slightly roughened, nodular area of degeneration, about 4.5 by 3 cm., which had caused extensive muscle damage. Cutting through the heart wall at this point, the grayish inflammatory area extended from the epicardial surface deep into the musculature, where it was surrounded by a faint marginal zone. This zone was not like that seen in coronary occlusion, in that the grayish inflammatory process was firm and merged gradually into the deeper muscle. No other such areas of inflammation were seen.

involved lobe or lung, the sputum will become negative in 90 per cent of the cases and there will be no fever and gain in weight in over 80 per cent; whereas if the pneumothorax is partial only 15 per cent will become sputum negative, 33 per cent will become afebrile, and there will be weight gain in only 57 per cent. One can well understand, therefore, the necessity of obtaining a



Fig. 17 (E. G.).—Thorascopic study showing caseous exudate on the adhesion and on the lung surface.

thoroughly satisfactory pneumothorax. In that group of cases of partial pneumothorax so well described by Dr. Stivers, internal pneumolysis is the best and most direct method of attack. I would emphasize that each case must be considered on its merits. The mere presence of adhesions is not of itself an indication



Fig. 18 (A. L.).—Thorascopic study of fibrinous exudate.

for operation, for the procedure is not warranted in the presence of advanced bilateral lung tuberculosis or advanced extrapulmonary lesions. Also the partial pneumothorax must be of sufficient size to allow manipulation of the instruments. The operation itself requires infinite patience and delicacy of detail. It may be necessary to repeat the procedure. This applies particularly to the short, broad adhesions. After partial division, an intervening period of continued pneumothorax may better

define and stretch the pleural bands. The chief complications are, first, hemorrhage. This should not be troublesome if one studies the adhesion carefully, thereby avoiding large vessels, for the small ones that are encountered in the adhesions themselves can be readily controlled with the electrode. Second, fluid sometimes appears following the procedure. Usually this is thin and is soon absorbed.

DR. VICTOR STRONG RANDOLPH, Phoenix, Ariz.: The percentage of patients to be operated on, as Dr. Stivers has given it represents his own series. The percentage of pneumothorax cases requiring an operation varies with the individual surgeon, and with surgeons and internists. The author's figures are in the general scope. Dr. Cutler, who has an exhibit here on the same subject, estimates his percentages at somewhat different levels. I want to emphasize again what Dr. Stivers said about the indications. They are the same as those for artificial pneumothorax; namely, a cavity which fails to collapse. The value of complete or adequate pneumothorax after closure of the cavity is represented in the case that has been continued under pneumothorax after cutting of the adhesions, until the lung has had an opportunity to heal. Many of these cases after healing and reexpansion of the lung will not indicate on the x-ray film very much evidence of their former trouble and



Fig. 19 (J. F.).—Thorascopic study showing the necrotic effect of marked tension on the adhesion.

these patients may look forward to relatively normal lives. In a case in which I operated in 1929 the adhesions were cut, the cavity was closed and healed, the lung reexpanded, and the young woman has since gone through pregnancy safely. I wish to qualify somewhat the statements of the author with regard to extensive contralateral involvement. I believe that one of the most important uses of intrapleural pneumolysis is in the cases of bilateral disease in which bilateral pneumothorax may with safety be established and the two lungs treated at the same time or in some cases consecutively. In four such cases I have been successful in cutting adhesions on both sides and in two of these the lungs have since reexpanded and the patients are well. One has been working for about three years. In other cases adhesions have been cut on one side and it has been found not necessary to cut any adhesions on the opposite side. The operation of cutting adhesions offers great possibilities for cure of advanced cases of bilateral disease.

DR. GEORGE L. STIVERS, Fall River, Mass.: Bilateral disease is present in a great many cases of pulmonary tuberculosis. I have found in bilateral disease, with one lung under compression, that, if I attempt to do a pneumolysis on that one side, in about 10 per cent of the cases extension of the disease to the contralateral side will take place. If a minimum amount of disease is present on that side, in a short while, two or three

the apex there was heard a systolic murmur and a gallop rhythm, with sounds of poor muscular quality. The heart rate was quite rapid.

Because of sparse information charted during her final illness, her record in the outpatient department was found and it was observed that during a visit to the clinic in 1933 she complained of slight dyspnea and swelling of the feet. She also had drunk one pint of whisky daily and reported two stillbirths and one miscarriage. Her blood pressure was normal (135 systolic, 90 diastolic) and her blood Wassermann reaction was four plus.

No description of her death was available other than that she died quietly in bed after a short period of groaning, on the day following admission.

The necropsy showed the heart to be enlarged and hypertrophied on both the right and the left side. It weighed 580 Gm. The tricuspid and mitral valves were normal except for a slight thickening near the aortic basal septum. The aortic valves were normal. The coronary arteries were slightly narrowed at the ostia, with a slightly further narrowing as the artery proceeded downward. The base of the aorta showed a slight wrinkling of the intima. Just below the aorta, on the left side of the heart at a point on a line with the auriculoventricular junction, there was found a saccular cavitation, which tended to dig deep into the heart muscle and to extend behind the aorta. The process measured 4 by 2 by 6 cm. It had a communication with the mitral cavity through a small (1 cm.) opening. This cavity was irregular, ragged, puckered, swollen, thick and glistening except at points where it tended to be thrown in folds. It contained old clotted blood. It did not communicate with the coronary arteries. The muscle throughout the heart had yellow-gray areas in it. Spirochetes were found in the heart by Dr. Weller.

#### COMMENT

These three cases presented normal blood pressures. The type of lesions involving each heart are of particular interest, because of their rarity, the age of the patient, the absence of causes other than syphilis, and the symptoms caused by such processes. Of further interest is the fact that in each case spirochetes were found to be present. In 3,000 autopsies I have not before seen hearts that had similar syphilitic cavitations in the muscle.

I cannot explain definitely how those lesions occurred. It is thought that the process may be similar to that in the formation of aortic aneurysms in which a syphilitic ulcer attacks the endothelium of the heart wall, destroying the endothelium and finally pursuing its way into the muscle, destroying as it proceeded inward, and eventually ending with an aneurysmal-like process. In neither instance did those sacculations connect with the coronary arteries.

The heart rate and irregularities can be explained satisfactorily by the infiltrations into the intraventricular septums and in the left heart muscle. It is quite reasonable to assume that fibrosis, lymphocytosis and other inflammatory processes of such order might disturb the orderly mechanism of the nerve fibers, so that heart block, auricular fibrillation, gallop rhythm or any of the cardiac irregularities heretofore described might occur.

#### CONCLUSIONS

In a previous report I attempted to summarize my impressions of the problem and stated: "It is evident that syphilitic myocarditis progresses rapidly to serious stages with a decline in cardiac efficiency. The extent of the damage to the muscle will largely influence the train of cardiac irregularities. It is my further impression that myocardial syphilis is seldom, if ever, restored to health, because syphilis in tissues is largely an inflammatory process with degeneration of the structures, and a release of poisonous toxins."

With these thoughts in mind I feel that the problem of cardiac syphilis is one of grave significance. I have

become thoroughly convinced, after long observation, that whatever aid can be eventually offered persons affected with this disease lies in the hope of firmly establishing in the minds of other physicians the fact that in every syphilitic patient, sooner or later, the heart will be fatally damaged unless adequate and suitable treatment is instituted early in the disease with the hope of preventing syphilis from occurring in the heart.

It would be a great step forward toward entirely preventing cardiac syphilis if the syphilologists and other physicians would worry less about the chancre and more about the heart during active syphilis.

810 Doctor's Building.

#### ABSTRACT OF DISCUSSION

DR. JAMES L. DUBROW, Des Moines, Iowa: Having practiced for some time in the South, I agree with Dr. Norris's statement that myocardial syphilis is more common in the Negro than in the white person. However, syphilis respects neither race nor color. About the therapeutics of this disease, I think Dr. Norris is somewhat pessimistic. Patients presenting symptoms and signs of cardiovascular syphilis accompanied by a positive Wassermann reaction and cardiac changes as noted on physical examination and in the electrocardiogram are prone to decompensate early and to develop pleural effusion and anasarca. Death may ensue unless a strict therapeutic regimen is enforced. It is best at first to place these patients at rest in bed and on a low protein salt free diet. Five grains (0.3 Gm.) of potassium chloride in twenty-four hours is given to take the place of the salt. Digitalization should be resorted to at once. It is particularly important when there is anuria, since the latter is not infrequently due to myocardial failure and not to nephritis per se. Large doses of digitalis should be used. Another important step is the removal of accumulated fluid, particularly of effusions into the pleural cavities, since they in themselves increase the cardiac embarrassment. When the cardiac hydrothorax is bilateral, alternate aspiration of each side may be indicated. Left sided cardiac hydrothorax is infrequently encountered when the right pleural cavity has been obliterated by previous adhesions. Laboratory examination of the aspirated fluid may be done when there is any doubt as to the diagnosis. On the other hand, it is less important to remove the fluid from the peritoneal cavity unless it interferes very much with the breathing. Iodobismutol with saligenin may be given intramuscularly later, since it tends to produce a negative Wassermann reaction. When syphilitic aortitis or aneurysm is associated with the myocarditis, arsphenamine should be avoided.

DR. GEORGE R. HERRMANN, Galveston, Texas: It is gratifying to find some one in the South who can present photographic evidence of the spirochetes in myocardial syphilis. The histologic picture is in itself not pathognomonic. I had the pleasure of working in Dr. Warthin's laboratory some years ago. After I gravitated southward I encountered a great deal more cardiovascular syphilis than I had ever seen in the North. Occasionally I ventured clinical diagnosis of myocardial syphilis in the absence of signs of aortic disease but I never succeeded in getting a pathologist to demonstrate the spirochetes. It is possible that the myocardial reaction to the spirochetes destroys the latter in many instances. The picture that is encountered in the absence of aortic disease is not absolutely characteristic from the clinical point of view. The diagnosis can be made practically only by exclusion. Even those among the clinicians who have objected to the diagnosis of myocardial syphilis are now gradually coming to the conclusion that there are cases of acquired myocardial syphilis in which the aortic involvement is minimal. It is not common to find syphilitic coronary disease beyond the very orifice or the intra-aortic part of the coronary arteries according to most pathologists, even Warthin himself.

DR. MORRIS H. NATHANSON, Minneapolis: As regards the possibility of syphilitic involvement of the myocardium and coronary arteries, I wish to state that the department of pathology at the University of Minnesota Medical School feels



may be classified in the genus *Bacteroides* have been isolated from fetid and gangrenous suppurations of practically all organ systems of the human being, as well as from normal mucous membranes."

#### PATHOGENICITY

The *Bacteroides* of feces have not been proved to be pathogenic. However, species isolated from lesions in man have been demonstrated to be pathogenic for laboratory animals. Henthorne, Thompson and Beaver have shown that *Bacteroides funduliformis* produced subcutaneous abscesses in guinea-pigs, and systemic infections as well as abscesses in the liver, lungs and joints in rabbits.

#### CLASSIFICATION

Castellani and Chalmers<sup>14</sup> in 1919 described a large group of anaerobic, nonsporulating bacilli which had not previously been classified systematically under the generic designation "*Bacteroides*." This name was adopted by a committee of the Society of American Bacteriologists and was given a place in its systematic classification as recorded in Bergey's<sup>15</sup> manual of determinative bacteriology. According to the manual, mem-

production of hydrogen sulfide, production of gas from carbohydrate mediums, and hemolytic action on erythrocytes.

#### OCCURRENCE

Veillon and Zuber reported the isolation of anaerobic bacteria in cases of osteo-arthritis of infancy, pulmonary gangrene, otitis, mastoiditis, abscess of the brain, gangrenous angina, dental caries, appendicitis, peritonitis, peri-intestinal phlegmons, Bartholin's, and pelvic suppuration. Some of these anaerobes were cocci, some were gram-positive and some were spore forming, but several gram-negative members of the genus *Bacteroides* were described. Similar organisms have been found in the normal intestinal tract by Distaso<sup>16</sup> and by Debono.<sup>17</sup>

One of the chief contributions of reports from the Mayo Clinic has been the association of infection caused by *Bacteroides funduliformis* with ulcerating necrotic carcinoma (fig. 2). Apparently necrosis and infection provide an ideal habitat for proliferation of *Bacteroides funduliformis*. In all the cases in which death occurred hepatic abscesses were found; in some cases there were multiple, small nodules, in others a conglomerate mass (figs. 3 and 4).

#### REPORT OF CASES

CASE 1.<sup>18</sup>—A man, aged 64, came to the clinic because of mild abdominal cramps, associated with tenesmus, frequent bloody stools and loss of weight, for the previous three months. Proctoscopic examination revealed an annular, freely movable, nonobstructing adenocarcinoma, which involved the posterior wall of the rectum. A roentgenogram revealed polypoidosis of the rectum and rectosigmoid.

Left inguinal colostomy was performed after the usual pre-operative preparation. Convalescence was uneventful until the seventeenth postoperative day, when the temperature rose sharply to 102 F.; the pulse rate was 120 beats per minute. The colon was opened on the sixth day after operation. The fever continued to be of a septic type, the temperature varying from 99 to 102 F. The patient became jaundiced on the twenty-first postoperative day. The value for serum bilirubin varied from 7.9 to 11.5 mg. per hundred cubic centimeters and the van den Bergh reaction was direct; the number of leukocytes ranged from 19,600 to 25,900 per cubic millimeter of blood. On the twenty-second postoperative day, a roentgenogram of the thorax was reported as showing that the right side of the diaphragm reached the level of the fourth rib anteriorly and that infiltration of the right cardiophrenic angle was present. At this time the liver, which was nodular, could be palpated 4 cm. below the costal margin. A foul, watery material was discharged constantly from the rectum during the entire post-operative course. The irregular fever persisted, jaundice deepened, and the patient gradually declined and died on the thirty-eighth day after operation.

At necropsy the colonic stoma was found to be in good condition. The peritoneal cavity contained 2 liters of clear light yellow fluid. A large, ulcerated and infected carcinoma was found in the rectum; metastasis had occurred locally and to the liver, lungs and left adrenal gland. The liver contained many nodules filled with yellow pus, which had a disagreeable, rancid odor. Metastatic nodules elsewhere in the body were not infected.

CASE 2.—A man, aged 58, came to the clinic May 29, 1935, complaining of blood in his stools for the previous ten months, a bearing down sensation in the rectum for four months and a watery diarrhea, with four or five stools a day, for two months. Proctoscopic examination revealed a large annular carcinoma 7 cm. above the anus, which partially obstructed the rectum.

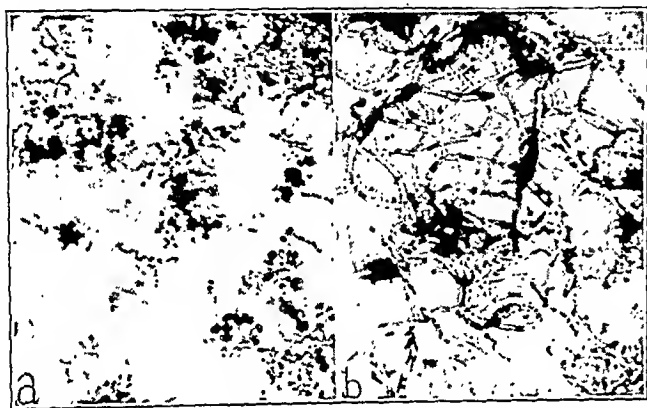


Fig. 1.—The extreme pleomorphism of *Bacteroides funduliformis* a, two-day culture showing "funduliform" or "ball" forms; b, ten-day culture showing filamentous stage in which the organisms may be 100 microns long and composed of segments from 2 to 20 microns long. Slightly reduced from photomicrographs with magnifications of 1,000 (a) and 950 (b) diameters. (After Henthorne, Thompson and Beaver.)

bers of this genus are "Motile and nonmotile rods, without endospores. Show good growth on ordinary culture media; without pigment formation. Obligate anaerobes." The species are described as being normal inhabitants of the intestinal tract of man and as the cause of suppurative and gangrenous infections.

Because of its pleomorphism, *Bacteroides funduliformis* has been given various names by different investigators. In young cultures the organisms assume a coccobacillary form which is also found in abscesses, and because of this form they have been named "funduliform," "ball," "leukocyte" and "thetoid." Later, filaments ranging from 80 to 200 microns are found. The individual filaments are composed of segments from 2 to 20 microns in length (fig. 1). It is possible that other anaerobes described as "*Leptothrix*" or "*Streptothrix*" are closely related to *Bacteroides funduliformis*. The biologic characteristics common to all these various organisms are as follows: marked pleomorphism with production of filaments, requirement of animal tissue in culture mediums, production of indole,

14. Castellani, Aldo, and Chalmers, A. J.: Manual of Tropical Medicine, ed. 3, London, Baillière, Tindall and Cox, 1919.

15. Bergey, D. H.: Bergey's Manual of Determinative Bacteriology: A Key for the Identification of Organisms of the Class Schizomycetes. Baltimore, Williams & Wilkins Company, 1934, pp. 404-415.

16. Distaso, Arcangelo: Sur les microbes préévolués de la flore intestinale de l'homme et des animaux, Centralbl. f. Bakt. 50: 211, 1911; Contribution à l'étude sur l'intoxication intestinale, ibid. 62: 468 (March 14) 1912.

17. Debono, P.: On some Anaerobical Bacteria of the Normal Human Intestine, Centralbl. f. Bakt. 62: 229-234 (Feb. 20) 1912.

18. This case has been briefly reported previously by Dixon, Henthorne and Macy.

mean that forty cases are suitable for intrathoracic surgery or that satisfactory results for all cases are to be anticipated. About fifteen cases will be deducted for various prohibitive reasons. Among these may be mentioned the presence of large fan shaped, large round, or interlocking adhesions shown on the x-ray films, cavity prolongation into the adhesion, some purulent exudate, extensive contralateral pulmonary disease, very flexible mediastinum, or some other serious complication rendering them unsuitable for intrapleural pneumolysis.

There are, in addition, those cases which are found impracticable at the time of operation after the thoracoscope has been introduced into the chest cavity. In my experience this number constituted 13 per cent of those accepted for operation. These rejections were ascribed to the presence of blood vessels, lung tissue or caseous material in the adhesions.

The foregoing summary of cases emphasizes the important fact that the operative field is limited, for

unsatisfactory collapse of diseased pulmonary tissue should be recognized even if cavitation is not evident.

These indications depend, however, on conditions coincident with the administration of artificial pneumothorax, such as continued chest pain, cough and positive sputum, the effectiveness of pulmonary compression, the

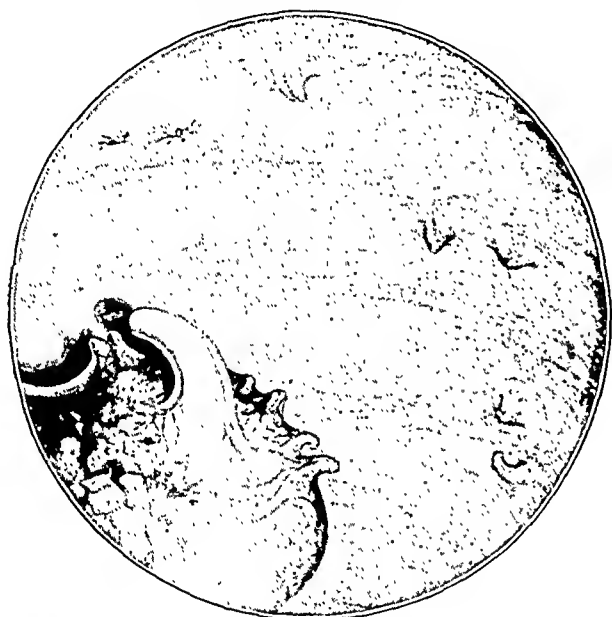


Fig. 3 (B. M. L.).—Thoracoscopic study after severing adhesions.

only twenty-two patients out of the original 100 taking pneumothorax appear to be appropriate subjects for intrapleural pneumolysis.

#### THE VALUE OF INTRAPLEURAL PNEUMOLYSIS

The value of intrapleural pneumolysis is questioned by some phthisiologists. To the advocates of intrapleural pneumolysis the operation is life saving. Its opponents, on the other hand, are of the opinion that it is unnecessary and harmful. There are many physicians who fail to recognize the value of a completely satisfactory pneumothorax and believe that intrapleural pneumolysis should be the last surgical procedure contemplated. As reasons for their objections they cite such complications as hemorrhage, empyema, pleural effusion and spontaneous pneumothorax.

#### INDICATIONS FOR INTRAPLEURAL PNEUMOLYSIS

The indications for intrapleural pneumolysis are similar to those advocated for artificial pneumothorax: open cavitation and positive sputum. In addition, the



Fig. 5 (M. G.).—Thoracoscopic study before pneumolysis shows a single string adhesion and one broad fan-shaped adhesion. The edges of the fan-shaped adhesion represent the outside string adhesions seen in the roentgenogram.

location of the cavity with reference to the adhesion, the character and location of the offending adhesions, the presence of serous pleural fluid, and the stability of the mediastinum. One should also consider the dura-



Fig. 6 (M. G.).—Thoracoscopic study showing the result of cutting these adhesions.

tion of the disease, the age of the patient and the length of time artificial pneumothorax has been administered. Those manifestations indicating the necessity for intrapleural pneumolysis are conditional on a reasonable assurance that relief of distressing symptoms together with a satisfactory collapse will be obtained through

day. Two days after the vaccine was administered an exploratory operation was performed through a low midline incision. Spinal anesthesia was employed. Metastasis to the liver was not found. A movable, napkin-ring type of carcinoma was palpated just at the pelvic peritoneal fold. Anterior resection, to be performed later, was decided on. A small, transverse incision was made above the umbilicus and a loop of transverse colon was brought out as a temporary stoma. The colon was opened with the cautery the following morning.

Convalescence was uneventful until the sixteenth day after operation, when the temperature became elevated to 101.8 F. and the pulse increased to 100 beats per minute. The next day the temperature rose to 105 F. and the pulse rate increased to 120 beats per minute. The patient was placed in an oxygen tent because of cyanosis and dyspnea. The rate of respiration increased to forty-eight per minute on the twenty-seventh day and the patient was cyanotic even though he was in the oxygen tent. Bowel movements from the colonic stoma were at first somewhat loose, but otherwise the stoma functioned satisfactorily. From the seventeenth postoperative day on, one or two chills occurred daily, the temperature ranged from 96 to 105 F., and the pulse rate varied from 90 to 170 beats per minute. On the twenty-third day, leukocytes numbered 10,700 and erythrocytes 3,769,000 per cubic millimeter of blood. The differential count revealed the following percentages: lymphocytes 8, monocytes 2 and neutrophils 90. The value for hemoglobin was 12 Gm. per hundred cubic centimeters of blood; the value for the serum bilirubin was 7.9 mg. per hundred cubic centimeters. Slight jaundice was present and a hepatic abscess was suspected. The value for serum bilirubin increased to 10.7 mg. per hundred cubic centimeters on the twenty-fifth day, and two days later the patient was markedly jaundiced. *Bacteroides* septicemia was suspected, although two blood cultures had given negative results. On the twenty-eighth day, *Bacteroides funduliformis* was demonstrated on culture of the blood, although negative results had been obtained on the twenty-sixth day. At times the patient was very anxious and excited. The entire febrile period was characterized by profound, exhausting sweats. The pulse remained unusually strong until the twenty-ninth postoperative day, when the patient failed progressively



Fig. 3.—Section of liver showing localized hepatic abscess.

after the onset of chills and fever. On the twenty-ninth and thirtieth days, 25 cc. of a 1 per cent solution of gentian violet was administered intravenously. The patient died on the thirty-second postoperative day.

At necropsy, multiple abscesses of the liver and lungs, and empyema of the left pleural cavity, were found. Peritonitis was not present. The portal vein contained a septic thrombus.

CASE 6.—A man, aged 53, came to the clinic Jan. 28, 1936, because of alternating periods of diarrhea and constipation and

from three to six bloody stools, which had occurred each day for the previous two months. Jaundice or loss of weight had not occurred. Proctoscopic examination revealed a large invading growth, beginning 8 cm. above the anus, which involved the left half of the rectum. This growth partially obstructed the lumen of the bowel; it was movable and some infiltration was present. A specimen taken for biopsy revealed adenocarcinoma of grade 2.



Fig. 4.—Section of liver showing multiple hepatic abscesses

January 29, 0.7 cc. of peritonitis vaccine was administered intraperitoneally. Two days later, under spinal anesthesia, an abdominal exploration was performed through a low midline incision. Permanent colostomy and, later, posterior resection of the growth, had been decided on; however, metastasis to the liver had occurred and, because of this, fulguration was deemed advisable. Convalescence was uneventful until the eighth postoperative day, when the temperature became elevated to 100.8 F. where it remained until the tenth day. At this time the patient had a chill and the temperature rose to 105 F. Thereafter, for six days, the temperature was of a septic type and fluctuated daily from 98 to 104.8 F. From the eighteenth to the twenty-fifth days the temperature fell gradually from about 101 F. to 98.6 F., on the day the patient died; the pulse rate varied from 100 to 140 beats per minute. Blood cultures, which were taken on the seventeenth postoperative day, five days later revealed the presence of *Bacteroides funduliformis*. The chills were accompanied by profuse perspiration. On the twelfth day the patient became confused and irrational. His urine was deeply bile stained on the fourteenth day, and the following day jaundice developed. On the twenty-fifth day he became stuporous and his pulse, which had been unusually strong, became weak. He died on the twenty-fifth day, the ultimate outcome having been apparent since the twelfth or thirteenth postoperative day. At necropsy, multiple abscesses were found in the liver. Purulent thrombosis of the inferior mesenteric vein and abscesses in the left lobe of the prostate gland also were found. Peritonitis was not present.

#### CLINICAL FEATURES

This series of patients included two females and four males. In four of these cases, *Bacteroides funduliformis* septicemia occurred after exploratory laparotomy had been performed for carcinoma of the rectum and in one case it occurred after operation had been performed for carcinoma of the rectosigmoid. In the case in which recovery occurred, *Bacteroides funduliformis* was obtained on culture of material from the wound. Symptoms of bacteremia began on the tenth postoperative day in two cases, on the sixteenth, seventeenth and eighteenth postoperative days in one case each.

The clinical features of *Bacteroides funduliformis* infection naturally depend to a great extent on the organs that are involved. In most of these cases the

but in which tension is shown by x-ray films, it is important to associate adhesions with the various caseous and fibrinous exudates appearing on the parietal and visceral pleurae.

Figures 15 to 18 are examples of tension.

It is my belief that tension on adhesions, in addition to caseous pleural areas, is important in producing pleural fluids and in developing at the insertion of the adhesion on the lung surface small lung perforations or ulcerated areas. In the early case the adhesions are able to withstand considerable stretching, and the lung is spared unnecessary tension. However, in disease of long standing in which the adhesions have become unyielding, the attached lung structure is liable to tear under the force of intrapleural pressure.

The thoracoscopic study (fig. 19) indicates the necrotic effect of marked tension on the adhesion.

In spite of a satisfactory collapse, when thoracoscopy reveals tension with or without cavitation and the disease is of long standing, intrapleural pneumolysis is definitely indicated.



Fig. 10 (J. McD.).—Thoracoscopic study showing pigmented sclerotic lung, with blood vessels in the short round adhesion.

In estimating the degree of cavity closure resulting from intrapleural pneumolysis, one must consider the character of the adhesions, the location of the cavity with reference to the surface of the lung, the texture and thickness of the cavity wall, and the extent of tuberculous involvement.

If all offending adhesions are eliminated by intrapleural pneumolysis, satisfactory collapse will result in the vast majority of cases.

#### SUMMARY

1. About 22 per cent of all cases in which pneumothorax therapy is given are suitable for pneumolysis.
2. To produce satisfactory results it is unnecessary to sever all adhesions present.
3. Intrapleural pneumolysis is a valuable supplement to pneumothorax.
4. The roentgenologic examination does not coincide always with the results of thoracoscopy.
5. The appearance of adhesions and adhesion tension, determined by the thoracoscope, is important in deciding whether intrapleural pneumolysis is indicated.

#### ABSTRACT OF DISCUSSION

FRANK B. BERRY, M.D., New York: Internal pneumolysis is a valuable adjunct to pneumothorax therapy in pulmonary tuberculosis and will convert a partial pneumothorax with a cavity still open into a satisfactory collapse with cavity closure in from 60 to 65 per cent of the cases. The importance of this



Fig. 11 (A. A.).—Thoracoscopic study of old disease showing the adhesions containing lung tissue.

may be made clear by considering what happens to the pneumothorax patient. When a complete pneumothorax is obtained, well over 50 per cent of the patients will eventually return to normal life with negative sputum and the tuberculous process arrested; about 20 per cent will die of the disease. If, however, the pneumothorax is ineffectual and a cavity persists,

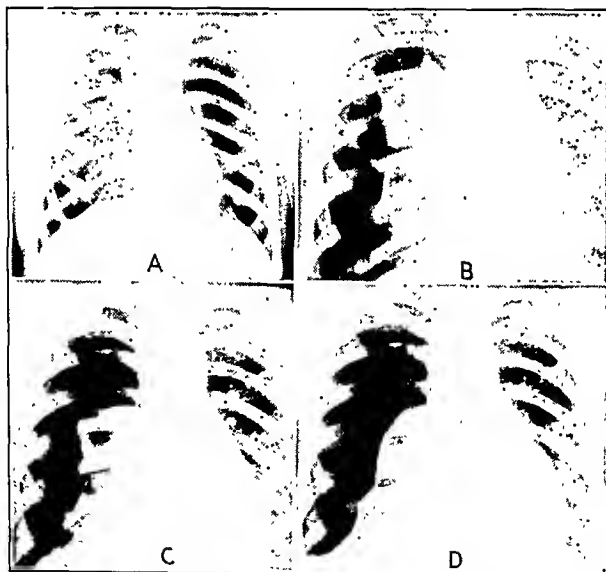


Fig. 12 (A. LaM.).—Roentgen appearance of (A) cavity; (B) four adhesions; (C) after cutting three adhesions; (D) after cutting all adhesions.

unless something further is done only about 10 per cent will regain their health and from 50 to 75 per cent will die of tuberculosis. Barnes, in an analysis of 700 cases, goes still further, saying that 85 per cent of patients with open cavities will die within fifteen months if untreated. Furthermore, according to Peyret, if the pneumothorax is complete about the

tized patients have often developed a serious syncope. The prone posture has so bad a reputation that, in some army regulations, moving an anesthetized patient from the dorsal to the prone posture has been strictly forbidden. The danger that accompanies ill advised sur-

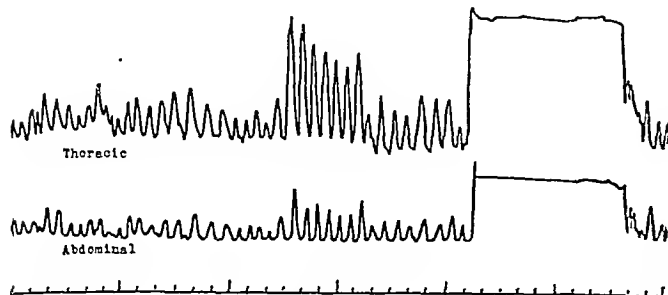


Fig. 2.—Upper record, thoracic respiration. Lower record, abdominal respiration. Up stroke, inspiration. Down stroke, expiration. Timer marks ten seconds and minutes. Normal respiration of a young athlete of exceptional respiratory capacity. Unusual quiet respiration for two minutes thirty-five seconds. Voluntary hyperpnea for forty seconds. Voluntary apnea for eighty seconds.

gical postures results not alone from circulatory changes, with subsequent depression of heart action and anemia of the brain and medullary centers, but frequently from the effects of the posture on respiratory function.

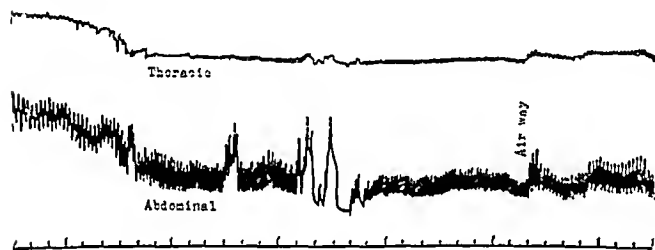


Fig. 3.—Upper record, thoracic respiration. Lower record, abdominal respiration. Up stroke, inspiration. Down stroke, expiration. Timer marks ten seconds and minutes. Transurethral electrical resection of the prostate. Preliminary paraldehyde, nitrous oxide-oxygen anesthesia. Dorsal recumbent posture. The chart begins at the second minute of nitrous oxide oxygen induction. Note descent of both records from complementary to supplemental zone, paralysis of thoracic respiration nearly complete, disturbance at third minute characteristic regurgitant reflex. Continuous with figure 4.

That the thoracic muscles of respiration are paralyzed under surgical anesthesia and that the diaphragm alone must be depended on for maintaining respiratory



Fig. 4.—Effect on respiration of the high frequency current applied to the prostate. Each application of the current produces a strong stimulation of both thoracic and abdominal movement.

movements during surgical operations are facts already sufficiently proved.<sup>1</sup> The accuracy of the original observations has been corroborated by independent investigators. Thoracic paralysis under anesthesia has been visually demonstrated by an extensive series of

tracings made with the synchronous pneumograph. This instrument, by applicators encircling the chest at the ensiform level and the abdomen at a point about 4 inches lower, registers on a drum moving at a known rate of speed an independent record of the thoracic and the diaphragmatic movements.

Anesthetic respiratory paralysis becomes vitally significant in upper abdominal surgery when an attempt is made to fix the diaphragm by strong retraction. If the thoracic muscles are completely paralyzed, fixation of the diaphragm must seriously hamper the respiration. Paralysis of the thoracic muscles has been found to be

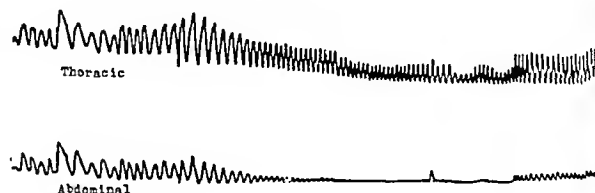


Fig. 5.—Upper record, thoracic respiration. Lower record, abdominal respiration. Up stroke, inspiration. Down stroke, expiration. Timer marks ten seconds and minutes. Excision of pilonidal sinus. Preliminary barbiturate, nitrous oxide-oxygen anesthesia. Prone posture. The record commences when the patient is placed in the prone posture without a supporting pillow. Note the progressive failure of abdominal movement, increased frequency of thoracic movement, stimulation of respiration by operative incision.

a valuable sign of the depth of surgical anesthesia.<sup>2</sup> It is now possible to show that thoracic paralysis under anesthesia is at least partly blamable for the serious depression that may accompany operations while the patient is in the prone posture.

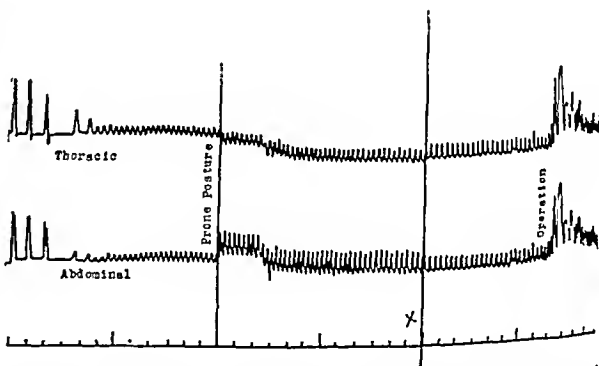


Fig. 6.—Upper record, thoracic respiration. Lower record, abdominal respiration. Up stroke, inspiration. Down stroke, expiration. Timer marks ten seconds and minutes. Removal of coccyx. Preliminary paraldehyde, nitrous oxide-oxygen anesthesia. Prone posture with supporting pillow. Transfer from dorsal to prone posture with supporting pillow under pelvis. Three minutes of record omitted at X. Note satisfactory maintenance of abdominal breathing in comparison to impeded abdominal movement in figure 5.

When an anesthetized patient is placed lying with the face downward on the firm, flat surface of an operating table the diaphragmatic movements are immediately impeded by the weight of the body resting on the abdomen. The thoracic muscles being paralyzed, the diaphragm attempts to carry on the task of respiratory movement with an effort shown by perceptible lifting of the buttocks with each inspiration. Soon this movement ceases, as the paralyzed thoracic muscles will

1. Miller, A. H.: Ascending Respiratory Paralysis Under General Anesthesia, *J. A. M. A.* 84: 201 (Jan. 17) 1925.  
2. Miller, A. H.: Diaphragmatic Respiration Recorded by a Synchronous Pneumograph, *Rhode Island M. J.* 10: 59 (May) 1924.  
3. Waters, R. M.: Ether Anesthesia: Relation of the Signs of Anesthesia to (1) Circulatory Depression and (2) Surgical Toxicity, *Current Researches* 5: 4 (Feb.) 1926. Guedel, A. L.: Signs of Anesthesia and a Reclassification of the Signs of Anesthesia, *Current Researches* 6: 157 (Aug.) 1927.



months, this disease process will become intensified. I have therefore adopted in bilateral cases the procedure of converting the other side into a pneumothorax, thus producing a bilateral pneumothorax, and after a short period of pneumothorax therapy I eliminate the adhesions on one side. I have found that it is very difficult to control these cases if the spread extends to the contralateral lung. The percentage of cases suitable for pneumolysis varies anywhere from 5 to 45. Matson of Oregon reports 45 per cent suitable for pneumolysis. I believe this rate to be high, and I consider the estimate of 5 or even 10 per cent to be rather low. I think great care should be used in the selection of cases, and I believe that the greatest trouble is doing too much intrathoracic cauterization rather than not enough.

## POSTOPERATIVE BACTEROIDES INFECTION

### REPORT OF SIX CASES

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The recent article by Lemierre<sup>1</sup> and the subsequent editorial<sup>2</sup> in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION pointing out the scarcity of reports on postoperative Bacteroides septicemia has prompted us to report six cases of this type of infection. Although the infection has proved fatal in practically all cases which have been reported, it would appear that with a better understanding of the nature of the infection some progress in regard to treatment might be obtained.

At the clinic, infection with *Bacteroides funduliformis* has occurred in six cases in which operations were performed for carcinoma of the large intestine, in two cases in which operations were performed on the male genito-urinary tract, and in one case in which operation was not performed. The six cases in which the infection occurred following operations for carcinoma of the large intestine will form the basis of this report. Organisms with similar cultural characteristics have previously been encountered in blood cultures in other cases, but at the time their significance was not recognized. Since the work at this clinic by Thompson and Beaver,<sup>3</sup> patients who have suggestive complications after operation have been carefully examined for Bacteroides infection.

### HISTORY

Henthorne, Thompson and Beaver<sup>4</sup> recently reported the results of original research on the differentiation and classification of gram-negative bacilli of the genus Bacteroides. They also have reviewed the literature thoroughly and their paper is freely drawn on in this report of clinical observations. According to these authors, Veillon and Zuber<sup>5</sup> (1897) are generally credited with the most important early work. They

reported twenty-five cases of fetid and gangrenous suppuration and described various anaerobes as the etiologic agents. Veillon and Zuber said that their research was inspired by the paradoxical observations, previously made by Widal and Nobécourt,<sup>6</sup> that pus from gangrenous tissues contained many bacteria, as demonstrated by direct smear, but that on culture either very few organisms grew or the culture (aerobic) remained sterile. Veillon and Zuber then undertook a systematic research on gangrenous processes associated with fetid suppuration. Two articles, one by Teissier, Reilly, Rivalier and Layani,<sup>6</sup> and one by Teissier, Reilly, Rivalier and Stéfanescu,<sup>7</sup> contributed important clinical and bacteriologic data on infections caused by *Bacteroides funduliformis*. These authors gave an excellent review of the literature on anaerobic organisms. They reported four cases in which septicemia was caused by *Bacteroides funduliformis* and in which the diagnosis was made by culture of the blood for anaerobic organisms.

The literature on this subject has been less extensive in the United States than in other countries. Norris<sup>8</sup> described a case in which pyelophlebitis was associated with an anaerobic bacillus. Harris<sup>9</sup> reported a case of pyemia that was caused by a nonsporulating bacillus, which he named "*Bacillus mortiferus*." Oliver and Wherry<sup>10</sup> described a gram-negative nonsporulating anaerobic bacillus that utilized hemoglobin for the production of an extracellular melanin or melanin-like substance, which they named "*Bacterium melaninogenicum*." They isolated this organism from the pharynx, tonsils, infected surgical wounds, urine and feces. Burdon<sup>11</sup> found *Bacterium melaninogenicum* in the mouths of normal human beings and of animals as well as in cases of pulmonary abscess and pyorrhea. He also found this organism in the uterus and blood stream in cases of puerperal fever. He believed that the presence of the organism was an index of pollution and that it played an important part in various pathologic processes, although it was not pathogenic for laboratory animals.

Thompson and Beaver<sup>3</sup> reported two cases of sepsis associated with the formation of abscesses in the lungs; in both cases they thought that the condition had been caused by *Bacteroides funduliformis*. Cohen<sup>12</sup> reviewed the literature and reported the results of original research on the bacteriology of abscess of the lung; he called attention to the disregard in previous reports for anaerobic flora in abscesses of the lung. Among other organisms, he encountered *Bacteroides funduliformis*. Beaver, Henthorne and Macy<sup>13</sup> reported two cases of sepsis associated with hepatic abscess, caused by *Bacteroides funduliformis*. Henthorne, Thompson and Beaver said "It is clear then that strict anaerobes which

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8. Norris, Charles: Suppurative Pyelophlebitis Associated with Anaerobic Micro-Organisms, J. M. Res. 6: 97-104, 1901.

9. Harris, H. M.: *Bacillus Mortiferus* (Nov. Spec.), J. Exper. Med. 6: 519-547, 1901-1905.

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11. Burdon, K. L.: *Bacterium Melaninogenicum* from Normal and Pathologic Tissues, J. Infect. Dis. 42: 161-171 (Feb.) 1928.

12. Cohen, John: The Bacteriology of Abscess of the Lung and Methods for Its Study, Arch. Surg. 24: 171-188 (Feb.) 1932.

13. Beaver, D. C.; Henthorne, J. C., and Macy, J. W.: Abscesses of the Liver Caused by *Bacteroides Funduliformis*, Arch. Path. & Lab. Med. 17: 493-509 (April) 1934.

From the Division of Surgery, the Mayo Clinic.

1. Lemierre, André: On Certain Septicemias Due to Anaerobic Organisms, Lancet 1: 701-703 (March 28) 1936.

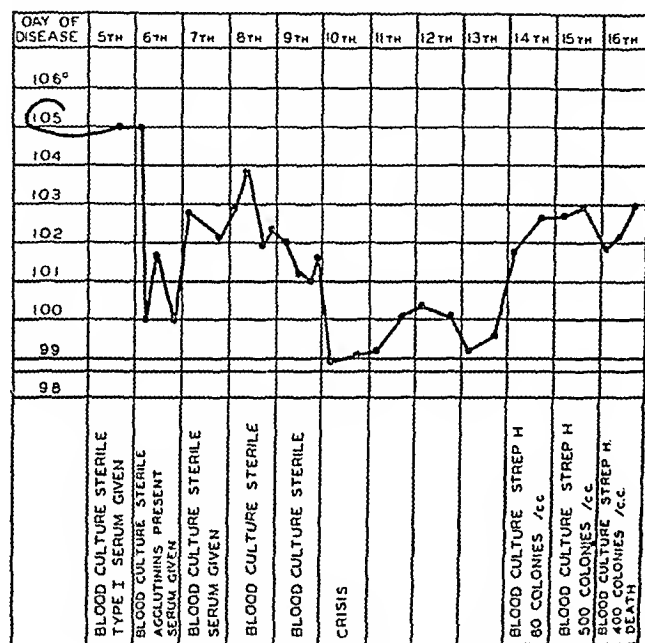
2. Septicemia Due to Anaerobic Organisms, editorial, J. A. M. A. 106: 2242 (June 27) 1936.

3. Thompson, Luther, and Beaver, D. C.: Bacteremia Due to Anaerobic Gram-Negative Organisms (*Bacteroides*), Proc. Staff Meet., Mayo Clin. 6: 372 (June 17) 1931; Bacteremia Due to Anaerobic Gram-Negative Organisms of the Genus *Bacteroides*, M. Clin. North America 15: 1611-1626 (May) 1932.

4. Henthorne, J. C.; Thompson, Luther, and Beaver, D. C.: Gram-Negative Bacilli of the Genus *Bacteroides*, J. Bact. 31: 255-274 (March) 1936.

5. Quoted by Henthorne, Thompson and Beaver.<sup>4</sup>

The method of blood culture employed deserves mention. Four cc. of blood was drawn under sterile conditions from the antecubital veins of the patient. This was distributed in amounts of 1 cc. to each of two bottles containing approximately 40 cc. of beef infusion broth adjusted to a  $p_H$  of 7.6 to 7.8, the remaining 2 cc. being used to make two agar pour-plates, 1 cc. of blood being used for each. The broths and plates were incubated at 37 C. and read at intervals of twenty-four hours for five days. In cases in which positive cultures were obtained, the plates and the broths invariably showed growth within forty-eight hours. It seems necessary to outline our technic in view of recently reported methods<sup>7</sup> by which an unusually high percentage of positive blood cultures has been obtained in both normal and pathologic conditions. It must be remembered that these methods make use of large



Temperature and results of blood culture in case 1.

quantities of the patient's blood (as much as from 20 to 30 cc.) as well as specially prepared mediums together with frequent subcultures. These highly refined methods contrast sharply with the technic just outlined for routine blood cultures.

#### REPORT OF CASES

CASE 1.—M. R., a Puerto Rican woman, aged 58, admitted on the fifth day of the disease, showed type I pneumococcal lobar pneumonia of the left lower lobe. Because of physical signs suggestive of fluid, a thoracentesis was done on the eighth day of illness and 10 cc. of a cloudy brown fluid showing 90 per cent polymorphonuclear leukocytes on the differential smear was obtained; this fluid when cultured on blood agar and blood broth was sterile. She received type I serum intramuscularly and progressed favorably, the crisis occurring on the tenth day, as shown in the accompanying chart. Following a period of defervescence lasting for four days, her temperature rose to 103 F. on the fourteenth day, remaining at that level until her death on the sixteenth day. Repeated blood cultures taken prior to the crisis were sterile. A white blood count on the thirteenth day showed 50,200 cells with 87 per cent polymorphonuclears, of which 67 per cent were immature forms, a relative "shift to the left" of the Schilling index when compared to a

count on the fifth day showing 50,500 white cells with 86 per cent polymorphonuclears, of which 54 were immature forms. A culture taken on the fourteenth day revealed approximately 80 colonies of hemolytic streptococcus per cubic centimeter of blood. On the fifteenth day the blood stream invasion increased to 500 colonies. Shortly before her death on the sixteenth day of illness, blood culture showed 400 colonies. The patient had received serum therapy and showed type-specific agglutinins in the blood appearing on the sixth day and persisting until the twelfth day. On the fourteenth day, when streptococci were recovered from the blood, type-specific agglutinins for pneumococci had disappeared and remained absent until the time of her death. Permission for necropsy was refused.

This case appeared to be progressing favorably under serum therapy and showed immunologic evidence of recovery from the pneumococcal infection until late in the disease (fourteenth day), when streptococcal septicemia developed. That the virulence of the organism was great is attested by the relatively rapid onset and short fulminant course leading to death from this complication.

CASE 2.—P. M., a white man, aged 39, admitted on the fifth day of the disease, showed type II pneumococcal pneumonia with massive consolidation of the right lower lobe and right middle lobe. The temperature fell by lysis, reaching normal on the tenth day, following which he had a low grade intermittent fever during the next two weeks. This was followed by a period of normal temperature for nearly two weeks except for a rise to 102 on two successive days. Following this, on the thirty-ninth day, his temperature rose and remained elevated with wide and inconstant fluctuations from 99 to 105 F. until the day of his death on the fifty-ninth day of illness. Agglutinins for the infecting type of pneumococcus developed on the tenth day of illness, which persisted until death. Repeated blood cultures during his early stay in the hospital were sterile.

On the nineteenth day of his disease a thoracentesis revealed the presence of thick, yellowish green pus, which on culture showed type II pneumococci. Two days later a thoracotomy was performed, and a large amount of thick pus was evacuated and the pleural cavity drained and packed. This was followed by apparently adequate drainage for two weeks during which time the temperature remained normal. Subsequently his temperature began to rise, and for this reason a further exploration of the thoracotomy was performed on the forty-second day. This revealed only a few cubic centimeters of pus, nor did the physical changes adequately explain the prolonged fever. On the fifty-fourth day of his illness he began to show symptoms of cerebral irritation, and three days later the clinical picture was that of a meningitis. A spinal tap at this time showed a purulent fluid from which *Streptococcus haemolyticus* was cultured. Unfortunately, during this last bout of fever no blood cultures were taken until the fifty-eighth day, when the broth showed *Streptococcus haemolyticus*, the plates showing no growth. A white cell count showed 29,800 cells with 58 per cent immature polymorphonuclears, the highest ever noted in this case. A blood culture taken a few minutes following death on the fifty-ninth day revealed no growth on the blood agar plates but the presence as before of *Streptococcus haemolyticus* in the broth, pointing to a minimal blood stream invasion. It is of interest to note that the urine showed albumin, casts, red cells and white cells, and *Streptococcus haemolyticus* on culture. At necropsy, an abscess cavity was found at the base of the right lung, being about 4 cm. in diameter, resting on the diaphragm and having a grayish white friable necrotic wall. There was no fluid present in the pleural cavity. There was no evidence of endocarditis or pericarditis. The brain showed a purulent leptomeningitis and the presence of two abscesses in the cortex of the frontal lobe. The kidneys showed numerous subcapsular petechiae, giving the organ the "flea-bitten" appearance of an embolic glomerulonephritis. Cultures from the brain abscess, the spinal fluid and the lung abscess revealed *Streptococcus haemolyticus*.

This case is one of a type II lobar pneumonia in which a type II pneumococcal empyema developed which was improved by surgical drainage. This case

7. Cecil, R. L.; Nicholls, E. E., and Stainsby, W. J.: Bacteriology of the Blood and Joints in Chronic Infectious Arthritis, *ibid.* 26:6 (Oct.) 1928. Grant, E. T.: Blood Cultures in Chronic Arthritis, *J. Infect. Dis.* 52: 230 (March-April) 1933.

It appeared to be fixed posteriorly and considerable infiltration was present. A specimen for biopsy was found to be adenocarcinoma, grade 2.

May 31, exploratory operation was performed through a left inguinal incision. The liver appeared to be normal and the growth was situated below the peritoneal fold. A permanent colonic stoma was made; posterior resection of the growth was to be performed later. Hiccups occurred soon after operation and the temperature became elevated to about 101 F. in the afternoon. On the seventh postoperative day the temperature rose to 103 F. and then fluctuated from 97 to 103 F. each day, the pulse rate varying from 80 to 100 beats per minute. On the eighteenth day the patient complained of pain in the right lower quadrant of the abdomen. The lower loop of colon was irrigated on the twentieth day and, following this procedure, a violent chill and profuse perspiration occurred. Stridor was noticed on inspiration, but examination of the vocal cords did not reveal any abnormality. From the twentieth day on the temperature varied from 97 to 106 F. and the pulse rate from 80 to 170 beats per minute. Chills, accompanied by profuse sweating, occurred daily. On the twenty-first day the patient said that he felt fine. Three days later he became irritable, and death occurred on the twenty-fifth postoperative day.

At necropsy, multiple abscesses were found in the liver and lungs. The right pleural cavity contained 100 cc. of fluid and scattered adhesions. Two small, septic infarcts were found in the lung. The liver weighed 2,500 Gm. (normal weight, 1,500 Gm.). On the right margin of the right lobe of the liver was an elevated fluctuating nodule, 6 cm. in diameter, which was filled with thick, creamy pus. Another multilocular abscess, 7 cm. in diameter, was found in the same lobe. Thrombosis of the portal vein was not present. Localized abscesses were found in the depths of the malignant tumor and in the adjacent wall of the rectum and perirectal tissue. Peritonitis was not present.

CASE 3.—A woman, aged 37, came to the clinic Oct. 12, 1933, because of rectal pain, blood and mucous in the stools, and diarrhea of from two to ten bowel movements a day for one year; she had had a fever of low grade for six months.

On proctoscopic examination a large movable carcinoma was found, which involved the anterior half of the lower third of the rectum. It did not obstruct the lumen of the bowel. A specimen for biopsy was reported to be adenocarcinoma, grade 2. October 16, colostomy was performed in the left inguinal region under spinal anesthesia. Metastasis had not occurred in the liver. The growth could be palpated at the peritoneal fold. Posterior resection was to be performed later.

Convalescence was uneventful until the eighth postoperative day, when the temperature was elevated to 102.6 F.; from this time until the patient died the temperature ranged from 97.8 to 105.8 F. each day, and the pulse rate from 90 to 160 beats per minute. Perspiration was profuse. Bilateral bronchopneumonia developed on the fifteenth day. A blood culture was taken on the twelfth day and, six days later, *Bacteroides funduliformis* was reported to be present. Jaundice appeared on the fourteenth postoperative day and became more severe. The patient died on the twenty-first postoperative day.

At necropsy, multiple abscesses in the liver and lungs, and beginning empyema were found. The spleen was about four times the normal size. Numerous raised yellow nodules, from 1 to 2 cm. in diameter, with sharply demarcated borders, were present over the surface of the lungs. These nodules contained a greenish yellow pus. Similar nodules were found throughout the lung. The liver contained five abscesses, which averaged 2 cm. in diameter. These abscesses were filled with yellow fluid. One abscess was multilocular and measured about 4.5 cm. in diameter. A purulent thrombus was found in a branch of the portal and right and left sublobular veins. A faintly putrid, greenish pus exuded from the veins when they were cut. A raised mass, about 5 by 4 cm., was found on the mucosa of the rectum, and an ulcer was present at the border of the mass. This ulcer contained tiny sinuses, from which pus exuded. A pool of pus was found between the malignant mass and the rectal wall. Peritonitis was not present.

CASE 4.—A woman, aged 51, was admitted directly to the hospital Jan. 20, 1934, as an emergency case because of partial intestinal obstruction which had been present for six days.

For two years she had had periodic attacks of abdominal cramps, and for one year constipation had increased in severity and blood occasionally had been found in the stools. Chills and fever had not occurred.

The patient was obese; she weighed 176 pounds (80 Kg.). Moderate abdominal distention and considerable borborygmus were present. Proctoscopic examination revealed a movable annular carcinoma situated 24 cm. above the anus. A specimen taken for biopsy was found to be adenocarcinoma of grade 1.

January 23, vaccine was injected intraperitoneally. Three days later, under spinal anesthesia, a rather difficult type of resection was performed for obstruction. Metastasis was not found in the liver and glandular involvement could not be demonstrated. The three-bladed clamp on the colon came off on the eighth postoperative day. On the twenty-eighth day an injection of vaccine was again administered intraperitoneally and three days later the colonic stoma was closed. The immediate convalescence was somewhat stormy; the temperature became elevated steadily to 104.4 F. and the pulse rate increased to 120 beats per minute on the fourth day after the colonic stoma was closed. At this time a radium pack was applied for parotitis on the right side. A small amount of purulent material drained from the wound during the remaining convalescent period. The temperature and pulse returned to normal in a few days. A culture from the wound taken February 20



Fig. 2.—Section of rectal carcinoma that has become infected with *Bacteroides funduliformis*, with resultant formation of abscess. Slightly reduced from a photomicrograph with a magnification of 28 diameters.

revealed the presence of *Bacteroides funduliformis*. A small amount of purulent material drained from the wound on the twenty-third postoperative day and continued to drain for a short time. The patient was dismissed on the twenty-ninth day after closure of the colonic stoma.

CASE 5.—A man, aged 35, came to the clinic Oct. 22, 1935, because of constipation, loss of weight and bloody stools, which had been present for one year. Considerable mucus had been passed for three months and the stools had been streaked with blood for the past six weeks. He had lost 40 pounds (18 Kg.) during the previous year. Chills, fever or jaundice had not occurred. One massive hemorrhage had occurred three weeks previously. Hemorrhoidectomy had been performed one month before he came to the clinic.

On physical examination the patient appeared to be well developed and fairly well nourished. He weighed 179 pounds (81 Kg.). The blood pressure in millimeters of mercury was 132 systolic and 84 diastolic, the pulse rate 82 beats per minute and the temperature, normal. The value for hemoglobin was 15.4 Gm. per hundred cubic centimeters of blood; erythrocytes numbered 4,450,000 and leukocytes 5,900 per cubic millimeter. Proctoscopic examination revealed a movable, annular carcinoma, beginning 12 cm. above the anus, which partially obstructed the lumen of the rectum. A specimen taken for biopsy was found to be adenocarcinoma, grade 2.

October 30, 1 cc. (one billion organisms) of peritonitis vaccine was injected intraperitoneally. The temperature rose to 101.4 F. in a few hours and returned to 98 F. the following

lobe. He had a persistently elevated temperature ranging from 104 to 105 F. till his death on the tenth day of illness. Clinically he showed evidence of marked toxemia. On admission, blood culture showed a minimal invasion with type I pneumococcus (8 colonies per cubic centimeter). Following serum therapy the blood was sterile for the next four days until the eighth day of his illness, when the broth culture showed a growth of type I pneumococcus in the blood, the plates being sterile. Following further serum administration, a culture on the ninth day was sterile. On the day of his death the blood culture again became positive, showing three colonies of pneumococcus type I and 15 colonies of *Streptococcus haemolyticus* per cubic centimeter of blood. The white blood count on admission was 18,900 with 96 per cent polymorphonuclears, of

probably being due to the streptococcus, since cases of fatal pneumococcic bacteremia show higher bacterial counts as a rule.

CASE 7.—J. B., a white man, aged 50, complained of a cough productive only of mucus for six weeks before admission. A week later he began to have pain in the right ankle, right shoulder and right knee, which subsided. On admission he complained of pain in the chest as well as in the left ankle and left knee. Physical examination showed consolidation of the right lower lobe and acute arthritis of the left knee and ankle. The sputum at first was thick, mucoid and rusty, and sputum typing revealed a group IV pneumococcus (unclassified types I to VIII). Similarly, a blood culture taken the day after admis-

TABLE 1.—Summary of Reported Cases of

Author	Case	Sex and Age	Nature and Site of Pneumonia	Type of Infecting Pneumonia	Development of Antipneumococcic Antibodies	Day of Disease on Admission	Day of Crisis	Day of Onset of Strep. Bacteremia	Type of Strep.
S. S. and T. J. C. ....	1	F 58	Lobar, left lower lobe	I	Yes	5th	10th	14th	Strep. h.
	2	M 30	Lobar, right lower lobe and right middle lobe	II	Yes	5th	10th	53th	Strep. h.
	3	M 47	Lobar, entire right lung	I	Yes	6th	10th	12th	Strep. h.
	4	M 23	Lobar, right lower lobe	IV	Yes	5th	10th	23th	Strep. h.
	5	M 43	Lobar, right lower lobe	I	Yes	5th	7th	23th	Strep. h.
	6	M 45	Lobar, right upper lobe and right middle lobe	I	Yes	2d	No crisis	10th	Strep. h.
	7	M 50	Lobar, right lower lobe	Unclassified pneumococcus	....	....	No crisis	7 days after admission	Strep. h.
	8	M 51	Lobar, left lower lobe	XIX	Yes	4th	11th	5th	Strep. viridans
Parsons and Myers <sup>1</sup> .....	1	M 30	Lobar, right lower lobe	I	Not stated	1st	7th	19th	Strep. h.
	2	M 60	Lobar, entire right lung	III	Not stated	5th	11th	23d	Strep. h.
	3	F 41	Lobar, right lower lobe	VIII	Not stated	6th	7th	Not stated	Strep. h.
Cole <sup>2</sup> .....	1	Not stated	Lobar	I	Not stated	Not stated	Not stated	Long after crisis	Strep. h.
	2	Not stated	Lobar	I	Not stated	Not stated	Not stated	Long after crisis	Strep. h.
Johnston and Morgan <sup>3</sup> .....	1	F 35	Lobar, right lower lobe	I	Not stated	Not stated	Not stated	19th	Strep. h.
Lyons <sup>4</sup> .....	1	Child	Not stated	II	Not stated	Not stated	Not stated	After crisis	Strep. h.

which 58 per cent were immature forms. Serial blood counts showed a slight fall in the total white cells, although there was some tendency to increase of the immature forms. On the eighth day the count was 14,200 white cells with 94 per cent polymorphonuclears, of which 60 per cent were immature forms, while on the tenth day, when streptococci were first found in the blood, the count was 35,900 cells with 88 per cent polymorphonuclears, of which 67 per cent were immature forms. Specific antipneumococcus agglutinins did not appear until the day of death, and then only in minimal dilution. Necropsy showed consolidation of the right upper lobe, in the stage of gray hepatization. No other noteworthy changes were present.

This case is of definite interest because of the presence of dual invasion of the blood stream. It might be argued that the serum therapy held the pneumococcic bacteremia under partial control, fatal termination

sion showed an unclassified pneumococcus in the broth. Seven days after admission he had a severe coughing spell with a hemoptysis of 4 ounces (120 cc.) followed by the expectoration of a large quantity of purulent hemorrhagic sputum, and the sputum retained this character until his death. Repeated search revealed no tubercle bacilli.

Seven days after admission, there appeared a few petechiae in the mucous membrane of the mouth, which disappeared in a few days. There was no evidence of endocarditis and no hematuria or other signs of embolic phenomena. At approximately the same time, an abscess of the left hand developed which was incised, evacuating about a half ounce (15 cc.) of thick yellow pus, which on culture showed *Streptococcus haemolyticus*. A blood culture taken on this day also showed *Streptococcus haemolyticus*, there being 10 colonies per cubic centimeter of blood. The blood culture was not repeated until twelve days later, when it was sterile. The case ran a severe course, abscesses developing in the right forearm, left sternum

liver was affected and the degree of jaundice varied from moderate to extreme. This jaundice probably was not entirely of hepatic origin but might be similar in origin to that found in cases of severe streptococcic infection. In some cases the jaundice was present before other signs of a grave complication were in evidence. The jaundice occurred from four to seven days after the onset of the postoperative infection and usually progressed to an extreme degree. In two cases jaundice was not present, and one of these patients recovered.

The usual indication of a break in the uneventful convalescence was a chill and a sudden elevation of temperature. Profuse exhausting sweats occurred. Usually one chill occurred each day, but in some cases two chills occurred and in other cases there were chills every other day. The temperature was of the usual septic type, ranging from 97 to 106 F.

An apparently distinctive feature of postoperative *Bacteroides* septicemia was the profuse perspiration. Many changes of linen were required each day. The sweating that occurs in streptococcic septicemia is not nearly so severe as that which occurred in these cases. Exhausting chills and sweating were present in every case except the one in which recovery occurred and in which bacteremia was not present.

The increase in pulse rate usually was in proportion to the elevation of temperature. In almost every case the quality of the pulse was good until a few days before death. This feature was noticed independently by several consultants. The pulse rate ranged from 80 to 160 beats per minute. General malaise and exhaustion were extreme in all cases in which death occurred. In the five cases that ended fatally, death occurred from fifteen to twenty-one days after the onset of septicemia.

The presence of mild symptoms in the one case in which recovery occurred might indicate that infection by *Bacteroides funduliformis* is more prevalent than it usually is considered to be and that it might be present in cases in which short, postoperative febrile attacks are encountered. In the case in which recovery occurred, the maximal temperature was noted on the fourth postoperative day, the temperature returning to normal in a few days. The presence of *Bacteroides funduliformis* in the culture from the wound in this case again indicates the importance of considering this organism as a causative factor in postoperative complications. In several of these cases, manipulations of various types were performed from two to three days prior to the onset of symptoms. This indicates the ever present danger of septicemia from wound infections and emphasizes the need of care, especially in cases in which operation has been performed on the large bowel, which is notoriously heavily infected.

Blood cultures may not become positive for from five to seven days after the onset of symptoms and they should not be discarded if no growth occurs in forty-eight hours. When *Bacteroides* septicemia is suspected, repeated blood cultures should be taken.

#### TREATMENT

Specific treatment is not available, the usual supportive measures being used. A positive water balance was obtained by intravenous administration of dextrose in physiologic solution of sodium chloride. Most of the patients were able to take fluids by mouth until they became confused by the severe toxemia. Intravenous administration of 1 per cent solution of gentian violet

was employed in those cases in which an infection of the blood stream was evident early. An oxygen tent was used when dyspnea or cyanosis was present. Pruritus that accompanied the jaundice was not of sufficient intensity to require treatment. A solution of dextrose was administered intravenously when evidence of hepatic damage appeared.

#### SUMMARY AND CONCLUSIONS

In six cases of *Bacteroides funduliformis* infection the infection occurred after operations for carcinoma of the colon. Only one of the six patients recovered, the mortality therefore being 83 per cent. At necropsy, multiple abscesses were found in the liver in every case in which death occurred. Blood culture for *Bacteroides funduliformis* should be made in cases in which icterus occurs after operation, even though other signs of septicemia may not be present. Early cultures from wound and blood for anaerobic bacteria are necessary in order to make a diagnosis before death. Specific treatment is not available.

#### SURGICAL PRONE POSTURE

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Besides such well recognized causes of preventable surgical deaths as broken asepsis, insecure ligatures and incompetent anesthesia, the influence of ill advised posture must also be considered. Not only is a posture that would be trying to a conscious subject equally injurious to an anesthetized patient, but its harmful effect is intensified by the tissue relaxation that is an essential part of the action of the anesthetic.

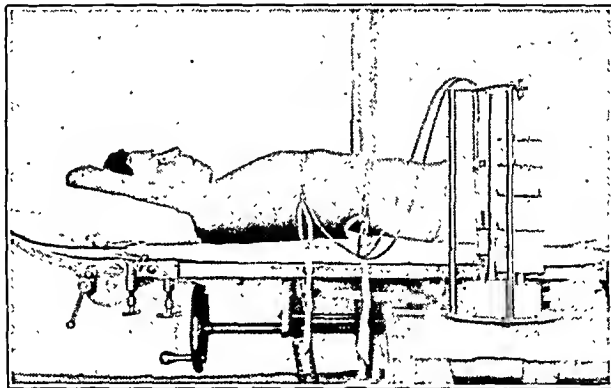


Fig. 1.—Operation of the synchronous pneumograph: The applicators encircle the chest at the ensiform level and at the abdomen about 4 inches lower. Each applicator consists of two measuring tapes, one rigid, the other extensible. They constantly measure changes in the circumference of an object to which they are applied. Each applicator is connected by a silk cord moving freely within a flexible tube, to one of the pens of a polygraph.

The dorsal recumbent posture with the head slightly lowered, advantage being taken of the effect of gravity to aid the venous return to the heart and to maintain the cerebral blood pressure, is the most favorable for the anesthetized patient. Friedrich Trendelenburg early found that his high pelvic posture was not free from the danger of circulatory embarrassment and advised against its use for fat patients. The Fowler postoperative posture, draining away the blood from cerebral centers, has contributed to many fatalities. On the change from the dorsal to the sitting posture, anesthe-



ation of *Streptococcus viridans* with endocarditis, it is also interesting to note that at no time was there any clinical evidence suggestive of valvular disease or embolic phenomena.

## COMMENT

In considering the streptococcus as a secondary invader in pneumococcic lobar pneumonia, it must be borne in mind that this organism may manifest itself either by a local pulmonary complication or a systemic blood stream invasion. Clendening's<sup>8</sup> review of the local pulmonary complications, in which he divides these lesions into (a) cases of empyema, (b) localized areas of pulmonary infection, (c) lung abscess and (d) delayed resolution, provides a convenient classification. A critical study of his cases and of those of other authors shows a singular lack of reported evidence of blood stream invasion. This would tend to point to a high degree of elective localization that the streptococcus enjoys when it complicates pneumococcic pneumonia. It is our impression, however, that streptococcic bacteremia is more common than the literature would indicate. Its infrequent recognition may be in part accounted for by the sparsity of routine attempts at blood culture during the occurrence of these complications. This is attested by our own observations, in which patients showing local involvement have been found on frequent cultures to show evidence of invasion of the blood.

Up to the present time we have been able to find only seven authentic cases comparable with the foregoing reported group, the salient features of which are summarized together with those of our own cases in the accompanying table. These include the three cases observed by Parsons and Myers,<sup>1</sup> the case of Johnston and Morgan,<sup>2</sup> the two cases of Cole,<sup>2</sup> and the case mentioned by Lyon.<sup>4</sup> Among the earliest reports is that of Netter,<sup>9</sup> who mentions two cases, one of suppurative streptococcic meningitis following a postpneumonic lung abscess, and one of multiple arthritis following a pneumonia. In these two cases the path of spread from the lung is in doubt as no mention is made of blood cultures, but it would seem likely that the distal lesions resulted from blood stream invasion. In the recent article by Finland,<sup>10</sup> dealing with mixed infections in pneumococcic pneumonia, he mentions a patient with type VIII infection who during life showed sterile blood cultures and the presence of agglutinins for the infecting type, who nevertheless died, showing at necropsy a pure culture of *Streptococcus haemolyticus* in the heart's blood. There is one uniform feature about these cases, as the table will demonstrate; namely, that the bacteremia occurred relatively late in the disease, the earliest occurring on the seventeenth day, the latest on the fifty-fourth day. Our own observations are in the main in agreement with these observers on this point. In addition, they illustrate other interesting features, the most noteworthy being the possibility of recovery from this complication. Thus, it is seen that two of our patients showing transient minimal blood stream invasions recovered.

An analysis of our group of eight cases elicits certain facts, as shown in the table. There were seven

men and one woman. This preponderance of males may be attributed in part to the greater number of male patients observed during this period, the ratio being 2 to 1. The age of the patients varied from 28 to 58, the majority of the cases occurring in the fifth and sixth decades. This is in contrast to the frequency of uncomplicated cases of pneumonia occurring in the younger age groups. Apart from age, it is of interest to speculate as to the possible presence of certain predisposing factors which may theoretically account for lowered "resistance." That alcoholism may play a rôle is evidence by the fact that in six of our eight cases there was a previous history of chronic alcoholism, an incidence admittedly higher than that usually noted in the medical wards of Bellevue Hospital.

In the face of the previous reports it must be granted that our group shows an abnormally high incidence of this rare complication. Thus, during the season 1933-1934, when approximately 100 cases were observed, this condition occurred in five cases; during the season 1930-1931, with approximately the same number of cases, it occurred twice, and in 1932-1933 it occurred once.

In connection with the association between streptococcic septicemia and the infecting type of pneumococcus, it would seem to be more than chance that four of the eight cases were of type I pneumococcus. The date of the onset of the bacteremia as far as we were able to tell occurred on the fourteenth, fifty-eighth, twelfth, twenty-eighth, twenty-eighth, tenth and fifth days in cases 1, 2, 3, 4, 5, 6 and 8, respectively. In case 7 the day of disease was unknown. It will be seen that the majority occurred relatively late in the disease, usually after the second week, when the patient gave clinical and immunologic evidence of recovery from his pneumococcic infection, at a time when the normal expectation was that of uneventful recovery. It is noteworthy that in seven of our cases agglutinins for the infecting pneumococcus developed during the period of observation, which is additional evidence that the original infection was due to this organism.

In considering a relationship between the blood stream invasion and the persistence of local disease, it is evident from our study that six of the eight cases presented local pulmonary involvement such as empyema or delayed resolution at the time at which blood stream invasion occurred. Apart from cases 2, 3 and 7, in which *Streptococcus haemolyticus* was recovered from the local lesion, unfortunately we have no bacteriologic data that established any etiologic relationship between the pulmonary lesion and the blood stream invasion. The invading organism in seven of the cases was *Streptococcus haemolyticus* (beta) and in one case *Streptococcus viridans* (alpha). Six of the seven patients with *Streptococcus haemolyticus* bacteremia died; one recovered. The patient with *Streptococcus viridans* bacteremia recovered.

It is dubious whether an analysis based on the previously reported cases and those of our own provides one with a clear enough symptom complex to warrant a diagnosis of this rare complication. It would seem instead that the diagnosis must be arrived at largely by a process of exclusion in which careful physical examination, x-ray evidence and thoracentesis are used to rule out empyema or recrudescence of the pneumonia. In this connection a sudden increase in the leukocytes with a marked rise in the percentage of immature granulocytes, a so-called shift to the left of the Schilling

8. Clendening, Logan: Reinfection with *Streptococcus haemolyticus* in Lobar Pneumonia, Measles and Scarlet Fever and Its Prevention. *Am. J. M. Sc.* 156: 575 (Oct.) 1918.

9. Netter, J. A.: *Maladies aiguës du pœmon*, in Charcot, in Bouehard and Brissaud: *Traité de médecine*, Paris 4: 886 and 1023, 1895.

10. Finland, Maxwell: The Significance of Mixed Infections in Pneumococcic Pneumonia. *J. A. M. A.* 103: 1681 (Dec. 1) 1934.

difficulty take up the work of respiratory movement. The synchronous pneumographic tracing shows diaphragmatic excursions rapidly diminishing in extent until they entirely disappear with thoracic movements of lessened amplitude but increased frequency; a picture of labored, insufficient respiratory action, which may aid in explanation of the state of prostration that has often accompanied protracted employment of the prone posture.

To diminish the respiratory handicap that has been generally recognized as associated with use of the prone posture, it has been customary to lift one shoulder on a pillow with the object of freeing thoracic movement from part of its encumbrance. It must be acknowledged that this procedure has not been very successful. The patients have still presented indications of dyspnea for a reason that is now clear. The thoracic respiratory movements are paralyzed by the effect of the anesthetic, and efforts to restore them by modification of posture are of slight benefit. Instead, the diaphragmatic respiration must be restored. This can be done by raising the pelvis on a small pillow placed transversely underneath the anterior superior spines. Improvement in respiration is immediately noticeable.

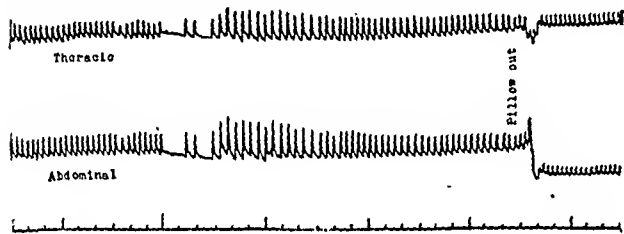


Fig. 7.—Twenty-five minutes omitted between figures 6 and 7. Abdominal respiration has been perfectly maintained throughout the operation in the prone posture with the pelvis supported on a small pillow. The anesthetic is now discontinued and recovery is indicated by some irregularity in respiratory movement. In spite of partial recovery from the anesthetic effect, the abdominal respiratory movements are markedly restricted when the pillow is removed.

The synchronous pneumograph shows diaphragmatic movement proceeding normally, and thoracic movements also improved. This simple procedure is worthy of trial whenever the prone posture is to be used.

#### CONCLUSIONS

When the thoracic respiration has been paralyzed by the action of an anesthetic, effort should be concentrated on freedom of diaphragmatic movement.

In the prone posture, freedom of diaphragmatic movement is favored by slightly elevating the pelvis on a pillow placed transversely under the anterior superior iliac spines.

28 Everett Avenue.

**New Tuberculin Aids Cattle Health Campaign.**—A new tuberculin, free from foreign protein and superior to the tuberculin formerly available, has been in use since last April in the testing of cattle for tuberculosis, the U. S. Department of Agriculture reports. Enough new tuberculin is being produced to test more than 18,000,000 cattle annually. The new tuberculin is even more reliable in revealing the presence of tuberculosis than the broth tuberculin which for more than forty years has been produced by practically the same method as was devised by Robert Koch, discoverer of the product. The new tuberculin is prepared from cultures on a synthetic medium composed of pure chemicals. The most important single ingredient in this medium is asparagine, a pure crystalline amino acid, which furnishes the nitrogen the bacteria require without introducing any protein whatever.

## STREPTOCOCCIC SEPTICEMIA COMPLICATING PNEUMOCOCCIC LOBAR PNEUMONIA

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AND

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With the more general application of bacteriologic study in pneumonia, the presence of the streptococcus as a secondary invader is becoming increasingly recognized as of major importance. This is especially evident in cases in which there have been local pulmonary complications following the initial infection by the pneumococcus.

There is another group of cases, however, in which bacteriologic investigation has been of even greater value in elucidating the clinical picture; namely, those showing systemic blood invasion by the streptococcus in the course of pneumococcic pneumonia. Judging from the reports in the literature, the number of recorded cases in which this occurs is apparently few. A recent report by Parsons and Myers<sup>1</sup> presents three cases. Cole<sup>2</sup> reports two cases. Johnston and Morgan<sup>3</sup> and Lyon<sup>4</sup> each report a single case.

Our purpose in this report is to add eight cases to those already described. We do not propose here to discuss local (pulmonary) streptococcic infections following pneumococcic lobar pneumonia but rather to limit ourselves to an attempt to determine whether there exists a characteristic clinical entity, the result of blood stream invasion by the streptococcus occurring usually late in the disease and for that reason, perhaps, not having received sufficient clinical emphasis up to the present time. In a recent article on the cause of death in pneumonia, Harlow Brooks<sup>5</sup> stresses the fact that sepsis is the most significant factor. We concur in this opinion and wish to add that not only the pneumococcus but also the streptococcus must be borne in mind as the invader of the blood stream.

#### METHOD OF STUDY

The cases summarized here were admitted to the Fourth Medical Division of Bellevue Hospital during the seasons of 1930-1931 and 1932-1934, in the services of Dr. Charles Nammack, Dr. Harlow Brooks, Dr. Anne Von Sholly and Dr. Harry Solomon. These cases form part of a group observed in the course of a study as to the therapeutic value of certain antipneumococcic "exudate" serums.<sup>6</sup> Each case admitted to this group had sputum typings which were repeated when necessary; frequent and, when indicated, daily blood cultures as well as blood counts and agglutination tests were taken. The patients were observed clinically from day to day and, when necessary, were examined roentgenologically.

From the Simon Baruch Foundation for Research in Pneumonia, and the Fourth Medical Division of Bellevue Hospital, Dr. Charles Nammack, director.

1. Parsons, J. W., and Myers, W. K.: Streptococcic Sepsis Complicating Recovery from Pneumococcic Pneumonia, *J. A. M. A.* **100**: 1857 (June 10) 1933.

2. Cole, Rufus: Serum Treatment in Type I Lobar Pneumonia, *J. A. M. A.* **93**: 741 (Sept. 7) 1929.

3. Johnston, R. A., and Morgan, H. A.: Acute Lobar Pneumonia and Haematogenous Puerperal Infection, *Bull. Johns Hopkins Hosp.* **33**: 106 (March) 1922.

4. Lyon, A. B.: Bacteriological Studies of 165 Cases of Pneumonia and Postpneumonic Empyema in Infants and Children, *Am. J. Dis. Child.* **23**: 72 (Jan.) 1922.

5. Brooks, Harlow: The Cause of Death in Pneumonia, *J. A. M. A.* **103**: 1192 (Oct. 20) 1934.

6. Curphey, T. J., and Baruch, H. B.: A Practical Method for the Immunization of Horses by Type Specific Pneumococcic Pleural Exudates, *Proc. Soc. Exper. Biol. & Med.* **26**: 687 (May) 1929.

milk, cheese and a host of other routine test materials of no importance in this discussion. Mold extracts were not available for testing at that time.

**Course.**—The patient was under our care from 1932 to 1935. For short periods out of pollen season she was fairly comfortable. Frequent colds, however, seemed to precipitate asthmatic seizures, and with many of these she raised bloody sputum. She was found to be iodine sensitive, and the use of iodides in any form had to be discontinued. Other supplementary therapeutic aids were of little real value, and a trial of non-specific desensitization with a defatted milk preparation was begun. On this management she seemed to improve. The initial use of 0.02 cc. intradermally was gradually increased every three or four days. She eventually received after about sixteen weeks a dose of from 0.7 to 0.8 cc. weekly. It was at this time that the appearance of slight local reactions at the site of inoculation (part intracutaneously and part subcutaneously) caused the dose to be reduced, first to 0.6 cc. and then to 0.4 cc. On the twenty-seventh injection, nineteen weeks after onset of milk therapy, a dose of 0.4 cc. produced severe asthma and unmistakable shock. Epinephrine was required to restore the patient to her former comfortable state. A large local reaction appeared at the site of the milk injection. The plunger of the syringe had been withdrawn previous to delivery of its contents to guard against intravenous injection.

One month later we were able to resume therapy with 0.02 cc. dosage. This caused local redness 2 cm. in diameter. Six months later she was started on mixed vaccine, but little improvement was noted until a nonspecific mammalian serum was used. This seemed to give some relief, but fear of the approaching pollen season caused her to return to Germany and no reports of her have been obtained since.

The reaction to milk is just one of the many interesting phases of this patient's course and management. Similar reactions to parenteral injection of milk derivatives have appeared in the literature<sup>1</sup> but they have apparently been relatively infrequent. There are at least two rather popular milk preparations now being used in nonspecific protein therapy, and an investigation of their sensitizing properties now seemed in order. We report them briefly.

#### SENSITIZING PROPERTIES OF MILK PREPARATIONS

Guinea-pigs were injected subcutaneously and intravenously with 0.8 cc. of a fat-free digested milk which we shall call product A. This was repeated twice within ten days. Three weeks later intradermal tests on these animals were distinctly positive to product A, and 0.8 cc. intravenously produced prompt fatal anaphylaxis. The serums of two rabbits similarly made sensitive were studied for precipitins, but the presence of an interfering substance in the antigen (presumably the benzyl alcohol preservative) made the readings unreliable and therefore inconclusive. In the rabbits intradermal tests to this product were negative, and we did not succeed in producing anaphylactic shock.

Similar investigation of two other specimens of product A yielded entirely negative results. Chemical analysis showed product A used in the first experiment to contain 0.5 Gm. of protein per hundred cubic centimeters and in the second experiments, in which sensitization failed, 0.24 Gm. Whether the failure to sensitize was due to the decreased protein content of the second specimen of product A or to a change in animal sensitivity can only be surmised. Of practical importance is the fact that sensitivity was definitely established.

Finally, one other preparation (to be called product B) was studied. This product, the other of the popularly used milk materials, is described as "defatted, sterile milk." It produced sensitization, and typical fatal anaphylaxis without exception. Chemical analysis showed product B to contain 3.06 Gm. of protein per hundred cubic centimeters.

1. Ortman, F.: Ueber einen besonderen Zufall bei der Einspritzung von Aolan. *Dermat. Wehnschr.* 92: 148 (Jan. 24) 1931. Herholz, G.: Anaphylaktischer Schock nach intravenöser Valen-Kaseinjection. *München. med. Wehnschr.* 78: 949 (June 5) 1931. Schmid, H. H.: Anaphylaktische Erscheinungen nach Proteinkörpertherapie. *München. med. Wehnschr.* 78: 1712 (Oct. 2) 1931.

#### COMMENT

Such clinical and experimental data leave little doubt that potentially dangerous sensitizations can be established by the use of proteins in nonspecific parenteral therapy. The dangers of this therapy if this type of management seems indicated<sup>2</sup> can be greatly minimized by the very careful scrutiny of the patients under such management, especially following injections of these materials. The question of choice of material is also important. If the protein used is related closely to dietary or environmental proteins one would do well to substitute for it a substance, if not completely unrelated, at least remote enough so as to constitute no real hazard of cross-sensitization (e.g., typhoid vaccine, biologically remote serums). The feeling among allergists that the presence of one sensitivity makes subsequent sensitizations more likely, and the experimental proof of this in the work of Hektoen and others, would suggest the advisability of reducing the use of nonspecific foreign protein therapy of all types to a practical minimum.

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### Clinical Notes, Suggestions and New Instruments

#### PHELGMON OF THE PTERYGOPALATINE FOSSA FOLLOWING INJURY TO HARD PALATE WITH LOLLIPOP STICK

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On review of the literature I was unable to find any report of an injury within the mouth caused by a lollipop stick. I was likewise unable to find any report of death resulting from such an injury on inquiry from the United States Bureau of Census, the New York State Bureau of Vital Statistics and the medical examiner of New York City.<sup>1</sup> This does not imply that such cases do not exist but rather that the accidents were not listed as causes of death. There are, however, deaths recorded as the result of an injury within the mouth by other seemingly innocuous articles.<sup>2</sup> Undoubtedly there are many cases of injury within the mouth by sharp objects including lollipop sticks presenting serious subsequent complications in which the illness of the individual is not attributed to the injury, which seems insignificant. This is what occurred in the case to be described until late in the course of the illness.

Some candy manufacturers to facilitate production make lollipops with sharply pointed sticks, which are potentially lethal weapons; others use straight sticks, which are much less dangerous (fig. 1). Children frequently run about with lollipops in their mouths, and as often happens the child may fall on his face. The stick may thus be forced through the candy to penetrate the palate, pharynx, gums or cheeks. Many parents who would ordinarily forbid a child to run about with a pencil or other sharp object in his mouth do not hesitate to allow him to do this with a lollipop, not realizing the great danger involved. I believe that lollipops with sharply pointed sticks should be forbidden at all times. Those with blunt sticks may be given to a child, but he should be cautioned not to run about with one in his mouth.

The incidence of injuries within the mouth of children by lollipop sticks is relatively high, although none are reported in

2. Hektoen, Ludwig: Reactions to Nonspecific Protein Treatment of Infectious Diseases. *J. A. M. A.* 105: 1263-1277 (Nov. 2) 1931. From the Pediatrics Service of Dr. Louis H. Barenberg, Mount Sinai City Hospital.

The author is indebted to the Department of Pathology of Mount Sinai City Hospital, Dr. William Aronson, director, for the detailed post mortem data.

1. Personal communications to the author.  
2. Bruggemann, Alfred: Mund- und Rachenverletzungen durch Lollipops. *Trichter, in Handbuch der gesamten Unfallheilkunde* 4: 264, 1934.

followed by a prolonged convalescence, during which there developed clinical and bacteriologic evidence of *Streptococcus haemolyticus* meningitis, showing at the same time a minimal blood stream invasion by the same organism. It is worthy of note that the organism was recovered on postmortem culture from the lung abscess, the brain abscesses and the meninges. This offers two interesting features: first, the minimal invasion of the blood associated with extensive metastatic foci elsewhere; second, clear demonstration of the path of spread by way of the blood stream. In all probability, the primary source of the streptococcus was the lung abscess, whence the organism invaded the blood stream, establishing remote focal involvement in the kidneys and the brain. The relationship between cortical foci and leptomeningitis is of special interest, as it illustrates in a pyogenic meningitis what Rich<sup>7a</sup> has demonstrated to be the usual evolution in cases of tuberculous meningitis; namely, that the meningeal involvement is in all probability the result of direct extension from the cortical focus.

CASE 3.—L. B., a white man, aged 47, admitted on the sixth day of the disease, showed a type I pneumococcal pneumonia of the right upper lobe which rapidly involved the remaining lobes, resulting in a massive consolidation of the entire right lung that persisted till death. His fever showed a tendency to remit during the period from the eighth to the tenth day. Daily blood cultures from the day of admission to the eleventh day were sterile. On the evening of the eleventh day his temperature rose to 102 F., subsequently rising to 104 on the twelfth day. On this day the blood culture showed *Streptococcus haemolyticus*, there being about 30 colonies per cubic centimeter of blood. On the thirteenth day the blood culture was still positive, there being about 20 colonies per cubic centimeter. On admission the patient showed no agglutinins for the infecting type of pneumococcus, but following intensive serum therapy intramuscularly agglutinins appeared on the eighth day of illness and persisted till death on the thirteenth day. On admission, the white cells numbered 19,800 with 94 per cent polymorphonuclear neutrophils, of which 72 per cent were immature forms, and on the day of death the white count reached 100,800, with 94 per cent polymorphonuclears, of which 70 per cent were immature forms—a leukemoid picture. Autopsy was not obtained. Immediately after death, however, a lung puncture was done, and culture of the lung juice showed *Streptococcus haemolyticus*.

The course of events and the fatal outcome in this case are quite typical of the picture seen in streptococcal septicemia. Thus the patient, while showing some clinical evidence of improvement and the presence of type-specific pneumococcus antibodies, developed a sudden exacerbation of the clinical picture with no demonstrable change in the pulmonary signs and symptoms, the cause of which remained obscure till the positive blood culture was obtained. A noteworthy feature of this case is the leukemoid blood picture at the time of bacteremia.

CASE 4.—W. P., a white man, aged 28, admitted on the fifth day of disease, showed a type IV pneumococcal lobar pneumonia of the right lower lobe. Crisis occurred on the tenth day. The patient remained afebrile until the twenty-first day, when his temperature rose to 102 F. From the twenty-first to the twenty-eighth day he had an irregular intermittent fever reaching as high as 104.6, returning to normal by lysis on the twenty-ninth day. During this time no satisfactory clinical evidence was found for the pyrexia. Empyema was suspected, but a roentgenogram taken early in the course and subsequent fluoroscopic examination later failed to disclose any fluid.

The patient was given nonspecific serum therapy from the fifth to the seventh day, developing mild serum sickness on the

thirteenth day, the symptoms disappearing in a few days. On the twenty-seventh day of his illness he developed generalized joint pains of moderate severity. Prior to this time, repeated cultures of the blood had been sterile, but on the day following the onset of arthritis the blood showed a growth of *Streptococcus haemolyticus* in the broth cultures, the blood agar plates being sterile. The temperature on the following day fell to normal. A culture taken six days later was sterile. The patient made a complete recovery and was discharged. The serum agglutinins for the infecting pneumococcus appeared on the fourteenth day of his illness and persisted until his discharge. On admission a blood count showed 13,800 white cells with 88 per cent polymorphonuclears, of which 60 per cent were immature forms. On the twenty-sixth day the count was 20,200 with 93 per cent polymorphonuclears, of which 72 per cent were immature forms.

This case presents a transient minimal invasion of the blood stream by *Streptococcus haemolyticus* occurring late in convalescence and after agglutinins for the infecting pneumococcus had appeared in the blood. That the quantitative factor plays an important rôle in recovery seems probable in view of the fact that the invasion was less than that usually seen in the fatal cases. It is interesting, moreover, to speculate on the relationship of the bacteremia to the multiple arthritis, a fair assumption being that it was one of cause and effect.

CASE 5.—C. P., a white man, aged 48, admitted on the fifth day of the disease, showed a type I pneumococcal lobar pneumonia of the right lower lobe. Crisis occurred on the seventh day following serum therapy. The temperature remained normal till the thirteenth day, when he began to show an intermittent fever varying from 101 to 103 F. for twelve days, following which, on the twenty-sixth day of illness, it rose to 105, remaining in that vicinity till his death on the twenty-ninth day. The physical signs over the involved lung at this time were such as to suggest delayed resolution. Blood cultures during the acute febrile stage on admission were sterile. Cultures taken on the last two days of his life showed a rapidly mounting bacteremia, there being 100 colonies of *Streptococcus haemolyticus* on the day of his death. The white count on admission was 12,000 with 91 per cent polymorphonuclears of which 56 per cent were immature forms. Serial blood counts showed a steady fall in both the total and the immature white cells, so that on the twenty-fourth day the white cells numbered 11,900 with 85 per cent polymorphonuclears, of which 36 per cent were immature. On the twenty-eighth day, the date on which the positive blood culture was obtained, the count rose abruptly to 22,600 with 97 per cent polymorphonuclears, of which 57 per cent were immature. Specific agglutinins for type I pneumococcus appeared on the seventh day of the illness and persisted until death. It is interesting to note also that there were no agglutinins present in the patient's serum for the invading streptococcus at the time the blood culture was positive. Autopsy was not obtained.

This case, to all intents, appeared to be a typical type I pneumococcal pneumonia with a favorable prognosis. The patient responded well to serum therapy and had his crisis on the seventh day of illness, coincident with the development of specific agglutinins, the only untoward event being the delay in resolution of the involved lung. It is a debatable question whether the rise in temperature occurring a week after the crisis was due to a local secondary infection of the lung or to a blood stream invasion by the streptococcus, from an undetermined focus. This point cannot be settled because blood cultures were not repeated till one day before death, when, of course, a well marked streptococcal septicemia was detected.

CASE 6.—J. C., a white man, aged 45, admitted on the second day of the disease with a type I pneumococcal pneumonia, showed consolidation of the right upper lobe and right middle

7a. Rich, A. R., and McCordack, H. A.: The Pathogenesis of Tuberculous Meningitis, *Bull. Johns Hopkins Hosp.* 52: 5 (Jan.) 1933.

A blood culture taken at this time showed 75 colonies of *Staphylococcus aureus* per cubic centimeter of blood. The spinal fluid still contained no organisms on smear and culture. The child became progressively worse and died the next day, three days after admission, with a temperature of 108 F. This was six days after the onset of symptoms, or fourteen days in all after the accident.

**Necropsy.**—The body was well developed and well nourished, with very pale skin. The left lower and upper lids were markedly swollen and hyperemic, with chemosis of the bulbar conjunctiva. The swelling extended laterally to the temporal region. The left temporal muscle was markedly edematous. At the posterior aspect of the hard palate about 2 cm. in front of the pterygoid process near the alveolar margin there was a small ulcer about 3 mm. in diameter. The surrounding palatal tissue was somewhat swollen and soft. There was a small collection of thick yellow-gray pus in the left lateral fissure between the temporal and the frontal lobes of the brain and also on the pia at the floor of the left frontal lobe. Sections through the brain revealed no gross abnormalities, but microscopically the meninges and the adjacent brain tissue were noted to contain large collections of polymorphonuclear leukocytes, lymphocytes, plasma cells, fibrin and areas of hemorrhages. The left

gopalatine fossa, the orbit and the abscesses of the kidney all revealed *Staphylococcus aureus*. The blood culture contained the same organism.

**Anatomic Diagnosis.**—1. Phlegmon of the pterygopalatine fossa secondary to trauma and infection of the palate. 2. Orbital cellulitis. 3. Endophlebitis of the cavernous sinus and ophthalmic vein on the left side. 4. Encephalitis, meningitis and epidural abscess. 5. Cortical abscess of the right kidney.

## COMMENT

To understand properly the *modus operandi* in this case it is necessary to consider the anatomy of the region involved<sup>7</sup> along with the pathogenesis. As in all infected wounds the possible modes of spread of infection are by direct extension, by way of the venous drainage and by way of the lymphatic drainage. In my case probably only the first two modes of spread of infection operated, particularly that by direct extension. The lollipop stick penetrated the hard palate at the site of the orifice of the left pterygopalatine or posterior palatine canal about 2 cm. in front of the pterygoid process of the sphenoid bone near the alveolar margin.<sup>8</sup> This canal, which transmits the palatine nerve and vessels, is the caudal continuation of the pterygopalatine fossa, otherwise known as the sphenopalatine, sphenomaxillary or pterygomaxillary fossa (fig. 2). Each fossa has the shape of an inverted pyramid and is located deep among the bones of the face just below the apex of the orbit between the sphenoidal and maxillary sinuses. The size of the fossa is not constant, being relatively larger in infants and children than in adults. Dr. Warren B. Davis's specimens<sup>9</sup> show definitely that as the maxillary sinus, which is separated from the pterygopalatine fossa anteriorly by a thin septum, grows it encroaches on the anteroposterior diameter of this fossa.

The infection at the site of injury spread up along the fascial sheaths of the palatine nerve and vessels within the pterygopalatine canal to the fossa, where the inflammatory process became more extensive, causing the purulent material to accumulate within this potential space, finally forming a phlegmon of the pterygopalatine fossa. The complications that followed were due to the direct connection this fossa has by way of its fissures, canals and foramina with several important structures. The exudate spread through the infra-orbital fissure into the orbit, giving rise to a retrobulbar cellulitis.<sup>10</sup> This was clinically manifested by heat, redness and swelling of the lids and temporal region. The inflammation spread along the various fascial layers and muscles, becoming progressively worse during the next two days, and resulting finally in exophthalmos and fixation of the eyeball. Concomitant with this, the inflammatory process extended along the perineural sheath of

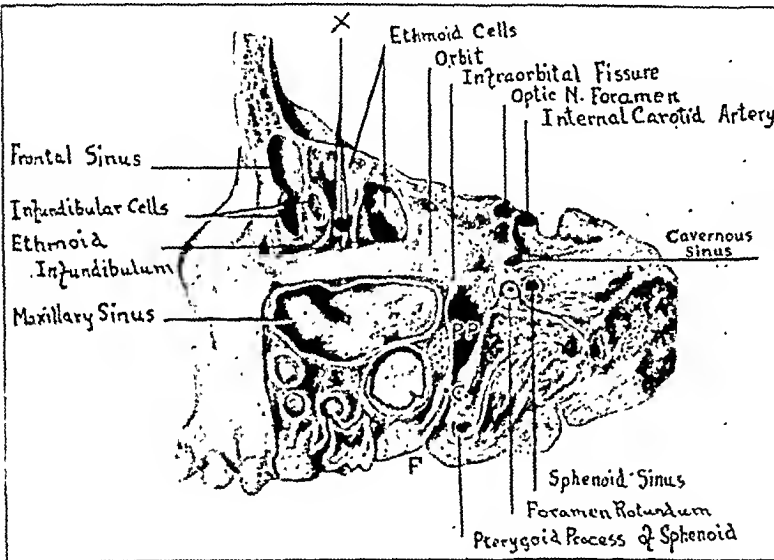


Fig. 2.—Specimen from an infant, illustrating the anatomy of the pterygopalatine fossa and paranasal sinuses. Sagittal section through the middle of the orbit; X, medial plate of the orbit removed to expose the frontal and ethmoid cells. P. F., pterygopalatine fossa; C., pterygopalatine canal; F., pterygopalatine foramen. (Illustration printed through the courtesy of Dr. Warren B. Davis and W. B. Saunders Company Specimen, series D, No. 251.)

cavernous sinus contained about 3 cubic centimeters of sero-sanguineous pus, which was also present in the left ophthalmic vein, but no thrombi were found. The other dural sinuses were normal. Pressure on the left side of the palate resulted in a profuse discharge of pus through the foramen rotundum from the pterygopalatine fossa and canal, which were filled with pus, into the perineural space of the maxillary nerve and into the middle cranial fossa. The left gaserian ganglion was soft, swollen and edematous as a result of the infection. The orbital plate was opened and the contents of the orbit were found to be edematous and hyperemic, with pus exuding. No pus was found in the paranasal sinuses. The exudates at the various sites tested identical.

The lungs were congested and had areas of edema on both sides, but no consolidation or abscesses were noted. The liver was swollen, soft, pale and hyperemic. The kidneys were pale and swollen and the capsules stripped easily. Small abscesses 2 mm. in diameter were present in the cortex of the right kidney, containing thick green pus. The remainder of the viscera were normal.

Post-mortem examination of the cultures and smears taken from the pus found on the surface of the brain and the pus exuding from the foramen rotundum, the ptery-

gopalatine fossa, through the foramen rotundum, an opening in the dorsal wall of the fossa, into the middle cranial fossa. Here there developed an inflammation of the semilunar or gaserian ganglion, from which the maxillary division of the fifth cranial nerve arises, as well as a localized meningitis.

7. Schaeffer, P. J. The Nose, Paranasal Sinuses, Nasolacrimal Passages and Olfactory Organs in Man, Philadelphia, P. Blakiston's Son & Co., 1926, pp. 179 and 318. Shuler, Greenfield. *Nasal Neurosis, Headaches and Eye Disorders*, St. Louis, C. V. Mosby Company, 1927, 1, 74, chapter V. Warren, John. *Handbook of Anatomy*, Cambridge, Mass., Harvard University Press, 1919, p. 160. Morris, Henry. *Human Anatomy*, Philadelphia, F. Blakiston's Son & Co., Gray, Henry. *Anatomy of the Human Body*, Philadelphia, Lea & Febiger, 1920, p. 160. *Textbook of Anatomy*, Baltimore, William Wood & Co.
8. Campbell, E. H. *Anatomical Studies of the Sphenopalatine Ganglion and the Pterygopalatine Canal, with Special Reference to the Use of the Lateral Incision in Route of Change*, Ann. Otol., Rhin. & Laryng. 28: 77 (Sept.) 1919.
9. Davis, W. B. *Nasal Anesthesia, Sinuses in Man—Development and Anatomy*, Philadelphia, W. B. Saunders Company, 1914. *Anatomy of the Nasal Anesthesia Sinuses in Infancy and Childhood*, Ann. Otol., Rhin. & Laryng. 27: 191 (Oct.) 1918.
10. Green, R. C. *Anatomical Studies of the Oculomotor Ganglion*, Arch. Otol. 10: 141 (Oct.) 1917. *Ann. Otol., Rhin. & Laryng.* 26: 141 (Oct.) 1917. *New York State J. Med.* 22: 107 (Aug. 1) 1922. *Lancet*, 1922, Feb. 10, p. 107. *Ann. Otol., Rhin. & Laryng.* 31: 141 (Oct.) 1922.



clavicular joint, and over the sacrum, which were incised and drained. A thoracentesis done seventeen days after admission yielded 25 cc. of straw colored slightly turbid fluid which, when cultured, showed *Streptococcus haemolyticus*. On the twenty-third day after his admission the patient had a sudden massive hemoptysis and died.

This case apparently from the start was one of dual infection with a pneumococcus and a streptococcus, both of which in turn invaded the blood stream. The polyarthritides is noteworthy as a streptococcal manifestation here as in case 4, though in this instance it was purulent, whereas in case 4 it was a serous process which subsided

is, the fifth day of the disease), the broth culture showed a growth of *Streptococcus viridans*, the blood agar plates showing no growth. Another culture taken two days later as well as subsequent cultures were sterile. Unfortunately serial white counts were not obtained in this case, but on the day preceding the bacteremia the white cells numbered 12,900 with 90 per cent polymorphonuclears, of which 42 per cent were immature forms. Agglutinins for the infecting type of pneumococcus appeared on the twenty-fourth day of illness and persisted until his discharge, two months after admission. At this time dullness existed at the left base with decreased breath sounds and a few crepitant râles. A reexamination approximately one month later showed only decreased resonance at the left base; the patient was at this time symptom free.

#### *Streptococcal Septicemia Complicating Pneumonia*

Height of Bacteremia 500 colonies per cc. blood	Trend of White Counts	Local Complications	Other Complications	Outcome	Comment
	Leukocytosis with shift to left in Schilling index	Slight purulent effusion (sterile) on 8th day	None	Death 16th day	
Broths	Leukocytosis with shift to left in Schilling index	Empyema (type II pneu- mo.); 19th day lung abscess (Strep. haemo- lyticus)	Brain abscess (Strep. h.) and purulent meningitis (Strep. h.)	Death 59th day	Minimal bacteremia with extensive metastatic foci
80 colonies	Leukocytosis with shift to left in Schilling index	Lung section after death showed secondary Strep. haemolyticus infection	None	Death 13th day	Leukemoid blood picture
Broths	Leukocytosis with shift to left in Schilling index	None	Arthritis	Recovery	Minimal bacteremia long after crisis with recovery
100 colonies	Leukocytosis with shift to left in Schilling index	Delayed resolution	None	Death 29th day	
15 colonies	Leukocytosis with shift to left in Schilling index	None	None	Death 10th day	Dual bacteremia; <i>Pneumococcus</i> I and Strep. haemolyticus
10 colonies	Insufficient data	Pleural effusion (Strep. h.); repeated hemoptyses	Purulent polyarthritis (Strep. h.)	Death 23d day after admission	Dual bacteremia; pneumococcus unclas- sified and Strep. haemolyticus
Broths	Insufficient data	Delayed resolution	None	Recovery	Minimal bacteremia with Strep. viri- dans (only case in series)
12 colonies	Leukocytosis	Pleural effusion (Strep. h.); delayed resolution; secondary infection with Strep. h.	Arthritis; erythematous rash	Death 20th day	Dual bacteremia with <i>Pneumococcus</i> I and Strep. haemolyticus
Not stated	Leukocytosis	Secondary pneumonia of left lower lobe (Strep. h. ?)	None	Death 24th day	Patient developed a new pneumonia of opposite lung during observation
Not stated	Not stated	Serosanguineous empyema (Strep. h.); sputum bloody (Strep. h.) i.e. secondary infection with Strep. h.	None	Death 23d day	
Not stated	Not stated	None	None	Death 20th day	
Not stated	Not stated	None	None	Death 54th day	
7,600 colonies	Leukocytosis	Delayed resolution	Type I bacteremia with endometritis	Death 19th day	Postpartum pneumoemia (type I) with bacteremia and endometritis with secondary Strep. h.; septicemia
Not stated	Not stated	None	None	Death	

completely. In its extensive purulent metastatic lesions with only a minimal blood stream invasion it resembles case 2, for in both instances it was possible to isolate *Streptococcus haemolyticus* from the local pulmonary lesion and from the metastatic foci as well as from the blood stream. The cause of the repeated hemoptysis remains in doubt, since there was no necropsy.

CASE 8.—W. B., a white man, aged 51, admitted on the fourth day of the disease, showed type XIX pneumococcal lobar pneumonia of the left lower lobe. The temperature fell by lysis on the eleventh day, when he began to have an irregular intermittent fever, reaching a level of 101 F. and lasting for twenty-seven days. The physical signs and x-ray evidence during this time were interpreted to be those of delayed resolution. Repeated thoracentesis failed to disclose fluid, and culture of the lung juice on the tenth day was sterile. Blood culture on the day of admission was sterile. On the following day (that

This case warrants special mention because to our knowledge it is the first recorded case of postpneumococcal blood stream invasion with *Streptococcus viridans*, if one allows that the recovery of the organism in a single culture is sufficient evidence to warrant such a diagnosis. If so, it illustrates recovery from a transient minimal bacteremia occurring relatively early in the disease. It is interesting to speculate as to the possible relationship between the delayed resolution of the pneumonia and the finding of the streptococcus in the blood, since this organism, with its affinity for the interstitial tissue of the lung, might well predispose to the development of consequent organization. The absence of growth on the culture of lung juice five days after the positive blood culture would not necessarily rule out this possibility. In view of the frequent associ-

## SURGICAL PHOTOGRAPHY

Innumerable problems are associated with the technic of surgical photography. The small area of the operative field, the necessity of preserving asepsis, the masking of the field by assistants and nurses, and the inconvenience of delaying operation pending the adjustment of the apparatus are points that must be taken into consideration.

Because of its small size, speed and great depth of field, the miniature camera is the best suited of cameras for surgical photography. Larger cameras are somewhat more difficult to manipulate in the operating room but if properly used will give splendid results. A special assistant should be delegated to manipulate the camera during the operation, and he should have everything in readiness so that at the proper time the photograph may be taken without undue delay. Panchromatic or supersensitive panchromatic emulsions should be used exclusively.

Experimentation will be necessary with the particular camera and the light source that is to be used in order to determine the correct shutter speed and diaphragm opening for proper exposure and detail. Once the correct exposure is determined, all subsequent pictures are made under the same conditions. The camera should be brought as close to the operative field as is permissible.

The camera may be conveniently attached with clamps in a vertical focusing position to the crossbar of an ordinary therapeutic lamp standard. A long cable release will facilitate the taking of the picture. At the time a photograph is desired the surgeon or assistants step aside, the stand is wheeled into place with the camera directly above the field, the camera is lowered to the proper position, and the picture is snapped. The stand is wheeled away and the camera prepared for the next picture. In this manner the operation need be halted for only a few seconds during the taking of each photograph. A mark may be made on the lamp standard to indicate the proper position to which to lower the camera, or a pyramid iconometer may be mounted to the standard as suggested by Pierce.<sup>7</sup>

An ingenious method of surgical photography which does away with the lamp standard and permits the taking of pictures with the camera in the horizontal position is mentioned by Blumann.<sup>8</sup> An optical plane mirror about 3 feet square is moved about from point to point by a nurse while the photographer focuses on the image in the mirror. Practice and team work are necessary for proficiency in this method of working.

## THE PHOTOGRAPHY OF GROSS PATHOLOGIC SPECIMENS

Tissues fixed in Kaiserling's solution retain their natural color and are best suited for photography. There are, in general, two methods of photographing pathologic materials: first, supporting the specimen on a background and photographing directly; second, photographing after submerging the specimen in water.

The first method is satisfactory for most materials. A glass plate is supported a short distance from the floor, and a suitable background, contrasting with the color of the subject, is placed on the floor. MacCollum<sup>9</sup> suggests that the best color for a background is a light fawn color, which can be obtained by painting

a sheet of glass with light fawn colored paint, covering the painted side with another sheet of glass fixed to it by waterproof cement.

The specimen is moistened and placed on the glass plate. Illumination is obtained with two Photoflood bulbs in metal reflectors, one on each side. A diffusing screen made of tracing paper is placed in front of each reflector. The lamps are moved until sharp highlights are eliminated.

In taking the picture a small opening,  $f/16$  or  $f/22$ , should be used in order to insure adequate depth of field. The picture is best taken from above and the camera focused vertically. A tripod with a tilting top or an ordinary tripod equipped with an Optipod attachment will be found very convenient for vertical focusing. Wratten and Wainwright Panchromatic Plates, Eastman Portrait Panchromatic Films, Supersensitive Panchromatic and Panatomic roll films or other panchromatic emulsions should be used. Yellow filters  $K_2$ ,  $X_1$  and  $X_2$  may be found necessary to give a more accurate monochromatic rendering of the color. Contrast filters, green or blue, may be used to accentuate certain portions of the specimen. An orange filter, Wratten 15 or G filter, will give best results in photographing relatively colorless specimens such as heart sections. Visual examination of the specimen through various filters will indicate which filters if any are advantageous.

Sometimes very disturbing highlights are difficult to eliminate by the first method, and it may be necessary to immerse the specimen in a deep, flat-bottom dish filled with water.<sup>10</sup> Specimens fixed in Kaiserling's fluid should not be immersed in water or they will lose their color. Amyl alcohol or the preservative should be used. The bottom of the dish should be painted a suitable color to contrast with the material to be photographed. The lights are arranged and the photograph is made in the usual manner. This method is unsatisfactory for photographing lungs and other specimens containing air, because of the tendency of these specimens to float.

## COPYING

Plate and film pack cameras with double or triple extension bellows are admirably suited for copying on an enlarged scale. Cameras in which the bellows cannot be extended, such as ordinary roll film cameras, may be adapted to copying by employing a supplementary portrait or copying lens that increases the total focal length. In many cases a subject can be copied without a supplementary lens by bringing the camera as close as the distance scale will allow and by subsequently enlarging to the desired size on bromide paper.

A copying board will facilitate copying to a great extent. A suitable board consists of a flat base of wood at the end of which is attached an upright board for the support of the original. The camera is moved along the base board at right angles to the subject to be copied. The importance of absolute parallelism between the plane of the copy and the plane of the film cannot be emphasized too strongly. Copies of printed matter in which the lines of type converge and charts in which rectangular areas are no longer rectangular are due to failure in observing parallelism.

Even illumination may be secured by placing a light on each side of the copying board at the same distance from the subject. To eliminate paper texture and avoid glare from the surface of the copy, the line from the

7. Pierce, L. E.: A New and Simplified Technic of Surgical Photography, *J. Lab. & Clin. Med.* 17: 81-84 (Oct.) 1931.

8. Blumann, Siegmund: *Photographic Handbook*, San Francisco, Photo Art Publisher, 1935.

9. MacCollum, W. G.: On Photographing Gross Pathological Specimens, *Bull. Johns Hopkins Hosp.* 44: 207-213 (March) 1929.

10. Schmidt, L., and Haulenbeck, J. B.: A Method of Fixing Gross Specimens, *J. Biol. Photo. A.* 1: 76-79 (Dec.) 1922.

count, appears to us to have distinct diagnostic importance, the value of this finding being further enhanced if serial counts have been obtained beforehand. In the absence of any positive clinical signs a blood culture should be taken in an attempt to establish the diagnosis.

The prognosis in this type of case is very unfavorable, as is evidenced by the reports of previous workers, all seven cases of *Streptococcus haemolyticus* septicemia reported hitherto having terminated fatally, whereas in our group six of the eight patients died. The factors that govern the prognosis in respect to the quantitative invasion of the blood are in doubt. Thus, while the recovered cases showed minimal invasion, it is obvious from our case reports that a fatal termination can nevertheless occur with a minimal degree of bacteremia—for example, case 2. In the main, however, the higher the bacterial count the more certain is the fatal outcome.

In conclusion, it might be well to deal with the possible portal of entry of this secondary invader. It would be of interest to know whether these patients harbored the organism in the upper respiratory tract previous to the onset of their pneumonia and whether the factor of lowered resistance permitted its spread from the latent focus. The report of Cole and MacCallum,<sup>11</sup> does not lend support to this theory; having found *Streptococcus haemolyticus* in the pharynx in a large number of cases of lobar pneumonia, they took cultures of the throats of pneumonia patients on admission to the hospital and at intervals during their stay. They discovered that the incidence of *Streptococcus haemolyticus* in these cases is increased during their stay in the hospital, the presumptive evidence being that they acquired the organism in the institution. This finding is of practical importance and stresses the need for isolation of pneumonia cases. In our series such contact infection cannot be ruled out, as no isolation measures were practiced.

Of additional interest is the question of the route which the organism follows in reaching the blood stream; that is, whether it invades the blood directly or whether it travels from the upper respiratory tract to the lung, whence it reaches the blood stream indirectly. The occurrence of local streptococcal post-pneumonic lesions is very common, and it may well be that the bacteremic cases represent a further stage, only the severer cases resulting in blood stream invasion. However, evidence is lacking to substantiate this speculation.

These reported cases show the great value of coordinated clinical and bacteriologic study as well as the need for keeping constantly in mind the possible invasion of the blood by this organism at a time when the patient's "resistance" is low and when he is harboring a local focus from which the streptococcus might gain access to the blood stream. For a more frequent recognition of complicating streptococcal infection, routine study of the bacteriologic flora of the upper respiratory tract, besides being informative, would be of distinct practical value. The need is also evident for more frequent blood cultures in late febrile complications of pneumonia.

#### SUMMARY

1. In eight cases of streptococcal septicemia occurring generally as a late complication of pneumococcal lobar pneumonia, seven were caused by *Streptococcus haemolyticus* and one by *Streptococcus viridans*.

11. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, J. A. M. A. 70: 1146 (April 20) 1918.

2. The diagnosis of this complication is arrived at largely by a process of exclusion in which careful physical examination, roentgenologic evidence and thoracentesis are employed to rule out empyema or recrudescence of the pneumonia. Of diagnostic aid is a sudden increase in leukocytosis accompanied by an appreciable "shift to the left" of the Schilling count. The diagnosis is established by the finding of the organism in the blood culture.

3. The prognosis of this infrequent complication is poor except in cases showing minimal transient bacteremia, in which recovery may occur.

4. The rarity<sup>12</sup> of this complication is in our opinion more apparent than real and stresses the need for more frequent cultures of the blood in unexplained pyrexia following crisis in pneumococcal pneumonia.

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## SENSITIZATION TO MILK AS A RESULT OF ITS USE IN NONSPECIFIC FOREIGN PROTEIN THERAPY

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The increasing use of nonspecific foreign protein therapy, especially milk and its derivatives, prompts the report of an instance of untoward reaction to its administration and a few brief experimental observations on two such preparations.

#### REPORT OF CASE

*History.*—J. B., a German housewife, aged 24, entered the clinic complaining of asthma of two years' duration. There was no previous history of asthma in Germany or in Chicago until two years before admission, two years after her arrival in Chicago. There was, however, a typical history of seasonal hay fever of the fall type. The family history and past history were negative except for frequent colds and the loss of 35 pounds (16 Kg.) in two years.

*Examination.*—The patient was rather markedly undernourished. She breathed with difficulty and with an audible expiratory wheeze. There was mild cyanosis. The chest moved symmetrically, with considerable use of the accessory muscles of respiration. The trachea was in the midline. Resonance to percussion was slightly impaired at both lung apices and was accentuated at the bases. Rhonchi and wheezing were heard throughout. The heart was normal in size and outline. The rate was rapid; there were no murmurs. The systolic blood pressure was 104, the diastolic 54. The other observations were essentially negative.

Wassermann and Kahn tests gave negative results. Hematologic examination gave results within normal limits. There was no eosinophilia. The sputum was negative for *Bacillus tuberculosis* on several occasions, both by direct smear and on concentration. The urine was normal.

Skin tests, largely by the scratch method, the remainder intracutaneous, revealed positive reactions to the pollens of trees, grasses and weeds, and to asparagus, banana, orange, potato and pyrethrum. There were several "dubious positives" of probably little significance. The reactions were negative to

12. A search of the records of Bellevue Hospital for the past ten years was made by one of us (S. S.) following the preparation of this paper. The investigation revealed ten additional cases of this complication among approximately 3,500 cases of pneumonia. We believe that this is far from representing the total number, as it is our impression that a large number of cases have been unrecognized.

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where two different colors predominate, it is usually necessary to render the fullest possible detail in one of the colors, making the other color stand out in sharp contrast. Where detail within a certain area is desired, the rule is to use a filter of the same color; where contrast between the area and its surroundings is desired, one should use a filter of a color complementary to the color of the area to be rendered dark in the final print. For example, if a hematoxylin-eosin stained slide is photographed through a red filter, the blue stained sections will be rendered very dark and will stand out in sharp contrast against the red stained sections. If a green filter is used, the red areas will appear almost black in contrast with the green areas, which will be rendered relatively lighter. The best way of determining the correct filter to use is to examine the object visually under the microscope with various filters until the contrast and detail are satisfactory. Filters may be obtained in any color, depending on the character of the stains used. To obtain extreme contrast for acid fuchsin, Wratten B and G filters should be used; for eosin, the G and H filters; for hematoxylin, the B and G filters; and for methylene blue, the D and G filters.<sup>12</sup> These recommendations are for obtaining maximum contrast between the stained area and its surroundings and not for detail within the area so stained. These filter combinations render the color of the stain for which they are recommended very dark. This is not always desirable, since by increasing contrast there is often a marked loss of detail. Gelatin filters must be mounted for permanence between two glass plates with Canada balsam. The filter when in use is usually placed between the light source and the microscope. In this position, optically perfect glass is not required for the mounting of the filter.

Filters may be conveniently made from old photographic films and some stains. A simple method of making filters is described by Stern.<sup>13</sup> Several unexposed films are placed in acid hypo to remove the silver emulsion; the films are then washed and dried. For a blue filter the film is placed in alcoholic or aqueous methylene blue. For "in-between" colors, the film is placed in two stains; e. g., for a green filter, stain in picric acid, wash, stain in methylene blue, wash and dry. The film may then be mounted between glass plates with Canada balsam. Quoting Mallory and Wright, Stern gives the following formula for a general filter to be used with eosin-methylene blue (Giemsa and Romanowski stains), alum-hematoxylin and eosin, phosphotungstic acid hematoxylin stain, Gram-Weigert, and carbolfuchsin stains: copper sulfate, 175 Gm.; potassium bichromate, 17 Gm.; sulfuric acid, 2 cc.; distilled water to make 500 cc. Use in a flat glass cell and seal to make air tight.

#### SPECIALIZED PHASES OF PHOTOGRAPHY

**Ocular Photography.**—Photography of the eye is divided into two branches: photography of the anterior segment of the eye, and fundus photography or retinography.

Any good camera will provide satisfactory pictures of the external eye, provided focusing is exact and illumination ample. A ground glass focusing back is ideal but not absolutely necessary. If no double extension is provided for in the bellows, a supplementary portrait attachment may be used. Photoflood lamps provide

suitable illumination. Miniature cameras are well adapted to this type of photography.<sup>14</sup> The camera may be used in conjunction with a corneal microscope mounted on it by means of an adapter.<sup>15</sup> Panchromatic or supersensitive panchromatic emulsions are most frequently used, but if colored pictures are desired the various additive color materials (see "Color Photography") may be used.<sup>16</sup> Infra-red rays are able to penetrate opacities of the cornea, and plates sensitive to infra-red light (see "Infra-red Photography") will, in an eye with a completely opaque cornea, allow the study of the state of the pupil, the presence of synechiae, and defects of the iris.<sup>17</sup> For stereoscopic pictures of the external eye the Bausch and Lomb stereoscopic anterior segment camera is perhaps the most satisfactory. The Amsler Photo Keratoscope<sup>18</sup> permits the photography of the image of the Placido disk reflected on the anterior surface of the cornea. Photography of the angle of the anterior chamber—goniophotography—is possible by means of the technic described by Castroviejo.<sup>19</sup>

For photography of the fundus a special type of camera is needed, and the Nordenson retinal camera is probably the most popular one in use. The conditions required for retinography are a pupil that can be dilated, transparent media and a means of adequately fixating the eye. Black and white photography is a simple matter, but color fundus photography offers special problems, since exposing the retina for long periods to the powerful arc light of the Nordenson camera is deleterious to the retina. Mann<sup>20</sup> describes a satisfactory technic for color fundus photography which corrects many of the previous shortcomings. By applying a Wessely fixation apparatus to the Nordenson camera, stereoscopic photographs of the fundus may be taken. The subject of stereoscopic photography has been reviewed by Bedell<sup>21</sup> in a recent article. Infra-red photography of the fundus has been shown to offer no special advantages.

**Gastroscopic, Stomatoscopic, Laryngoscopic, Proctoscopic and Cystoscopic Photography.**—Photography of the stomach, pharynx, larynx, rectum and bladder is sometimes of considerable aid in the diagnosis of obscure conditions. Two types of instruments are generally used for endoscopic photography. In the first type a tiny camera is introduced into the body cavity and a photograph is taken more or less blindly. This method is rather haphazard and a number of photographs are usually required, the element of chance determining the inclusion of the pathologic lesion on the emulsion. In the second type an endoscope is used to inspect visually the body cavity, and, when the lesion has been located, a special camera is attached to the endoscope and the photograph is taken. This method is by far the preferable one but is associated with a number of technical problems, including the difficulty of getting sufficient illumination. The introduction of filament lamps of great intensity and the

14. Castroviejo, Ramon: Photography of the Eye with the Miniature Camera, *Am. J. Ophthalm.* 18: 353-356 (April) 1935.

15. Pierce, H. F.: Case History Photographs with the Miniature Camera, *Am. J. Ophthalm.* 17: 527-529 (June) 1934.

16. Dekking, H. M.: Color Photography of the Eye, *Arch. Ophthalm.* 11: 225-228 (Feb.) 1934.

17. Mann, W. A.: Infra-Red Photography of the Eye, *Arch. Ophthalm.* 13: 985-991 (June) 1935.

18. Amsler, M.: Ueber Photo-Keratoskopie, *Zusammenhänge der Deutschen Ophthalmologischen Gesellschaft in Heidelberg*, 1932, 77-112.

19. Castroviejo, Ramon: Goniophotography, *Am. J. Ophthalm.* 14: 524-525 (June) 1935.

20. Mann, W. A.: Color Photography of the Fundus Oculi, *J. Ophthalm.* 8: 405-468 (Sept.) 1932.

21. Bedell, A. J.: Stereoscopic Fundus Photography, *J. A. M. A.* 105: 1592-1599 (Nov.) 1935.

12. A complete list of filters and stains is outlined in *Photomicrography*, ed. 13, Rochester, N. Y., Eastman Kodak Company, 1935, p. 61.

13. Stern, H. S.: Inexpensive Photomicrography, *American Photography* 28: 618-622 (Oct.) 1934.

the literature. The injuries sustained are ordinarily merely abrasions or at times more extensive local reactions, but, as in my case, they may lead to serious complications. There are numerous ways in which this may happen. An infection at the site of injury may spread by direct extension into the soft tissue, giving rise to a localized phlegmon. Such an infected wound in the posterior pharyngeal wall may result in a retro-pharyngeal abscess with subsequent development of mediastinitis, pneumonia and death.<sup>2</sup> Likewise, an infection in the region of the nose may result in a sinus thrombophlebitis as a result of venous spread of the infection.<sup>3</sup> Should the injury occur at the orifice of a canal or at a foramen of the skull, as in my case, the infection may spread along the fascial layers of the nerves or vessels, giving rise to a phlegmon within some potential space in the skull or within the cranial fossa itself. Besides this, injury to the palate may result in necrosis of the site of injury or the foreign body may perforate the palate. The stick may penetrate the posterior or posterolateral wall of the pharynx and enter the cranial or spinal space, giving rise to a purulent meningitis or even an injury to the cerebellum.<sup>4</sup>

Once an injury is sustained it should receive the same prompt and thorough care as any other puncture wound, thus avoiding complications.<sup>5</sup> If an abscess or phlegmon results, an attempt should be made to institute adequate surgical drainage.

In addition to the fatal injury with the lollipop stick the case reported here is of interest because of the presence of a phlegmon of the pterygopalatine fossa with its many diverse complications as a result of the spread of the infection through the various channels of this fossa and by way of the venous drainage. A phlegmon of this fossa may arise as a result of other causes besides an injury to the hard palate, as noted by Ullmann<sup>6</sup> in adults, who reported several cases associated with injections of the sphenopalatine ganglion. Thus a phlegmon of the pterygopalatine fossa may develop as a result of infection spreading from the nose, the paranasal sinuses or the ocular orbit.

#### REPORT OF CASE

**History.**—F. D., a boy, aged 22 months, was admitted to Morrisania City Hospital May 4, 1935, because of persistent fever, rhinitis, marked anorexia, apathy and drowsiness of three days' duration. The child's mother volunteered that he was never ill prior to this date. However, after close questioning, she recalled that on April 23, eight days prior to the onset of these symptoms, the child fell down with a lollipop in his mouth, causing the sharp stick to penetrate the candy and injure his mouth. The child cried at this time, but no bleeding or site of injury was noted by the parents. The familial and developmental histories were irrelevant.

**Physical Examination and Progress.**—On admission the child was pale and acutely ill, with a temperature of 103.8 F. However, he was well nourished, weighing 29 pounds (13 Kg.). His skin was warm, dry and of fair turgor. The lymph nodes were not palpable. The heart and lungs presented no abnormalities. The abdomen was soft and depressed, and no masses or viscera were palpable. The extremities and genitalia were normal. Examination of the mouth revealed a small abrasion on the lateral aspect of the hard palate near its junction with the soft palate on the left side, but no definite swelling or induration was noted. Probing in this area revealed no sinus tract, but a sanguineous material exuded on one occasion. The tongue and pharynx were dry and coated. Both ear drums were normal. Examination of the nose revealed no exudation or congestion or any other evidence suggestive of a sinusitis. The eyes were freely movable, the pupils reacted to light, and no inflammation, edema or exophthalmos was present. The eyebgrounds were normal. Neurologically he manifested markedly depressed reflexes but no palsies, abnormal reflexes or signs of meningeal irritation.

A spinal tap was performed and the fluid was found to be under pressure of 12 mm. of mercury. On examination the sugar was found to be normal, but there was no globulin present and the cell count showed 80 cells per cubic millimeter, all of which were lymphocytes. No organisms were found on smear and culture. The blood count was 36,800 white blood cells with 89 per cent polymorphonuclear leukocytes, 5 per cent lymphocytes and 6 per cent monocytes, with 5.1 million red blood cells and 90 per cent hemoglobin by Sahli. The blood culture was sterile. The urine was acid with a specific gravity of 1.018 and contained a trace of albumin and 2 plus acetone but no sugar.

At this time the child was thought to have an encephalitis because of the lack of definite physical manifestations, fever, drowsiness and hyperirritability and the spinal fluid changes, as well as the fact that a mild epidemic of poliomyelitis was prevalent at that time. There was a difference of opinion in the service as to the relation of the injury to the palate to the prevailing condition in the child. The injury appeared to be a clean healing abrasion, so that surgical intervention was not deemed necessary at this time. Because of the dehydration the child was given on the day of admission two clyses of 5 per cent dextrose in saline solution, in all 850 cc. During the night a swelling of the left eyelids began to develop, and the next day, May 5, there was a definite swelling of both lids of the left eye especially involving the temporal side of the upper lid and extending out to the face. The conjunctivae were injected and everted. The temperature of the child during this day varied from 103 to 106 F.

May 6 the child's general and ocular condition grew much worse. There was marked increase in the edema of the left eyelids, extending out into the temporal region of the head. The swelling was very tender and red. There was also a marked chemosis in this eye, with complete fixation of the globe. The eyebgrounds, however, were perfectly normal. Further examination revealed that the child was markedly hyperesthetic and irritable in spite of being drowsy. There was a tremor of the right upper extremity, but no definite convulsion or paralysis was noted. However, careful examination of the motor and sensory status was not possible. The child's temperature was maintained at 106 throughout the day. A

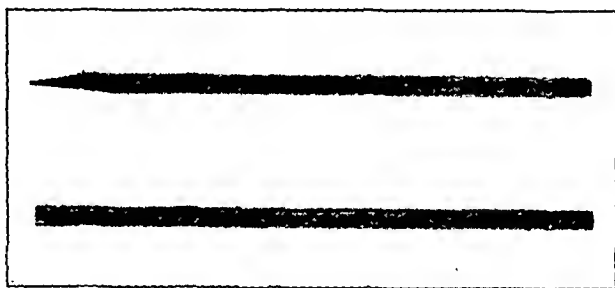


Fig. 1.—Types of lollipop sticks.

spinal tap was done again on this date, revealing clear fluid under normal pressure with 120 cells per cubic millimeter of fluid, 100 per cent being lymphocytes. The sugar and the globulin were present in normal quantities.

It was obvious at this time that the child was suffering from a spread of infection from the palatal injury and it was thought to be probably by way of the venous drainage. The abnormalities in the spinal fluid were interpreted as due to a sympathetic meningitis.

Röntgen examination of the nasal accessory sinuses revealed moderate cloudiness of the left maxillary sinus and slight cloudiness of the ethmoid cells on this side. There was a question whether the cloudiness was due to soft tissue infiltration over this area or to actual pathologic changes within the sinuses.

During the day the orbital cellulitis grew progressively worse and an incision and drainage was attempted through the ethmoid cells at the inner canthus of the left eye, but no pus was found. The child returned to the ward in fair postoperative condition and a continuous intravenous infusion was given for a short time.

3. Braun, Alfred: Sinus Thrombophlebitis, New York, Paul B. Hoeber, Inc., 1928, pp. 85 and 129.

4. Foss, H. L.: Penetrating Wounds of the Cerebellum, *Am. J. Surg.* 28: 323 (May) 1935. Morgan, J. H.: Wound of the Cerebellum by Wire Which Passed Through Palate, Pharyngeal Wall and Occipital Articular Articulation, *Tr. Path. Soc. London* 35: 12, 1884.

5. Denker, A., and Kahler, O.: *Handb. d. Hals-Nasen-Ohren*, Berlin, J. Springer 2: 530 and 893, 1926. Topo, F. O.: Die Heilung der Wunden in der Mundhöhle, ihre Komplikationen und Nachbehandlung, Cologne thesis, 1927.

6. Ullmann, S.: Ueber Unglücksfälle bei Leitungsanästhesie des Ganglion sphenopalatinum an Hand von 4 Fällen, *Ztschr. f. Hals-, Nasen u. Ohrenkr.* 21: 587 (May 10) 1928.



It is beyond the scope of this paper to detail the theoretical and technical aspects of clinical movie making. The general principles of clinical photography in reference to backgrounds, illumination, filters, and so on, apply equally to clinical cinematography. For eye surgery the illumination obtained from a Bausch and Lomb ophthalmic operating lamp will be found satisfactory. Motion pictures of the fundus may be obtained with some degree of success by attaching the camera to the Nordenson apparatus in place of the plate holder.<sup>26</sup> Motion photomicrography by means of panchromatic emulsions or Kodachrome opens up new fields in the study of living organisms. The camera and the microscope must be mounted on completely separated supports to insure stability, since the motor drive unit is a source of constant vibration. A special viewing device is required for the focusing of the microscope and selection of the proper field.

The Ciné-Kodak Special is a perfected 16 mm. motion picture camera that has definite advantages, including a variable shutter and a reflex finder that permits accurate focusing regardless of the focal length of the lens used or the distance between the subject and the camera.<sup>27</sup> A complete battery of lenses is available, from 15 mm. for wide angle work to 6 inches for telephotography. Fades, dissolves, double and multiple exposures, and single frame exposures can be made, and various masks can be used. The film chambers of 100 and 200 feet are interchangeable and the camera is geared for speeds varying from 8 to 64 frames a second. The camera appears to satisfy the most exacting scientific requirements, and the results are comparable to those obtained with more expensive professional movie machines.

## THE PHARMACOPEIA AND THE PHYSICIAN

### THE USE OF ADSORBENTS IN GASTRO-INTESTINAL DISEASES

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*This is one of a series of articles written by eminent clinicians for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopoeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and will be published in book form when completed.—Ed.*

Adsorption is such a complicated subject that it is useless to discuss the physicochemical theories. Yet some information about the basic characteristics of adsorbents is necessary if one is to use them intelligently. Adsorption is defined as the attachment of one substance to the surface of another. It is essentially a property of colloids, those substances which have large sized molecules and which make up a large part of the biologic world. Protoplasm is a colloidal substance, and therefore the behavior of biologic processes cannot be separated from the property of adsorption.

In addition to this, the subject is complicated further in that adsorption is influenced by electrolytes such as the acids and their salts. Kaolin shows a high degree

of adsorption in an acid medium and will release the same substances in an alkaline medium. Pharmacists have made use of this property by incorporating kaolin with the alkaloids. By this means the drugs are adsorbed more slowly after they have entered the alkaline intestine.

Hence the therapeutic use of adsorbents in the gastrointestinal tract involves a complicated interaction of compounds, the results of which often cannot be fully predicated on test tube experiments. Numerous substances occur in the intestinal tract which are susceptible to modification by adsorption. They include the normal secretions such as mucus and the ferments, metabolic products, and food substances or their products of digestion. The interaction of these products with adsorbents is influenced by the electrolytes such as hydrochloric acid and its salts, sodium carbonate, sodium bicarbonate, and bile salts. Finally, there may be present bacteria and bacterial toxins, or toxic products of protein digestion, the removal of which is usually the aim of the therapeutic use of adsorbents.

Although the physician may desire to remove or render harmless the latter substances, one cannot be sure that the object of medication will be fulfilled or that only desirable effects will be obtained. So little study has been made of the effect on giving adsorbents to animals that their use at present depends in large measure on empirical reasoning and the effects that have been observed in vitro. Therefore the physician who uses adsorbents is entering a field of therapeutics in which the pitfalls are not clearly indicated and the usefulness of which has not been definitely defined.

#### ADSORBENTS IN CLINICAL USE

Although many substances exhibit some qualities of adsorption, only charcoal and kaolin have been utilized in medicine to any extent, because of their adsorptive characteristics. Charcoal is an excellent adsorbent, and industrial chemists use large quantities. It has a strong affinity for gases when dry, and it is said that charcoals that wet by water easily exhibit adsorptive capacities for small amounts of impurities superior to those resistant to wetting.<sup>1</sup> It will adsorb various kinds of organic acids and drugs.<sup>2</sup> Dingemause and Laqueur<sup>3</sup> found that charcoal would remove mercury salts and strychnine from the wall of the stomach to which they had adhered and could be removed with the charcoal. Becher<sup>4</sup> states that charcoal will remove all the products of intestinal putrefaction from urine shaken with it. Takahashi,<sup>5</sup> who studied the effect of adsorbents on the poisonous action of alkaloids on excised rabbit's intestine, states that charcoal is more effective than kaolin in preventing the poisonous action.

Various investigators have reached different conclusions about the relative efficiency of charcoal made from plant and animal sources.<sup>6</sup> More recently, acti-

1. Herbst, H.: Increasing the Absorptive Capacity of Wood Charcoals, *Kolloid-Beihfte* 42: 184-301, 1935.

2. Fantus, Bernard: Fullers' Earth: Its Adsorptive Power and Its Antidotal Value for Alkaloids, *J. A. M. A.* 63: 1833 (May 29) 1917.

3. Keiser, E.: Adsorption and the Distribution of Medicaments in the Organism, *Biochem. Ztschr.* 158: 176-182, 1923.

4. Dingemause, E., and Laqueur, E.: Adsorption of Poisons by Charcoal, *Biochem. Ztschr.* 169: 235-244, 1926.

5. Becher, E.: Behavior of Products of Intestinal Putrefaction in Blood and Urine Shaken with Charcoal, *München. med. Wochenschr.* 72: 1561-1562, 1926.

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8. Landecker, H.: Measurement of the Adsorptive Capacity of Medicinal Charcoals, *Pharm. Wochenschr.* 9: 227-300, 1930.

26. Bailliant, P.: Cinematography of Fundus, *Rev. Oto-Neuro-Oft.* 5: 123 (June) 1933.

27. Tuttle, H. B., and Schwartz, R. P.: The New Ciné-Kodak Special in Medicine, *J. Soc. Mot. Pict. Eng.* 21: 3-8, 1933.

encephalitis and epidural abscess. The spinal fluid response was that of a sympathetic or acute serous meningitis, further indicating that the meningeal inflammation was localized. The tremors of the right upper extremity were due to this inflammatory involvement of the motor area of the left cerebral cortex.

There probably was present in the early course of the illness an endophlebitis of the pterygoid plexus of veins, which was responsible for the sepsis and the metastatic abscesses in the kidney. The infection had probably spread by way of the venous drainage of the palate as well as from the pterygopalatine fossa phlegmon. This plexus<sup>3</sup> is connected directly with the cavernous sinus by communicating vessels and through the inferior ophthalmic veins, which also send large communicating branches to the pterygoid plexus. The ophthalmic vein and the cavernous sinus endophlebitis on the left side extended directly from the pterygoid plexus endophlebitis or developed subsequent to the orbital cellulitis. Obstructive thrombosis of the cavernous sinus did not exist. The other dural sinuses were free of involvement.

The sphenopalatine ganglion,<sup>11</sup> which is the second largest nerve center in the head and the largest outside of the cranial cavity, is one of the most important structures within the pterygopalatine fossa. The ganglion was markedly inflamed along with the remainder of the contents of the pterygopalatine fossa.

When a diagnosis of pterygopalatine fossa phlegmon is established, whether as a result of injury to the palate or other causes, the proper procedure is to establish surgical drainage of the fossa. This may be accomplished when a thin exudate is present by an incision over the pterygopalatine foramen, allowing drainage through the pterygopalatine canal. The fossa may be more thoroughly drained directly through the posterior wall of the maxillary sinus by way of a Caldwell-Luc approach to this sinus.<sup>12</sup> A still more extensive operation would be to remove the zygomatic arch and enter the fossa by way of the pterygomaxillary fissure, its lateral boundary, as described by Frazier.<sup>13</sup> In the case described the inflammatory process had already established itself in the orbit, the cranial cavity and the venous channels of the head by the end of the first day in the hospital, so that the incision and drainage of the orbit attempted on the second day was useless. The illness proceeded rapidly to a fatal termination, indicating the virulence of the invading organism and the ease with which an infection in the pterygopalatine fossa can spread.

#### CONCLUSION AND SUMMARY

Following an injury to the hard palate by a lollipop stick in a boy aged 22 months, the infection spread from the palate along the pterygopalatine canal to the pterygopalatine fossa, with the formation of a phlegmon. Subsequently the infection spread to the orbit and the middle cranial fossa and gave rise to an orbital cellulitis, localized purulent meningitis, encephalitis and epidural abscess. An endophlebitis of the veins draining the area also was present. Symptoms first appeared eight days after the accident, death ensuing six days later.

The fossa was in direct connection with the middle cranial fossa, the orbit, the nasal cavity, the palate and the pterygoid, infratemporal and infra-orbital regions of the face. Infections within this fossa are of great potential danger because of its anatomic relationships to important structures.

There are various complications that may arise as a result of foreign body injuries within the mouth. Injuries to the mouth by lollipop sticks, although usually innocuous, may at times result in serious complications or even death. In view of the extensive use of lollipops among children it is a common practice for them to run about with one in their mouths. This should be discouraged in view of the potential dangers involved. Lollipops with sharply pointed sticks should be forbidden at all times. All injuries within the mouth should receive immediate and thorough attention.

171 Echo Place.

11. Sluder, J. Ruskin, S. L.: Contributions to the Study of the Sphenopalatine Ganglion, *Laryngoscope* 35: 87 (Feb.) 1925; *Neurologic Aspects of Nasal Sinus Infection*, Arch. Otolaryng. 10: 337 (Oct.) 1929.  
12. Skillern, R. H.: Accessory Sinuses of the Nose, Philadelphia, J. B. Lippincott Company, 1923, p. 190.  
13. Frazier, C. H.: Surgical Approach to the Sphenopalatine Ganglion, *Ann. Surg.* 74: 328 (Sept.) 1921.

## Special Articles

### PRACTICAL CLINICAL PHOTOGRAPHY

LEWIS R. WOLBERG, M.D.

KINGS PARK, N. Y.

(Concluded from page 118)

#### INFRA-RED PHOTOGRAPHY

The development of emulsions sensitive to the infra-red portion of the spectrum has introduced a new phase of clinical photography, for, as Massopust<sup>5</sup> has pointed out, the reflection properties of the skin for infra-red light differ from those for visible light, and detail below the surface is apparent where visible light does not penetrate.

The limited work which has been done with infra-red emulsions in medicine indicates that the method is chiefly applicable to the study of some skin diseases, the superficial venous system, gross pathologic specimens and, to some extent, photomicrographs.

The most popular infra-red material in use is the Eastman Infra-Red Sensitive Plate, Type 1-R. This plate is sensitive to violet and blue light; hence it is essential to exclude this light by means of a filter such as the red Wratten A filter. Infra-Red Sensitive Film Type 1-R also is available in 35 mm. film in daylight loading magazines for use with miniature cameras. Infra-red materials must be handled in total darkness in loading plate holders and in developing, or a special safelight such as the Wratten No. 3 Safelight must be used. Plate holders equipped with metal slides or with special hard rubber slides opaque to infra-red rays are necessary.

Illumination is obtained with two Photoflood bulbs in a reflector. With the light a distance of 3 feet from the subject and a diaphragm opening of  $f/22$ , an exposure of five seconds is necessary. With four Photofloods, an exposure of three seconds at  $f/22$  or one second at  $f/11$  will suffice.

Infra-red photography is especially suitable for varicose veins and other disorders of the superficial venous system. Most of the infra-red photographs of skin lesions have shown what might be termed negative results; that is, details visible to the eye and recorded in a visible light photograph are invisible in the infra-red picture. This apparent disappearance of the lesion is of value in cases of lupus and similar conditions under treatment with ultraviolet rays, since it makes it possible to visualize the progress of healing under the thick scab formed and also reveals the presence of enlarged veins in the lesion.

In photomicrography of histologic specimens stained with the usual dyes, the use of infra-red sensitive materials is not generally recommended, since most of the dyes used are transparent in this portion of the spectrum. It is of value, however, in photographing silver impregnated specimens, making those portions which have taken up the silver stand out in bold relief.<sup>6</sup> It is also of value in photomicrography of insects that possess a chitinous exoskeleton, since the infra-red rays readily penetrate this substance, revealing the nature of the innermost structure.

5. Massopust, L. C.: Infra-Red Photography in Anatomy, *Anat. Rec.* 61: 71-79 (Dec. 25) 1934.

6. Clark, W.: Infra-Red Photography, *J. Tech. Meth.* 14: 59 (March) 1935.

is unlikely if doses of kaolin are used which are no greater than are prescribed ordinarily for man. Golob<sup>15</sup> reports a case of frank bleeding from the intestine as a result of hard concretions from barium sulfate which apparently had become embedded in the mucosa. The Germans<sup>16</sup> are said to have discontinued the use of kaolin during the war in the treatment of dysentery because of the development of fatal perforations.

Although large doses are usually indicated, their danger should be remembered.

#### THE THERAPEUTIC USE OF ADSORBENTS

*The Diarrheas.*—Adsorbents have been advocated for diarrhea and, as previously pointed out, kaolin was used in China for this purpose long before it was recognized in the Western world. Its apparent success in the treatment of cholera suggests its possible usefulness in the treatment of other diarrheas. Unquestionably it seems to have a beneficial effect in certain cases, but there are no exact indications for its trial. A judicious use of a drug requires an exact knowledge of its pharmacologic action, which we do not possess about kaolin. Moreover, there are many incidences of diarrhea in which the exact cause cannot be determined.

There seems no reason to expect results on patients whose diarrhea is occasioned by nervousness, exophthalmic goiter or fat intolerance. Conditions like pernicious anemia and amebic dysentery must be suitably treated with such preparations as liver and the antiamebic drugs. The adsorbents are contraindicated in cancer and deficiency diseases. For the ordinary acute attacks of diarrhea the usual treatment with bismuth preparations and opium prove satisfactory, and for diarrheas due to specific agents such as worms the appropriate treatment can be instituted.

However, substances such as kaolin are worthy of a trial in patients suffering from severe food poisoning or from an infection with a dysenteric organism. These patients have a moderately or markedly high temperature. They may have fifteen or more watery stools with or without the passage of blood or pus, and they become severely dehydrated. The following regimen seems best fitted to cope with this type of condition: The loss of fluids must be made up by the use of salt solution either intravenously or, if the facilities for intravenous injection are lacking, by hypodermoclysis. The amount of solution to be given must vary with the needs of the patient, but between 1 and 3 liters in the twenty-four hours is usually indicated. All food should be stopped for a period of one to two days, during which time kaolin is given. To be effective, large doses are required, and from 50 to 100 Gm. of kaolin should be administered in water every three hours until the number of movements has begun to lessen; then the amount at one dose may be decreased, and the interval increased between doses, according to the judgment of the physician in charge.

*Treatment of Idiopathic Ulcerative Colitis.*—Kaolin has been used in the treatment of idiopathic ulcerative colitis to the satisfaction of some clinicians. However, there are few reports on its use in this disease, and the results do not appear as striking as in the type of case already described. Its theoretical value in idiopathic ulcerative colitis may be twofold; namely, the adsorp-

tive effect on bacteria and toxins in the colon and the production of formed stools. In a severe case of ulcerative colitis the colon has lost much if not all the function of absorption, and one would not anticipate the same constipating effect as with a normal colon, in which these claylike substances will give up their water very completely. Regarding the "detoxifying action" of these substances, there is also a considerable difference between the situation involved here and in other infections of the tract. In the ordinary food poisonings, for example, the infection is found throughout the small intestine, as contrasted with ulcerative colitis, in which most of the lesions are in the colon. In the former group the adsorbent has a chance to act shortly after ingestion, whereas in ulcerative colitis the material must traverse the length of the small intestine before reaching the troubled area. During this passage it seems probable that most of its beneficial properties will be lost. One would not expect to obtain results unless a large enough excess is administered to permit kaolin to reach the colon in a state capable of exerting an adsorbent influence. Such an excess over any length of time involves the danger of removing vitamins and other substances essential to the individual. Hence it seems probable that the potential dangers offset the potential value of this medication in ulcerative colitis.

*Diverticulitis of the Colon.*—Kaolin and barium sulfate have been used in diverticulosis of the colon with some reported benefit. These apparently successful results have been explained on the basis of filling the pockets with inert substances and in this way preventing the accumulation of irritating products. This explanation does not seem very convincing, and I have tried both kaolin and barium sulfate in a few patients with diverticulitis without satisfactory results. There is another group of patients with diverticulosis who have transient attacks of diarrhea. These patients do not give evidence of inflammation, either subjectively in the way of pain or objectively in the way of spasm, when observed by the roentgen ray. One is unable to give an adequate explanation for the diarrhea, and it is possible that this is the type of case of diverticulosis in which the adsorbents are said to give good results. Any effect which the adsorbents have on this kind of diarrhea can be explained best by the idea that they facilitate drying of the stools. One should avoid prescribing these inert substances in the presence of a diverticulitis, because the danger of a perforation or obstruction is a real one.

*The Dyspepsias.*—Unfortunately, so little is known about the cause of dyspeptic symptoms that a rational approach to the subject is difficult. However, a word of caution should be spoken of them because adsorbent drugs, particularly charcoal, have been administered for dyspeptic symptoms in the past. Because dyspeptic symptoms may come from the presence of organic disease anywhere in the body, all patients suffering from these symptoms should have thorough examinations. After the presence of organic disease has been ruled out, the commonest cause is nervousness. Its recognition and treatment are essential if one is to obtain satisfactory results. Palliative medication may be of value during the course of treatment and all physicians see a certain number of individuals complaining of gastrointestinal symptoms for which no adequate explanation can be given.

15. Golob, Meyer: The Admissibility of Immediate Colonic Irrigation Following a Barium Enema, *Radiology* 22: 486-489 (April) 1934.  
16. Council on Pharmacy and Chemistry: Colloidal Kaolin Not Acceptable for N. N. R., *J. A. M. A.* 94: 1406 (May 3) 1930.

lights to the center of the copy should form an angle of 45 degrees with the camera axis. Photoflood bulbs are convenient sources of light. A lens hood will help prevent glare on the surface of the lens.

In roll film cameras, when portrait or copying lenses are used, it will be necessary to restandardize the distance scale of the camera. To do this the back of the camera should be removed and a piece of ground glass placed in the camera back. The diaphragm of the camera is opened wide, the subject brought into sharp focus, and the position of the camera on the base board noted. By varying the bellows extension and distance of the lens from the subject, the size of the image seen on the ground glass or tissue paper will grow larger or smaller. The distance of the camera from the subject, the position of the bellows as indicated by the distance scale, and the area included on the ground glass may be plotted for future reference. By making a chart of these three factors, any subject may be copied directly without preliminary focusing on ground glass.

To copy x-ray films, the film is placed in an ordinary viewing box and copied directly. Relatively large x-ray films will obviate the necessity of using a copying lens, and the photograph may be taken as close to the x-ray film as possible without the supplementary lens. In the event that a viewing box is not available, the film may be attached to a window and the picture taken by daylight. Some diffusing material should be placed behind the roentgenogram to prevent indistinct images of trees, buildings or other objects showing. The use of a large scale film is imperative, since process film and commercial film yield negatives of such high contrast that they cannot be printed. Roentgenograms may be reproduced as "positive" or "negative" images or as facsimiles.

Exposure is, of course, a matter of experience, and once the correct exposure is obtained good copying can easily be standardized. In copying, small diaphragm openings, such as  $f/16$  or  $f/22$ , should be used, although preliminary focusing must be done with the diaphragm wide open. Process films and plates will insure the best contrast in copying line subjects in which all the tones are reproduced as an intense black or pure white, such as charts, printed matter or graphs. A hydroquinone-caustic developer<sup>3</sup> will insure the highest degree of contrast. The contrast may be further exaggerated by reducing the negative with Farmer's reducer and subsequently intensifying it with intensifying solutions.<sup>3</sup> In full scale subjects in which all the tones must appear in the copy with the same gradation as in the original, as roentgenograms, photographs or pencil sketches, it will be necessary to use a long scale film.

#### PHOTOMICROGRAPHY

Minimum requirements for photomicrography are a microscope, a source of light, a camera, and several color filters. The microscope should be equipped with a substage condenser and preferably with a mechanical stage. A suitable light source is the Mazda C, 6 volt, 108 watt T 10 bulb or Pointolite lamp. Less expensive light sources are ordinary 100 or 200 watt frosted bulbs. If a more intense light is necessary, Photoflood bulbs may be used. Whenever intense light sources are employed, a heat absorbing filter should be placed between the microscope and the light. This filter may consist of a 2 inch water cell or of a sheet of special heat absorbing glass, such as Alko-glass.

It is essential that the microscope and camera be centered in one axis, with the plane of the stage on

which the slide rests parallel to the plane of the film or plate. A piece of black cloth, one end wound around the camera lens and the other end wound around the microscope, will prevent the intrusion of extraneous light. The assembled apparatus must be rigid and vibrationless. The most simple assemblage is a horizontal axis with the microscope tilted to a horizontal plane and the slide and film in a vertical plane. However, in many cases a vertical set-up will be necessary, and some means must be used to support the camera in a vertical plane.

The simplest method of making microscopic pictures, especially applicable to roll film and miniature cameras,<sup>11</sup> is by focusing for visual observation and then placing the camera, with the distance scale set at infinity, in line with the axis of the microscope. A light-tight connection between the lens and the ocular should be utilized. If the photographer customarily wears eyeglasses for corrective purposes, he should wear these while doing the preliminary focusing.

In cameras with double extension bellows and a ground glass back, the technic is somewhat different. The lens should be removed from the camera and the ocular of the microscope should be placed inside the shutter. Focusing is then accomplished directly on the ground glass. For greater accuracy in focusing, a magnifying glass should be used over an 18 mm. cover-slip which has been cemented to the ground glass with Canada balsam. If much photomicrography is contemplated, it may be advisable to invest in a special optical bench, which insures a minimum of vibration and a maximum of ease in manipulation.

*Adjustment of Apparatus.*—In addition to obtaining rigidity in the complete assembly, it is necessary to obtain an accurate centering of the light. The light source may be set in line with the microscope and camera, or the mirror may be used for reflecting the light into the microscope. The substage condenser must be focused accurately in order to obtain the best possible distribution of light. The iris diaphragm should be closed down until the desired contrast is gained, and one should bear in mind the fact that a too large iris opening will reduce contrast. The inside of the microscope body tube should be examined and if reflections are seen they must be reduced by placing black paper around the inside of the barrel.

*Emulsions.*—Best results will be obtained with a panchromatic material. Eastman Portrait Panchromatic Film, Panchromatic Process Film, Panatomic Film, Supersensitive Panchromatic Film and Wratten M Plates all have characteristics that are suited for special types of work. The emulsion should be chosen to compensate for the contrast of the subject. Thus a very contrasty subject will require a soft material, while a flat, noncontrasty subject will be better reproduced by using a contrasty emulsion. Cameras using roll film may confine themselves to one material, such as Panatomic film, since filters will adequately control contrast and detail. Exposure depends on the intensity of light and the degree of magnification. The only method of determining the correct exposure is by experimentation, and exposures should be recorded for future reference. The procedures for the processing of the film, printing and enlarging are the same as for other pictures.

*Color Filters.*—The use of color filters is extremely important in photomicrography. In a stained slide

11. Morgan, W. D.: Micro and Macro Photography with the Leica Camera, *J. Biol. Photograph.* A. 1: 92-98 (Dec.) 1932.

that injury might result. The Council decided that until it is proved satisfactorily that the feeding of psyllium flour over long periods of time is not injurious, it would not accept any preparation containing psyllium flour.

The Council declared Carasyl Plain, Carasyl with Cascara, and Carasyl with Aloin and Cascara unacceptable for New and Nonofficial Remedies because they are marketed with unsubstantiated therapeutic claims and under a proprietary name.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**PROCAINE-ABBOTT** (See New and Nonofficial Remedies, 1936, p. 67).

The following dosage form has been accepted:

*Sterile Ampoules Procaine Hydrochloride Crystals For Spinal Anesthesia, 50 mg.*

**SCARLET FEVER STREPTOCOCCIC TOXIN, U. S. P.** (See New and Nonofficial Remedies, 1936, p. 388).

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore.

*Scarlet Fever Streptococcus Toxin for Immunization-Mulford:* Prepared by the method of Drs. Dick under U. S. Patent 1,547,369 (July 29, 1925; expires 1942) by license of the Scarlet Fever Committee Incorporated. Marketed in packages of five ampoule-vials containing, respectively, 500, 2,000, 8,000, 25,000 and from 80,000 to 100,000 skin test doses; also in packages containing ten complete treatments consisting of six 10-cc. vials, one containing 500 skin test doses per cubic centimeter, one containing 2,000 skin test doses per cubic centimeter, one containing 8,000 skin test doses per cubic centimeter, one containing 25,000 skin test doses per cubic centimeter and two containing from 80,000 to 100,000 skin test doses per 2 cubic centimeters.

**PERNOSTON.**—Butyl- $\beta$ -bromallyl barbituric acid.—5-(butyl-2)-5- $\beta$ -bromopropenyl malonylurea.— $[\text{CH}(\text{CH}_2\text{CH}_2)(\text{CH}_2\text{CBr}:\text{CH}_2)\text{C}(\text{CONH}\cdot\text{CONH}\cdot\text{CO})]$ . Pernoston differs from

barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced, one by a (normal) secondary butyl group, and the other by a substituted brominated allyl group.

**Actions and Uses.**—The actions and uses of pernoston are essentially similar to those of barbital, but pernoston is more active than barbital and is used in correspondingly smaller doses. It is promptly absorbed and is rapidly changed and destroyed within the body. It is used in combating insomnia due to emotional strain and nervous instability. In therapeutic doses it is said to produce no demonstrable toxic effects on the heart, lungs, blood vessels and kidneys; it does not interfere with the physiologic activities of these organs.

**Dosage:** One tablet (3 grains) given one-half hour before sleep is desired, preferably followed by a glass of warm milk or lemonade. For hypnosis in the presence of pain: one tablet given in conjunction with aminopyrine or acetylsalicylic acid.

Manufactured by J. D. Riedel-E. de Haen, A. G. Berlin, Germany (Riedel-de Haen, Inc., New York, distributor). U. S. patent 1,739,662 (December 17, 1929, expires 1946). U. S. trademark 266,216.

*Pernoston Tablets, 3 grains.*

Pernoston occurs as a fine, white, crystalline powder, with a slightly bitter taste; completely soluble in alcohol and ether; very slightly soluble in cold water; insoluble in the paraffin hydrocarbons. A saturated aqueous solution is acid to litmus paper. Pernoston melts at 130 to 133 C.

Place approximately 1 Gm. of Pernoston in a 25 cc. glass stoppered cylinder, add 10 cc. of water and 1 cc. sodium hydroxide solution and shake for one minute, filter through paper and divide into two portions: to one portion add 1 cc. of mercury bichloride solution: a white precipitate results, soluble in 10 cc. of ammonia water; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in 5 cc. of ammonia water.

Fuse about 0.1 Gm. of pernoston and 1 Gm. of crushed potassium hydroxide, previously moistened with 1 cc. of alcoholic potassium hydroxide solution, in a nickel crucible: it is decomposed with the evolution of ammonia; cool, dissolve the residue in 10 cc. of water, add 10 cc. of diluted nitric acid, filter through paper: to the filtrate add 5 cc. of silver nitrate solution: a curdy dirty white precipitate results, soluble in excess of stronger ammonia water.

Dissolve 0.1 Gm. of pernoston in 1 cc. of sulfuric acid: the liquid assumes a yellow color, changing slowly to a brownish red, finally to a dark red. Place 1 Gm. of pernoston in a 25 cc. glass stoppered cylinder, add 10 cc. of water, shake for one minute, filter through paper and divide into two portions: to one portion add 0.5 cc. of a saturated bromine water; an immediate decoloration occurs, to the other portion add 0.1 cc. of tenth-normal potassium permanganate: a yellow color appears immediately.

Put 0.5 Gm. of pernoston with 50 cc. of water for two minutes; no color develops; cool and filter: separate portions of 10 cc. each of the

filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution (*chloride*); no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution (*sulfate*); no coloration or precipitation on saturation with hydrogen sulfide (*arsenic, metals*).

Incinerate about 1 Gm. of pernoston, accurately weighed: the residue does not exceed 0.1 per cent. Transfer about 0.25 Gm. of pernoston, accurately weighed, to a bomb tube; determine the bromine content by the Carius method: the amount of bromine found should be not less than 26.1 per cent nor more than 26.6 per cent. Dissolve about 50 Gm. of pernoston, accurately weighed, in 25 cc. of previously neutralized alcohol; dilute with an equal volume of water and titrate with tenth-normal sodium hydroxide solution, using thymolphthalein as indicator; the amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent nor more than 100 per cent of *sec. butyl-bromallyl barbituric acid*.

**SODIUM GOLD THIOSULFATE** (See New and Nonofficial Remedies, 1936, p. 223).

**Gold Sodium Thiosulfate-Merck.**—A brand of sodium gold thiosulfate-N. N. R.

Manufactured by Merck & Co., Inc., Rahway, N. J. No U. S. patent or trademark.

*Ampuls Gold Sodium Thiosulfate-Merck, 0.01 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 0.025 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 0.05 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 0.10 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 0.20 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 0.25 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 0.30 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 0.50 Gm.  
Ampuls Gold Sodium Thiosulfate-Merck, 1.0 Gm.*

**PENTOBARBITAL SODIUM-LILLY** (See New and Nonofficial Remedies, 1936, p. 109).

The following dosage form has been accepted:

*Ampoules Pentobarbital Sodium-Lilly, 0.5 Gm. (7½ grains):* Each ampule contains the stated amount of pentobarbital sodium and is accompanied by a 10 cc. size ampule of distilled water.

## Council on Foods

### THE PRESENT STATUS OF VITAMIN D MILK

FOR MANY MONTHS THE COUNCIL HAS STUDIED THE PROBLEM PRESENTED BY VITAMIN D MILK. IN JUNE 1936 PUBLICATION OF AN EXTENSIVE REVIEW OF THE LITERATURE BY DR. PHILIP C. JERNS (THE JOURNAL, JUNE 13, 1936, P. 2066, AND JUNE 20, 1936, P. 2150) ON THE PRESENT STATUS OF VITAMIN D MILK WAS AUTHORIZED. SINCE THAT TIME THE COUNCIL HAS CONTINUED TO DEVOTE SPECIAL CONSIDERATION TO THE ENTIRE PROBLEM AND, IN THE LIGHT OF KNOWLEDGE AVAILABLE AT THE PRESENT TIME, HAS ADOPTED AND AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT, WHICH WILL SERVE AS A STATEMENT OF THE COUNCIL'S POLICY IN ACCEPTING VITAMIN D MILKS.

FRANKLIN C. BING, Secretary.

The development in our knowledge of vitamin D has been rapid since 1922, when it was shown that the antirachitic factor differed from vitamin A. Now it is known that there are several substances which have a vitamin D effect. The relative lack of this factor in most common foods has become evident. A few foods contain vitamin D in fair amounts, but generally speaking the vitamin is ordinarily obtained by direct irradiation of the skin with sunshine or with certain forms of lamp which furnish the requisite wavelengths, or by the inclusion of substances such as fish liver oils and viosterol in all of the foods which have been suitably fortified.

The Council on Foods is particularly concerned with the fortification of foods with vitamin D. In order that fortified products may receive acceptance, a general need for the contemplated addition must be evident and the food to which the addition is made must be a suitable medium.

There is, of course, abundant evidence that infants and very young children need extra vitamin D. Though an increasing proportion of infants receive additional vitamin D in some form, many still do not. Many physicians prefer to prescribe pharmaceutical preparations of vitamin D because of the freedom thus afforded to adjust the dosage to the individual patient. The Council on Foods respects this attitude but at the same time recognizes that a considerable portion of the population unfortunately does not consult a physician except for emergencies. Consequently it seems to the Council to be in the interest of the public as a whole to recognize and accept the fortification of food with vitamin D.



development of a special reflex camera by Henning<sup>22</sup> have notably advanced the technic of endoscopic photography.

A seemingly practical intragastric camera has been developed in the Gastro-Photor camera.<sup>23</sup> This instrument consists of a tubular camera, seven-sixteenths inch in diameter and 2 inches in length, attached to a stomach tube and passed into the stomach after the fashion of an Ewald tube. Sixteen tiny pictures covering the entire circumference of the stomach at two levels are obtained in one exposure of  $\frac{1}{20}$  second. The exposure is automatically controlled by a lamp within the camera, which produces an intense brief blue-white light of about 20,000 candle power. In this manner photographs of ulcers, early carcinomas, polypi and inflammatory changes of the mucous membrane may sometimes be obtained before gastric deformities are discernible by x-ray examination.

#### COLOR PHOTOGRAPHY

*Color Transparencies.*—With scarcely more effort than is required for the making of ordinary black and white photographs, transparencies in full natural color may be made for viewing by hand or in a stereoscope or for lantern projection. Because of the complex nature of the materials used the process is a rather expensive one, and until color materials become less costly monochromatic photography will perhaps remain in general favor.

There are available for color transparencies Agfa, Finlay and Lumière Autochrome plates, and Dufaycolor cut film, roll and 35 mm. motion picture film. Correct exposure in color photography is important, since the latitude of the emulsions is relatively small. A photoelectric exposure meter is therefore a good investment if photography under varying conditions is contemplated. The picture may be taken by daylight, Photoflood or Photoflash light. The exposed plate or film is developed in the usual manner and then reversed and redeveloped. In developing and reversing, strict observance of the formulas and instructions which come with the materials is essential.

Exposure is considerably longer for color than for ordinary emulsions. This means that in most instances time exposures will be necessary. However, snapshots may be made with Photoflash bulbs. Thus, with Agfa color plates and one Photoflash lamp at 3 or 4 feet from the subject, a picture may be taken with stop  $f/6.3$ . With two Photoflood bulbs in reflectors 4 feet from the subject with an opening of  $f/4.5$ , an exposure of from three to five seconds is required. Dufaycolor film, available in standard sizes for roll film and miniature cameras, is considerably faster than most other color emulsions, and snapshots can be made with proper Photoflood illumination. Special filters supplied by the maker of the materials used must be employed.

*Colored Positive Prints.*—Unlike the making of color transparencies, the making of color prints on paper is an extremely tedious process requiring infinite pains and meticulous handling at every stage. Briefly, the process consists of taking three pictures of the subject on a panchromatic film, each picture being made through a different filter—red, green and blue. Exposure must be calculated on the basis of the factor of the filter and emulsion used. The negatives are developed in the usual

manner and three positives made, one on paper and two on transparent film. The positives are next toned in colors complementary to the filter used. The toned print and transparencies are then cemented together with images in superposition.

In the Carbro method, bromide enlargements are made from each of the three separate negatives and used for the production of a pigment print, special blue, magenta and yellow tissues being used. The images are then superimposed in register on paper.

A method that for simplicity promises to replace other color processes is the new Defender Chromatone process. This requires the usual two or three color separation negatives, positive prints of which are made on special gelatin-collodion stripping films, which are toned in the three complementary colors and placed in register on a white background.<sup>24</sup>

The Eastman wash-off-relief film and the set of dyes also afford a convenient method of making color prints from three separation negatives.

Since three separate exposures are necessary for the positive color prints, the choice of clinical subjects is limited. Repeating backs for plate cameras and automatic movement of the film as is obtained in some miniature cameras simplify the process somewhat. There are available also cameras which, by means of mirrors or prisms, allow the simultaneous making of the three separation negatives. These cameras are extremely bulky and expensive. The ordinary roll film or plate cameras require many seconds for the taking of a picture, and therefore average subjects do not lend themselves to the making of satisfactory color positives.

In order to simplify the making of separation negatives, a bipack such as Defender Dupac cut film, which allows two color separation negatives at a single exposure, may be employed. Color prints by this method are not nearly so faithful to the original subject as three color separation negatives. However, with suitable two-color subjects, such as stained specimens in photomicrography, the method can be advantageously used.

#### CLINICAL CINEMATOGRAPHY

Motion pictures of pathologic lesions, modes of treatment and operative procedure constitute a method of teaching that is unparalleled. The perfection of the 16 mm. movie camera has reduced the cost of operation considerably, and the simplification of the apparatus has made movie making as easy as the making of "still" pictures. While the technical quality of 35 mm. motion pictures has not been equaled by the smaller films, the 16 mm. camera has virtues of its own that adapt it to clinical use.

Photoflood bulbs and supersensitive panchromatic emulsions make possible the taking of motion pictures in the operating room, clinic or office. The technic employed is practically the same as that used in making home movies. Pictures in natural color may be made with Kodachrome film<sup>25</sup> and add to realism in filming autopsies, operations, microscopic sections, skin diseases, ophthalmologic diseases and sundry other subjects. A further refinement is an attachment for making talking pictures which permits explanation of the pathologic lesions or operative methods on the screen.

24. Full details of this process are described in a booklet supplied at the price of 25 cents by the Defender Photo Supply Company, Inc., Rochester, N. Y.

22. Henning, Norbert: Eine neue Apparatur zur endoskopischen Photographie der Magenschleimhaut, Arch. f. Verdauungskr. 50:27 (Aug.) 1931.

23. Rehfuss, M. E.: Scientific Exhibit, American Medical Association, 1935.

25. Tuttle, H. B.: Some Experiments in Medical Motion Pictures in Color, J. Soc. Mot. Pict. Eng. 15:193 (Aug.) 1930. Baker, H. H.: Color Photography in Surgery, the Camera 40:184 (March) 1930. Mees, C. E.: Presenting Kodachrome, Movie Makers 10:197 (May) 1935. Tuttle, H. B.: The How of Kodachrome, ibid. 10:240 (June) 1935. Holden, J. I.: Kodachrome Interiors, ibid. 10:469 (Nov.) 1935.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 16, 1937

## ANNUAL DUES NOW PAYABLE

The colored slip inserted in this issue of *THE JOURNAL* is a reminder that the annual subscription and Fellowship dues for the current year are payable in advance. When properly folded the slip forms a convenient, safe, postage-prepaid envelop for carrying a check, draft or money order. With *THE JOURNAL* are listed the eight special journals published by the American Medical Association, and also *Hygeia*, the Health Magazine, with the respective subscription prices. This makes it convenient to subscribe for other publications in addition to *THE JOURNAL*, since all may be covered with the one order and remittance. The thousands of subscribers who have already paid the 1937 dues will of course disregard the colored slip.

## REORGANIZATION OF GOVERNMENTAL MEDICAL ACTIVITIES

At a special session of the Board of Trustees in the headquarters office last week consideration was given to the proposed reorganization of governmental activities, and particularly to the changes likely to be recommended in the consolidation of those affairs of the government which concern preventive medicine and medical service. For some years the proposal to reorganize these affairs with a view to efficiency, economy and more successful administration has been advanced by various presidents, cabinet officers and members of governmental legislative bodies. At present, the whole question is being studied by committees of the Senate and of the House of Representatives and, in addition, by a special committee appointed by the President to advise him personally.

Following extended consideration of the problem of reorganization of governmental medical activities, the Board of Trustees adopted the following resolution.

which was forwarded immediately to the members of the various committees that have been mentioned:

"Recognizing that committees of the Senate and of the House of Representatives of the United States government and a special committee appointed by the President are at this time concerning themselves with the reorganization of government activities with a view to greater efficiency and economy, and recognizing also that the President, in his opening address to Congress, indicated that he would shortly present to the Congress recommendations for such reorganization of governmental activities in the executive branches, and recognizing moreover the great desirability that all activities of the federal government having to do with the promotion of health and the prevention of disease might with advantage be consolidated in one department and under one head, the Board of Trustees of the American Medical Association would recommend that such health activities as now exist be so consolidated in a single department which would not, however, be subservient to any charitable, conservatory or other governmental interest. It has been repeatedly said that public health work is the first problem of the state. It is the opinion of the Board of Trustees that health activities of the government, except those concerned with the military establishments, should not be subservient to any other departmental interests. This reorganization and consolidation of medical departments need not, under present circumstances, involve any expansion or extension of governmental health activities but should serve actually to consolidate and thus to eliminate such duplications as exist. It is also the view of the Board of Trustees that the supervision and direction of such medical or health department should be in the hands of a competently trained physician, experienced in executive administration."

Press reports indicate that the President proposes to send his message on the subject to Congress during the week in which this issue of *THE JOURNAL* appears. No doubt, by the time this editorial becomes available to our readers the matter will already be under consideration by the Senate and the House of Representatives. The views presented by the Board of Trustees are presented with due regard for the scientific and medical interests involved and particularly with the idea of conserving in governmental medical affairs the fundamental principles which the House of Delegates has established as necessary to the best interests of the public in general, and particularly of the person who is ill, whether or not he is a ward of the government or a patient seeking relief at the hands of a private physician. The experience of many hundreds of years in the practice of medicine has shown how important

vated charcoal has been recommended on the ground that it has a higher adsorptive capacity. This is merely charcoal that has been heated to a certain temperature. Because charcoal has a strong affinity for gases, it should be kept tightly stoppered to prevent its deterioration and from becoming impregnated with unpleasant odors.

Kaolin is a clay that has been used for centuries in China<sup>7</sup> for summer diarrheas, as well as for cholera, and was first heard of in Europe during the eighteenth century.<sup>8</sup> Father Deutrecolle, a Jesuit missionary, described in 1712 the clay works in China and mentioned that the clay was used in treating diarrhea. It is now obtained from different parts of Europe and the United States. Kaolin is a mixture of aluminum silicate and other substances but has a somewhat different composition, depending on the area from which it is obtained and how it has been treated. According to Fantus,<sup>2</sup> the three most commonly used preparations of aluminum silicate have the analyses given in the accompanying table.

*Analysis of Silicon Dioxide, Aluminum Oxide, Ferric Oxide and Calcium Oxide*

	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO
Kaolin .....	45.4	1.92	1.92	0.44
Fullers' earth .....	57.26	18.33	1.87	2.58
Lloyd's reagent .....	55.30	9.82	14.80	1.58

Several reports speak highly of the value of kaolin in the treatment of Asiatic cholera. Braafladt<sup>8</sup> reports that Kuline, with the use of kaolin, together with hypertonic salt solution reduced the mortality from cholera among the soldiers in the Balkan war of 1910 from 60 per cent to 3 per cent. McRobert<sup>9</sup> advocates kaolin in treating the acute bacterial food poisonings which he encountered in the British army in India. Hess,<sup>10</sup> on the other hand, found kaolin to be of little value in the treatment of intestinal disorders of infants; whereas, fullers' earth gave considerable satisfaction. He suggests that the difference in effectiveness may come from the greater amount of calcium contained in fullers' earth. If his suggestion is correct, it is probable that he was dealing with dietary disturbances rather than infections. Studies *in vitro* suggest that the beneficial action of kaolin depends on the adsorption of the cholera toxin and inclusion of the bacteria. Others have expressed the belief that the effect of kaolin in diarrhea is the removal of colloids from the intestinal fluid, thus decreasing its osmotic pressure and allowing more rapid absorption of this fluid by the intestine. How little is known about what really transpires is illustrated best by the common experience with barium sulfate. Every physician has had the opportunity of seeing patients who are severely constipated by barium sulfate given for roentgenographic studies, whereas others develop a temporary diarrhea. Yet no one can predict what effect barium sulfate is going to have on a particular individual.

Fantus<sup>2</sup> has shown that kaolin exerts other effects. It has a strong affinity for alkaloids in an acid medium

but loses this attraction in an alkaline medium. It changes the intestinal flora from a proteolytic to an aciduric one over a period of from ten to thirty days.<sup>9</sup> The attempt to explain this effect by the suggestion that it removes proteolytic products of digestion seems questionable. Kaolin adsorbs materials that act as acids, but not alkalis, and the products of protein digestion behave as alkalis.

In addition to the use of charcoal and kaolin, there are other adsorbents which would repay further study, especially barium sulfate and aluminum hydroxide. The latter, a particularly good adsorbent, has the advantage of being an amphoteric substance (that is, can act as an acid or an alkali) and can be produced in the form of a gel. Rakusin<sup>11</sup> suggests that it might be used to advantage in intestinal infections.

#### LIMITATIONS AND POSSIBLE DANGERS IN THE USE OF ADSORBENTS

Before prescribing adsorbents, one should keep in mind certain facts that limit their usefulness. One is the quality already mentioned of acting as an acid or an alkali, or an amphoteric substance. Because the reaction of the intestinal tract varies from the stomach to the rectum, one cannot predict results on *a priori* reasoning or test tube experiments. Moreover, an adsorbent may have an irreversible affinity for one substance and an easily reversible reaction with another, factors that will influence their use in the intestinal tract.

Because adsorbents are porous and are supposed to act by the removal of undesirable products, large quantities are necessary if one is attempting to nullify the effect of such things as toxins, bacteria, or gases which are constantly being replenished. However, large doses may cause undesirable effects by removing elements such as vitamins, enzymes or essential minerals. Messerli<sup>12</sup> has shown that rats and pigeons fed on a diet of decorticated rice developed an avitaminosis more rapidly and more severely if blood charcoal or bolus alba (kaolin) was mixed in the diet. Deobald and Elvehjem<sup>13</sup> found that if soluble iron and aluminum salts were fed to day-old chicks in large amounts the birds developed severe rickets in from one to two weeks. A definite drop in the blood phosphorus was observed as early as the fifth day. In addition to such effects, the chance of producing undesirable constipation must be remembered. Because many therapeutic adsorbents are products of clay they have a tendency to settle and plug small openings, with resulting danger to the patient with a partial intestinal obstruction. A partial obstruction may be converted quickly to a complete one by the injudicious use of these substances. Because of the completeness with which these preparations lose water, hard concretions may form, causing serious trauma to the colon or even perforation. Long, Kolmer and Swalin<sup>14</sup> report that Hoelzel has produced polyposis in the rat's intestine by incorporating kaolin in the diet in the proportion of two to one, but after repeating Hoelzel's work they believe that this outcome

11. Rakusin, M. A.: The Adsorption of Proteins, Enzymes, Toxins and Sera by Aluminum Hydroxide, *Ztschr. f. Immunitätsforsch.* **34**: 155-193, 1922.

12. Messerli, N.: The Influence of the Addition of Adsorbents to a One-Sided Diet in the Production of Avitaminosis, *Arch. internat. de physiol.* **19**: 103-114 (Sept.) 1922.

13. Deobald, H. J., and Elvehjem, C. A.: The Effect of Feeding High Amounts of Soluble Iron and Aluminum Salts, *Am. J. Physiol.* **11**: 118-123 (Feb.) 1935.

14. Long, C. F.; Kolmer, J. A., and Swalin, W. A.: Observations on Intestines of Rats Fed Inert Materials, *J. Lab. & Clin. Med.* **20**: 475 (Jan.) 1935.

7. Wang, Chi-Chen: Chinese and Western Doctors, *Hygeia* **4**: 154 (March) 1926.

8. Braafladt, L. H.: The Effect of Kaolin on the Intestinal Flora in Normal and Pathologic Conditions, *J. Infect. Dis.* **33**: 434 (Nov.) 1923.

9. McRobert, G. R.: The Treatment of Bacterial Food Poisoning, *Brit. M. J.* **2**: 304-305 (Aug. 18) 1934.

10. Hess, H. F.: Fullers' Earth in the Intestinal Disorders of Infants, *J. A. M. A.* **66**: 106 (Jan. 8) 1916.

indigent are being given a high quality of medical care and medical service. Nevertheless, the advances of medical science have created situations in which a group of the population neither wholly indigent nor competent financially find themselves under some circumstances unable to meet the costs of unusual medical procedures. The Board of Trustees of the American Medical Association points out the willingness of the medical profession to do its utmost today, as in the past, to provide adequate medical service for all those unable to pay either in whole or in part. Members of the medical profession, locally and in the various states, are ready and willing to consider with other agencies ways and means of meeting the problems of providing medical service and diagnostic laboratory facilities for all requiring such service and not able to meet the full cost thereof. These are problems for local and state consideration primarily rather than problems of federal responsibility. The willingness of the medical profession to adjust its services so as to provide adequate medical care for all the people does not constitute in any sense of the word an endorsement of health insurance, either voluntary or compulsory, as a means of meeting the situation."

#### CLIMATE AND RHEUMATIC FEVER

The relative incidence of rheumatic fever in certain well defined regions of the United States has been a subject for study for many years. As long ago as 1924 Faulkner and White<sup>1</sup> observed that the incidence of rheumatic fever was much lower in the southern than in the northern part of the United States. Other investigators have since then arrived at the same conclusion. Recently Nichol<sup>2</sup> reported the results of observations at a hospital of more than 300 beds in Miami, Fla., over the five year period that ended with 1934. In the five years he observed only eleven cases of rheumatic fever or carditis and no cases of chorea among 8,287 medical admissions to the hospital, including children. During the same period at a large hospital in Boston Dr. S. A. Levine observed 137 cases of rheumatic fever, carditis or chorea among 9,817 medical admissions. The relative incidence of rheumatic fever among the admissions in these two hospitals (one in Miami and the other in Boston) was respectively 0.13 and 1.4 per cent. In his report Nichol tabulates the medical admission rate of rheumatic fever or chorea previously reported by investigators in various sections of the United States. Generally this tabulation indicates that the admission rate in certain hospitals in the southern part of the United States is less than it is for certain hospitals in the northern part. After allowances are made for some factors that might detract from the reliability of comparing statistics of this kind, it still seems that clinically perceptible rheumatic fever and rheumatic heart disease are much less common in southern than in northern regions of the United States. In office practice during

the four years that ended with 1934 Nichol classified sixty-eight cardiac cases as having a rheumatic etiology; however, all but one of these patients had acquired rheumatic disease before leaving the North and in only one instance in this group was there clinical evidence of reactivation of a presumably healed rheumatic carditis during their stay in the South. The actual rareness of rheumatic fever in the South has been questioned by some writers. Nichol, however, who has practiced in southern Florida for ten years, is convinced that even the mild or smoldering form of carditis is uncommon while the obvious cases with arthritis or chorea are rare. In the discussion of this paper, Dr. John R. Mote of Boston again pointed out that hospital records may not always indicate the real incidence of a disease and that certain discrepancies appear in reports from all over the world on the occurrence of rheumatic fever which require verification. Mote also said that a small group of children with rheumatic fever had been sent each year from Boston to Miami Beach to evaluate if possible the effect of a subtropical climate on the course of the disease. In four years, twenty-three children in all were sent. In general these young patients did better and recrudescences were shorter than in the North, although exacerbations of the rheumatic fever did occur in some of these patients while they were in Florida. Levine of Boston further stated that in a 200 bed hospital in ten years there will be some patients dying of rheumatic mitral stenosis which will be recognized as such by the pathologist at necropsy. Levine had observed that the incidence of mitral stenosis at the Charity Hospital in New Orleans was one twentieth of what it was at the Peter Bent Brigham Hospital in Boston. Nichol added the observation that 1,500 school children born and reared in Miami had been compared with 1,500 school children who had migrated to Miami. The incidence of rheumatic heart disease was found to be four times greater in the migrated group than in the native group. While the reports of some other writers tabulated by Nichol indicate a relatively lower incidence of rheumatic fever among hospital admissions in the southern part of the United States, the data available do not appear to be sufficient for a nation-wide comparison.

#### THE POSSIBILITY OF HUMAN SELENIUM POISONING

The occurrence of selenium poisoning, or "alkali disease," in live stock and in human beings in the state of the North Central Great Plains has frequently been mentioned editorially in *THE JOURNAL*.<sup>1</sup> Now Smith, Franke and Westfall<sup>2</sup> have studied 111 families living on farms and ranches in Wyoming, South Dakota and Nebraska. Though no serious illness was observed that resembled natural or experimental selenium poisoning, a large proportion of the subjects examined showed mild teeth varying from marked discoloration to decay, mild or intense icterus suggesting liver damage, various types of skin eruptions, rheumatoid and deforming forms of arthritis, disease of the finger nails with transverse or

1. Faulkner, J. M., and White, P. D.: The Incidence of Rheumatic Fever, Chorea and Rheumatic Heart Disease. *J. A. M. A.* 83:425 (Aug. 9) 1924.  
2. Nichol, E. S.: Geographic Distribution of Rheumatic Fever and Rheumatic Heart Disease in the United States. *J. Lab. & Clin. Med.* 21: 505 (March) 1935.

1. The Selenium Problem. *J. A. M. A.* 101:5 (Jan. 3) 1934.  
Toxic Effects of Selenium. 106:526 (March 14) 1934; 107:134 (July 11) 1934.  
2. Smith, M. L., Franke, E. W., and Westfall, E. B.: The Selenium Problem in Relation to Public Health. *Pub. Health* 46: 211 (Oct. 1) 1934.

**Autointoxication.**—Several observers have reported that the continued use of kaolin will result in a change of the intestinal flora from a proteolytic to an aciduric one, entirely analogous to what is observed after the feeding of lactose. The change is explained on the theory that the kaolin removes the proteolytic products of digestion, thus allowing the aciduric organism to outgrow the others. As a result of such studies the suggestion is made occasionally that adsorbents are indicated in the treatment of so-called autointoxication. But, because the mechanism of autointoxication is not yet known and because many do not believe that such a condition exists, the use of adsorbents for this purpose is not warranted in our present state of knowledge.

#### SUMMARY

Charcoal and kaolin have been given for their effect on the gastro-intestinal tract for many years. During this time a limited number of clinical reports have expressed their value in the treatment of diarrhea and the alleviation of dyspeptic symptoms. Renewed interest in their use has developed largely because of their adsorbent qualities. Laboratory studies confirm their possible usefulness but also demonstrate the number of complicating reactions that may occur in the gastro-intestinal tract. Further, carefully controlled investigations are needed in the clinic and laboratory before therapy with these substances can be regarded to be on a sound foundation.

319 Longwood Avenue.

### Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

#### HOLMSPRAY ATOMIZERS NOS. 540 AND 595 ACCEPTABLE

Manufacturer: T. J. Holmes Company, Inc., Chartley, Mass. The firm's description of these atomizers follows:

**Nasal Atomizer No. 540.**—A nose and throat atomizer for alcoholic aqueous and oily solutions. Vacuum type construction. Extra cap included for sealing filled bottle. Nickel plated metal parts. Plain rubber bulb. Fitted to a ½ ounce prescription bottle.

**Throat and Nasal Atomizer No. 595.**—An atomizer designed for spraying ephedrine solutions, and for oily solutions when the application has to be made in small volume. It produces a very fine and fluffy spray. Heavy quality nickel plated metal parts, adjustable spray nozzle, glass liquid tube, 1 drachm capacity amber colored bottle.

The investigator for the Council to whom these atomizers were referred for trial reported them as satisfactory. In view of the favorable report, the Council on Physical Therapy voted to include the Holmspray Atomizers Nos. 540 and 595 in its list of accepted devices.



Holmspray Atomizer.

#### CORRECTION

In the report "Eveready Two-Bed Carbon Arc Lamp, Model A-22, Acceptable," published in *THE JOURNAL*, Nov. 7, 1936, page 1561, a transposition of figures recorded the efficiency of the transformer at 49 per cent. The efficiency of the transformer should have read 94 per cent.

### Council on Pharmacy and Chemistry

#### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. PAUL NICHOLAS LEECH, Secretary.

#### CARASYL PLAIN, CARASYL WITH CASCARA, and CARASYL WITH ALOIN AND CASCARA NOT ACCEPTABLE FOR N. N. R.

Carasyl Plain, Carasyl with Cascara and Carasyl with Aloin and Cascara were presented for Council consideration by the Lorayne Laboratories. They are proposed for use in the treatment of colitis and chronic constipation. Carasyl is stated to be composed of psyllium flour, karaya gum and fig flour, the fibers and seeds of figs, and fiber of psyllium seed having been removed. Carasyl with Cascara is stated to differ from the plain by the addition of one-half grain of "powdered debitterized extract of cascara" to each 60 grains of the plain Carasyl. The Carasyl with Aloin and Cascara is stated to contain one-fifth grain of cascara (presumably the same extract as that in the Carasyl with Cascara) and one-fortieth grain of aloin to each 60 grains of the product. In all cases each drachm is declared to contain 4 minims of liquid petrolatum, which is added to prevent caking.

The average dose of the official extract of cascara is 0.3 Gm. (5 grains). If the "debitterized" extract is of the same activity as the official, a dose of Carasyl with Cascara contains about one-eighth the average dose; and the Carasyl with Cascara and Aloin contains about one-twentieth of the average dose of the extract of cascara, and about one-eighth of the average dose of aloin given by the U. S. P. As a matter of fact the average dose of aloin is more than that given by the U. S. P., 0.015 Gm. (one-fourth grain); the British Pharmacopoeia gives from one-fourth to 1 grain (Imperial).

The advertising submitted by the firm states that the cascara in such a small dose acts as a mild bowel tonic. It is stated that this product fortified with aloin is for patients with very pronounced atonicity of the colon.

It is stated in the advertising that Carasyl is a scientifically prepared bowel normalizer; that obese patients on a limited diet do well to take a small dose at the beginning of each meal in a glass of hot skimmed milk. It is claimed that this is quite satisfying to the appetite, regulates the bowels and takes the place of more fattening food. It is stated that when prepared according to approved directions it is pleasant and agreeable to take and may be used indefinitely with continuing beneficial results.

No evidence is presented to show that this mixture of psyllium flour, karaya gum and fig flour (no therapeutic claim is made for the liquid petrolatum) is therapeutically superior to an equal weight of psyllium flour alone; nor is any satisfactory evidence presented to show the therapeutic advantage of combining the mixture with such small amounts of cascara or aloin or with both of them. It is not in the interest of therapeutic practice to give the approval of the Council to such mixtures, in the absence of any satisfactory evidence that they have any therapeutic advantage over the simple psyllium flour. It is better to give aloin and cascara when they are specifically indicated, and then in doses that may be expected to produce definite effects.

The name Carasyl is objectionable as being a proprietary designation for an unoriginal mixture of well known ingredients.

In the Council's consideration of the Carasyl products, attention was called to the paper of MacKay, Hall and Smith, "Renal Pigmentation Following Ingestion of Psyllium Seed" (*Proc. Soc. Exper. Biol. & Med.* 30:152 [Nov.] 1932).

These authors reported that, when ground psyllium seed is fed as an addition for roughage to rats or to dogs, there is darkening of the kidneys, and after long continued feeding pigment granules are visible microscopically in the tubules of rats. The feeding of whole psyllium seed does not produce the pigmentation. Although the authors do not prove that any injury was caused, the Council held that it is not improbable



auspices of the Chemical Foundation, Inc., and was author of the book on Qualitative Analysis which revolutionized the teaching of this subject. He was president of the American Chemical Society in 1917 and received the Willard Gibbs Medal of its Chicago section in 1923. Throughout his entire teaching period he maintained an active interest in the humanitarian side as applied to medicine, which was widely recognized and appreciated by organizations representing progressive medicine.

### INDIANA

**Secretaries' Annual Conference.**—The Indiana State Medical Association will hold its secretaries' annual conference at the Columbia Club, Indianapolis, January 31. The Rural Resettlement Administration will be discussed by Dr. Houston W. Shaw, Henryville; Dr. Neal Matlock, Medora; M. E. Hays, Indianapolis; Dr. Ralph C. Williams, Washington, D. C., national medical director of the administration, and Dr. Verne K. Harvey, Indianapolis, director of the Indiana Division of Public Health. Other speakers will include:

Dr. James B. Maple, Sullivan, Present Trends in County Medical Society Programs.

Albert Stump, Indianapolis, attorney for the state association, Discussion of Joint Meetings with Professional Groups.

Dr. Eldridge M. Shanklin, Hammond, The Journal of the Indiana State Medical Association.

Dr. Norman M. Beatty, Indianapolis, The Legislative Outlook.

Thomas A. Hendricks, executive secretary, Indiana State Medical Association, The County Medical Society and the Headquarters Office.

There will be a round table discussion of local medical society problems. At the banquet in the evening, Dr. Herman M. Baker, Evansville, president-elect of the state society, will be introduced, and Dr. Charles Gordon Heyd, New York, President, American Medical Association, will discuss "The Service of the American Medical Association to Society."

### KENTUCKY

**Bill Introduced.**—S. 16-XXXX proposes, among other things, to liberalize those provisions of the workmen's compensation act requiring an employer to furnish medical, surgical, hospital and nursing service to an injured employee. This bill proposes (1) to increase the normal limit of an employer's liability for medical, surgical and hospital treatment from \$100 to \$200 and (2) to authorize the compensation board to direct in a particular case an extension of this limit of expense to not exceeding \$400. If the charges made by hospitals and physicians in a particular case exceed the aggregate charges for which an employer is liable, the board is to be authorized to apportion payments to the respective parties.

### MARYLAND

**Dr. Eagle Wins Lilly Award.**—The \$1,000 prize and bronze medal of Eli Lilly and Company, Indianapolis, was presented at the annual meeting of the Society of American Bacteriologists in Indianapolis, December 29, to Dr. Harry Eagle, Baltimore, for accomplishments in research on immunity to various diseases, notably syphilis, it is announced. A committee composed of members of the Society of American Bacteriologists, the American Association of Immunologists and the American Society for Experimental Pathology selected Dr. Eagle, whose research has been done largely in the medical schools of Johns Hopkins University and the University of Pennsylvania. Dr. Eagle is 31 years of age and graduated from Johns Hopkins University School of Medicine in 1927. He is a passed assistant surgeon general of the U. S. Public Health Service and a member of several scientific societies. Before coming to Johns Hopkins Hospital, where he is now stationed, Dr. Eagle was assistant professor of bacteriology at the University of Pennsylvania School of Medicine.

### MICHIGAN

**The Beaumont Lectures.**—Elmer V. McCollum, Sc.D., professor and head of the department of biochemistry, Johns Hopkins University School of Hygiene and Public Health, Baltimore, will deliver the annual Beaumont Lectures of the Wayne County Medical Society, February 15-16, on "Recent Advances in the Field of Nutritional Research." The tentative titles of the individual lectures are "Recent Advances in Our Knowledge of the Vitamins" and "Present Status of Nutritional Problems Involving Inorganic Elements."

**"Traffic Clinic" to Reduce Accidents.**—The New York Times describes a "traffic clinic" recently inaugurated in Detroit to reduce automobile accidents. Of the first 100 cases examined in the clinic after its opening in October, fourteen persons were found too seriously crippled to drive, seven insane and ten feebleminded. The tests include an intelligence test,

a physical examination centered on the heart, eyes and reflex actions, and a personal interview with the psychiatrist. The objective of the clinic is not merely to eliminate faulty drivers but to put good drivers on the streets, since, it was pointed out, many of the defective drivers can correct their faults by education, glasses or medical treatment. Dr. Lowell S. Selling is the psychiatrist in charge of the new traffic unit.

**Campaign Against Tuberculosis.**—The city council of Detroit has made available \$105,000 for six months beginning January 1 to assist in a campaign against tuberculosis, according to the *Detroit Medical News*. The campaign was recently launched under the efforts of the Wayne County Medical Society, the Detroit Tuberculosis Sanatorium Association, the *Detroit News*, Radio Station WWJ, the Detroit Department of Health, and Paul de Kruif. To carry out the program, three full time physicians, forty-five nurses and ten clerks have been added to the city health department; in addition, 700 physicians have agreed to cooperate. Since December 3, 379 patients have been tuberculin tested, 100 of whom gave positive reactions. In sixty of those having positive tests x-ray examination showed that twelve have active tuberculosis, ten have the disease in the healed or quiescent form, three were reported as needing further examination, and thirty-seven gave no evidence of the disease. Five of the twelve active cases were in the incipient stage.

### MINNESOTA

**Personal.**—Dr. Adolph M. Hanson, Faribault, has been named an associate in research of the Philadelphia Institute for Medical Research; he will continue his research on the thymus and pineal glands in his laboratories at Faribault.—Dr. Byrl R. Kirklin, Rochester, Minn., has been appointed a corresponding member of the German Society of Roentgenologists.

**Annual Judd Lecture.**—Dr. Evarts A. Graham, Bixby professor of surgery, Washington University School of Medicine, St. Louis, will deliver the fourth annual lecture in the E. Starr Judd Lectureship in Surgery, February 3, in the chemistry auditorium of the University of Minnesota, Minneapolis. His subject will be "Accomplishments of Thoracic Surgery and Its Present Problems." The lectureship was established at the university by the late Dr. Edward Starr Judd, Rochester.

**Study of Medical Costs.**—At a recent meeting of the council of the Minnesota State Medical Association, a committee was named to investigate the possible sources of financial aid for a study of medical costs in the state. Members of the committee are Drs. Alfred W. Adson, Rochester, president of the association; William W. Will, Bertha, and Edward A. Meyerding, St. Paul. The study would cover the cost to the student and the state of a medical education, the cost to the practicing physician of overhead, equipment, transportation, expert assistance, and the relation of physicians to population groups and related problems.

**Dr. Taylor to Direct Research for General Mills.**—Dr. Alonzo E. Taylor, director of the Food Research Institute at Stanford University, Calif., since 1921, has been appointed chairman of the research committee of General Mills, Inc., Minneapolis, to have general direction of the firm's research in diet and nutrition. Dr. Taylor, a native of Iowa, graduated from the University of Pennsylvania School of Medicine in 1894. He was professor of pathology at the University of California from 1899 to 1910 and went from there to the University of Pennsylvania, where he was first professor of physiology and then Benjamin Rush professor of physiological chemistry until 1921. During the World War he investigated food conditions in Europe for the federal government and the U. S. Relief Administration and was a member of the War Trade Board from 1917 to 1919. In 1927 he was a delegate to the International Economic Conference in Geneva and in 1931 served as consulting expert attached to the American delegation to the International Wheat Conference in London. Dr. Taylor's headquarters will be in Minneapolis.

### NEBRASKA

**Dr. Nilsson Appointed Chief Surgeon of Union Pacific.**—Dr. John R. Nilsson, associate professor of surgery, University of Nebraska College of Medicine, has been appointed chief surgeon of the Union Pacific Railroad. He was division surgeon from 1924 to 1928, when he was made chief surgeon of the eastern division. Dr. Nilsson is president of the staff of Immanuel Hospital and is on the staffs of the Methodist and St. Joseph's hospitals, Omaha. He is 53 years old and a graduate of the University of Nebraska College of Medicine.

After two or three years of age, a moderate deprivation of vitamin D rarely has been known to produce illness which leads to medical consultation. The requirements of children and of adults for vitamin D are not accurately known. The assumption that the child needs less than the infant has become widespread. A special need of vitamin D in the food of adults, with the exception of pregnant and lactating women, has not been demonstrated experimentally. Under certain circumstances it would seem that additional vitamin D in the diet of some adults is probably desirable. The Council believes that a moderate amount of vitamin D in addition to that which is normally obtained is a factor of safety in nutrition and health, at least during the period of growth. If the vitamin D addition during childhood and later years is reasonable, e. g., up to four or five hundred units daily,<sup>1</sup> it is believed that possibly some benefit will ensue and certainly no harm.

Of all the common foods available, milk is most suitable as a carrier of added vitamin D. Vitamin D is concerned with the utilization of calcium and phosphorus, of which milk is an excellent source. *The Council has recently made the decision that for the present milk is the only common food which will be considered for acceptance when fortified with vitamin D.*

The properties of vitamin D may be imparted to milk by irradiation of the milk, by proper feeding of vitamin D preparations to cows and by the direct addition to milk of either natural or manufactured vitamin D concentrates. Available evidence indicates that rat unitages of these various products may not have equivalent relative human values. Those products containing vitamin D of so-called animal origin, presumably related to cholesterol, may be more potent than those containing vitamin D of so-called vegetable or plant origin, and produced from ergosterol. From the evidence which has been reviewed by Jeans,<sup>2</sup> in a report to the Council, it appears possible that it may require somewhat more than one unit of vitamin D of plant origin to be equivalent in human value to one unit of vitamin D of animal origin. Thus clinical evidence of the nutritive value of each form of vitamin D milk is necessary in order to evaluate it properly.

Up to Nov. 1, 1936, the Council on Foods has reviewed the evidence and accepted the following types of vitamin D milk:

1. Irradiated fresh (pasteurized) milk (produced under the Steenbock patent) containing 135 units of vitamin D to the quart, and irradiated evaporated milk containing the same number of units to the reconstituted quart (after dilution with an equal volume of water).
2. Fresh (pasteurized) milk containing a concentrate of cod liver oil (Vitex) with 400 units of vitamin D to the quart, and evaporated milk containing the same number of units to the reconstituted quart.
3. Fresh (pasteurized) milk containing 400 units of vitamin D to the quart, the vitamin D being prepared from ergosterol by a process of activation which is fundamentally different from the photochemical process previously described in the scientific literature or descriptions of patents (Sun-A-Sured).
4. Evaporated milk containing a cod liver oil concentrate made by the Clo-Dee (Barthen) process and containing 400 units of vitamin D to each 14½ ounces by weight.
5. Various mixtures designed for infant feeding containing cod liver oil or other sources of vitamin D. Dried milk preparations fortified with vitamin D have also been accepted.

Because of its importance to the public, to physicians and to manufacturers, the Council believes at this time that it would be well to summarize those claims which appear to be well established for vitamin D milks, considering the problem from the point of view both of infant nutrition and of the nutrition of older children and adults.

#### *Vitamin D Milk as a Food During Infancy:*

The vitamin D requirements during the period of most active growth, when rickets may occur, are generally thought to be

greater for each unit of weight than at any other time. It has been shown by controlled feeding tests that irradiated milk containing 135 units to the quart usually will prevent rickets when ingested by normal full term infants in the customary quantities which physicians prescribe. There is evidence, however, that this amount of vitamin D is rather close to the minimum requirements. The evidence indicates also that most infants are better safeguarded when they are given amounts of vitamin D in addition to that furnished by milk containing 135 units to the quart. When milk containing 400 units of vitamin D of so-called animal origin is administered, rickets usually is prevented in normal full term infants if the milk is fed in the customary quantities that are prescribed by physicians.

Though milk with 400 units of animal source vitamin D to the quart may ultimately prove to supply more vitamin D than is sufficient for the need of the average infant, definite knowledge is not at present available.

The evidence concerning the relative effectiveness of vitamin D milk containing vitamin D of so-called vegetable or plant origin is not extensive. However, even though the potency of these milks on a rat unit basis may possibly be less than that of milk containing animal source vitamin D, there appears to be a sufficient margin of safety when the concentration of vitamin D is 400 or more units to the quart. Milks with 400 to 430 units of plant source vitamin D to the quart usually prevent rickets when fed in customary amounts. Probably also they supply an adequate margin of safety and possibly more vitamin D than is sufficient for the need of the average infant, but definite knowledge of these statements is not available at present.

The management of individual variations among infants should remain in the hands of the physician. Physicians who prefer larger quantities of vitamin D than those under discussion can easily prescribe more as a supplement.

#### *Vitamin D Milk as a Food for Children and Older Persons:*

All forms of vitamin D milk which stand accepted by the Council may be said to aid in the proper development of bones and teeth. It is permissible to state, therefore, that vitamin D milks have enhanced nutritive value for children and adults. Indeed, vitamin D milk possibly has a greater usefulness for the child than for the infant because of the larger proportion of children than of infants who do not receive vitamin D from special sources.

#### *Requirements and Allowable Claims for Vitamin D Milk:*

To be acceptable to the Council on Foods, bottle caps and labels for vitamin D milks must declare unitage of the vitamin D in terms of U. S. P. units and the source of the vitamin D, unless local governmental regulations prohibit such declaration.

For all milks containing a minimum of 135 units, an enhanced nutritive value, especially for growing children, may be claimed; it is also permissible to state that these milks usually will prevent clinical rickets when they are fed to normal infants in customary quantities.<sup>3</sup> For milk with only 135 units to the quart there shall be no claim or intimation that an adequate amount of vitamin D is being supplied to infants. When the milk contains as much as 400 units to the quart the claim may be made that the amount of vitamin D is greater than that usually required for the prevention of rickets in normal infants and thus that a margin of safety is offered when customary amounts of milk are taken.

The foregoing statements which have been made concerning vitamin D in fresh milk apply equally to evaporated milk after it has been diluted with an equal volume of water.

In the advertising of vitamin D milk the implication should not be made that the Council favors the use of any vitamin D fortified milk over the prescribing of other forms of vitamin D for infants or recommends the use of vitamin D milk to the exclusion of an additional supply of the vitamin in some other form.

1. Whenever units of vitamin D are mentioned in this report, U. S. P. XI units are meant.

2. Jeans, P. C.: Vitamin D Milk. The Relative Value of Different Varieties of Vitamin D Milk for Infants: A Critical Interpretative Review, J. A. M. A. 106:2066 (June 13), 2150 (June 20) 1936.

3. For the purpose of this report the expression "customary quantities" may be interpreted to mean from 1½ ounces for each pound of body weight in early infancy and 1½ pints or more daily in later infancy.

## GENERAL

**Exhibition of Scientific Photography.**—An international exhibition of applied and scientific photography is to be held in Rochester, N. Y., in March under the sponsorship of the Rochester section of the Photographic Society of America. C. B. Neblette, Rochester Athenaeum and Mechanics Institute, is secretary and Gustave Fassin, Bausch and Lomb Scientific Bureau, Rochester, chairman, committee on exhibits.

**Prize Awarded for Virus Study.**—Wendell M. Stanley, Ph.D., of the staff of the Rockefeller Institute for Medical Research, New York, received the \$1,000 prize of the American Association for the Advancement of Science at the winter meeting in Atlantic City, January 1, for his contributions to science in the isolation of the virus of tobacco-mosaic disease and studies on the nature of the virus. Dr. Stanley is 32 years old and a native of Indiana. He received the degree of master of science at the University of Illinois in 1927 and doctor of philosophy in 1929. After teaching a year at Illinois he spent two years in study in Munich and in 1931 joined the Rockefeller Institute.

**The Search for Dr. Woodruff.**—Members of the American Medical Association are asked to be on the alert for information or clues that may help in locating Dr. Harry W. Woodruff Jr., who disappeared December 29 from the St. Louis City Hospital.



Harry W. Woodruff Jr., M.D.

It is thought that he may be a victim of amnesia and that he may sooner or later call on a physician for assistance. Dr. Woodruff is 28 years old, is 5 feet 10½ inches tall, and weighs from 155 to 160 pounds. He has a medium dark complexion and there is a slight bald spot on the right side of his head above the hair line. He graduated from Harvard Medical School, Boston, in 1933. Up to January 8 Dr. Woodruff had not communicated with any of his friends, relatives or acquaintances. Any physician who may come into possession of information concerning him is asked to communicate immediately with the St. Louis Police Department, the superintendent of the St. Louis City Hospital or the young man's father, Dr.

Harry W. Woodruff Sr., 1201 Western Avenue, Joliet, Ill., telephones 2-2583 (home) and 4455 (office). A reward of \$250 is offered for information concerning his whereabouts.

**Society News.**—Dr. Fred W. Rankin, Lexington, Ky., was elected president of the Southern Surgical Association at its annual meeting at Edgewater Park, Miss., December 15-17. Drs. Charles W. Flynn, Dallas, Texas, and Lucian H. Landry, New Orleans, were elected vice presidents and Dr. Edward William Alton Ochsner, New Orleans, reelected secretary for five years. The 1937 meeting will be held in Birmingham, Ala.—Dr. Isador H. Coriat, Boston, was elected president of the American Psychoanalytic Association at its annual meeting in New York, December 28-29; Dr. Adolph Stern, New York, vice president, and Dr. Lewis B. Hill, Baltimore, secretary.

**Prevalence of Influenza and Pneumonia.**—Newspapers in various parts of the country report that influenza and pneumonia are prevalent. New York papers reported January 10 that 1,571 cases of influenza and 1,120 of pneumonia had been reported during the week ended January 9, compared with 699 and 680, respectively, for the preceding week. There were sixty-nine influenza deaths and 381 pneumonia deaths during the week ended January 9. Influenza was apparently decreasing, as 218 cases of influenza were reported January 9 as compared with 250 the previous day. Pneumonia, however, increased from 148 reported January 8 to 261 reported January 9.—In Chicago it was stated January 8 that 189 deaths had been attributed to influenza and pneumonia since January 1, with about 100 cases a day being reported. Last year only seventy-seven deaths were recorded for the same period from these diseases. During December, 458 deaths were attributed to the two diseases.—At Yale University eighty cases were reported January 11; it was said that the university infirmary was overflowing and attendance at classes was low.—For the week ended January 2 the U. S. Public Health Service reported 3,923 cases as compared with 2,688 in the previous week.

**Medical Bills in Congress.**—*Bills Introduced:* S. 5, introduced by Senator Sheppard, Texas, for Senator Copeland, New York, and H. R. 300, introduced by Representative Chapman, Kentucky, propose to prevent the adulteration, misbranding and false advertising of food, drugs, devices and cosmetics in interstate, foreign and other commerce subject to the jurisdiction of the United States. S. 6, introduced by Senator Lueden, Minnesota, proposes to provide for a nation-wide system of social insurance. A social insurance fund is to be created by an appropriation of \$5,000,000,000, from which compensation is to be paid to unemployed, aged or disabled workers. A worker is to be considered disabled if by reason of any physical or mental condition, sickness or handicap he is rendered incapable of total or partial work in his usual or in a suitable occupation, irrespective of fault and irrespective of whether such a disability is the result of accident, illness, disease, physical or mental handicap, or other causes. S. 12, introduced (by request) by Senator Robinson, Arkansas, proposes to authorize an appropriation of \$5,000,000 to enable "each state to provide and operate at least one hospital bed for tubercular patients to each annual death from tuberculosis." S. 325, introduced by Senator Hatch, New Mexico, proposes to prohibit the shipment and transportation in interstate or foreign commerce of cannabis and its derivatives and compounds, except when shipped or transported for medical and legitimate uses by the producer, manufacturer or dealer to licensed physicians, surgeons, dentists, pharmacists, druggists and veterinarians, under such rules and regulations as shall be prescribed by the Commissioner of Narcotics. A similar bill in the House, H. R. 229, introduced by Representative Fish, New York, proposes to amend the Narcotic Drugs Import and Export Act to provide that no cannabis indica, cannabis sativa, or cannabis americana may be imported for the purpose of making marihuana, or for any other purpose. H. R. 119, introduced by Representative Beiter, New York, proposes to extend the benefits of the United States Public Health Service to certain seamen. H. R. 136, introduced by Representative Cochran, Missouri, proposes to authorize the Reconstruction Finance Corporation to make loans to any public or private hospital organized under the laws of any state on the same terms and conditions that are applicable in the case of loans to financial institutions. H. R. 216, introduced by Representative Lemke, North Dakota, proposes to authorize the erection of an addition to the existing Veterans' Administration facility, Fargo, N. D., such addition to consist of 100 beds for the care and treatment of general medical and surgical disabilities. H. R. 279, introduced (by request) by Representative Celler, New York, proposes to enact a "Workers' Unemployment and Social Insurance Act" and to direct the Secretary of Labor to establish forms of social insurance to pay workers and farmers for loss of wages because of part-time work, sickness, accident, old age or maternity. H. R. 1555, introduced by Delegate Dimond, Alaska, proposes to authorize the Secretary of the Interior to establish a hospital for the insane of Alaska. H. R. 1560, introduced by Delegate Dimond, Alaska, proposes to extend the benefits of the United States Public Health Service to any person operating or employed on board certain vessels engaged in fishing operations. H. R. 1952, introduced by Representative Buchanan, Texas, proposes to include the name of Roger P. Ames among those honored by the act recognizing the service rendered by Major Walter Reed in the discovery of the cause and means of transmission of yellow fever. H. R. 1962, introduced by Representative Secrest, Ohio, proposes to establish a Bureau of Veterans' Affairs in the Department of the Treasury with the Commissioner of Veterans' Affairs at the head thereof, to abolish the Veterans' Administration and to transfer its functions to such bureau, to adjust and equalize pensions of veterans and widows and dependents of veterans and for other purposes.

## Deaths in Other Countries

**Sir David Semple**, first director of the Pasteur Institute of India and later director of the Central Research Institute of India, director general of public health of Egypt, 1913-1924, died in London, January 7, aged 89.

**Dr. David Fraser-Harris**, at various times associated with the faculties of Birmingham, Glasgow and St. Andrews universities and Dalhousie University, Halifax, N. S., and various publications on nerves and sleep; died January 3, London, aged 69.

**Sir Grafton Elliott Smith**, formerly professor of anatomy at the University of London, the University of Manchester and the Egyptian Government School of Medicine and for many years a member of the General Medical Council of Great Britain; known especially for his anthropological and studies; died January 1, at Broadstairs, Kent, aged 71.

it is that these principles be preserved. The medical profession everywhere should do its utmost to urge on all legislators who are concerned with these matters the desirability of recognizing this point of view in any legislation that may be adopted.

### NONSPECIFIC THERAPY

The practicing physician is frequently confronted with the necessity of doing something for his patient. A written prescription represents a positive action. Medication by syringe and needle, a measure carried out on the patient by the physician himself, is even more tangible and becomes a constant temptation. The extensive use of subcutaneous, intramuscular and intravenous therapy in other countries, the unwarranted enthusiasm of uncritical but vocal practitioners, the pressure from a wide circle of charlatans, the steady stream of literature emanating largely from the advertisers, the extravagant and untested claims of the manufacturers, all have given an undeserved stimulus to parenteral therapy and bid fair to make "needle men" of many physicians. The conservative, experienced practitioner, having been through these various "cycles," will explain to his patient why he does not endorse such a procedure and by his manner and conscientious care avoid driving his patient to the opportunists. He more than any other, if he is free from prejudices, is in the best position to know what a given therapy offers and whether or not he is justified in using it. He realizes also that any medication with which an effective dose can be given by mouth is preferable to one that requires introduction beneath the skin or into a vein.

The entire subject of nonspecific therapy was extensively and critically reviewed in *THE JOURNAL* a year ago in papers by Hektoen<sup>1</sup> and Cecil.<sup>2</sup> In these articles what might be expected from such treatment, its modus operandi, and specific instructions in its use were discussed at length. The differences between nonspecific therapy and nonspecific foreign protein therapy were cited, and the single aim of both, namely, "nonspecific shock" and stimulation of the reticulo-endothelial system as an aid to the bodily defenses, was pointed out. If a chemical agent with a wide margin of safety is capable of producing the same effects, it would seem quite logical to use it. There are undoubted instances when a sluggish response on the part of the host to both acute and chronic infections gives the invading disease process an advantage that may make it more difficult, if not impossible, to overcome. In such instances some help is of real value. However, the use of a nonspecific protein, while it may be shown even with adequate control observations to be effective, still in all probability leaves the host sensitized to the material used and possibly to many related substances. It has also been

demonstrated that the presence of one sensitivity increases the chances of acquiring others subsequently, a consideration not to be looked on lightly in view of the apparent increase in allergic diseases. Even the use of vaccines has been viewed askance on account of its possible relationship to amyloidosis.

In this issue of *THE JOURNAL* Bernstein and Ginsberg<sup>3</sup> report a case of hypersensitivity to milk occurring during a course of treatment with a milk derivative. The disadvantages of such therapy are pointed out. If "protein shock" is wanted, the danger of sensitization to this protein must be realized and reasonable precaution exercised in the selection of the protein to be used. Every effort should be made to choose the material least likely to occur in the patient's dietary or therapeutic environment. Many of these patients, as in the case under discussion, are polysensitive already and an increased sensitization from protein therapy is unlikely. However, the use of this therapeutic measure has not been, and will not be, wisely restricted without frequent reminders of its dangers. No doubt it has a real place in the therapeutic armamentarium, but in the light of our present knowledge we should do well to remember the old adage *noli nocere*, "do not harm."

## Current Comment

### EXTENSION OF MEDICAL SERVICE TO THE INDIGENT

For at least a quarter of a century the medical profession has been giving special consideration to the scientific, economic and social problems of providing medical care for all the people of a standard at least as good as that which now prevails. The House of Delegates of the Association has established definite principles to guide the medical profession in these matters. The fundamental points set forth in the policies established by the American Medical Association have been determined primarily with a view to conserving for medicine in the changing times those principles which are fundamental to the advancement of medical science and the best quality of medical service. Throughout the United States today hundreds of experiments in new forms of medical practice are being conducted—many of them under the auspices of organized medicine—with a view to meeting the needs that the changes in our civilization have made evident. Recognizing the situation that has developed, the Board of Trustees at a special session held in Chicago last week adopted the following resolution as a still further evidence of the willingness of organized medicine to do its utmost to meet these problems:

"In the past, the medical profession has always been willing to give of its utmost for the care of those unable to pay. The available evidence indicates that today throughout the United States the

1. Hektoen, Ludvig: The Reactions to the Nonspecific Protein Treatment of Infectious Diseases, *J. A. M. A.* 105:1765 (Nov. 30) 1935.

2. Cecil, R. L.: Nonspecific Protein Therapy, *J. A. M. A.* 105:1846 (Dec. 7) 1935.

3. Bernstein, Clarence, Jr., and Ginsberg, J. E.: Sensitization to Milk as a Result of Its Use in Nonspecific Foreign Protein Therapy, this issue, p. 193.

two noble lords who were members of the medical profession that their duty was to cure and not to kill? This was a bill to legalize murder and suicide. Euthanasia was contrary to the law of nature, which branded it as evil and cowardly. The bill asked them to ignore the Almighty. The archbishop of Canterbury said that this was a most difficult question, in which principle and compassion contended. It must be approached on the basis of the moral principle that no man was entitled voluntarily to take his own life. There must be some exceptions even to that principle, but it was one thing to admit exceptions and another to give authority to the counterprinciple that a man in his own interest might bring his life to an end. They must consider the effects on the public conscience of giving for the first time legal enactment to the principle that there were circumstances in which a man might for his own sake end his life. He doubted whether a man who was wracked with pain was capable of making a sound moral judgment. Would not the procedure contemplated by the bill inflict an almost intolerable strain when a man had to ask himself, for his own sake or of those dear to him, whether he should avail himself of this provision? Moreover, they could not dismiss the possibility of pressure by relatives from other than motives of compassion. Extreme cases might be left to the medical profession. If in one of them a physician decided to refrain from using means that would prolong life or to use means for the assuagement of pain that might lead to the shortening of life, was it not a perversion of language to say that he might be regarded as having committed murder or manslaughter? He would trust to the honor and judgment of the medical profession and would support the rejection of the bill.

Lord Dawson said that he would not like an impression to go out that agonizing pain was a more frequent characteristic of disease than it really was. It would not be correct to say that most cases of cancer were characterized by agonizing pain. There was much more control of pain today than existed years ago. Medical opinion had changed on this question. Fifty years ago the profession concentrated on the maintenance of life, in spite of the nature of the illness and even sometimes the imminence of death. It was thought that it was the duty of the physician to continue the struggle for life right up to the end. That had changed. There had gradually crept into medical as into lay opinion the feeling that one should make the act of dying more gentle and peaceful, even if it did involve curtailment of the end of life. The question should be left to the gentle and slow growth of opinion, both in the public and in the profession. A woman had incurable disease and incomparable suffering for nine years but continued to work to maintain her family. Eventually, crushed by pain, she asked for a timely death. Was the submerging of her sufferings to be denied her because death might be delayed three or four months? His view was that it should not, but there were no two people alike, and only her own physician should decide whether her desire for death was something more than a passing effect of suffering. He could not conceive a more intimate relation than that between a patient mortally ill and her physician. If passed, this bill would destroy the relation. The very idea of the sick chamber being visited by officials, the patient being treated like a case of insanity, was something so opposite from the attitude of the physician that, far from permitting the general growth of euthanasia, it would have the opposite effect. Physicians would hesitate to touch it. They would not like to introduce such an atmosphere into the sick chamber.

Lord Horder said that he did not think that this was a matter on which the medical profession should be asked to give a lead. Indeed, he was sorry that physicians had joined the movement and associated themselves with propaganda in favor of the bill. Physicians, at least in this country, were

sympathetic toward the modern efforts to secure biologic control before life began and while it lasted. But in the matter of putting an end to life, surely a new principle entered, which he submitted was outside the physician's reference, which was very clear: to cure disease safely and quickly, and, if that could not be achieved, his duty was to prolong life as long as might be and relieve pain both bodily and mental. According to the bill, euthanasia would be administered by others than the usual attendant; but was not that very fact serious? The intimate relations between physician and patient, especially toward the close of life, would be replaced by the introduction of strangers. Was that in the patient's interest? The criteria which justified the termination of life would be extremely difficult, so difficult that he would hesitate to undertake so great a responsibility as was placed on the referee. The incurability of disease was never more than an estimate. The bill would apply mainly to cases of cancer. There were cases today of persons suffering from that disease who were living free from pain as the result of advances made in treatment. With the prospect of further advances in the near future, the criteria of fatality would become more difficult. Never were so many means of relieving pain available as was the case today.

The bill was rejected by 35 votes to 14. It is remarkable that the voting was not more onesided, considering that both the clerical and the medical members of the house opposed it and that the debate was almost entirely onesided. The only point made against the opponents was that they had admitted that in certain cases the physician must act on his own initiative in terminating suffering. That put on him a heavier responsibility than the bill would place on him. During the discussion which took place in the medical press after the proposal to legalize voluntary euthanasia was brought forward, some physicians declared that they had acted in this way. As hinted in the debate in the house of lords, it is not necessary for a physician to break the law. In extreme cases he can quite legally prescribe narcotics in doses which will relieve pain regardless of any question of danger.

#### Methods of Dealing with Air Attacks

Elaborate precautions continue to be taken against one of the latest developments of civilization—air attacks on the civilian population. The government is manufacturing 30 million gas masks in a factory recently acquired for the purpose. They will be kept in stores dotted all over the country in readiness for use. They will not be distributed in peace time, because they are delicately constructed and, if entrusted to the keeping of the public, might be found useless when the time came for their use. The instruction of physicians in the dangers of air attacks and the precautions against them has begun. At a meeting organized by the Medical Practitioners Union, Major Stuart Blackmore of the Home Office delivered an address. He said that the three major dangers of air attacks were high explosive bombs, incendiary bombs and gas bombs. He placed gas last because in spite of its extraordinary dangers to an untrained population—as shown recently in Abyssinia—it was the least dangerous of the three if people had a proper degree of training and equipment. A high explosive bomb was a danger against which it was practically impossible to provide adequate protection. The object of the incendiary bomb was to produce widespread fire. For that reason it was not large, weighing about 2 pounds. It was much more difficult to deal with a large number of small sources of fire than with a small number of large sources. Incendiary bombs were provided with their own oxygen and it was undesirable to put water or chemical extinguishers on them. They burned at such a high temperature that a chemical applied to them would be decomposed and give off dangerous gases. Water and extinguishers should be applied to the area surrounding the fire.



longitudinal ridging and occasional sloughing, subcutaneous edema probably of cardiorenal origin, peripheral neuritis, and protracted gastro-intestinal disturbances. Urine analysis revealed selenium in quantities of from 2 to 133 micrograms per hundred cubic centimeters in more than 92 per cent of the subjects. These symptoms and appearances may be manifestations of the poisoning; it is important for the health of the rural population in the involved areas that their relative clinical significance be determined.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

**Personal.**—Dr. Walter W. Brown, Williford, has been appointed coroner for Sharp County, and Dr. George R. Siegel, Clarksville, for Johnson County. Dr. Bert B. Bruce, Alma, has been elected coroner of Crawford County.

**Committee for Control of Syphilis.**—The Arkansas Medical Society has appointed a committee on the control of syphilis with the following members: Drs. Louis G. Martin, Hot Springs National Park; Davis W. Goldstein, Fort Smith, and George F. Jackson, Little Rock. The first meeting was held December 15.

**Secretaries' Conference.**—The second annual conference of county medical society secretaries in Arkansas was held at the Hotel Marion, Little Rock, January 5. The following program was presented:

- Dr. George B. Fletcher, Hot Springs National Park, president, state medical society, Compulsory Health Insurance.
- Dr. Lee Vallette Parmley, Little Rock, Medical Legislation.
- Dr. William B. Grayson, Little Rock, How the Social Security Act Works.
- Dr. Albert S. Buchanan, Prescott, Problems of the State Medical Board.
- Omar Throgmorton, Little Rock, Malpractice: Cause, Prevention and Defense.
- Mac F. Cahal, executive secretary, Sedgwick County Medical Society, Wichita, Kan., The Modern Aggressive County Medical Society: An Instrument of Value to the Private Practitioner.

### CALIFORNIA

**Society News.**—Dr. Rosco G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, will discuss "Medical Economics" before the San Francisco County Medical Society February 4.—Dr. Arthur E. Hertzler, Halstead, Kan., discussed "Malignant Tumors of the Colon and Rectum, with Emphasis on Diagnosis and Treatment" before the Los Angeles Cancer Society, December 14.—Among others, Dr. Louis K. Guggenheim, St. Louis, addressed the Los Angeles Society of Ophthalmology and Otolaryngology, December 21, on "The Pathogenesis of Otosclerosis."

**Course for Sanitary Inspectors.**—The University of California has organized a second training course for sanitary inspectors, continuing its drive to assist state health departments in training adequate public health personnel. The course will run from February 8 through May 4 under the direction of Karl F. Meyer, Ph.D., professor of Bacteriology, University of California Medical School, and director of the Hooper Foundation for Medical Research, San Francisco. Eight weeks will be given to lectures, conferences, laboratory practice and group field trips, and the final four weeks will consist of practical study in county and city health departments.

### DISTRICT OF COLUMBIA

**Medical Bills in Congress.**—*Bills Introduced:* H. R. 220, introduced by Representative Lemke, North Dakota, proposes that no form of vaccination or inoculation shall be made a condition precedent, in the District of Columbia, for the admission of any person to any public or private school or college, or for the exercise of any right, the performance of any duty or the enjoyment of any privilege by any person. S. 84, introduced by Senator White, Maine, proposes to provide for the issuance of a license to Dr. Ralph Charles Stuart to practice the healing art in the District of Columbia.

**Civic Award to Dr. Hall.**—Dr. Custis Lee Hall, assistant professor of orthopedic surgery, George Washington University School of Medicine, was presented, January 4, with the first Citizens' Service Award for 1936. The cup, which will be awarded annually to the citizen who is considered to have rendered the most unselfish service to the whole community, is provided by the *Washington Times*; the recipient is selected by a representative citizens' committee. Dr. Hall was chosen for his work among crippled children and adults. He is a native of Washington and graduated from George Washington University School of Medicine in 1912. He was formerly president of the Washington Medical and Surgical Society and of the George Washington University Medical Society.

### ILLINOIS

**Hospital News.**—Dr. William DeHollander, Green Bay, Wis., has been placed in charge of the x-ray department of St. John's Hospital, Springfield, succeeding Dr. Lawrence M. Hilt, who has been appointed to a similar position with Butterworth Hospital, Grand Rapids, Mich.

**Society News.**—Dr. Walter Schiller, University of Vienna, will discuss gynecologic endocrinology before the Springfield Medical Club, January 19.—At a meeting of the Peoria City Medical Society, Peoria, January 5, Carlos I. Reed, Ph.D., and Dr. Irving E. Steck, Chicago, spoke on "Mineral Metabolism in Arthritis Under Treatment with Vitamin D" and "Clinical Experience in Treating Arthritis with Vitamin D" respectively.—Dr. Charles J. Drucek, Chicago, addressed the McLean County Medical Society in Bloomington, January 12, on "What Brings the Anorectal Patient to the Doctor."

### Chicago

**The Hektoen Lecture.**—Dr. Ernest W. Goodpasture, professor of pathology, Vanderbilt University School of Medicine, Nashville, will deliver the thirteenth Ludvig Hektoen Lecture of the Frank Billings Foundation before the Institute of Medicine of Chicago, January 22. The subject of his illustrated lecture will be "Vaccinia."

**Dr. Parran Will Give Gehrman Lectures.**—Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., will deliver the Gehrman Lectures for 1936-1937 at the University of Illinois College of Medicine, January 25, 26 and 27. His subjects will be "Health as a Factor in Social Security," "Industrial Hygiene" and "Syphilis."

**Personal.**—Dr. Harry Gradle has been appointed consulting ophthalmologist to the Indian Medical Service, U. S. Department of Interior.—Arnold Emch, Ph.D., has been appointed executive director of the Chicago Hospital Council, succeeding Perry Addleman, who has been appointed to a similar position with the Hospital Service Corporation.

**Professor Stieglitz Dies.**—Julius O. Stieglitz, Ph.D., professor emeritus of chemistry, University of Chicago, died of coronary occlusion and lobar pneumonia at Chicago Memorial Hospital, January 10, aged 69. Dr. Stieglitz was born in Hoboken, N. J., May 26, 1867. He received the degree of doctor of philosophy from the University of Berlin in 1889. Clark University awarded him an honorary degree of doctor of science in 1909. Identified with the University of Chicago since 1892, he was professor of chemistry from 1905 to 1933, when he was made professor emeritus. He was director of analytic chemistry at the university from 1909 to 1915, director of the university laboratories, 1912-1924, and chairman of the department of chemistry, 1915-1933. Dr. Stieglitz was a charter member of the Council on Pharmacy and Chemistry of the American Medical Association, serving continuously from 1905 to 1926, and was chairman of its Committee on Rules and Procedure. Although most of his investigative work was in the difficult field of physical chemistry applied to organic chemistry, this never affected his interest in the application of chemistry to science and medicine. From 1917 to 1919 he was chairman of the Committee on Synthetic Drugs of the Federal Trade Commission. The purpose of this committee was to aid in the manufacture of drugs on which Germans held patents and to give names to the American preparations. Thus this committee aided in working out methods of manufacture of arsphenamine, cinchophen, barbitol, procaine and other substances and coined these names. He was a member of the International Commission on Annual Tables Constants, 1915-1921, and a member of the Institute of Medicine of Chicago. From 1917 to 1919 he was chairman of the committee on synthetic drugs of the National Research Council and vice chairman of the division of chemistry, 1919-1921. Since 1918 he had served as a special expert for the Hygienic Laboratory of the U. S. Public Health Service. He edited the widely distributed book "Chemistry in Medicine," published under the

remarks that this can be easily circumvented by renting adjacent rooms or perhaps, as he states, there will be created a new trade as now exists in the United States; namely, that of "renting baggage" for a small fee. There will still remain, for those able to pay a higher sum, houses of assignation. The closing of "tolerated" houses will result in increase of street soliciting, which will render control of venereal diseases more difficult than at present, when the inmates of the "tolerated" houses are examined twice a week by medical inspectors of the police departments. The existing system of "segregation" with its strict control will be superseded by that of "scattering" and less perfect medical supervision, so that the number suffering from venereal diseases will be greater than at present. Bizard pleads for an amelioration instead of suppression of "tolerated" houses, citing the measures taken in Italy, which has prohibited street soliciting but allowed "tolerated" houses to exist without any special signs or lights indicating the character of their trade. Such a plan will do more to check venereal diseases than that of forcing prostitutes to go on the streets.

#### Dedication of Eastman Dental Clinic in Paris

Work has progressed so rapidly on the million dollar Eastman Dental Clinic, now under construction in Paris, that Dr. Harvey J. Burkhart, director of the Rochester Dental Dispensary and general administrator of the Eastman Foundation, announced recently that it is hoped to finish the entire building in time to hold the dedication ceremonies on July 4, 1937. The president of the French Republic, Mr. Lebrun, Ambassador William C. Bullitt and a number of other leading French and American personalities will be invited to take part in the ceremonies. The clinic was designed to provide free dental service for children less than 16 years of age who are unable to pay. The clinic occupies a large area, and the open land surrounding the clinic will be converted into parks and playgrounds. The work of the Paris Eastman Clinic will be based on that carried out at Rochester, and it should serve as a center for dentists and dental surgeons to carry on research and postgraduate work. It will also aim to teach children and parents the need and value of regular dental work throughout their lives.

#### Meeting of French Gynecologic Society

The 1937 meeting of the French Gynecologic Society will be held May 15-18 at Toulouse. The subject chosen for general discussion is cancer of the cervix, and papers will be read on the etiology and pathology, diagnosis, influence on the urinary tract, operations during pregnancy, treatment with radium, x-rays or electrocoagulation, complications of radiotherapy, cancer of the cervical stump after subtotal hysterectomy, recurrences and metastases. Those who desire to attend are requested to write to Dr. Maurice Fabre, 1 rue Jules-Lefebvre, Paris.

#### Death of Prof. Victor Pauchet

The surgeon Prof. Victor Pauchet died recently in Amiens, where he had lived since his retirement in 1935. He was born in Amiens, where he practiced until shortly after the World War. He was professor of surgery at the local medical school. His reputation as one of the most able surgeons on the continent reached its climax during his residence in Paris (since 1919). His contributions to the literature of gastro-intestinal surgery were read all over the world. His book on operative technic has been translated into Spanish and English. The clinics which Professor Pauchet held twice a week at the Hôpital St. Michel were attended by surgeons from every country. During the summer of 1935 he sustained a severe concussion of the brain, from which he never fully recovered. His death was due to a cerebral hemorrhage following a fall. France loses through the death of Professor Pauchet one of its most prominent figures in surgery of the alimentary tract.

## BERLIN

(From Our Regular Correspondent)

Nov. 23, 1936

### Growth of German Sick Insurance

The latest figures on the growth of the German sick insurance have just been made public. More recent supplementary data have been added to the statistics that were published in *The Journal* June 27, 1936, page 2250. The sick insurance societies continued to decrease in number during 1935. In the year 1934 there were 6,190 such societies, but in 1935 only 5,520 were listed. This decline in number is a consequence of a tendency to merge on the part of the smaller sick insurance societies. Of a total membership of 20,835,000 persons, 13,700,000 were male subjects and 7,200,000 were female. According to the report of the National Bureau of Statistics, the average number of members during 1934 was 19,900,000, representing an increase of around 1,400,000 more than the year 1933; in the year 1935 the corresponding average was 20,900,000 members, an excess of 1,000,000 more than in the previous year, 1934. The administrative personnel of the sick insurance societies numbered 35,635 persons in 1934 and 36,229 persons in 1935. Since 1924 the number of society employees has been increased by nearly 10,000 persons.

The cases of illness recorded in 1934 amounted to 6,400,000. These were in some way related to loss of working capacity. There were 7,400,000 such cases in 1935. Of each 4.9 cases in which the societies provided medical care (including dental treatment), one case on the average involved a loss of working capacity.

Since 1929 there has been an increase in the average duration of illness up to 1933 and then a decrease (table 1). The number of sick days, including hospital care, is given in table 2. Of 158,500,000 sick days computed for the year 1934, around 121,000,000 were days on which the patient was treated at home and received monetary benefits; that is, the insured were incapacitated for work on those days. For 5,900,000 other sick days, no claim of monetary benefits was involved; namely, treatment for illness was administered but the insured remained

TABLE 1.—Average Duration of Illness, 1929-1934

Year	Days
1929	23.7
1930	27.3
1931	28.7
1932	29.3
1933	25.6
1934	24.6

TABLE 2.—Number of Sick Days, Including Hospital Care

Year	Sick Days in Millions
1929	294
1930	236
1931	204
1932	157
1933	156
1934	154.5

at work. Finally, 31,600,000 of these sick days were days on which insured persons were in the hospital. Hospitalization was chiefly demanded by members of the rural sick insurance societies; that is to say, by many more of the rural population than of the urban population. Dr. Hadrich, a member of the League of Sick Insurance Physicians of Germany, reports interesting calculations of his own in the *Deutsches Ärzteblatt*. He found that especially in the country the expenditures for physicians' honorariums were lower than the rates for hospital care. As a result of the slight remuneration received for services in the rural regions, physicians tend to embrace and

## NEW YORK

**Personal.**—Dr. Marion F. Loew, formerly supervisor of tuberculosis clinics in the New York City Department of Health, has been appointed assistant director on the staff of the division of maternity, infancy and child hygiene of the New York State Department of Health.—Dr. Joseph Lander, a member of the staff of Grasslands Hospital, Valhalla, since June, has been appointed assistant chief of the department of psychiatry.—Dr. Alfred M. Mead, Victor, was guest of honor at a dinner at the nurses' home of Thompson Hospital, Canandaigua, recently in celebration of his eightieth birthday. He is the senior member of the hospital staff and has practiced fifty-six years.

### New York City

**Fourth Harvey Lecture.**—Dr. Rudolf Schoenheimer, assistant professor of biologic chemistry, Columbia University College of Physicians and Surgeons, will deliver the fourth Harvey Lecture of this season at the New York Academy of Medicine, January 21, on "The Investigation of Intermediary Metabolism with the Aid of Heavy Hydrogen."

**Awards at Hospital for Joint Diseases.**—The Henry W. Frauenthal Travel Scholarship of the Hospital for Joint Diseases has been awarded to Dr. Charles J. Sutro for 1936-1937. Dr. Sutro, a graduate of Long Island College of Medicine, has been associated with the hospital since 1931 and last year held the Mr. and Mrs. Frederick Brown Orthopedic Research Fellowship. The latter fellowship, given by the president of the hospital, was awarded to Dr. Aaron M. Gold for 1937. Dr. Gold, who was graduated from Harvard University Medical School in 1931, also held this fellowship for 1936.

**Changes at Long Island College.**—Dr. Charles A. Weymuller, assistant clinical professor of pediatrics at Long Island College of Medicine, has been promoted to be professor of pediatrics. Dr. Lambert Krahulik has been promoted to be professor of clinical pediatrics, and Drs. Stanley S. Lamm and Lewis A. Koch, Brooklyn, and David H. Shelling, Baltimore, have been appointed assistant clinical professors of pediatrics. Dr. Carl H. Laws, professor of clinical pediatrics, has been appointed to a newly established professorship of child health and welfare in the division of preventive medicine and community health.

**Professor Benedict Is Dead.**—Stanley R. Benedict, Ph.D., professor of chemical pathology, Cornell University Medical College, died December 21, aged 52, at his home in Elmsford. Dr. Benedict became associated with Cornell in 1910 as assistant professor and became professor and head of the department of biochemistry in 1912. He was known as the originator of the Benedict solution for determination of sugar content in diabetes and other tests for chemical analysis of body fluids. He was president of the Society of Biological Chemists in 1920 and at the time of his death was managing editor of the *American Journal of Biochemistry*.

## OHIO

**"Diet Expert" Brooks Banished.**—Michael Erim Brooks, self-styled "psychologist," "mindologist," "health lecturer" and "diet expert," was recently convicted in Toledo of practicing medicine without a license. He was fined \$1,000, but the fine was reduced to \$250 on his promise to leave the state. Brooks had his office and lecture hall in the basement of a Toledo church and gave lectures weekly at \$5 per person. He admitted that his income was \$800 a month from the lectures and "treatment." At the request of the Toledo Academy of Medicine, the State Medical Board investigated with the cooperation of the county prosecutor, the police department and the Toledo Better Business Bureau. It is said that Brooks was ordained to the Methodist ministry in 1923 and was at one time advance man for a medicine show. The *JOURNAL* reported May 2, 1931, page 1513, that one M. E. Brooks had been fined \$400 in San Diego for having advertised in violation of the medical practice act. He is said to have called himself "Dr. Brooks" and to have claimed that he cured disease through diet and a preparation called "Vivogen."

## OKLAHOMA

**Society News.**—Drs. Henry S. Browne and Joseph Fulcher, Tulsa, addressed the November meeting of the Craig County Medical Society on genito-urinary diseases.—At the November meeting of the Logan County Medical Society in Guthrie, Drs. Hervey A. Foerster and Anson L. Clark, Oklahoma City, spoke on "Common Skin Diseases" and "Mandelic Acid Treatment in Urinary Tract Infections" respectively.

**Bill Enacted.**—H. 19-X was approved by the governor, January 4. This law appropriates \$100,000 for the fiscal year ending June 30, 1937, to provide funds for the state board of public welfare for grants to the several counties for medical, dental, osteopathic, ocular, surgical and hospital treatment of indigents. The board is to grant not to exceed \$1,000 monthly to each county showing the necessity therefor, to be disbursed by the particular county welfare board, which is to provide hospitalization for indigents in need of such care and to furnish and pay for a "medical doctor, dentist, osteopath or optometrist" of the patient's choice.

## PENNSYLVANIA

**County Society Secretaries' Conference.**—The thirtieth annual conference of secretaries of county medical societies and the editors of their publications will be held at the Penn-Harris Hotel, Harrisburg, February 2. Subjects proposed for discussion include proposed health legislation, how to deal with unlicensed practitioners, interesting programs for small societies, county plans for medical service to indigent and low income groups, methods for increasing county society membership and collecting dues, hospitalization insurance, the county society and its membership in politics. Among the speakers will be Drs. Charles Gordon Heyd, New York, President of the American Medical Association; Maxwell J. Lick, Erie, president of the Medical Society of the State of Pennsylvania, and representatives of the county societies that are developing collection and sickness service plans.

### Philadelphia

**Personal.**—The staff of the Joseph Price Memorial Hospital gave a dinner in honor of Dr. James W. Kennedy, surgeon-in-chief for twenty-five years, December 5. Dr. Samuel R. Shaner was toastmaster. Dr. Kennedy is president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons.

**Society News.**—Dr. Gregor W. McGregor, Toronto, addressed the Philadelphia Laryngological Society, January 5, on "The Histopathology of Mastoiditis and the Correlation of the Various Diseases Concerned."—Dr. Samuel A. Cosgrove, Jersey City, addressed the Obstetrical Society of Philadelphia, January 7, on surgical complications of pregnancy.—At a meeting of the Philadelphia Roentgen Ray Society, January 7, the speakers were Drs. Stanley P. Reimann, on "Biological Bases for the Growth and Regression of the Breast"; Jacob Gershon-Cohen, "Roentgen Diagnosis of Breast Tumors" and George P. Müller, "Present Day Concepts in the Treatment of Malignancy of the Breast."

## VIRGINIA

**Personal.**—Dr. Jesse B. Hopkins, Pound, has been appointed to the staff of the bureau of communicable diseases of the state department of health.—Dr. Greer Baughman was appointed surgeon to the fire department of Richmond in December.

**Health at Richmond.**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended January 2, indicate that the highest mortality rate (31.4) appeared for Richmond and that the rate for the group of cities was 14.5. The mortality rate for Richmond for the corresponding week of 1936 was 18.2 and that for the group of cities, 13.8. Caution is necessary in interpreting these weekly figures, as they fluctuate widely. The fact that a city is a hospital center for a large area or that it has a large Negro population may tend to increase the death rate.

## WASHINGTON

**Society News.**—At a meeting of the King County Medical Society, Seattle, January 18, the speakers will be Drs. Donald J. Thorp and David Metheny, on "Does the Bony Pelvis Enlarge During Pregnancy?" and "Instrumental Perforation of the Rectosigmoid" respectively.

**New State Health Officer.**—Dr. Donald G. Evans, Seattle, has been appointed commissioner of health for the state of Washington, succeeding Dr. Erval R. Coffey, who had been on leave from the U. S. Public Health Service for the past three and a half years. Dr. Evans is 32 years old and a graduate of Iowa State University School of Medicine. He spent his internship at the Seattle General Hospital and recently received a certificate in public health at Johns Hopkins University. At one time he was associated with the health department of Seattle and for the past year has been assistant state director of health.

## MARRIAGES

## BELGIUM

(From Our Regular Correspondent)

Nov. 16, 1936.

## Ancylostomiasis in Belgium

Dr. Timbal has submitted to the International Bureau of Hygiene a review of the more important measures that have been taken to combat ancylostomiasis in Belgium. First Professor Malvoz, with the aid of the provincial authorities of Liège, the colliery association and the workers' mutual aid organizations, was able to establish a laboratory, the activities of which included the search for the causative organisms in stools and the institution of therapeutic measures (oral administration of ethereal extract of *Aspidium filixmas* twice every forty-eight hours). Later on a royal decree of Oct. 29, 1904,

TABLE 1.—*Ancylostomiasis Among Belgian Miners*

Mining Region	Percentual Morbidity of Miners	
	1904-1906	1908-1910
Haute Meuse .....	10.8	5.1
Plateau Ans-Montegnée .....	20.2	5.3
Liège and Basse-Meuse .....	8.6	8.5
Plateau de Herve .....	5.1	1.9
Averages .....	11.4	5.3

provided for the detection and treatment of worm carriers. A law of Dec. 31, 1920, stipulates that before any worker shall be employed in a coal mine his excreta shall have been examined microscopically within the preceding forty days by an approved physician and found to be negative. A second examination must also be made from thirty to forty days subsequent to the first. A worker who transfers from one mine to another must undergo reexamination. Further examinations for checking on the condition of the men are optional. A miner who presents the disease must undergo a course of curative treatment in a hospital approved by the bureau of mines. The mine operator must bear the expenses of such curative treatment and must compensate the worker for wages lost on account of the recheck examinations. In the province of Liège all examinations are carried on at a central dispensary and this arrangement facilitates the observation of a worker who successively

TABLE 2.—*Morbidity Since 1914*

Year	Number of Examinations	Number Positive	Percentage Positive
1915 .....	24,278	115	0.47
1920 .....	17,624	53	0.19
1921 .....	19,359	3	0.015
1922 .....	22,614	15	0.066
1923 .....	27,084	2	0.007
1924 .....	27,508	12	0.043
1925 .....	20,578	2	0.009
1926 .....	23,109	2	0.008
1927 .....	18,443	13	0.07
1928 .....	19,094	10	0.052
1929 .....	23,790	10	0.042
1930 .....	26,100	11	0.041
1931 .....	14,190	3	0.021
1932 .....	5,764	1	0.017
1933 .....	6,487	0	0.000
1934 .....	3,393	1	0.029
1935 .....	6,242	2	0.032

transfers his services from mine to mine. The law also compels the management of infected mines to provide a sufficient number of latrines at the surface and portable buckets to be used by the men below ground for sanitary purposes. Company regulations must forbid the deposit of excrement within the mine or anywhere else but in the latrines and buckets. Thanks to these various measures, the percentage of infected miners underwent a rapid decrease, as the morbidity table for

the years from 1904 to 1906 (first column) and from 1908 to 1910 (second column) shows. The incidence of worm carriers in the coal mines of the area was estimated at 26 per cent. Since that time there has continued to improve, as table 2 shows. There has been that ancylostomiasis has been extirpated, or nearly so, from the Liège area and the same is true of other regions in Belgium.

## The Red Cross in the Congo

The Croix Rouge du Congo has published a report of its activities during 1935. It is an eloquent record of the work accomplished by this important branch of the Red Cross. The Congo Red Cross, founded in 1924 and provided with laws and by-laws, received the status of a corporation by a royal decree of May 14, 1926. As early as 1925 Dr. Gonzemius founded the organization's first medical center for the care of the native population, an enterprise which was at once enthusiastically received. In 1921 Professor De Weert of the Royal Colonial Institute reorganized the antileprosy station at Pawa, which since that time has become an extremely important center for research on the epidemiology and therapeutics of leprosy. The well equipped Pawa laboratory is headed by Dr. Vaubreuseghem. Thanks to the energy and efficiency of Dr. Gonzemius and the intelligent assistance of Mme. Gonzemius, lying-in hospitals and consulting centers for nursing mothers have been established and training of the native midwives has been encouraged.

The statistics are eloquent of the admirable manner in which both the administrative officials and the personnel have acquitted themselves in this beneficent work. From 1926 to 1935 the number of hospitals increased from one to seven, the number of hospitalized patients from 200 to 3,000. Dispensaries increased from two to twenty-nine, the number of cases treated therein from 20,000 to 100,000 and the number of examinations from 10,000 to 800,000.

## Marriages

- GEORGE CLEGG WILLIAMS, Jewell Ridge, Va., to Miss Muriel Elizabeth Smith of Wilmington, N. C., Oct. 3, 1936.  
 ROBERT HAWTHORNE WYLIE JR., New York, to Miss Jane Deyo Voorhees of Hartford, Conn., Oct. 10, 1936.  
 THOMAS JEFFERSON TAYLOR, Scotland Neck, N. C., to Miss Doris Darling of Endicott, N. Y., Oct. 3, 1936.  
 SAMUEL T. BERNSON, Newark, N. J., to Miss Ethel Grayce Esterman of Green Bay, Wis., Sept. 19, 1936.  
 CLARRY CLYDE TRICE, Richmond, Va., to Miss Mary Alice Farrell of High Point, N. C., Oct. 3, 1936.  
 THOMAS IRVIN WILLINGHAM to Miss Fort Scott Meade, both of Atlanta, Ga., in October 1936.  
 JOHN MOKMA VAN DE ERVE to Miss Caroline Anderson, both of Charleston, S. C., Oct. 24, 1936.  
 ALBERT W. THOMPSON to Mrs. Lula Campbell, both of O'Donnell, Texas, Sept. 26, 1936.  
 JOSEPH D. MILLARD to Miss Margaret Luder, both of Shalomkin, Pa., in October 1936.  
 JAMES A. WARD, Golconda, Ill., to Miss Thelma McFarland of Louisville, Ky., Oct. 10, 1936.  
 CARL H. JOHNSON, Williamsport, Pa., to Miss Nancy H. of Gettysburg, Oct. 30, 1936.  
 JOSEPH EDWARD MACMURDO to Miss Leona N. Hoot, both of New York, Nov. 7, 1936.  
 RICHARD GLENN PETER, Kilgore, Texas, to Miss Marjorie of Helper, Utah, recently.  
 JOHN W. WHITFORD, Logan, W. Va., to Miss Grace H. in Raleigh, Oct. 3, 1936.  
 EDWIN DARRICH BRYANT, Phoenix, Ariz., to Miss L. of Tucson, recently.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Dec. 12, 1936.

#### Physicians in Politics

For a Chadwick lecture Sir Francis Fremantle, M.P., a retired health officer, took as a subject "The Doctor's Mandate in Parliament." He said that the doctor's mandate was to express the special experience of the profession and its knowledge of life in every phase and every section of the community, both on matters of health and on those of general policy and administration. On health matters the physician had his great opportunity. Postwar health legislation had developed the whole machinery of public health to a remarkable extent, throwing the burden of its administration on local authorities with generous expert and financial assistance from the government. The law had been simplified by consolidation; the auxiliary professions—nurses, midwives, dentists, architects, health visitors—had been recognized and helped. Probably the greatest measure of all was the local government act, with its block grant, the conversion of the poor law into public assistance under county councils and the systematic arrangement of local administration. The effects of that work were reflected in the twenty-five years of the late king's reign by the marked decline or elimination of some diseases (e. g., the fall of typhoid deaths from over 3,000 to 160 a year), the fall of the death rate by nearly 4 per thousand and of infant mortality by 71 per thousand and the increase in the expectation of life by seven years.

Medical members of parliament had not, of course, been the chief movers in these reforms but they had played a considerable part. Before the war they had Lord Lister and Lord Ilkerton (previously Sir Balthazar Foster) in the house of lords, they had an attorney general in Sir Robert Finlay, and they had Sir W. J. Collins (chairman of the London County Council) and Dr. Addison (professor of anatomy). Since the war Lords Dawson, Moynihan and Horder had served in the upper house, while Dr. Addison, Sir Auckland Geddes and Mr. Elliott had risen to cabinet rank and been responsible for much progress in health and housing. The universities had sent as members of parliament Sir Watson Cheyne, Sir George Berry, Sir E. G. Graham-Little and others. A parliamentary medical committee was formed after the war and worked in close association with the British Medical Association. It had taken an active interest in the principal bills and subjects affecting health.

On general policy and administration the medical member of parliament had no less an important part to play, which as yet was little recognized. He had a unique knowledge of the condition of the people and their mentality. He should know best both the effect of parliamentary action in the social sphere and the will of the electorate in any matter. This was of increasing importance in a democracy. He was trained to the correct method of dealing with any problem by observation of facts, diagnosis of cause, prescription of treatment and after-care or postmortem. He took party for what it was worth, essential for practical purposes but reflecting only tendencies. He saw the limitations of any policy and in his mind had achieved a synthesis which was best expressed by an all-party government. If he aimed at high office he must avoid much occupation at first with health matters or he would be damned as an expert. By such avoidance he gained experience and credit and might in the end be of the greatest service to the state, even in health matters. But even in the rank and file of politicians there was much for the doctor to do with his mandate. On him fell the privilege of dealing fearlessly in private and in public with the awkward topics—sexual questions and marriage, betting

and licensing, Sunday trading, and moral and ecclesiastical problems. He almost alone in parliament had no right to shirk the difficulties of birth control and other national dangers. He especially could see disease in the body politic at an early stage and prescribe for its elimination. His part should be of especial value in deciding root policy affecting peace and war, strikes and conciliation. He stood above all for the proper blend of material and spiritual values.

#### Proposed Extension of Public Medical Service in London

At a meeting of the council of the British Medical Association the chairman of the medicopolitical committee, Dr. Bone, brought forward a recommendation that a request for extension of the London public medical service to persons of higher income limit be acceded to, but only in those division areas of the metropolis which desired it. Sir Henry Brackenbury moved an amendment that the request be acceded to on condition that rules were laid down for the nonoperation of the extension in the event of an expression of opinion against it in any unit of the metropolitan area. If a certain number of physicians desired the extension and all the rest were indiffer-

#### Classes of Subscribers and Their Contributions

##### Class I. Incomes between \$1,250 and \$1,875

No. in Family	Annual Subscription
1	\$ 7.50
2	12.50
3	17.50
4	20.00
5 or more	22.50

##### Class II. Incomes between \$1,875 and \$2,375

1	10.00
2	15.00
3	20.00
4	22.50
5 or more	25.00

##### Class III. Incomes between \$2,375 and \$2,750

1	12.50
2	17.50
3	22.50
4	25.00
5 or more	27.50

ent, it was clearly right that the request should be granted. Indifference of physicians to the extension was not important, but opposition to it would be serious. The amendment was carried. The classes of subscribers and their respective contributions are given in the accompanying table. The privileges of subscribers include a general practitioner service and a supply of ordinary medicines; also, when desired by the subscriber, an annual overhaul.

#### Rejection of the Bill to Legalize Voluntary Euthanasia

The object of formation of the Voluntary Euthanasia Legalization Society was to legalize the termination of life, at the patient's desire, when he was suffering from painful incurable disease. The president was the late Lord Moynihan, who was to have introduced a bill prepared by the society in the house of lords. The second reading of the bill was moved by Lord Ponsonby, and Lord Deman seconded the motion. Viscount Fitzalan, who represented Roman Catholic opinion, said that if the bill became an act he would be sorry for the relatives of a patient, who would have a great responsibility thrust on them. He would be still more sorry for the physicians, who would have the responsibility of perpetrating the act, and he would be most sorry of all for the unfortunate patient, who would be exposed to great mental anxiety while all the formalities laid down in the bill were being prepared. Might he point out to the



Alexander McNeish, Leicester, Mass.; Tufts College Medical School, Boston, 1897; member of the Massachusetts Medical Society; member of the board of health and of the school board; aged 66; died, Nov. 19, 1936, in St. Petersburg, Fla.

Joseph B. Parrott, Church Point, La.; Tulane University of Louisiana Medical Department, New Orleans, 1892; member of the Louisiana State Medical Society; aged 66; died, Nov. 4, 1936, in the Touro Infirmary, New Orleans, of pneumonia.

Joseph C. Springer, Chicago; College of Physicians and Surgeons of Chicago, 1896; for many years coroner's physician and formerly criminologist to Chicago and Cook County; aged 69; died, Nov. 3, 1936, of uremia and chronic nephritis.

Charles Campbell Parks, Lancaster, Texas; University of Texas School of Medicine, Galveston, 1917; served during the World War; aged 46; died, Nov. 12, 1936, in the Veterans Administration Facility, Waco, of cerebral hemorrhage.

Edward Monroe Clark, National Military Home, Ohio; Starling-Ohio Medical College, Columbus, 1909; on the staff of the Veterans Administration Facility; aged 55; died, Nov. 18, 1936, of bullet wounds inflicted by a former patient.

Oscar J. Kendall, San Diego, Calif.; Tulane University of Louisiana Medical Department, New Orleans, 1884; member of the examining board during the World War; aged 77; died, Nov. 18, 1936, in the Scripps Memorial Hospital.

John William Bellomy, Flemingsburg, Ky.; University of Louisville Medical Department, 1912; member of the Kentucky State Medical Association; aged 52; died, Nov. 17, 1936, of hypertensive heart disease and chronic nephritis.

Frank Aquilla Rogers, Hattiesburg, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1909; served during the World War; aged 53; died, Nov. 17, 1936, in the Veterans Administration Facility, Biloxi.

Charles Eugene Cheek, Fuquay Springs, N. C.; University College of Medicine, Richmond, Va., 1912; member of the Medical Society of the State of North Carolina; aged 50; died suddenly, Nov. 6, 1936, of cerebral hemorrhage.

Lucius Henry Smith, Palmyra, N. Y.; Syracuse University College of Medicine, 1885; member of the Medical Society of the State of New York; aged 74; died, Nov. 18, 1936, in Albany, of myocarditis and diabetes mellitus.

Frank O'Hara Miller Jr., Wichita, Kan.; Louisville (Ky.) National Medical College, Medical Department, State University, 1906; member of the Kansas Medical Society; aged 61; died, Nov. 9, 1936, of chronic endocarditis.

Otis Zalmon Bouton, Foultonville, N. Y. Albany (N. Y.) Medical College, 1898; formerly county coroner, health officer and school physician of Fultonville; aged 64; died, Nov. 7, 1936, in the Amsterdam (N. Y.) City Hospital.

James B. Bryant, Lawrenceville, Ill.; Louisville (Ky.) Medical College, 1889; formerly a master in chancery for Lawrence County circuit court; aged 76; died, Nov. 21, 1936, of bronchopneumonia and bulbar paralysis.

George William McGinnis, Raceland, Ky.; Eclectic Medical Institute, Cincinnati, 1905; aged 68; died, Nov. 5, 1936, in St. Mary's Hospital, Huntington, W. Va., of uremia, vesical calculi and hypertrophy of the prostate.

George Mitchell Jones, Smithville, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1916; past president of the Bastrop County Medical Society; aged 46; died, Nov. 26, 1936, of pneumonia.

Lawson Hughes, Conroe, Texas; St. Louis College of Physicians and Surgeons, 1909; member of the State Medical Association of Texas; served during the World War; aged 63; died, Nov. 11, 1936, of heart disease.

Samuel Bowen Hudson, Sabinal, Texas; Barnes Medical College, St. Louis, 1898; member of the State Medical Association of Texas; served during the World War; aged 60; died in November 1936 of angina pectoris.

Marcus Leopold Goodman, New York; Columbia University College of Physicians and Surgeons, New York, 1909; aged 56; died, Nov. 17, 1936, of injuries received when he fell down the stairs in a patient's home.

Joseph Henry Radford, Galt, Ont., Canada; Victoria University Medical Department, Coburg, Ont., 1880; past president of the Ontario Medical Health Officers' Association; aged 79; was found dead, Nov. 8, 1936.

Mary Ann Cooke, Norwalk, Ohio; University of Michigan Homeopathic Medical School, Ann Arbor, 1888; aged 87; died, Nov. 13, 1936, in the Norwalk Memorial Hospital of fracture of the hip and arteriosclerosis.

John Greene Martin, Lake Charles, La.; Dartmouth Medical School, Hanover, N. H., 1891; fellow of the American College of Surgeons; on the staff of St. Patrick's Hospital; aged 72; died, Nov. 29, 1936.

Homer Irvin Kedney, Detroit; Detroit College of Medicine, 1906; member of the Michigan State Medical Society; aged 62; on the staff of the Harper Hospital, where he died, Nov. 1, 1936, of pneumonia.

Herbert Lionel Reddy, Westmount, Que., Canada; McGill University Faculty of Medicine, Montreal, 1876; for many years medical superintendent of the Woman's General Hospital; aged 82; died, Nov. 4, 1936.

Herbert John Wing, Hartford, Mich.; University of Illinois College of Medicine, Chicago, 1929; aged 32; on the staff of the Mercy Hospital, Benton Harbor, where he died, Nov. 8, 1936, of pneumonia.

Eugene Way, Ventnor, N. J.; Jefferson Medical College of Philadelphia, 1879; for many years secretary of the Cape May County Medical Society; aged 79; died, Nov. 15, 1936, of carcinoma of the cecum.

Robert Roy Kennedy, Minneapolis; Milwaukee Medical College, 1911; on the staffs of the Asbury, Swedish and St. Mary's hospitals; aged 53; died suddenly, Nov. 7, 1936, of coronary disease.

Walter Glover Mead, Kearny, N. J.; New York Homeopathic Medical College and Hospital, 1900; anesthetist to the West Hudson Hospital; aged 61; died, Nov. 2, 1936, of angina pectoris.

Earl Robert Devere, Providence, R. I.; Tufts College Medical School, Boston, 1919; aged 41; died, Nov. 26, 1936, in the Rhode Island Hospital, of hypertensive cardiovascular disease and uremia.

Walter James Williams, Edwardsville, Ill.; Meharry Medical College, Nashville, Tenn., 1918; aged 44; died, Nov. 17, 1936, in St. Elizabeth Hospital, Granite City, of self-inflicted wounds.

Michael Angelo Steffin, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1919; aged 43; on the staff of St. Agnes' Hospital, where he died, Nov. 6, 1936, of typhoid fever.

Frederick Brown Snyder, Rittman, Ohio; Temple University School of Medicine, Philadelphia, 1917; acting county health commissioner; aged 47; died suddenly, Nov. 10, 1936, of mitral stenosis.

Arthur B. Cray, Monticello, Ind.; Medical College of Indiana, Indianapolis, 1903; World War veteran; aged 61; died, Nov. 8, 1936, in the Methodist Hospital, Indianapolis, of heart disease.

David Lloyd Morgan, Emporia, Kan.; Louisville (Ky.) Medical College, 1904; on the staff of St. Mary's Hospital; aged 61; died, Nov. 23, 1936, of a self-inflicted incised wound of the throat.

Edgar Lee Gleaves, Nashville, Tenn.; University of Nashville Medical Department, 1898; member of the Tennessee State Medical Association; aged 69; died, Nov. 1, 1936, of cerebral hemorrhage.

William Elden Doane, North Bend, Neb.; St. Louis University School of Medicine, 1906; aged 58; died, Nov. 17, 1936, in the Veterans Administration Facility, Hines, Ill., of carcinoma of the lung.

George Robert Lee Cole, Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1887; aged 72; died, Nov. 10, 1936, of arteriosclerosis and cerebral hemorrhage.

George Willson Murdock, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1897; Civil War veteran; aged 93; died, Oct. 29, 1936.

John Bowman Darling, St. Paul; Rush Medical College, Chicago, 1882; an Affiliate Fellow of the American Medical Association; aged 77; died suddenly, Nov. 10, 1936, in Duluth, Wis.

William H. Rieman, Detroit; Detroit College of Medicine, 1893; member of the Michigan State Medical Society; aged 71; died, Nov. 3, 1936, of cerebral thrombosis and arteriosclerosis.

Luther A. Parker, Sault Ste. Marie, Tenn.; University of Tennessee Medical Department, Nashville, 1900; member of the Tennessee State Medical Association; aged 60; died, Sept. 25, 1936.

## PARIS

(From Our Regular Correspondent)

Dec. 15, 1936.

## The French Congress of Internal Medicine—The Parathyroid Syndromes

At the twenty-fourth annual session of the French Congress of Internal Medicine the first topic was curable meningitis, as reported in *THE JOURNAL*, Dec. 12, 1936, page 1978. The second subject chosen for special reports and general discussion was the parathyroid syndromes. The first paper was by Professor Snapper of Amsterdam on the rôle of the parathyroids in bone pathology. He stated that renewed interest was due to three new facts: (1) that a generalized osteitis fibrosa (von Recklinghausen's disease) is accompanied by adenoma of the parathyroids, (2) that this invariably fatal disease is cured by removal of the tumor and (3) that this disease is characterized by definite clinical, radiologic and histologic signs and chiefly by a biochemical syndrome. Mandl of Vienna was the first (in 1926) to show that removal of the parathyroid adenoma was followed by cure of the bone disease. Whereas tetany due to hypofunction of the parathyroids is accompanied by decrease of the calcium and an increase of the phosphorus content of the blood, the reverse, i. e., a hypercalcemia and a hypophosphatemia, is true of von Recklinghausen's disease. The latter changes result in a generalized decalcification of the skeleton and deposits of calcareous material, in certain structures, the kidneys, lungs and gastric mucosa, excessive amounts of calcium phosphate being found in the urine, and as a result there is formation of renal calculi. Hence every case of the latter, especially when recurrent, should be examined as to the possible presence of a parathyroid adenoma. In addition to the formation of renal calculi, deposits of calcareous material in the form of infarcts in the renal tubules or as deposits in the intertubular tissue occur, both giving rise to such a degree of diminished renal function that uremia may follow, the patients being treated as nephritic unless there are evident skeletal symptoms. A typical case of this kind was cited in which biopsy of a bony tumor in the frontal region led to the suspicion of the presence of a parathyroid adenoma as the explanation of the hypercalcemia and uremic symptoms. Such an adenoma was found at operation and its removal was followed by a return to normal of the biochemical syndrome and disappearance of the symptoms of a severe chronic nephritis. Calcareous deposits may attain such enormous dimensions as to be demonstrable in roentgenograms. A case was also cited of recurrent giant-cell osteofibrotic tumors of the jaws. The blood chemistry was normal but there was marked hypercalciuria. The presence of a parathyroid adenoma was suspected and confirmed at operation. Following its removal, the maxillary cysts began to calcify.

The second paper in the symposium on parathyroid syndromes was by the physiologist Prof. Leon Binet of Paris and Dr. M. Henry of Lyons. Its title was "Tetany Parathyreopriva." An outline of our knowledge of postoperative tetany from the experimental and clinical standpoints was given. As to spontaneous tetany, there are three groups: (1) those in which the parathyroids bear no etiologic relation, (2) those in which there is a definite proof of this, and (3) cases in which the parathyroids as the underlying cause are still subject to discussion. In the last named group belong tetany as observed in pregnancy and in children and cases of associated idiocy and tetany. Clinically a "tetany thyreopriva" follows all the stages of the experimental form. Although the acute is the most common, the latent and chronic types are not rare. As to pathogenesis, various theories have been proposed, such as a hypocalcemia, a hyperphosphatemia, disturbances of the acid-base equilibrium and the toxic theory of Noël Paton and Findlay. All these are related to the metabolism of calcium. As to treatment in general, opotherapy has given the best results. In acute post-

operative tetany, complete isolation and sedatives are especially indicated. As to diet, large quantities of milk should be given. Meats and acids are to be prohibited. Intravenous and oral administration of calcium lactate and the injection from two to five times a day of from 10 to 20 units of parathyroid extract are the chief therapeutic remedies to be considered.

The third paper was by Coryn of Brussels on the influence of endocrines (parathyroids excluded) on bone diseases. All bone disorders due to endocrine dysfunction present three features in common: 1. The lesions are generalized, i. e., involve all bones. 2. They appear whenever there is an endocrine dysfunction. They can be reproduced by removal of the respective endocrine organ when there is hyperfunction and relieved by endocrine therapy when there is hypofunction. 3. When the hypofunction of an endocrine organ results in the appearance of a certain lesion, the hyperfunctioning of the same endocrine organ is followed by the appearance of the opposite lesion. As to the action of the individual endocrine organs, the eosinophil cells of the hypophysis exert their influence on the rhythm of cellular proliferation in bone tissue. When there is acceleration of the rhythm, gigantism results, and when there is retardation of rhythm, a dwarf. The action of the parathyroids had been taken up in the two preceding papers. The sex hormones act on cellular hypertrophy. The influence of the thyroid is very complex. The authors' own observations have shown that hypothyroidism retards cellular proliferation and hypertrophy, whereas hyperthyroidism does the opposite, thus acting like the hypophyseal hormone in causing respectively dwarfism and gigantism. Our knowledge of the action of the adrenals is still rudimentary.

In the discussion of these three papers, Jung of Strasbourg stated that in thirty cases of renal calculus an adenoma of the parathyroid was found to be the cause in three. Its removal in one case was successful. Scleroderma must be regarded as the cutaneous expression of a chronic hyperparathyroidism and removal of adenomas of the gland gave the best results. One encountered clinically cases of acute, subacute and chronic parathyroidism. The acute was represented by a generalized fibrocystic osteitis, the chronic by scleroderma. Jean Weill of Paris cited a case of tetany following radiotherapy for hyperthyroidism. With the exception of adenoma of the parathyroids, operations on these structures have no other indication. Lièvre directed attention to the fact that hypercalcemia in parathyroid adenoma is not constantly present. Certain cases develop without bone manifestation; e. g., the renal and cachectic forms.

## Closing of Houses of Prostitution

Many foreigners who have visited France and especially Paris will be surprised to hear that Mr. Sellier, the present secretary of public health, proposes in the near future not only to close licensed houses of prostitution and to restrict occupancy of hotel rooms to those who have baggage but also to make the acquisition of syphilis a criminal offense and its treatment obligatory. In an article in the November 15 *Siècle médical* Dr. Léon Bizard protested against this policy of Mr. Sellier. Dr. Bizard is well qualified to discuss this question, being one of the staff of the St. Lazare Hospital, to which all prostitutes are obliged to go for the treatment of venereal diseases. There are 1,200 "tolerated" houses of prostitution in France and its colonies. The secretary of public health believes that syphilis can be conquered if the houses of prostitution are closed, that the white slave traffic will cease and that the landlords of the dens of vice will be ruined. Bizard remarks that this plan of freeing the people from sinful habits and leading them back to the path of virtue is a magnificent one but that there will soon be a rude awakening to the impossibility of the execution of such a plan. The innumerable hotels, according to the proposed law, will not be permitted to rent rooms to couples without baggage. Bizard

## Correspondence

### SYPHILIS IN BLOOD DONORS

*To the Editor:*—I was interested in reading the query of G. J. Potter, M.D., of Clewiston, Fla. (THE JOURNAL, Dec. 19, 1936, p. 2079) with reference to tests for syphilis in blood donors. Dr. Potter can overcome the urgency of an immediate Wassermann or Kahn test by doing as I did in this small town of Hemet a year and a half ago. I advertised in our local town sheet for donors to be examined so as to make up an eligible register of registered donors who wish to sell their blood when called on.

I arranged with a nearby laboratory, which was willing to do Wassermann-Kahn combination tests for \$1 each. I took and prepared separate histories of each donor in my spare time and did a complete blood count and blood sugar and blood grouping, keeping a record of these with the history. (The blood grouping serum I obtained from the Blood Transfusion Betterment Association, 39 East Seventy-Eighth Street, New York.) This sells for \$2 for twenty capillary tubes for each group and is very easy to do.

For an expenditure of \$14 I now have an eligible list of ten donors (one group I, two group II, two group III and five group IV) and ten tests left to test patients with who may require an emergency transfusion. Two transfusions since then have more than covered the expenditures made. I use and have ready sterilized outfits of both the direct and indirect methods of blood transfusion.

Then attached to or typewritten on the back of the history is the following, which the donor signs before a witness:

I, [name of donor], a registered donor, hereby agree to keep myself in good health and respond at once to call from the doctor (named above) or his agents, as a prospective blood donor when so called by them. Compensation for blood shall be at the rate of \$5 per hundred cubic centimeters for each 100 cc. or fraction thereof drawn from a donor. Compensation for responding to a call shall be paid only after blood is drawn from the donor selected. No fee shall be expected to be paid to me by any one for transportation coming to or leaving the hospital or for time in waiting to be selected, unless agreed to at the time I am being called on to present myself.

The donor further agrees that \$5 shall be deducted by Dr. Jesse Citron from my first fees as compensation for giving my blood. This reimbursement to Dr. Citron is to cover the expense to him for examination of me as a registered donor. This required fee shall be paid only once by the undersigned. (Painless surgical care and professional procedure will be exercised.)

Witnessed by..... Signed [name of donor.]

This method has gained for me the confidence of this mountainous community and removed from my consciousness the nightmare of fatality from hemorrhage. Professional security is denied to no community, no matter how small, that has a doctor who can focus a low power lens and draw blood for a Wassermann test.

JESSE CITRON, M.D., Hemet, Calif.

### REQUESTS FOR REPRINTS

*To the Editor:*—Word has gone about that the way to furnish one's medical library with the last word on any subject is to secure reprints of articles as they are published. As a result, many physicians are sending out printed postal card requests for reprints. In the last two or three years the appearance of an article by me has been followed promptly by a deluge of these card requests; but, while attention to one's writings would seem flattering, I note that when genuine interest is shown the request comes by letter enclosing postage. As I do not purchase enough reprints to meet all requests, I have learned to consign the postal cards to the waste basket. I wonder how other authors feel about it.

WALTER A. BASTEDO, M.D., New York.

### VISUALIZATION OF AMOUNT OF RESIDUAL URINE

*To the Editor:*—In THE JOURNAL, Dec. 5, 1936, page 1886, there is an interesting and valuable account of visualization of the amount of residual urine, by Edwin Beer. This is a very important procedure. I was under the impression that it was quite generally known, as I have been using it for a number of years. The question of priority is quite unimportant. However, I should like to quote from chapter I, "Urologic Diagnosis," by Hager and Braasch, in Dean Lewis's Practice of Surgery, volume VIII, in which I state on page 68:

Excretory urography also affords a means of estimating the amount of bladder retention when it is not feasible or desirable to carry out retrograde study.

B. H. HAGER, M.D., Los Angeles.

### THE ILLINOIS OCCUPATIONAL DISEASE LAW

*To the Editor:*—Lately the state of Illinois has made effective a series of acts related to employment and providing for compensation and other benefits for occupational disease. In the occupational disease law (house bill 10, approved March 16, 1936), the heart of the provisions therein made is a definition of an occupational disease, which in part reads "A disease shall be deemed to arise out of the employment only if there is apparent to the rational mind, upon consideration of all the circumstances, a direct casual connection between the conditions under which the work is performed and the occupational disease." . . . The full definition, almost in its entirety, appears to use the language appearing long ago in the McNichols' case, Massachusetts 497, Northeastern Reports 697, which in turn is stated to have been derived from many old English cases. However, there is one egregious difference. In the McNichols' case, and presumably in the early English cases, the word "causal" and not "casual" is used. Thus "a direct causal connection" between the conditions under which work is performed and an occupational disease is of much different significance than "a direct casual connection." If the word "casual" is accepted as meaning "uncertain, precarious, superficial, occasional, incidental," it becomes manifest that such a relationship may be shown to exist between almost any disease that arises in an industrial worker and the conditions under which he works. Present day concepts of an appropriate definition of a true occupational disease contemplate a far more definite relationship between the disease state and work conditions as the source than that embodied in the term "casual," as ordinarily applied. It is assumed that the appearance of this word "casual" in the Illinois law represents an overlooked typographical error rather than intention. No less, the appearance of this word is mischievous.

Physicians called on for testimony or opinions connected with claims or trials for occupational disease inevitably will find themselves unable, in many instances, to deny a "casual" relationship between given work exposures and existing disease states in a worker, when on the other hand they may be fully convinced of the absence of a "causal" relationship. From the language of this Illinois law, the defending manufacturer almost with certainty will be unable to maintain a defense because of this liberal definition of an occupational disease.

It is not within my province to question the intent of the Illinois legislature or to anticipate the interpretation of the word "casual" that may be made by judicial bodies in that state or elsewhere. However, since the Illinois occupational disease law is the last to have appeared in this country, it is likely that other states now contemplating similar legislation are about to accept to a substantial degree the provisions and definition of this Illinois law. This may prove to be unfortunate, in that it is necessary to show only a "casual" connection between the

leads in turn to a paucity of country doctors. Many of the insured are thus forced to seek medical attention at the hospital, as even first aid treatment is not to be found elsewhere. A country physician may also hospitalize his more serious cases, as otherwise he would be forced to practice with a deficit. The fluctuation in the total expenditures of the sick insurance is shown in table 3. The administrative expenses of the sick insurance amounted in 1934 to around 135,000,000 marks, as against 162,300,000 marks in 1930 and 132,300,000 marks in 1932.

Further interesting data supplied by Dr. Hadrich in the *Deutsches Aerzteblatt* concern the number and distribution of the insurance physicians in the year 1936. Hadrich obtained

TABLE 3.—Total Expenditures of the Sick Insurance

Year	Disbursements in Millions of Reichsmarks
1929 .....	2,192
1930 .....	1,988
1931 .....	1,646
1932 .....	1,217
1933 .....	1,181
1934 .....	1,314
1935 .....	1,490

his figures from the authoritative League of Insurance Physicians of Germany. There were on July 1, 1936, 30,559 insurance physicians within the reich, compared with 32,620 in 1933. This means a decrease of 2,061 doctors despite the fact that in the same period the numbers of the insured were increased by about 2,000,000 persons. Four basic causes have contributed to this decline in the number of physicians: the drifting of insurance doctors into governmental health service, a similar drifting into the medical service of the defense forces, an increase in the number of positions as heads of institutions for the care of the sick, and the expulsion of non-Aryan physicians from insurance practice. Computation of the distribution of insurance physicians according to the several German provinces and so on shows that throughout the reich there is an average of 617 insured persons for each insurance physician (according to the licensing clause of the insurance practice law, one physician is allowed for each 600 insured). The proportion of the insurance physicians to the insured is greater in some provinces, smaller in others, least in Upper Bavaria (427), greatest in the Saxon industrial region of Chemnitz-Zwickau (1,032). Of the 30,559 insurance physicians, nearly 21,000 are general practitioners; 9,600 are specialists. On the average there are five specialists licensed for insurance practice to every 10,000 insured persons. Alongside the number of insured must be reckoned from 8,000 to 10,000 members of the families of the insured who are eligible for benefits, and there are also those uninsured persons who consult the specialist as private patients. In general the number of specialists is not excessively great. It ought certainly in many districts, as in Berlin and Hamburg, for example, not to show any further increase. In many such communities the proportion of specialists is in excess of 40 per cent of all insurance physicians. Nevertheless, according to the estimates of the insurance physicians themselves this proportion ought never to be exceeded.

Of these 9,600 specialists, 1,397 limited their practice to dermatology and venereology; these fields have the strongest numerical representation, yet the number of specialists in them undergoes a constant decline. The second largest group is that of the otorhinolaryngologists with 1,330 physicians; next follow 1,216 surgeons, 1,291 gynecologists, 1,185 internists and 1,119 ophthalmologists. It is also assumed that the number of gynecologists and internists must decrease, albeit more slowly. At a greater distance there follow next 680 pediatricians, 468 neurologists and psychiatrists, 253 orthopedists, 188 roentgenologists (the number of insurance physicians specializ-

ing in this field is on the increase), 175 phthisiologists and other specialists in respiratory diseases, 143 gastrologists and 121 urologists (a group believed to be rather on the increase because of the greater aging of the German population); lastly there are eighteen stomatologists and specialists in maxillary disorders as well as sixteen serologists, bacteriologists and so on.

#### News of the Student Bodies

Heretofore, substantial data on the monthly income or allowance of university students have not been available. Yet previous attempts at compilation of such data have demonstrated that a relatively large number of students were without sufficient means to finance a university career and that the financial needs of the indigent students were about ten times in excess of the available resources of the national student aid organization. This reichsstudentenwerk was originally founded by the students themselves in order to help the needy among them earn a little money at odd jobs while at the university. To collect more data on student needs, the studentenwerk at the University of Erlangen undertook in the winter semester of 1935-1936 an investigation of the monthly allowances received by students. Some 825 of the approximate 1,400 students formed the material of the survey. These were divided into those who received money from parents at home and those who were compelled to work their way through. After deduction had been made for the academic tuition fees, the figures of actual monthly income for living expenses given in table 4 were arrived at. The rest of the students received still higher monthly allowances. According to these figures about 53 per cent of the students received less than 80 marks, the amount set as minimal by the reichsstudentenwerk. Of those students who received funds from their parents, 62 per cent were allowed less than 50 marks per month. It may be said that the majority of German students live in penury.

The reichsstudentenwerk was able to dispense, through its local organization at Erlangen, a total of some 360,000 marks to needy students during the summer semester of 1935. Altogether 6.6 per cent of the total student body could at that time be rendered some slight financial assistance and, if other types of aid are included, the proportion of students aided was 9.6 per cent (7,383 students) compared to 7.8 per cent aided during the summer semester of 1934. The amount advanced per individual student was 70.75 marks, as against 68.50 marks in the summer semester of 1934.

TABLE 4.—Monthly Income of Students for Living Expenses

Percentage of Student Body	Monthly Income for Living Expenses
16 .....	less than 50 marks
26 .....	50-70 marks
25 .....	70-90 marks
25 .....	90-130 marks

At Heidelberg in August there assembled fifty students of natural science from the corresponding section of the National Socialist German Studentenbund for the purpose of establishing a "natural science camp" in the vicinity. At the hoisting of the colors the group director pronounced the following watchword: "The Aryan natural scientific research of today shall be the technic of tomorrow."

According to a regulation just issued, only those students who are members of the National Socialist party will be allowed to matriculate at the University of Berlin in the winter semester 1936-1937. This measure owes its origin to the idea that, in view of the political preeminence of the national capital, permission to study at Berlin University should be considered a special privilege and that this privilege belongs first of all to those students who have served the National Socialist movement.

the chief fuel for Diesel engines is a fairly well purified petroleum fraction of almost constant consistency.

In a publication by Maleev entitled "Safety and Diesels" (*Power* 78:142 [March] 1934) no mention is made of this kind of accident in connection with Diesel engine operation. The service department of the Electro-Motive Corporation is said to have issued a bulletin to its service engineers in which it warns against the fuel spray from the tip of a unit injector. This spray has sufficient penetrating power to puncture flesh and destroy tissue. So far as is known there is no published accumulated experience in this domain and no established treatment. If the author of this query is seeing considerable numbers of this type of case, he himself should develop this scientific material for the purpose of publication for the guidance of others.

#### TREATMENT OF VITILIGO

To the Editor:—For the past two months I have been treating a patient suffering from leukoderma of the right foot. It started as a small whitish spot on one of the toes, and for the last two months it has grown to so great an extent as to involve almost one third of the whole skin of the right foot. The prescriptions I have been giving are the following:

R. Solution of potassium arsenite..... 10 cc.  
Sig.: Three drops three times a day in increasing doses.

R. Essence of bergamot ..... 2.50 cc.  
Alcohol ..... ad 50 cc.

M. Sig.: To be applied externally as directed every morning.

R. Alcohol  
Ether ..... aa 50 cc.

M. Sig.: To be applied at night.

At the same time the foot was exposed to ultraviolet rays for five minutes in increasing doses every other day. With this treatment there is no noticeable improvement. Recently I was told to use gold sodium thiosulfate intravenously, starting with 1 mg. and gradually increasing it up to 0.01 Gm. On the other hand, I was told by another physician that it is not safe to use gold sodium thiosulfate. Having no experience as yet with the medicine until now, I have not used it. May I know your treatment of the case? Please omit name.

M.D., Cavite, P. I.

ANSWER.—In the past it has been held by most dermatologists that there is no hope of improving vitiligo by treatment, and they have advised painting the white spots with the juice of walnut husks or some other dye to conceal them. A solution of potassium permanganate of the proper strength can be used for this purpose. The job must be done skilfully, whatever the pigment used. Others have recommended bleaching the hyperpigmented border of the vitiligo patch with a solution of mercury bichloride painted on several times a day until exfoliation occurs.

Buschke in 1907 reported failure in the treatment of vitiligo spots with ultraviolet rays. He could not get an even pigmentation in this way. Stein later reported that, although the pigment formed was real melanin, it was not permanent. Encouraging results are reported from long continued use of ultraviolet rays. Many of the spots fill in gradually and finally disappear. Others resist the action of the light.

Nadel (Ein Beitrag zur Behandlung der Vitiligo, *Acta dermat. venerol.* 11:141 [April] 1930) gave acriflavine hydrochloride by mouth, 0.1 Gm. once a day, and sun baths or treatment with ultraviolet rays twice a week. In a patient who had had vitiligo for ten years the result was good, the patches which were most recent being apparently most responsive to treatment. His second case was entirely unrelieved. The white patches were at sites of pressure of the belt over the iliac crests. The third case also yielded promptly to the combined use of acriflavine hydrochloride or similar light sensitizing drug, followed by ultraviolet treatment.

Freund of Trieste, who first reported berlock dermatitis in 1916, tried the production of it on the depigmented spots of vitiligo. The difficulty is that only certain skins produce pigment in response to the application of oil of bergamot followed by sunlight or ultraviolet rays. Others do not show any effect from the oil applications and it has been reported that the use of oil of bergamot in this manner may cause dermatitis. Gross and Robinson (Berlock Dermatitis, *Arch. Dermat. & Syph.* 21:637 [April] 1930) even saw the application of the oil protect the skin from the action of light, and they quote Szanto as having seen the same effect. The usefulness of the application of a bergamot oil solution followed by light is thus strictly limited to those sensitized to the oil.

Lindsay in 1929 reported the cure of vitiligo by intravenous injections of gold sodium thiosulfate (Treatment of Vitiligo with Gold Sodium Thiosulfate, *Arch. Dermat. & Syph.* 20:22 [July] 1929). Since then this method of treatment has been used in many cases, with gratifying success in a few. If used, precautions should be taken as in the use of the arsenamines. Cardiac, pulmonary, liver or kidney disease of any extent or

severity precludes the use of the method. Before each treatment the urine should be examined for albumin and casts and the patient questioned about any gastro-intestinal or skin symptoms following the preceding treatment. The dosage of gold sodium thiosulfate ranges from 5 to 100 mg. and the course consists of from ten to twenty doses, given once a week. Skin or kidney reactions indicate interruption of the course of injections. Febrile or gastro-intestinal reactions may be of less import, but their meaning must be carefully evaluated.

Cohen, in the case of a young woman whom he treated by intravenous gold sodium thiosulfate, used a 10 per cent solution of oil of bergamot in alcohol on the spots on the face, followed by ultraviolet exposures. The face cleared and the spots on the abdomen and thighs improved, though they received no ultraviolet treatment. A year after treatment was ended there had been no recurrence (Successful Treatment of Vitiligo, *Arch. Dermat. & Syph.* 28:215 [Aug.] 1933).

In the case under consideration, it would be advisable to try ultraviolet treatments or sun baths in graduated doses for some time. If the results are not satisfactory, one of the other methods could be added.

#### ACTINOMYCOSIS

To the Editor:—A white man, aged 35, in 1930 immediately following a dental extraction, had an acute swelling, with pain, in his face and jaw on the affected side. A few months later this had progressed to a point of localized pus formation, and since that time numerous, usually superficial, abscesses have been opened and drained. Repeated examinations of pus have failed to demonstrate organisms other than the usual pyogenic ones. About two years ago at the Mayo Clinic a diagnosis of actinomycosis was made and x-ray treatment was instituted together with a continuation of large doses of iodine, which he had been taking off and on since soon after the onset. Considerable improvement in the local condition ensued but even to the present time there are occasional superficial abscesses there. Repeated x-ray examinations of this region fail to demonstrate pathologic changes other than evidences of superficial periosteal involvement. Eighteen months ago, with an acute onset, he developed what was apparently an ordinary lobar pneumonia involving the right lower lobe, running an average course and subsiding by 4½. About two weeks later, when convalescence was apparently well established, there was a recrudescence of fever, pleuritic pain, and so on, in the involved lung area. X-ray examination failed to show the anticipated empyema but did show "dulness extending out from the hilus, sharply outlined and suggesting mediastinal involvement rather than lung infection, with possibly a small amount of free pleural fluid." In view of this history, actinomycosis in his jaw, this was considered as probably actinomycotic, and he was given several series of high voltage roentgen therapy together with the other usual measures. Since that time there have been daily rises of temperature of 1 or 2 degrees, occasionally higher. There has been more or less pain in various regions of the right side of the chest, weakness and slight coughing. He was kept at rest several months with some improvement. For the past several months he has attended to part of his duties, mostly office work, and seems to get along about as well with this activity as when he stayed in bed. In fact, his temperature record shows that over the week end and at other times when he stays constantly in bed it is almost invariably higher than in the days when he is up and around. About three months ago there developed several abscesses, apparently arising over the ribs of the anterior right chest. These were open and have remained as draining sinuses. Repeated examinations of the pus from these and the sputum have failed to demonstrate Actinomyces. Several months ago he developed pain in the lower dorsal spine region; x-ray examination showing a destructive process involving the eleventh dorsal vertebra, and a flayed jacket was applied with him suspended in head traction, with considerable comfort. X-ray examinations of the lungs at intervals show little change in the lung condition. Throughout all this time the patient's general condition has on the whole remained very good; in fact, he has appeared to be in much better general health than one would expect. Lately, however, he has been losing weight and there is a progressive anemia and a rather mild leukocytosis. Other routine laboratory work gives results within normal limits. The radiologists appear reluctant to administer further x-ray therapy, feeling that it will not be helpful and may possibly be harmful. If this is published, please omit name. M.D., Albany

ANSWER.—In the case cited the chain of events and the sequence of symptoms apparently represent extension of actinomycotic process to the mediastinum and respiratory apparatus and apparently also to the lumbar spine. Although this would be decidedly unusual, the extension may have taken place through the lymphatic tracts, and this may account for the rather slow development of lesions in the different regions. With such extensive disease it is not likely that any method of treatment can result in cure. Nevertheless, radiotherapy directed to the mediastinal structures through two anterior and two posterior fields (moderate total dose or about four fifths of an erythema dose) and also directed to the lower dorsal part of an erythema dose) and also directed to the lower dorsal part of a lumbar part of the spine through at least two posterior fields with the rays converging on the spine, and with a smaller dose per field, might improve the patient's condition considerably.



## Deaths

**Arthur Stern** \* Elizabeth, N. J.; Ludwig-Maximilians-Universität, Medizinische Fakultät, München, Bavaria, Germany, 1891; member of the American Academy of Pediatrics; fellow of the American College of Physicians; formerly member of the board of health; on the staffs of the Elizabeth General, St. Elizabeth and Alexian Brothers' hospitals, Rahway (N. J.) Memorial Hospital and the Somersct Hospital, Somerville; in 1933 delegate to the third International Pediatric Congress in London; aged 68; died suddenly, Nov. 28, 1936, of coronary occlusion.

**Hugh C. Russell** \* Milwaukee; Milwaukee Medical College, 1907; also a graduate in pharmacy; formerly associate professor and professor of pharmacology and dean at the College of Pharmacy, Marquette University; at one time professor of pharmacology at the Dental School, Marquette University; served during the World War; member of the staff of the Marquette University Hospital and since 1929 member of the staff of the Milwaukee Hospital; aged 61; died, Nov. 29, 1936, of cerebral hemorrhage.

**Frank Austin Swartwout**, Washington, D. C.; Howard University College of Medicine, Washington, 1893; Southern Homoeopathic Medical College, Baltimore, 1894; member of the board of directors and past president of the American Institute of Homeopathy; on the staff of the National Homeopathic Hospital; aged 69; died, Dec. 16, 1936, of heart disease.

**Thomas George Odell**, Boulder City, Nev.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; member of the Nevada State Medical Association; veteran of the Spanish-American and World Wars; aged 63; died, Nov. 9, 1936, in a hospital at Santa Monica, Calif., of pulmonary tuberculosis and chronic myocarditis.

**Arthur G. Meserve**, Robinson, Ill.; Miami Medical College, Cincinnati, 1874; member of the Illinois State Medical Society; past president of the Crawford County Medical Society; for many years a member of the school board and board of health; aged 82; died, Nov. 14, 1936, of cerebral hemorrhage and chronic myocarditis.

**George Warren Gardner**, Providence, R. I.; Harvard University Medical School, Boston, 1900; fellow of the American College of Surgeons; served during the World War; for many years on the staff of the Rhode Island Hospital; aged 64; died, Nov. 14, 1936, in Damariscotta, Me., of arteriosclerosis and cerebral hemorrhage.

**James Avery Finger** \* Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1910; assistant professor of medicine at his alma mater; for many years visiting physician to the Roper Hospital; aged 53; died, Nov. 23, 1936, of cerebral thrombosis following an operation for nephrolithiasis.

**William Joseph Happel**, Nazareth, Pa.; Jefferson Medical College of Philadelphia, 1919; member of the Medical Society of the State of Pennsylvania; president of the Northampton County Medical Society; on the staff of the Easton (Pa.) Hospital; aged 43; died suddenly, Nov. 29, 1936, of cerebral hemorrhage.

**Emsley Thomas Johnson** \* Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1921; president-elect of the Jackson County Medical Society; instructor in pathology at his alma mater; pathologist to St. Joseph Hospital; aged 44; died, Nov. 21, 1936, of cerebral hemorrhage.

**John De Witt Hawks**, East Lansing, Mich.; Rush Medical College, Chicago, 1891; formerly associate professor of electrolgy and roentgenology, Hahnemann Medical College and Hospital, Chicago; at one time on the staff of the Hahnemann Hospital, Chicago; aged 68; died, Nov. 19, 1936.

**James M. Beveridge** \* Oregon, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; past president of the Ogle County Medical Society; chairman of the county exemption board during the World War; aged 68; died, Nov. 21, 1936.

**John Walter Goodheart**, Bellingham, Wash.; Chicago Medical College, 1890; fellow of the American College of Surgeons; member of the staff, St. Joseph's and St. Luke's hospitals; district surgeon to the Chicago, Milwaukee, St. Paul and Pacific Railroad; aged 70; died, Nov. 28, 1936.

**Willard Parker Green** \* Minneapolis; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; senior epidemiologist of the state board of health;

aged 65; died, Nov. 26, 1936, in the University Hospital, of a skull fracture received in a fall down the stairs.

**Hugo Francis Mehl**, Milwaukee; University of Pennsylvania Department of Medicine, Philadelphia, 1902; for many years school physician for the city health department; was a medical examiner for a number of life insurance companies; aged 60; died, Nov. 1, 1936, of hepatic cirrhosis.

**Thomas Francis McKenna**, Syracuse, N. Y.; Bellevue Hospital Medical College, New York, 1891; for many years examiner for the Metropolitan Life Insurance Company; member of the staff of the Crouse-Ingving Hospital; aged 71; died suddenly, Nov. 3, 1936, of cerebral hemorrhage.

**Winfred Eugene Baldwin**, Montclair, N. J.; Bellevue Hospital Medical College, New York, 1891; author of "Advanced Lessons in Physiology"; aged 71; died, Nov. 29, 1936, in St. Vincent's Hospital, of adenoma of the prostate, diabetes mellitus and cerebral hemorrhage.

**Solomon Jay Ulman**, Salt Lake City; University of Maryland School of Medicine, Baltimore, 1889; member of the Medical and Chirurgical Faculty of Maryland; served during the World War; aged 69; died, Nov. 12, 1936, of chronic myocarditis, nephritis and arteriosclerosis.

**Harry Denton Stryker**, Reading, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; for many years on the staff of St. Joseph's Hospital; aged 66; died, Nov. 17, 1936, of coronary sclerosis.

**Berthold A. Williams** \* Cincinnati; Medical College of Ohio, Cincinnati, 1885; member of the American Psychiatric Association; on the staff of the Longview State Hospital; aged 74; died, Nov. 18, 1936, in the Christ Hospital of a ruptured gastric ulcer.

**Louis G. Harney**, East St. Louis, Ill.; Northwestern University Medical School, Chicago, 1903; member of the Illinois State Medical Society; served during the World War; member of the staff of St. Mary's Hospital; aged 57; died, Nov. 16, 1936, of heart disease.

**William De Witt Stewart**, Spencer, W. Va.; University of Maryland School of Medicine, Baltimore, 1896; member of the American Psychiatric Association; aged 62; on the staff of the Spencer State Hospital, where he died, Nov. 2, 1936, of bronchopneumonia.

**Edwin Fox Todhunter**, Washington C. H., Ohio; Starling Medical College, Columbus, 1900; member of the Ohio State Medical Association; president of the Fayette County Medical Society; served during the World War; aged 64; died, Nov. 15, 1936.

**Louisa Hemken** \* Los Angeles; Rush Medical College, Chicago, 1929; instructor in pathology, University of Southern California School of Medicine; formerly on the staff of the San Bernardino (Calif.) General Hospital; aged 32; died in November 1936.

**Gaines Levy Brightwell**, Leedey, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1931; member of the Oklahoma State Medical Association; aged 29; was killed, Nov. 22, 1936, when his car went over an embankment near Beaver.

**John Henry O'Connor** \* New York; University of the City of New York Medical Department, 1891; for many years a member of the national guard of New York; on the staff of the Bellevue Hospital; aged 67; died, Nov. 17, 1936, of pneumonia.

**N. Lewis Bosworth**, Lexington, Ky.; University of Louisville (Ky.) Medical Department, 1892; member of the Kentucky State Medical Association; for many years member of the city board of health; aged 67; died, Nov. 20, 1936, of coronary occlusion.

**Edward S. Lester**, Chatham, Va.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; instructor at the Hargrave Military Academy; aged 61; died, Nov. 14, 1936, in the Memorial Hospital, Danville, of hypertension and myocarditis.

**Joseph A. Jones**, Corsicana, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1898; member of the State Medical Association of Texas; aged 65; died, Nov. 11, 1936, in a hospital at Dallas of Ludwig's angina.

**Frank Adams Bowden**, Cleveland; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1902; aged 60; died, Nov. 14, 1936, in the Fairview Park Hospital, of cerebral embolus following a prostatectomy.

## COMPLICATIONS OF PERNICIOUS ANEMIA

*To the Editor:*—I have a patient with pernicious anemia who presents several peculiar features. She requires twice the recommended dosage of liver and iron to keep her cell count and hemoglobin nearly normal. She is getting good preparations: Lederle's concentrated solution liver extract intramuscularly three times weekly, and from twelve to eighteen  $7\frac{1}{2}$  grain (0.5 Gm.) capsules of iron and ammonium citrate daily. She is getting thirty drops of dilute hydrochloric acid with each meal. She also has one capsule of percomorph oil and a little brewers' yeast daily. With all this medication it is possible only to keep her red count between 4,300,000 and 4,800,000 and hemoglobin between 75 and 90. Even though she is getting plenty of hydrochloric acid, the urine tests alkaline part of the time. There is no microscopic pus or bacteria in the urine. About twice weekly she loses her balance and falls weakly forward and to the right. She says that she feels this loss of balance first but cannot move her legs quickly enough to keep from falling. There is no vertigo. Have you any suggestions? CARL H. GRAF, M.D., Boulder, Colo.

**ANSWER.**—On rare occasions one encounters a patient with pernicious anemia who requires an unusual intake of liver substance for maintenance purposes. In such patients one will find some complicating pathologic condition. The teeth, tonsils, sinuses, gallbladder and genito-urinary tract must be carefully considered to rule out infection. Myxedema, associated with a macrocytic anemia, may be mistaken for pernicious anemia or may occur in conjunction with it. Hypertension, generalized arteriosclerosis, a malignant condition with hemorrhage and unusual psychic disturbances may each act as a complication resulting in a need for a greater than usual intake of antianemic substance.

In a patient with such extreme resistance as that described, especially if associated with neural disturbances, it is important to rule out multiple sclerosis and a tumor causing pressure on the spinal cord. The former is often associated with some degree of anemia which is hypochromic in nature, whereas the latter may occur as a metastatic lesion from a primary malignant growth involving the gastro-intestinal tract. Under these circumstances an anemia may be present which will vary in its characteristics depending on the acuteness and severity of the resulting hemorrhage. Although the data are not sufficient to allow a positive diagnosis to be made, it seems likely that this patient has multiple sclerosis.

## TREATMENT OF SYPHILIS

*To the Editor:*—A physically well built man, aged 24, gives a history of exposure on February 16 and March 8, developing a soft chancre where the frenulum joins the glans on about March 20. A Wassermann test March 26 was negative, but one taken April 9 was 3 plus positive both for it and the Kahn test. In the meantime, around April 17 the chancre was healed following the application of an ointment (which was probably a mercurial). There is a previous gonorrheal history. The patient has now come to me for treatment and I have outlined the following for him: twenty weekly injections of nearsphenamine of 0.6 Gm.; ten injections of aqueous bismuth sodium tartrate at weekly intervals starting with the eleventh week of treatment (gluteal); a blood drawn in the twenty-first week, which if positive will demand another course exactly as before. Is this adequate treatment for a case that apparently is about ten weeks old? If not, what further treatment should be used? Can I assure the patient of anything approaching a cure after the first course (if the blood is negative and stays negative); after the second course should the first be followed by a positive blood? I have further advised that, should he get a negative blood result after the first course, examinations should be repeated at intervals of three months for three years and thereafter at intervals of six months. Any positive one should be repeated and if again positive be followed by another routine such as outlined. The only abnormalities in this case are palpable tender inguinal glands (which he says are receding in prominence), a backache, and the scar replacing the chancre (?). Of what value is water soluble potassium bismuth tartrate and, if of any value, when should it be given and in what kind of dosage? (I speak here of oral administration.) Please omit name. M.D., Ohio.

**ANSWER.**—Before treatment is started the diagnosis of early syphilis should be verified by means of a repeat serologic test or by the appearance of secondary syphilis.

The treatment outline suggested, i. e., twenty weekly injections of nearsphenamine, the last ten of which are accompanied by aqueous bismuth with treatment presumably to be stopped if the blood Wassermann reaction at the end of this time is negative, is wholly inadequate. It is inadvisable to give as many as twenty consecutive injections of an arsenamine product in early syphilis. The treatment procedure adopted should be that outlined by the Cooperative Clinical Group (Stokes, J. H., and others: *Standard Treatment Procedure in Early Syphilis*. THE JOURNAL, April 21, 1934, p. 1271). This treatment system involves the alternating use of courses of an arsenamine with courses of an insoluble or liposoluble bi-muth product, carried on for a minimum of sixty-nine weeks without rest periods of any kind.

Treatment should never be stopped in early syphilis if the blood Wassermann reaction is reduced to negative at the end of the first course. It must be continued for an arbitrary minimum of approximately eighteen months, regardless of serologic response. The obtaining of a negative blood Wassermann reaction early in the course of treatment has nothing whatever to do with "cure."

The oral administration of water soluble potassium bismuth tartrate or of any other bismuth preparation has as yet no place in the treatment of any form of syphilis and particularly in the treatment of early syphilis. This method is wholly in the experimental stage and has not yet been proved to be of value either in experimental animals or in human beings.

## SIGNIFICANCE OF LIGHT FLASHES

*To the Editor:*—Miss C., aged 42, whose previous health had been good, had for two years daily and frequent flashes of light, always with an upward direction, of the size and shape of a jelly-bean, of moderate brightness to intensive and distressing; they flashed upward, singly or in strings like balloons, varying in color from orange in the morning to bluish white at night. One brother was blind from glaucoma; the other had night-blindness; a sister had retinoblastoma. An ophthalmologist reported that during February, March and April 1935 the tension in each eye was from 40 to 70 by a McLean tonometer and advised immediate operation. Pilocarpine was used without relief. She saw her former ophthalmologist in another state, who reported on April 29, 1935, that the optic disks showed a simple physiologic cupping large and extending beyond the center, but no different than eleven years before; no halos; no contractions of the fields; no diminution of vision, and tension 24 and 26 by Schiötz. He advised omitting pilocarpine and no operation. On May 18, 1936, I found the tension in each eye 24 by the Gradle-Schiötz tonometer. The patient had not used pilocarpine or any eye drops for a year. The flashes have continued. The pupils are not dilated; the eyeballs are white. Can the reason for the very disturbing flashes be explained? Can they be relieved? Please omit name.

M.D., Massachusetts.

**ANSWER.**—The entopic phenomena of light flashes such as are described here are difficult to explain. They may occur in a perfectly normal eye or they may occur as the forerunner of some retinal condition. In all probability they are due to unexplained electric currents within the retina itself. The perception of such phenomena is exaggerated by a general hypersensitivity of the patient, particularly the hyperthyroid type, and in some cases may be lessened by the use of mild sedatives. Such entopic phenomena are not necessarily associated with any form of glaucoma.

## EFFECTS OF VASECTOMY ON SEX ACTIVITY

*To the Editor:*—In doing a vasectomy under local anesthesia on a young adult is there any danger entailed as far as the ultimate effect on sexual activity? I refer to the removal of say 1 cm. of the vas on both sides down in the scrotum. Does any atrophy of the testicle follow this and is there any disturbance of the sexual function? Please omit name and address.

M.D., Iowa.

**ANSWER.**—Removal of a portion of the vas should not be followed by atrophy of the testicle or any disturbance in function. In fact, the contrary is usually noted following such an operation if correctly done. The complications that have taken place following this operation usually have been due to technical error in carrying out the operation. If the blood vessels of the cord are included in the excision or ligation, disturbance of the vascular supply to the testicle, with consequent atrophy and reduced function may result. There is no need for this to happen, however, provided the vas is freed and is excised separately, without disturbance of the vascular supply. The incision should be made over that portion of the vas situated a short distance below and lateral to the base of the penis. The vas is much easier to find and to isolate in this area than in the portion nearer the testicle.

## COMPARATIVE ACTION OF SEDATIVES

*To the Editor:*—Can you give the comparative sedative action of sodium bromide versus chloral hydrate, grain for grain? In a solution containing sodium bromide (15 grains) and chloral hydrate (5 grains), which of the doses would you consider the more potent sedative? Please omit name.

M.D., New York.

**ANSWER.**—There is no such way of comparing the sedative action of chloral as "grain for grain," the two act so differently. The relation of the U. S. P. average dose of 1 Gm. of sodium bromide to 0.6 Gm. of chloral hydrate does not represent the true condition. Chloral is a specific nerve poison, which is destroyed by accumulation in nerve tissue and can easily be destroyed when given in an overdose. The relation is a very rough one.

Henry M. Childress, Glasgow, Ky.; Tennessee Medical College, Knoxville, 1898; aged 66; died, Nov. 1, 1936, at the home of his nephew near Dry Fork, of cerebral hemorrhage.

Charles Walter Lund, Willows, Calif.; College of Physicians and Surgeons of San Francisco, 1903; member of the California Medical Association; aged 60; died, Nov. 4, 1936.

Achilles E. Foster, Knoxville, Tenn.; University of Tennessee Medical Department, Nashville, 1890; aged 75; died, Nov. 4, 1936, in St. Mary's Hospital, of chronic myocarditis.

William W. Parker, Los Angeles; Bennett College of Eclectic Medicine and Surgery, Chicago, 1875; aged 88; died, Oct. 12, 1936, of coronary sclerosis and bronchopneumonia.

Francis Marion McCrea, Eddyville, Iowa; College of Physicians and Surgeons, Keokuk, 1874; Barnes Medical College, St. Louis, 1898; aged 88; died, Nov. 6, 1936, of influenza.

John H. Junghans, Washington, D. C.; Georgetown University School of Medicine, Washington, 1891; aged 68; died, Nov. 18, 1936, of cerebral embolism and arteriosclerosis.

Frank Leslie McCauley, Post Falls, Idaho; Illinois Medical College, Chicago, 1905; aged 59; died, Oct. 12, 1936, in a hospital at Spokane, Wash., of aneurysm of the aorta.

Luther Ellis Glasgow, Pittsburgh; Jefferson Medical College of Philadelphia, 1902; aged 57; died, Oct. 31, 1936, in the Mercy Hospital, of gastric hemorrhage and nephritis.

John Allen ♂ Raymond, Calif.; Georgetown University School of Medicine, Washington, D. C., 1908; formerly attached to the Indian Service; aged 70; died, Oct. 4, 1936.

Harvey W. Smith, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; aged 72; died, Nov. 8, 1936, in Miami, Fla., of coronary artery disease.

Edward Mayfield Boyle, Baltimore; Howard University College of Medicine, Washington, D. C., 1902; aged 58; died, Nov. 21, 1936, of cardiovascular renal disease.

Albert George Paine, Chicago; University of the City of New York Medical Department, 1877; aged 88; died, Dec. 3, 1936, in Pasadena, Calif., of bacillary dysentery.

Harry Stokes Doriss, Pleasantville, N. J.; Medico-Chirurgical College of Philadelphia, 1903; aged 67; died, Nov. 18, 1936, in Northfield, of cardiorenal disease.

Jacob C. Strong, Santa Paula, Calif.; Cincinnati College of Medicine and Surgery, 1890; aged 69; died, Oct. 17, 1936, of coronary thrombosis and pulmonary embolism.

Sarkis K. Merdanian, Oelrichs, S. D.; Missouri Medical College, St. Louis, 1893; aged 72; died, Nov. 7, 1936, in Hot Springs, of chronic nephritis and myocarditis.

Arthur Gerald Glann ♂ Colo, Iowa; Sioux City (Iowa) College of Medicine, 1898; aged 61; died, Nov. 17, 1936, in St. Thomas Mercy Hospital, Marshalltown.

Walter Winston Hopson, Los Angeles; Meharry Medical College, Nashville, Tenn., 1909; aged 54; died, Oct. 28, 1936, of coronary sclerosis and chronic myocarditis.

Lars Johan Hauge, Howard, S. D.; Sioux City (Iowa) College of Medicine, 1903; aged 76; died, Nov. 20, 1936, of cerebral hemorrhage and diabetes mellitus.

Samuel H. Armes, Louisville, Ky.; University of Louisville Medical Department, 1892; aged 68; died, Nov. 8, 1936, of bronchopneumonia and paralysis agitans.

William Steele Guyton ♂ Pickens, Miss.; Tulane University of Louisiana Medical Department, 1904; aged 59; died, Nov. 23, 1936, of myasthenia gravis.

Alsey R. Fuller, Mountville, S. C.; University of Maryland School of Medicine, Baltimore, 1884; aged 82; died, Oct. 9, 1936, of carcinoma of the lip and jaw.

George Switzer Darby ♂ Brodhead, Wis.; Rush Medical College, Chicago, 1902; served during the World War; aged 62; was found dead, Nov. 14, 1936.

Edwin Katskee, Lincoln, Neb.; University of Nebraska College of Medicine, Omaha, 1926; aged 34; died, Nov. 26, 1936, of an overdose of a narcotic.

Robert W. Bandy, Gleason, Tenn.; Vanderbilt University School of Medicine, Nashville, 1884; bank president; aged 75; died, Nov. 15, 1936, of pneumonia.

Harry Perkins Healy, Cumington, Mass.; College of Physicians and Surgeons, Boston, 1905; aged 52; died, Nov. 12, 1936, of coronary thrombosis.

William L. Henderson, Clarksburg, W. Va. (licensed in West Virginia in 1899); aged 62; died, Nov. 13, 1936, in a local hospital, of acute nephritis.

Charles Robert Sneath, Lakeland, Fla.; Trinity Medical College, Toronto, Ont., Canada, 1896; aged 79; died, Nov. 14, 1936, of coronary thrombosis.

Frank Wesley Knowles, Los Gatos, Calif.; Rush Medical College, Chicago, 1883; aged 78; died suddenly in November 1936 of coronary thrombosis.

John A. Corrigan, Louisville, Colo.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1905; aged 58; died recently, of pneumonia.

John Louis Seebold, LaBelle, Fla.; American Medical College, St. Louis, 1898; aged 65; died, Nov. 14, 1936, of acute dilatation of the heart.

Joseph E. Wright, Westfield, N. J.; Hahnemann Medical College of Philadelphia, 1884; aged 74; died suddenly, Nov. 5, 1936, of myocarditis.

James S. Matheson Wylie, Chicago; Harvey Medical College, Chicago, 1895; aged 70; died, Dec. 10, 1936, of coronary thrombosis.

Daniel Patrick O'Connell, San Francisco; College of Physicians and Surgeons of San Francisco, 1918; aged 40; died, Oct. 20, 1936.

George W. Mills, Calhoun, Ga.; University of Tennessee Medical Department, Nashville, 1887; aged 84; died, Nov. 13, 1936, of pneumonia.

Martin Luther Emerick, Lancaster, Pa.; Jefferson Medical College of Philadelphia, 1896; aged 63; died, Oct. 22, 1936, of arteriosclerosis.

Samuel C. Van Leer, Hot Springs National Park, Ark. (licensed in Arkansas in 1903); aged 75; died, Nov. 13, 1936, of pneumonia.

John P. Alkire, Worthington, W. Va.; Starling Medical College, Columbus, 1898; aged 68; died, Nov. 4, 1936, of paralysis agitans.

Edna E. Heflen Smith Pells, Grand Island, Neb.; Keokuk (Iowa) Medical College, 1895; aged 66; died, Nov. 13, 1936, of pneumonia.

Jay Hugh Stier, Perryman, Md.; University of Maryland School of Medicine, Baltimore, 1886; aged 71; died, Oct. 6, 1936.

John Seburn Paschal, Stout, Texas; Memphis (Tenn.) Hospital Medical College, 1889; aged 71; died in October 1936.

Robert C. West, Woodstock, Ont., Canada; Faculty of Medicine of Trinity College, Toronto, 1886; died, Oct. 17, 1936.

William H. Lemmon, Cadiz, Ohio; Starling Medical College, Columbus, 1888; aged 74; died suddenly, Nov. 18, 1936.

P. J. Hampton ♂ Rush Springs, Okla.; University Medical College of Kansas City, Mo., 1899; aged 65; died, Oct. 6, 1936.

Arthur Barker Jenney, Mattapoisett, Mass.; Boston University School of Medicine, 1888; aged 82; died, Nov. 21, 1936.

John Henry Heron, Denver; Rush Medical College, Chicago, 1876; aged 85; died, Oct. 25, 1936, of chronic nephritis.

Noah David Ravenscraft, Buckner, Mo.; University Medical College of Kansas City, 1891; aged 72; died, Nov. 5, 1936.

Evelyn Eichar Littell, Dayton, Ohio; Cleveland Medical College, 1894; aged 75; died, Nov. 13, 1936, of heart disease.

Arthur L. Newman, New York; Eclectic Medical College of the City of New York, 1895; aged 64; died, Nov. 5, 1936.

John Ernest Drakeford, Tuskegee, Ala.; Kentucky School of Medicine, Louisville, 1893; aged 65; died, Oct. 12, 1936.

John B. Weldon, Hampton, Ga.; Atlanta College of Physicians and Surgeons, 1906; aged 52; died, Oct. 23, 1936.

William Alexander Sheldon ♂ Liberty, S. C.; Atlanta Medical College, 1892; aged 69; died, Oct. 24, 1936.

Claud Blume, Shreveport, La.; Memphis (Tenn.) Hospital Medical College, 1903; aged 58; died, Oct. 21, 1936.

Robert F. Coppess, Kenton, Ohio; Medical College of Ohio, Cincinnati, 1883; aged 77; died, Nov. 17, 1936.

Lida Atwood Morse, Chardon, Ohio (licensed in Ohio in 1896); aged 87; died, Nov. 12, 1936, of pneumonia.

M. S. G. Abbott, Pensacola, Fla.; Leonard Medical School, Raleigh, N. C., 1886; aged 81; died, Nov. 7, 1936.

James T. Carter, Rice, Texas (licensed in Texas under the Act of 1907); aged 63; died, Oct. 23, 1936.

Andrew Arnett, Hurdland, Mo.; Missouri Medical College, St. Louis, 1882; aged 82; died, Oct. 23, 1936.

James Campbell, Tottenham, Ont., Canada; Trinity Medical College, Toronto, 1888; died, Nov. 2, 1936.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, January 9, page 141.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Feb. 9-11, May 10-12, June 21-23, and Sept. 13-15. *Part III.* Chicago, Jan. 19-21. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIDLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written examination* will be held simultaneously in different centers of the United States and Canada in March. *Practical examination* will be given in St. Louis in April and at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the United States and Canada, March 6. *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. *Applications must be received at least sixty days prior to the examination dates.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Los Angeles, Jan. 23. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

AMERICAN BOARD OF PEDIATRICS: New York, Jan. 23, and Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

### Pennsylvania July Examination

Mr. James A. Newpher, secretary, Pennsylvania State Board of Medical Education and Licensure, reports the examination held in Philadelphia and Pittsburgh, July 7-11, 1936. An average of 75 per cent was required to pass. Five hundred candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
College of Physicians and Surgeons of San Francisco.....		(1905)	1
University of Colorado School of Medicine.....		(1934)	1
Yale University School of Medicine.....		(1934)	1
George Washington University School of Medicine.....		(1934)	1
Georgetown University School of Medicine.....		(1934, 2), (1935, 16)	18
Howard University College of Medicine.....		(1935, 2)	2
Medical School.....		(1936)	1
Medical School.....		(1935)	1
University of Illinois College of Medicine.....		(1934)	1
University of Louisville School of Medicine.....		(1935)	1
Tulane University of Louisiana School of Medicine.....		(1934)	1
Johns Hopkins University School of Medicine.....		(1913), (1934)	2
University of Maryland School of Medicine and College of Physicians and Surgeons.....		(1934), (1935, 11)	12
Harvard University Medical School.....		(1929), (1934), (1935), (1936)	4
University of Michigan Medical School.....		(1935, 3)	3
St. Louis University School of Medicine.....		(1935, 11)	11
Creighton University School of Medicine.....		(1935, 2)	2
Columbia University Col. of Physicians and Surgeons.....		(1934)	1
Long Island College of Medicine.....		(1935)	1
New York University College of Medicine.....		(1935)	1
Syracuse University College of Medicine.....		(1935)	1
University of Buffalo School of Medicine.....		(1914), (1935)	2
University of Rochester School of Medicine.....		(1933), (1935, 5)	6
Ohio State University College of Medicine.....		(1935, 2)	2
University of Cincinnati College of Medicine.....		(1936)	1
Western Reserve University School of Medicine.....		(1935, 2)	2
Hahnemann Medical College and Hospital of Philadelphia.....		(1934, 9), (1935, 61)	70
Jefferson Medical College of Philadelphia.....		(1932, 2), (1933, 2), (1934, 21), (1935, 63)	93
Temple University School of Medicine.....		(1933, 2), (1934, 18), (1935, 65)	85
University of Pennsylvania School of Medicine.....		(1932), (1933, 2), (1934, 33), (1935, 44)	80
University of Pittsburgh School of Medicine.....		(1935, 61)	62
Woman's Medical College of Pennsylvania.....		(1934), (1935, 10)	11
Meharry Medical College.....		(1935)	1
University of Texas School of Medicine.....		(1934, 2)	2
Medical College of Virginia.....		(1934)	1
University of Wisconsin Medical School.....		(1934, 2)	2
University of Western Ontario Medical School.....		(1935, 2)	2
McGill University Faculty of Medicine.....		(1935, 2)	2
Medizinische Fakultät der Universität Wien.....		(1914), (1935)	1
Université Libre de Bruxelles Faculté de Médecine.....		(1934)	1
Licentiate of the Royal College of Physicians of London.....		(1935), (1935, 2)*	2
Faculty.....		(1935), (1935, 2)*	2

Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....(1910)† 1  
Regia Università degli Studi di Roma, Facoltà di Medicina e Chirurgia.....(1934)† 1

Thirty-eight physicians were licensed by reciprocity and 23 physicians were licensed by endorsement from April 16 through September 11. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine.....		(1934)	Missouri
Loyola University School of Medicine.....		(1935)	Michigan
University of Illinois College of Medicine.....		(1913)	Illinois
Indiana University School of Medicine.....		(1910)	Indiana
State University of Iowa College of Medicine.....		(1927), (1933)	Iowa
Tulane University of Louisiana School of Medicine.....		(1928)	Louisiana
Johns Hopkins University School of Medicine.....		(1918)	Maryland, Michigan
University of Maryland School of Medicine and College of Physicians and Surgeons.....		(1926) New Jersey, (1928)	Maryland
University of Michigan Medical School.....		(1928), (1930)	Michigan
University of Minnesota Medical School.....		(1928)	Minnesota
Washington University School of Medicine.....		(1928)	Maryland
University of Nebraska College of Medicine.....		(1929)	New Jersey
New York University, University and Bellevue Hospital Medical College.....		(1933)	New York
Western Reserve University School of Medicine.....		(1932)	Ohio
Hahnemann Medical College and Hospital of Philadelphia.....		(1919), (1934, 2)	New Jersey, (1931) Maryland, (1932) Washington
Jefferson Medical College of Philadelphia.....		(1926, 2)	New Jersey, (1929) North Carolina, (1930), (1932) Connecticut, (1932) Ohio
Temple University School of Medicine.....		(1933)	New Hampshire
University of Pennsylvania Department of Medicine.....		(1906)	New York
University of Pennsylvania School of Medicine.....		(1930, 2)	N. Carolina, (1933) Michigan
University of Vermont College of Medicine.....		(1935)	Vermont
Medical College of Virginia.....		(1924)	W. Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Year Endorsement of
Yale University School of Medicine.....		(1931)	N. B. M. Ex.
Georgetown University School of Medicine.....		(1935, 3)	N. B. M. Ex.
Johns Hopkins University School of Medicine.....		(1933)	N. B. M. Ex.
Harvard University Medical School.....		(1926), (1932)	(1933) N. B. M. Ex.
University of Michigan Medical School.....		(1932)	N. B. M. Ex.
St. Louis University School of Medicine.....		(1935)	N. B. M. Ex.
Cornell University Medical College.....		(1934)	N. B. M. Ex.
University of Buffalo School of Medicine.....		(1931), (1933)	N. B. M. Ex.
Temple University School of Medicine.....		(1935, 2)	N. B. M. Ex.
University of Pennsylvania School of Medicine.....		(1933)	
University of Pittsburgh School of Medicine.....		(1935)	N. B. M. Ex.
University of Wisconsin Medical School.....		(1933)	N. B. M. Ex.

\* License has not been issued.

† Verification of graduation in process.

## Book Notices

*Principles of Biochemistry.* By Albert P. Mathews, Andrew Carnegie Professor of Biochemistry, University of Cincinnati, Cincinnati, Ohio. Cloth. Price, \$1.50. Pp. 512, with 5 illustrations. Baltimore: William Wood & Company, 1936.

This has been a standard textbook in physiologic chemistry with medical students and physicians for many years. The present edition is a completely revised and new work. It is the author's expressed purpose to adapt it for use in teaching biochemistry to medical students. Accordingly, the material is condensed and concisely presented. References have been purposely omitted because it is the author's opinion that the student does not have sufficient time to consult the current literature. The plan of organization differs from the conventional method of presenting the subject to medical students. Instead of taking up the chemistry of carbohydrates, fats and proteins, their digestion and absorption, the intermediary metabolism of these substances, and finally the end products of metabolism, the author has chosen to take up carbohydrates, fats and proteins and discuss them completely. The first three parts of the book deal with their chemistry and metabolism. Then follow sections devoted to a consideration of the special chemistry of blood, cartilage and bone, catalytic agents of growth and development (vitamins and hormones), and energy metabolism. This type of organization seems rational for one who has some knowledge of biochemistry and physiology, but many will question its adaptability for teaching medical students early in their medical education. It is an interesting deviation from conventional teaching of the subject, and the result of this method of instruction should make interesting reading for all. It is evident from the organization of the book that the author has been painstaking in the selection and presentation of his data and that he had a definite teaching goal in view. As with most first editions, the book contains numerous errors which will

ing conditions and disease states. Certainly the proper functioning of physicians as witnesses may be thoroughly hampered in many respects if such should be the case. It seems reasonable to accept the requirement that a "causal" rather than "casual" relationship must exist before any disease state in a worker may be attributed to work conditions as the direct etiologic factor.

CAREY P. McCORD, M.D., Detroit.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### ANGINA PECTORIS

*To the Editor:*—A woman, aged 48, with normal blood pressure, in excellent health, was involved in an automobile accident, being thrown forward and backward, subjected to considerable fright, and sustaining a severe sacro-iliac strain. On arriving home two hours afterward she complained of pain in the region of the heart. She was immediately put to bed, where she stayed for approximately six months. On the third day she became depressed and emotional, became hysterical, and would cry over the most trivial matters. She gradually developed numerous hysterical and emotional attacks of pain in the region of the heart, which were diagnosed as nervous angina. During an attack of pain she did not remain speechless as in a true angina. These attacks increased in number until she had as many as twenty or thirty in twenty-four hours, most of which occurred during the night. The pain was not paroxysmal but dull and heavy, sometimes radiating to the left arm, and passing away slowly. A cardiologist found the heart normal in size, rather rapid, with no definite murmurs and no irregularity. The electrocardiogram was practically negative as to showing any disease of the coronary arteries or heart muscle, and a diagnosis of functional or nervous angina was made. Complete rest was advised, but in spite of this the attacks increased considerably in number, became greater in severity, and were relieved by the oral administration of glyceryl trinitrate, in my opinion an indication that a true angina was developing. Approximately six months after the accident she had one severe attack of angina pectoris that was not relieved by glyceryl trinitrate. All symptoms indicated a coronary thrombosis. Every possible thing was done to save her, but she died within seven hours. The patient, who up until the time of this accident was in excellent health, could run a considerable distance, play golf, dance, swim, climb mountains, and undergo any physical exertion without any discomfort, was immediately confined to bed and developed symptoms of a nervous angina. Did this patient have a preexisting disease of the coronary arteries? Were the symptoms of angina directly caused by the fright and injury? If there had been a disease of the coronary arteries prior to the accident, why weren't there any symptoms? Why do some of these patients have symptoms of angina and why do some of them with precisely similar lesions have none? There is no doubt that attacks can be precipitated in emotional and nervously sensitive persons by physical stress or anxiety; therefore, in my opinion, if it is possible for this patient, entirely free from symptoms, immediately to become bedridden for about six months and be incapable of doing anything requiring the slightest exertion for that period, there can be instances of angina apparently authentic in every way, which do not show coronary disease and in which a great number of functional or nervous attacks of angina can do damage to the coronary arteries which did not previously exist and ultimately cause a coronary thrombosis. Please omit name.

M.D., Massachusetts.

**ANSWER.**—This case serves to keep alive the controversy that has been going on since shortly after Heberden labeled the symptom complex now known as angina pectoris. The controversy is between those who adhere to the vasospastic theory of angina and those who insist that angina must be caused by organic coronary changes. As no necropsy report is given here it is possible to make out a fairly good case for either side.

First, it must be pointed out that coronary changes are found by the pathologist in almost all persons over 40 years of age. With this in mind, let us now discuss the case from the point of view of the adherents to the vasospastic theory of angina pectoris.

It is well known that angina pectoris may occur in persons who have no illness inconsistent with age demonstrable in the coronary arteries. This has been shown in fatal cases of angina pectoris that have come to necropsy. This fact has lent a great deal of weight to the theory that active vasoconstriction of the coronaries may be a cause of angina pectoris. This spasm of the coronaries is not the only cause, nor perhaps is it the most frequent cause, but it is conceivable that it may operate in the absence of all other causes.

Deaths from angina pectoris of this type will leave no pathologic evidence in the heart. It has been assumed that ventricular fibrillation results from the profound ischemia during the attack.

Coronary occlusion has been demonstrated in hearts with minimal coronary changes. On the same grounds it has been assumed that coronary spasm may be sufficiently severe to allow thrombosis to occur.

If these premises are accepted as tenable, it must be admitted that angina pectoris may occur in persons whose coronaries show no pathologic changes inconsistent with age and in whom physical and electrocardiographic examination will reveal nothing. It is unwise, however, to call this condition "functional angina." The word functional implies an innocuousness that does not exist here. There is an actual and considerable, sometimes almost total, reduction in the coronary circulation. It may be severe enough to cause death, but it occurs as a result of vasospastic or neurogenic causes. This vasospastic type of angina pectoris frequently has its inception in a severe emotional shock. Therefore, it is quite possible, in the case under consideration, that no coronary disturbance inconsistent with the age of the patient existed at any time. It is quite possible that the tendency to active coronary spasm was induced by the emotional shock of the accident. It seems likely that the presence or absence of the vasospastic element determines the presence or absence of angina in different patients with equal amounts of coronary damage. It is possible that frequent attacks of spastic angina may damage the coronaries and cause thrombosis but that the thrombosis may occur as a direct result of the spasm and without additional damage.

On the other hand, the opponents of the vasospastic theory would say that coronary disease must surely have existed in this patient before the accident, but that it was not sufficiently extensive or not properly situated to produce pain. It is quite possible that the heart may have been injured in such an accident. It is probable that hearts are injured much more commonly than has heretofore been assumed. The "steering wheel heart" injury has been discussed rather commonly. Or the trauma and excitement of the accident may have caused the rupture of a small atheromatous abscess into a coronary vessel and produced enough immediate change to account for the sudden appearance of the symptoms. It is not only the extent of the coronary change but also its location that determines the presence or absence of anginal pain, and the same criteria govern the presence or absence of physical and electrocardiographic signs.

The progress of this case was that of an ordinary disease which terminated in coronary occlusion. The occlusion might easily have been hastened by the enforced bed rest with its attendant fall in blood pressure. The hysteria and nervous instability were the result of the almost continuous anginal distress and its associated apprehension.

To the neutral observer, it would appear that the adherents of the vasospastic theory have somewhat the better of the argument here, but, without a necropsy, it would be difficult to convince the opponents.

### PENETRATION OF TISSUE BY FUEL OIL FROM DIESEL ENGINE

*To the Editor:*—I would appreciate any information you can give me on the subject of piercing wounds by fuel oil under high pressure and the complications and treatment arising from these conditions because of the fuel oil penetrating the tissue and absorption from the blood stream. I feel that this type of accident is new in this country, as the work on the Diesel engine pump is but a recent industry in the United States.

E. M. FEIMAN, M.D., Canton, Ohio.

**ANSWER.**—A somewhat analogous situation has appeared in the refrigeration industry. There leaks of liquid sulfur dioxide in oil, under pressure, have caused severe eye injuries, not so much from penetration of the eye as from instantaneous freezing of areas of the orbit. In the case of the Diesel engines, the number of substances that may be used under pressure for fuel is high, ranging all the way from naphthalene compounds to peanut oil. Other fuel possibilities are the oils from the soya bean, coconut, shale, coal tar and liquid petrolatum. In addition to the basic fuel, various enhancing agents may be added, many of which are decidedly toxic under proper circumstances. These agents include divers nitrites and nitro compounds. Obviously, three types of injuries may arise in connection with the variety of accident under discussion: direct trauma, chemical action at the site of the original trauma, such as paraffinomas from paraffin oils, carcinogenic action from shale oil and other carcinogenic agents, and oil emboli. Although these potential chemical hazards are mentioned, it is emphasized that at present



scientific basis. He must evaluate medical discoveries and discard or apply them in a truly scientific manner." In the ensuing chapters the author discusses contraception, abortion, birth control, sterilization laws, sex education, euthanasia, the divorce problem and mental unfortunates. He covers ground here that has been hashed over in newspapers and periodicals and does not seem to throw much additional light on these important subjects.

*Proceedings of the National Conference of Social Work [Formerly National Conference of Charities and Corrections] at the Sixty-Third Annual Session Held in Atlantic City, New Jersey, May 18-23, 1936.* Published for the National Conference of Social Work. Cloth. Price, \$3. Pp. 655. Chicago: University of Chicago Press, 1936.

Papers included in these proceedings furnish a cross section of the current opinion of social service workers. The attitude of approach is suggested in the presidential address of Mgr. Robert F. Keegan, who says:

Today deeply disturbed voices are protesting that freedom without security is a hollow mockery, that the door of individual opportunity is rapidly closing, and that economic slavery is descending upon large masses of our people. We may not subscribe to this thinking but we cannot ignore it.

It may be significant that there are more papers on the importance of individual, personal contacts through case work than have appeared in the reports of similar conferences for several years. At the same time there is a constantly reiterated demand for more extensive governmental action in the direction of social security, the extension of public relief, and work for the unemployed. There is repeated recognition of the fundamental influence of low wages on social problems and the need for increasing incomes in the low brackets, backed up by repeated references to the income statistics of the Brookings Institute. There are also several attempts to integrate these measures in proposals for general social planning, especially in its relation to the problem of unemployment.

*Topography of the Layer of Rods and Cones in the Human Retina.* By G. Osterberg. Paper. Pp. 102, with 8 illustrations. Copenhagen: NYT Nordisk Forlag; Arnold Busck, 1935.

This book is another of the excellent series of monographs on ophthalmologic subjects that have appeared from the eye clinics of the Scandinavian countries. It begins with a historical review of the literature on the results of the earlier investigations on the form and number of rods and cones. An introduction discusses the errors of the various methods of fixation, embedding, sectioning and counting. Finally the estimation of the number of rods and cones per square millimeter at measured distances from the macula is recorded. The center of the fovea contains 147,300 cones per square millimeter. The so-called rod line 130 microns from the center of the fovea shows 74,800 rods per square millimeter. A minimum of 3,300 cones per square millimeter is found 10 mm. temporally from the center. The rods begin 130 microns from the foveola. About 5.5 mm. from the center there is an annular zone containing a maximal concentration of rods. Near the ora serrata the number of rods shrinks to between 23,000 and 50,000 per square millimeter. There are between 110,000,000 and 125,000,000 rods and between 6,300,000 million and 6,800,000 million cones in the normal human retina.

*Étapes de la neurologie dans l'antiquité Grecque (d'Homère à Gallien).* Par A. Souques, médecin honoraire de la Salpêtrière. Paper. Price, 45 francs. Pp. 247. Paris: Masson & Cie, 1936.

One would think that an author dealing with historical subjects in neurology in French would be somewhat awed by the fact that Soury's massive work on the nervous system was written in that language and covers thoroughly the problems of neurology as recognized and described by classical authors. Naturally, since Soury's work is not recent there have been some improvements in contemporary knowledge of neurology which might make it worth while to reread some of the authors to see if there is any indication that newly recognized conditions were noted or described in antiquity. The present volume has a slightly different slant than that of Soury: while both refer to classical literature and contemporary criticisms of it, the present volume deals with antiquarian studies which are more recent and there is more discussion based on the author's reaction to contemporary criticism of the classical medical writers. A few new angles are presented, the chief one of

which is the demonstration of the fact that the majority of writers from Hippocrates to Galen recognized the existence of jacksonian epilepsy. The present volume largely looks at the neuropsychiatric problems from the standpoint of organic disorders, and contributions in functional neurology are slurred over to some extent. It does make interesting reading and is a worthy supplement to Soury and is commendable in the sense that it is a thorough work which adds to our cultural knowledge of the background of neurology. Its weak points are the fact that it does overlap Soury's work to a great extent and the fact that it is not annotated and does not have an index. The style is easy even for those who are relatively unfamiliar with French.

*Spending to Save: The Complete Story of Relief.* By Harry L. Hopkins, Federal Emergency Relief Administrator. Cloth. Price, \$1.50. Pp. 197. New York: W. W. Norton & Company, Inc., 1936.

This book is far from "the complete story of relief" which the subtitle indicates. It is a dramatic story of the conditions that arose out of the depression of 1929 and the reluctance of governments to recognize the extent and duration of the ensuing poverty and the consequent need of organized relief on a national scale. It is also a spirited and able defense of such measures as the CWA, WPA, FERA, CCC, and to a lesser extent the AAA. The only reference to the medical relief given is to say (p. 102) "We paid for medicine and sometimes for the doctor." The failure to apply the principles of civil service is almost completely ignored. The program of permanent action is sketchy; perhaps the difficulty of outlining such a program makes this excusable. The social security legislation is praised and the policy laid down that in the future (p. 181) "Federal aid, I believe, should be given through the Social Security Board which with similar state and county boards, should pass this benefit as a pension without stigma to those who need it." If this is to be done "an adequate civil service made up of permanent employees is absolutely essential to the success of any pension system." This is the only mention of civil service. Such a plan will not take care of 400,000 workers who come of age each year, the casual laborer, the agricultural or the household workers, and these, it is held, can be taken care of only by work programs.

*Einrichtung und ordnungsgemässer Betrieb der chirurgischen Krankenstation.* Von Dr. Richard Goldhahn, Chefarzt des Kreiskrankenhauses in Lignitz. Boards. Price, 4 marks. Pp. 128, with 33 illustrations. Leipzig: Georg Thieme, 1936.

This booklet serves as a supplement to the treatise by Kappis on organization and management of the operating room and is intended primarily as a guide for interns and resident physicians, to avoid repeated oral instructions and to secure uninterrupted service in surgical wards. Various chapters deal with the construction and furnishing of the wards, schedule of ward walks and dressings, admission of patients, asepsis and antisepsis, certain procedures such as venoclysis, blood transfusions and the application of casts, diets, preoperative and postoperative measures, transportation of patients, preservation of utensils, history taking and similar topics. Contrary to the experience in this country, the author complains of scarcity of private and semiprivate rooms in the hospitals. As window screens are not in general use on the continent, much space is devoted to the discussion of the problem of combating flies. The rules laid down in various sections of the booklet are arbitrary and rather primitive; nevertheless it probably will serve a useful purpose for young assistants in Germany, as the text is completely shorn of nonessentials.

*Diseases of the Nails.* By V. Pardo-Castello, M.D., Dermatologist and Syphilologist to the Children's Hospital, Havana, Cuba. With a foreword by Howard Fox, M.D., Professor of Dermatology and Syphilology. New York University. Cloth. Price, \$3.50. Pp. 177, with 94 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1936.

This is a useful monograph. It is practical, short and plainly written. There is a liberal amount of illustrations in black and white, and there is a full index. Its contents are chapters on the anatomy and pathology of the nails, disorders peculiar to the nails, nail dystrophies, manifestations in the nails of dermatoses and of systemic diseases, and congenital disorders of the nails. In addition there is a list of occupations in which diseases of the nails are common and one of unusual symptoms.

even though such improvement may be only temporary. The treatment should be repeated at intervals of four weeks for some time and should be supplemented by subtolerance doses of iodides.

#### ANOREXIA (?)

*To the Editor.*—My daughter, aged 11½ months, has anorexia, which does not respond to any treatment. The anorexia is of seven or eight months' duration. The birth weight was 7 pounds 1 ounce (3,200 Gm.). Delivery was spontaneous. The present weight is about 24 pounds (11 Kg.) or perhaps more. The child's health has always been good except for two colds of short duration and recent nonsuppurative otitis media. The hemoglobin and red blood cell count are above normal. The urine and stools are normal. The child is good natured; she seldom cries, is cheerful and playful, and is alert and apparently well. She was breast fed for one month and then put on cow's milk with a preparation of maltose and dextrin, because of lack of quantity and quality of the breast milk. Intolerance to cod liver oil prompted a change to halibut liver oil with viosterol. The child sleeps about twelve hours during the night but little during the day. She does not like milk and drinks from 16 to 18 ounces out of 32. She eats vegetables in small amounts—not sufficient—and dislikes fruits except for cherry juice. She eats pabulum twice a day heartily and one whole egg daily, preferably raw in cereal but sometimes cooked. She dislikes or will not eat such foods as liver, chicken, lamb chops, soups, prunes, bread and butter. She will not eat potatoes. She does not appear hungry at any time and does not cry for food. She does not vomit except when given prunes, peaches or cottage cheese, and then will vomit in fifteen minutes or half an hour after ingestion. She has never had candy or sweets. Tissue turgor is good. The child is not cranky. She crawls, sits and can stand with support. She can pull herself up to a standing position. She has six teeth. There are no signs of rickets or constitutional disease. She dislikes brewers' yeast even when it is disguised. Diphtheria toxoid at 6 months resulted in a negative Schick test with little reaction. Pertussis vaccine at 8 months resulted in a severe reaction both locally and generally. Smallpox vaccination at 10½ months gave a good take without constitutional reaction. Physical and laboratory examinations have always been negative. The weight is becoming stationary though growth is increasing. I would appreciate an opinion as to the cause of the anorexia and suggested treatment. This child can miss a meal or more without showing any hunger. Please omit name.

M.D., Wisconsin.

*ANSWER.*—If this query is correctly interpreted, it would appear that there is no cause for anxiety over this baby. The child seems in every way normal; indeed, the weight at 11½ months is better than the average. The fact that the child is happy would also indicate that she is well. Furthermore, the infant can stand and pull herself up, which shows that her static development is progressing normally. The fact that she has six teeth indicates that her nutrition is adequate despite her diminished appetite. One need really not worry about this baby. If she will take only 16 to 18 ounces of milk a day, it will suffice. The egg is beneficial, and the only criticism about its administration is that it should be boiled at least three minutes instead of being given raw. If the baby is put on three meals a day of foods that she relishes—of course, one should not omit saying that the selection of foods should be reasonable and adapted to a child of this period—the baby will prosper in her own way. The greatest mistake one could make in the management of such a case is to overglorify the baby's meal time. One should not force the food or distract the child by the various methods in vogue. If the baby is left to her own devices she will eat what she wants and in all probability all that she needs, because certainly a baby of this normal development will not starve.

#### EFFECTS OF AIR CONDITIONING AND HUMIDIFICATION ON TISSUES

*To the Editor.*—The following item quoted as being an expression of opinion of Dr. Thomas Hubbard in your publication on the subject of humidification has been brought to our attention and we should like to verify it: "The skin, like the respiratory mucous, is actually damaged by hot, dry air (and likewise the hair) and becomes more liable to chronic diseases." We shall appreciate this information and any other view you may be willing to express on the desirability of humidification in the home and the office.

LOWELL AIR CONDITIONING CORPORATION, Philadelphia.

*ANSWER.*—Under various industrial conditions involving high, arid temperatures, opportunity may be provided for actual damage to the skin, hair or mucous membranes. However, it is not known that the humidification of such air would increase comfort of the worker or eliminate the probability of some injury. This statement does not apply to ordinary atmospheric conditions in homes and offices. At the present time the best thought with respect to air conditioning places emphasis on dehumidification in the procurement of comfort in the presence of high temperatures, and humidification in the presence of low temperatures. Customarily, this means dehumidification

during summer months and humidification during cold weather. The present-day practice of increasing comfort through air conditioning, through the medium of marked diminution in temperatures between outside air and air in homes and buildings, is open to valid criticism. It is possible that quick changes from artificially chilled air to very hot outside air may be associated with demonstrable injury and possibly may be associated with an increased frequency of such diseases as pneumonia. Sufficient facts are not now available on which to predicate any unequivocal statements. At the present time it appears to be true that the chief benefit derivable from air conditioning, as now applied, is one of comfort. While it is the belief of many physicians that air conditioning promotes health for the majority of persons, there is still lacking precise proof of this belief. In some large buildings equipped with continuous air conditioning, medical experience has developed indicative that no diminution has appeared in the number of ordinary respiratory infections.

#### CALCULATION OF WEIGHT FROM AGE AND HEIGHT

*To the Editor.*—Given the age and height of an individual, is there any key to calculate the normal weight without a standard chart as a guide? Kindly omit name.

M.D., New York.

*ANSWER.*—So far as we know, no such formula has been evolved. The inherent difficulties seem obvious, because the relation between age, weight and height varies in different age periods and also in the same individual. The fact of the matter is that our height and weight tables do not represent actual standards but only approximate averages. With such variable data a mathematical formula would be of no value. If one attempted the solution of such a problem one would have to obtain an equation in which the weight could be expressed as a function of the height and age. Since there is no constant relation between age, height and weight, such a formula would be useless, and any result obtained would lack mathematical validity. We simply do not possess the information necessary to state the range of variations which should be regarded as normal in each case. There are many factors to be considered in height and weight for a given age, such as season, nutrition, exercise and mental activity. There are individual differences among races, as well as among children from wealthy and poor families. Therefore a mathematical expression of the relationship does not seem feasible.

#### FEELING OF FAINTNESS AFTER BOWEL MOVEMENT

*To the Editor.*—Can you suggest any cause and any treatment for the symptom of extreme weakness which comes on immediately following any bowel movement? The patient is 77 years old but has had this trouble for thirty years. It has grown worse during this time of advanced age. There is a slight stricture of the anal canal due to a hemorrhoid operation, but this is only slight and the complaint antedated the operation. There was an attack of coronary artery disease a year ago, from which the patient made an extraordinarily satisfactory recovery, but the complaint antedated this event by many years. The blood sugar curve, after a sugar tolerance test, shows no rise in the blood sugar above 110, but this complaint, while somewhat relieved by taking food, is characteristically present after a bowel movement and is so severe that the patient must go to bed for hours after the bowel movement. A barium sulfate enema showed the colon rather capacious with absence of haustral markings in the transverse and descending portions and with no evidence of an organic lesion. Please omit name.

M.D., California.

*ANSWER.*—This syndrome for a man or woman to feel faint and weak after a large diarrheic bowel movement is more or less natural. It seems probable that the same type of distress in an exaggerated form can occur occasionally in persons who have feces of normal consistency. In such cases one would expect to find that the reflexes either of the patient as a whole or of the lower part of the abdomen are exaggerated. Actually, in most instances the patient is a highly sensitive and nervous woman.

Because one can find this syndrome in patients who haven't the slightest sign of disease in the colon or rectum or lower part of the abdomen it seems best to disregard as accidental any small abnormalities which can be found in a particular patient.

Under the circumstances the most logical treatment would seem to be the giving of some sedative, such as sodium bromide, half an hour before the patient expects to move the bowel. Sometimes one of these patients can be helped most by being taught to live on a low residue diet which will enable her to go for three or four days without a bowel movement. In this way she will have only two ordeals a week instead of one every day.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts: Death Due to Paralytic Ileus Following Herniotomy.**—The employee in this case was injured, September 11, when his left leg broke through the wood cover of a manhole. He quit work immediately and had difficulty in getting to his house. He complained of nausea and of pain in the lower left side of his abdomen. That evening there was a pronounced swelling and tenderness in the left inguinal region. Two days later his condition was diagnosed as traumatic hernia. Rest until the swelling and tenderness disappeared was advised. A herniotomy was performed, October 29. Twelve hours later the employee's abdomen became distended and within a day or two his condition was described as toxic. He died November 3, the immediate cause of death being "paralytic ileus; i. e., paralysis of the small intestine." The employee's widow was awarded compensation under the workmen's compensation act of Wisconsin and the employer and insurer appealed to the Supreme Court of Wisconsin after the circuit court had affirmed that award.

The appellants contended that, since the operating physician found conditions at the time of the operation which clearly indicated that the hernia was not of recent origin, the commission was not justified in finding that the employee sustained a hernia as a result of the accident. But, said the Supreme Court, it was immaterial whether the hernia had existed prior to the accident. If it did exist, it was certainly greatly aggravated by the accident and resulted in a compensable injury. While there was no suggestion of carelessness or lack of skill on the part of the operating physician, it was clear, in the opinion of the court, that the commission was warranted in finding that an accident occurred, that it resulted in an injury which reasonably necessitated an operation, and that as a result of the operation infection entered the abdomen which ultimately caused death. Whether the infection entered in spite of the exercise of the highest skill or as a result of lack of skill or carelessness was immaterial. If an employer must compensate an employee for injuries caused by the malpractice of a physician who treats the employee for an industrial injury, and such is the law, an employer must likewise compensate an employee, or his dependents in case of his death, for injuries resulting from an operation skillfully performed. The award of compensation was affirmed.—*Stiger v. Industrial Commission* (Wis.), 265 N. W. 678.

**Malpractice: Liability of Physician for Abandonment of Patient.**—The defendant, a physician, was engaged to attend the plaintiff during the latter part of her pregnancy. Prior to her confinement she had "a hemorrhage," the date of which is not given in the record. About three weeks thereafter, in the early afternoon, she had another "hemorrhage" and the defendant was called and attended her at her home. The patient continued to lose blood and to suffer pain and at midnight the defendant again responded to a call. Shortly after 8 o'clock the following morning the defendant, at the behest of the plaintiff's husband, called on the patient and found her still bleeding and in severe pain. Arrangements were immediately made to transfer the patient, in an ambulance, to a hospital. The defendant did not accompany the patient. On her arrival at the hospital she was cared for by nurses, who "gave her pills, injections and so on." Later two physicians, apparently at the instance of the hospital authorities, attended the plaintiff. During this time the plaintiff's husband and others made repeated attempts by telephone to get in touch with the defendant but he could not be located. He did not appear at the hospital until 3 o'clock that afternoon, either just before or after the plaintiff gave birth to a child that did not survive. In a suit subsequently instituted by the plaintiff against the defendant, she alleged that he was guilty of a breach of his professional duty in that he neglected to accompany her to the hospital, failed to be present during her labor and childbirth, and failed to render such treatment as would

have stopped her bleeding and insured the delivery of a living child. She sought recovery of damages for pain which she had suffered and would continue to suffer, and for great mental and physical anguish caused by her having given birth to a dead child. The trial court directed a verdict for the physician and, from the judgment entered on that verdict, the plaintiff appealed to the Supreme Court of Michigan.

The Supreme Court did not pass on the plaintiff's contention that she was legally entitled to the personal care and attendance of the defendant. It did say that the evidence showed that, through the defendant's arrangements for her removal to the hospital, she had received professional care and attention and that there was no competent testimony that the defendant's failure to attend her in person resulted in her suffering any greater pain than she otherwise would have suffered, or that the unfortunate outcome of her confinement was caused by his absence. Furthermore, in the opinion of the court, the record failed to show that the defendant by proper care could have and should have caused cessation of her hemorrhages. In short, the plaintiff failed to show, the court concluded, that she would have suffered less or that she would have escaped any of the elements of damages for which she sought recovery had the defendant attended her in person during the interval he was absent instead of causing her to be placed under the care of other skilled persons. The judgment for the defendant was affirmed.—*Jackowicz v. Knobloch* (Mich.), 265 N. W. 799.

**Fraudulent Application for Annual Registration Receipt in Relation to Crime of Forgery.**—The medical practice act of Texas requires all persons practicing medicine in the state to register annually with the board of medical examiners. On completion of this registration, the board sends to the applicant an annual registration receipt which evidences his right to practice medicine for the ensuing year. Christian, an unlicensed person, executed an application for annual registration, signing to the application the name of a physician who formerly was a Texas licentiate. He was tried and convicted of forgery and appealed to the court of criminal appeals of Texas.

Christian contended that his act did not constitute the crime of forgery, which is defined by Article 979, Texas Penal Code, as follows:

He is guilty of forgery who without lawful authority, and with intent to injure or defraud, shall make a false instrument in writing purporting to be the act of another, in such manner that the false instrument so made would (if the same were true) have created, increased, diminished, discharged or defeated any pecuniary obligation, or would have transferred, or in any manner have affected any property whatever.

That the application for reregistration did not create or in any manner affect a pecuniary obligation was apparent, said the court. Did it affect property? A certificate to practice medicine, and the annual registration receipt, confer a valuable right on the person to whom they are properly issued. The right to practice is a privilege but is not property in the sense in which that word is generally understood. Evidence of the right to exercise the privilege, however, should not be confused with the privilege itself. In the opinion of the court, the annual registration receipt itself constituted property within the meaning of the statute relating to forgery and Christian's conviction was consequently upheld.—*Christian v. State* (Texas), 92 S. W. (2d) 1032.

## Society Proceedings

### COMING MEETINGS

American Orthopsychiatric Association, New York, Feb. 18-23. Dr. George S. Stevenson, 50 West 55th St., New York, Secretary.  
Annual Congress on Medical Education, Medical Literature and Hygiene, Chicago, Feb. 18-19. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.  
Pacific Coast Surgical Association, Seattle, Wash., Feb. 19-21. Dr. H. Glenn Bell, University of California Hospital, Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, Secretary.  
Southeastern Surgical Congress, Louisville, Ky., March 1-5. Dr. Benjamin T. Beatty, 475 Peachtree St. N.E., Atlanta, Ga., Secretary.  
Western Section, American Laryngeal Society, San Diego, Calif., Jan. 31. Dr. Daniel P. Hedges, 100 Fourth Ave., San Diego, Calif., Chairman.

bromide: it does not accumulate in nerve tissue. Its mode of action may be visualized by assuming that it goes into "partnership" with chloride and acts chiefly by rendering the tissue fluid less suitable for optimal function of the tissues: the central nervous system, the most reactive of the body, chiefly showing the result in the way of a depression. Maximum effects result when there is bromide saturation of the system; i. e., when as much bromide is eliminated as is ingested. Fatal poisoning by means of bromide is rare and not likely to occur in a normal individual. The 5 grain dose of chloral is a more potent sedative than a 15 grain dose of bromide.

#### STAMMERING, BLINKING, AND LEFT HANDEDNESS

To the Editor:—I have been doing orthoptic training for my husband, who is an ophthalmologist, and for other ophthalmologists in Philadelphia for several years. This year I have also done a great deal of examining among nonreaders in public and private schools for possible fusion difficulty as a basis of poor reading or failure to learn to read. I have therefore seen a number of cases of fusion difficulty that have not reached the stage of actual crossed eyes, as well as treating the ones whose eyes have already crossed. It is common to see left handed children with fusion difficulty, whether they have also developed stammering or not. I have several cases that combine left handedness, stammering and crossed eyes, but the stammering is not necessary to the picture. I was therefore much interested in the note in THE JOURNAL, May 9, 1936, regarding "Stammering, Blinking and Left Handedness," in that you do not so much as suggest an eye examination for a 6 year child who has developed a marked blinking. The child is, one presumes, learning to read in the year that he has developed the blinking, and a fusion difficulty would be accentuated and can well cause the marked blinking. Could this suggestion be forwarded to the original questioner, as there are many doctors in New York interested in the fusion problem, and he could have the benefit of their advice?

DOROTHY E. BERNER, Philadelphia.

ANSWER.—The coincidence of stammering, blinking and left handedness is extremely interesting and not well known. Calling attention to the rôle of blinking in this syndrome is timely. Blinking as a result of defective fusion should certainly be investigated in every case.

#### SIGNIFICANCE OF DARK CIRCLES UNDER EYES OF CHILDREN

To the Editor:—I should appreciate being told whether you know of articles concerned with the occurrence of dark circles under the eyes in children. It is a sign much used by mothers in the evaluation of the child's well being but one about which I have been able to get no definite information of a scientific nature. Please omit name in reply.

STUDENT, New York.

ANSWER.—Edema and pigmentation may occur in anemia of every grade or may be due to sunburn, recent localized hemorrhages, urticaria pigmentosa, insect bites, Addison's disease, or long continued medication with arsenic, lead, santolin, or silver compounds. Edema of the eyelids also occurs in heart or kidney disorders or in thromboses of the cerebral sinuses. Pigmentation of the eyelids may also occur in exophthalmic goiter, which is rare, however, in young life. It should be recalled, too, that the infantile eyelids contain a larger percentage of fat and loose areolar tissue than is supplied to the adult. They are consequently prone to excessive swelling in the presence of inflammatory changes that occur after infection or injuries. Fatigue, loss of sleep, slight injury, and minor causes of any kind may produce swelling and discoloration in the region of the lower eyelid without special pathognomonic significance.

#### CHRONIC CONJUNCTIVITIS

To the Editor:—A bank teller, aged 24, for the past one and one-half years has been suffering with a severe painful burning of the lids of both eyes. This burning is peculiar in that it is always worse in the morning for several hours after arising and is considerably worse following a long night's sleep after retiring early. He has been treated by several good ophthalmologists without results. Examination shows a simple moderate injection of the palpebral conjunctiva of each eye. Refraction shows —25 in each eye. Painting the conjunctiva with a 2 per cent silver nitrate solution gives some relief for three to six days, although it is most painful when this is done for as long as from four to six hours. Zinc, mild protein silver and wearing glasses are of no help. Please omit name.

M.D., Florida.

ANSWER.—The increase in severity of symptoms after arising suggests a form of conjunctival inflammation that is due to incomplete closure of the palpebral aperture during sleep. The patient might try filling the conjunctival sac with ordinary petrolatum on retiring, thus preventing exposure during the night. It is also possible that a muscular imbalance may be concerned in the maintenance of the conjunctivitis.

#### REMOVAL OF TONSILS IN CHILD OF STATUS LYMPHATICUS TYPE

To the Editor:—In the case of children known to be of the status lymphaticus type, what would be the most desirable narcosis in case of performing tonsillectomy?

V. W. JENSEN, M.D., Shelby, Mich.

ANSWER.—Every operative procedure in the case of status lymphaticus is fraught with the greatest possible danger. It is difficult to conceive that any anesthetic would lessen this danger even if it should be a light ether anesthesia or one with ethylene. Removal of tonsils is hardly ever so imperative that a risk of operative death should be undertaken. If the tonsils are so large that they cause mechanical disturbance, roentgen irradiation has a selective effect on the lymphoid elements of the tonsils and by reducing them reduces the size of the tonsils. If the child is old enough to submit to it, partial destruction of the tonsils may be attempted with electrocoagulation. Although this is not a universally accepted procedure for complete removal of the tonsils, in the hands of some it has been successful but usually requires quite a number of sittings.

#### MENTHOLATED CIGARETTES—DISINTEGRATION OF TABLETS

To the Editor:—1. Is there any evidence that the smoking of mentholated cigarettes is harmful because of the menthol? 2. If a compressed tablet containing acetylsalicylic acid 3 grains, phenacetin 2 grains, caffeine alkaloid one-fourth grain and tincture of gelsemium 2 minims disintegrates rapidly on being placed in a glass of plain water, does this necessarily mean that this tablet will act sooner than one of the same formula that does not disintegrate when under similar conditions? Please omit name.

M.D., Michigan.

ANSWER.—1. There is no evidence that smoking mentholated cigarettes is harmful.

2. Rapid disintegration of a compressed tablet may not be taken as a guaranty that the tablet will act promptly; lack of disintegration under similar conditions leaves the question open whether disintegration does or does not occur in the intestinal tract.

#### ORTON THEORY OF CEREBRAL DOMINANCE AND STAMMERING

To the Editor:—In answer to a question on stammering in Queries and Minor Notes in THE JOURNAL, May 9, 1936, page 1681, you reply that Orton has developed an intricate theory of cerebral dominance which is not particularly intriguing but that the empirical observations have been confirmed. Can you tell me on what material or reports you base these observations?

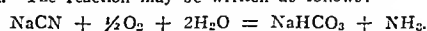
I. J. WOLF, M.D., Paterson, N. J.

ANSWER.—Further details are given by S. T. Orton in the *Archives of Neurology and Psychiatry* 14:581 (Nov.) 1925 and in the *Transactions of the Association for Research in Nervous and Mental Diseases* for 1935. His theory and case material are adequately presented in his published work.

#### HAZARDS IN ETCHING INDUSTRY

To the Editor:—I noted with interest a brief discussion entitled "Hazards to Etching Industry" in Queries and Minor Notes in THE JOURNAL, Nov. 21, 1936. The inquiry contains the question "Do you see any possible reaction in the etching process that would account for the ammonia fumes?" In the answer to the inquiry it is specifically stated that it is unlikely that any ammonia would be produced and it is suggested that a combination of various pungent odors might be mistaken for ammonia.

While I agree with the author of the answer that ammonia is probably not the cause of the ulcerations that were responsible for the inquiry, he is mistaken in saying that ammonia is not likely to be produced in plating processes. The cyanide bath is often an important source of ammonia; in fact, the chief loss of cyanide may be due to its hydrolysis to ammonia. The reaction may be written as follows:



This reaction also forms the basis for one of the methods for nitrogen fixation, in which the nitrogen of the air reacts with sodium carbonate and coke to form crude sodium cyanide, which is then treated with steam, hydrolysis to ammonia and either sodium carbonate or sodium formate resulting.

Tests made by this laboratory in electroplating rooms have failed to disclose appreciable concentrations of cyanide in the atmosphere, the highest value being less than 2 parts per million. It is possible, however, that if there is much spattering of solutions or if the plating is carried out with a heavy overvoltage the air might be contaminated with larger quantities of cyanogen compounds.

HERVEY B. ELKINS, Boston.

Chemist, Division of Occupational Hygiene, Department of Labor and Industries, Commonwealth of Massachusetts.

## American Journal of Surgery, New York

34: 199-402 (Nov.) 1936

- \*Enucleation of Superior Thyroid Pole. C. C. Eades, Detroit.—p. 201.  
New Technic of Nephro-Ureterectomy, with Especial Reference to Ureterocele. T. E. Gibson, San Francisco.—p. 206.  
Changing Conceptions of Indications for Surgical Relief of Prostatic Obstruction. J. L. Emmett, Rochester, Minn.—p. 216.  
Cervical Infections and Treatment by Electrocoagulation. I. F. Frost, Morristown, N. J.—p. 221.  
Myositis Ossificans. M. H. Hobart, Evanston, Ill.—p. 227.  
Head Injuries. S. A. Sandler, Jersey City, N. J.—p. 232.  
Gridding Femoral Head and Neck Area in Fracture of Neck of Femur for Simpler Guidance and Placement of Smith-Petersen Three-Flanged Nail. M. S. Burman, New York.—p. 237.  
Hyperinsulinism. M. Corff, Philadelphia.—p. 241.  
Effect of Oral and Parenteral Liver Extract on Hematopoiesis in Splenectomized Dogs. R. MacDonald, Chicago.—p. 248.  
Burns: Statistical Study of 1,206 Cases. J. D. Willems and L. P. Kuhn, Chicago.—p. 254.  
Allantoin: New Granulation Tissue Stimulating Substance, with Especial Emphasis on Allantoin in Ointment Form. F. R. Greenbaum, Philadelphia.—p. 259.  
\*Peritoneal Immunization. H. L. Johnson, Boston.—p. 266.  
Megacolon (Hirschsprung's Disease): Treatment by One-Stage Extra-peritoneal Resection. S. Eiss, New York.—p. 272.  
Volvulus of Small Intestine: Report of Thirty-Seven Cases. R. E. McKechnie 2d, Vancouver, B. C., and J. T. Priestley, Rochester, Minn.—p. 286.  
Modified Cecostomy. L. H. Nason, Boston.—p. 292.  
Argentaffin Cell Tumors: "Carcinoids" of Small Intestine and Appendix. C. B. Jones, Brooklyn.—p. 294.  
Difficulties and Dangers of Injection Treatment of Hernia. D. E. Ross, Los Angeles.—p. 300.  
Modified Operation for Correction of Inguinal Hernia. B. I. Golden, Elkins, W. Va.—p. 306.  
Proctologic Problems of the General Practitioner. J. M. Lynch and G. J. Hamilton, New York.—p. 309.  
Anorectal Syndrome of Lymphogranuloma. J. H. Lazzari, Cleveland.—p. 316.  
Granuloma Venereum and Lymphopathia Venereum. J. P. Robertson and L. Sharp, Birmingham, Ala.—p. 322.  
Survey of Breast Cancer Incidence in New England Covering Five Year Period 1929 to 1933 Inclusive, with Reference to Type of Milk Dispersed in Respective Communities. G. S. Foster, Manchester, N. H.—p. 331.

**Enucleation of Superior Thyroid Pole.**—Eades considers his method of attacking the superior pole as an enucleation maneuver. The usual thyroidectomy technic is followed to the point at which the glandular capsule has been reflected laterally to where it merges with the coverings of the lateral neurovascular bundle, the carotid sheath. The suspensory ligament of the lobe under attack is then incised and ligated and the lobe is rotated slightly away from the larynx. Two pilot clamps are then placed on the middle thyroid vessels (vein) and the lower polar vessels. After the glandular mass of the lobe being attacked is elevated from its bed by Lahey grasps, the middle thyroid vein is divided and ligated, and the enucleation of the superior pole is begun by placing a Lahey tenaculum on the glandular substance high up near the superior pole and gentle traction is made. The portion of the glandular capsule that is reflected on the vessels is put on the stretch. The included vessels suspend the capsular tissues after the manner of a blanket hanging over a clothes line. A clamp is then placed high up on this raised edge (ridge pole of tent) and another is placed a slight distance below it and the included vessel is incised. By making slight traction on the lower clamp a triangular hiatus in the fibrous tissue beneath the upper clamp is observed. The handle of the scalpel can then be placed between the so-called tent flaps and the upper pole is enucleated upward to the point at which the next vessel branch is put on the stretch. The procedure is repeated after traction is placed on the tenacula and the upper pole is drawn down farther. Stretching or angulating of the upper end of the recurrent laryngeal nerve should be avoided. After the upper pole is delivered, there will be from three to five small terminal branches of the superior thyroid artery held in clamps. These are turned to the side and covered with gauze. The lobectomy is then completed by dividing the isthmus and removing the desired amount of the gland substance. The vessels of the inferior pole are ligated, as are those within the thyroid remnant. The clamps on the terminal branches of the superior thyroid artery and vein are ligated last, when the exposure is the best.

**Peritoneal Immunization.**—Johnson states that the rationale of peritoneal immunization is based on the physiology of the peritoneal defense mechanism, which is dependent on the

exciting presence of bacteria and their toxins, foreign bodies, irritating chemicals or harmless substances that excite a similar peritoneal response. Antigenic substances known to produce a high leukocyte count, lytic agents, dextrose, amniotic fluid and bacterial vaccines are the substances that have been most extensively employed. Digestive agents or substances that induce the formation of a tremendous peritoneal transudate interfere with fixation and localization and are dangerous in the presence of infection. Highly irritating and destructive substances may induce the production of a large exudate histiocyte count. Such a cellular response to destructive irritants renders the histiocyte an unreliable means of measuring the protective effect of a given agent. The late cellular response to the use of amniotic fluid concentrate compares favorably with the response to the use of Bagen's vaccine. The mortality and morbidity of postoperative peritonitis have been influenced favorably by peritoneal immunization. There is at present no reliable measure of the effectiveness of a given activator other than the clinical results attendant on its use. Amniotic fluid concentrate does everything that any known agent can do in the way of early, local protection against postoperative peritonitis without the undesirable features connected with the use of other substances.

## Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

20: 583-706 (Nov.) 1936

- Effect of Tryparsamide on Eye: Clinical Study of Objective Ocular Reaction. Louise L. Sloan and A. C. Woods, Baltimore.—p. 583.  
\*Altered Environmental Gonococcus Forms and Probable Mechanism of Cure in Gonorrhea. R. D. Herrold, Chicago.—p. 614.  
Importance of Bacteriologic Cultures for Diagnosis of Gonococcal Vulvovaginitis and Proctitis in Children. A. Colin, New Haven, Conn.—p. 623.  
Ten Years' Experience with Malaria in Neurosyphilis: Critical Appraisal. U. J. Wile and E. A. Hand, Ann Arbor, Mich.—p. 630.  
Syphilis and Sassafras: Information Relating to "Plant of Sovereign Virtue for French Pox" and Early Voyages to New England. M. Moore and C. Manning, Boston.—p. 646.  
Effect of Iodobismutol on Spinal Fluid Findings in Early Syphilis. G. S. Johnson and C. W. Barnett, San Francisco.—p. 651.  
Significance of Fusospirillosis in Genital Lesions: Cod Liver Oil Glycerin Neosarsphenamine Method of Treatment. R. B. Greenblatt and J. C. Wright, Augusta, Ga.—p. 654.

**Probable Mechanism of Cure in Gonorrhea.**—Herrold states that it has been established that alteration of gonococci in vitro is dependent on unfavorable environment for reproduction of normal types. Since they occur in predominance during favorable clinical response, it would seem logical to assume that biochemical factors in vivo are likewise responsible and might explain the mechanism of cure. Tentatively, the hypothesis seems justified that in vivo coccus forms are associated with the earliest definite changes and, consequently, perhaps the more easily revertible to typical gonococci with clinical exacerbation of symptoms. It is possible that the diphtheroidal type may be the more stabilized and thus produce mild or no symptoms, with final eradication or existence for variable periods of time as saprophytes. It is not unusual for typical gonococci to remain for periods of several months after clinical symptoms have subsided, contributing to grave difficulty in the epidemiologic reduction of gonorrhea.

## Anatomical Record, Philadelphia

66: 387-522 (Nov. 25) 1936

- Observations on Limb Arteries of Woolly Monkey (*Lagothrix Lagotricha*). F. B. Bang, Baltimore.—p. 387.  
Artery of Moderator Band: Note. B. M. Dolyns, Baltimore.—p. 397.  
Compensatory Adrenal Hypertrophy in Rat as Influenced by Sex, Castration, Time and Thyroidectomy. C. A. Winter and F. E. Emery, Buffalo.—p. 401.  
Coagulating Function of Cranial Lobe of Prostate Gland in Monkey. G. van Wagenen, New Haven, Conn.—p. 411.  
Microscopic Study of Superficial Cerebral Vessels of Rabbit by Means of Permanently Installed Transparent Cranial Chamber. N. L. Wenster, Philadelphia.—p. 423.  
New Transparent Chamber for Exteriorizing Loop of Intestine and Its Mesentery. H. A. Zinzel, Philadelphia.—p. 437.  
Vaginal Occlusion, an Abnormality in Mice. L. Marx, Copenhagen, Denmark.—p. 449.  
Castration in the Rat With and Without Removal of Epiphyseal Joints. J. J. Lawless.—p. 455.  
Simplified Cryostat for Dehydration of Frozen Tissues. G. H. Scott and P. S. Williams, St. Louis.—p. 475.  
Studies on Sex Differentiation and Sex Determination in Amphibians. VIII. Experiments on Inductive Inhibition of Sex Differentiation in Paratonic Twins of Salamanders. E. Wittchi, Iowa City.—p. 493.  
Double Aortic Arch in Man. H. Blanton, M. I. Lowance and J. Venable, Atlanta, Ga.—p. 505.



have been profitably omitted and others which could have been amplified. But in the main this textbook is a well organized, terse and provocative presentation of essential, current information in biochemistry for the medical student. It would seem to be of greatest usefulness for the medical student in his later years of training.

**Clinical Investigations Into the Action of Protamine Insulfate.** By Niels B. Krarup. Paper. Pp. 116, with 75 illustrations. Copenhagen: G. E. C. Gad, Publisher, 1935.

Krarup describes his studies on protamine insulin carried out during his appointment under Dr. H. C. Hagedorn at the Steno Memorial Hospital in Copenhagen from 1933 to 1935. Each one of the pages and of the charts bound with the text shows careful composition and the desire of the author to improve the treatment of diabetes. In *THE JOURNAL*, Jan. 18, 1936, an article by Hagedorn, Jensen, Krarup and Wodstrup gave the details of preparation of protamine insulin with a few illustrative charts showing its effect. In his monograph Krarup takes up in detail the clinical side of the picture and reports the results obtained in the first forty-one cases treated with various preparations. He precedes the description of the actual experiments with chapters on the clinical testing of medicaments with special reference to the condition obtaining in diabetes mellitus. He discusses the basis for the use of protamine insulin, describing efforts previously made in various lands by many people to prolong the action of insulin. Then follow the methods employed for the clinical tests; these disclose the high standards maintained in all the investigations with protamine insulin. There were 11,000 blood sugar determinations in addition to a great number of tests of sugar and ammonia in the urine. In a series of cases a comparison of the action of protamine insulin with regular insulin is made when the former was administered in the evening, both morning and evening, or once a day. In the preface Krarup states that an even better effect was obtained with a combination of a protamine from *Salmo irideus*, the rainbow trout, than with the salmine and scombrine insulin that were used in the experiments reported. Krarup reaches the definite conclusions that protamine insulin acts approximately twice as long as regular insulin, that its utilization is greater and its effect more uniform than that of ordinary insulin, and that it can be used advantageously to lessen the fluctuations in the blood sugar and the consequent glycosuria and tendency to acidosis during certain hours of the day.

**Tissue Immunity.** By Reuben L. Kahn, M.S., D.Sc., University of Michigan, Ann Arbor. Cloth. Price, \$7.50. Pp. 707, with illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1936.

Many physicians specifically interested in immunity are familiar with the current contributions of the author in the medical literature. This group will welcome the opportunity to read a unified presentation of the subject in monographic form. Other physicians not acquainted with work of the author will find a unique presentation of the subject of immunity. In its pages he may find the explanation of many clinical phenomena following the giving of vaccines, serums, extracts and drugs not adequately explained by conventional views on humoral and cellular immunity. The author does not seek to revise our conception of immunity but rather to enlarge our understanding of the laws governing reaction of the body cells to protein and microbial antigens. Immunity is clearly presented as a physiologic function of all cells, and the relation between immunity under natural conditions and injections is precisely indicated. The material is well organized and is presented in a convincing and provocative manner. The text is replete with protocol data and charts which enable the reader to follow the author's basis for reasoning. Abstract thinking is well fortified with experimental fact. While the literary style is a bit cumbersome in places, it is the natural result of the informality of presentation. The author is actually discussing moot points and the reader becomes a reacting agent rather than a passive recipient of information. Explanations of many clinical experiences such as the increased effectiveness of vaccine injections given at longer intervals, why smaller doses are more effective than larger ones, why vaccines administered subcutaneously are not effective for furunculosis, and a number of interesting and valuable points are vitalized by experimental data and ingenious interpretation. The book is

unquestionably a work of great importance on the subject of immunity. It exhaustively covers a broad field of interest and the clinician can glean as much from its pages as can the bacteriologist and pathologist. It is far too comprehensive to be adequately covered by a short review. Every physician should be familiar with the book and he can purchase it with the assurance that it will be a constant source of stimulation and rational thought on the subject of immunity in its broadest sense.

**Physician, Pastor and Patient: Problems in Pastoral Medicine.** By George W. Jacoby, M.D. Cloth. Price, \$3.50. Pp. 300, with 20 illustrations. New York & London: Paul B. Hoeber, Inc., 1936.

This is the third book which the author has written to present to the public the relation that medicine bears to other professions and to suggest their mutual cooperation. He has an extremely broad conception of the influence of preventive medicine on daily living and cultural development. The antagonism between medicine and religion, which has been emphasized for centuries, now in some places has given way to actual cooperation between the two in the interests of better physical, mental and moral health. Dr. Jacoby has a delightfully clear, conversational style in writing about numerous problems that impressed him during a long career as a neurologist and psychiatrist. He shows a broad cultural background and a sympathetic understanding even of some problems that are only indirectly related to the practice of medicine. In the front chapters he shows that medicine was born in the intricate culture of Old Egypt, whence the medical torch was carried to Mesopotamia, to India, to China and back to Greece, where in the fifth century before Christ Hippocrates, the great physician of all time, first attempted to establish a rational medical science. Greek medicine broke up into controversial schools after Hippocrates passed on and not for 600 years did another great physician appear, this time in Rome, where the center of Greek medical knowledge had shifted and brought forth Galen, the founder of experimental physiology. Galen fell short of the greatness of Hippocrates and yet his dogmatism was accepted as final authority for nearly fourteen hundred years. The church sponsored the teachings of Galen for centuries, and to deviate from them was to violate the sanctity of religious authority. After Galen, medical investigation stopped. Civilization entered the dark ages, and western learning was nurtured only in the bosom of the church with such nutriment as faith healing, belief in supernatural intervention and the miraculous power of saints and of holy relics. During this long dark period the one great contribution of the church to medicine was the founding of hospitals, asylums and universities. Then Arabic medicine broke through the darkness and carried the traditions of Galen into western Europe with the return of the crusaders from Palestine. Religion laid a heavy hand of restraint on medical advancement even later. When Simpson of the University of Glasgow first successfully employed chloroform in a difficult labor in 1847 the Scottish clergy "bemoaned the intervention of man in the natural obligations laid upon women by the hand of God." Chapters 7 and 8 briefly summarize the rise of the great religions of the world and their influence on medicine and public health. Here is information which one might search for through many volumes and never find, or which might escape an intelligent public entirely. Here one learns of Lao-tze, Buddha, Confucius, Daruma, Mania, Nichiren, Abraham and Moses, and also of the extent and significance of the present-day Zionist movement to Palestine. Chapter 11, entitled "The Inexplicables in Medical Practice," seems to be a misguided effort; perhaps it should have been omitted. In these few pages Dr. Jacoby does little more than mention "animal magnetism," which, he says, possessed by especially endowed persons, enables them to influence both human beings and animals by certain physical manifestations, so that a beneficial therapeutic effect will be produced. Other mysterious forces mentioned are the influence of certain colors, certain activities of light, certain tonalities of sound. He briefly discusses the question Does the moon influence health, sun spots, health and disease, and astrology and disease? He closes chapter 11, which seems foreign to the book, with the statement "While there is much which remains undiscovered and unexplained in the practical application of medicine, it is the duty of the individual physician to conduct his practice on a

ized hemorrhagic papulonecrotic eruptions are emphasized by a comparison of such an eruption occurring as a manifestation of acute aleukemic reticulo-endotheliosis with furunculosis associated with myelogenous leukemia, with staphylococic septiemia, and with a similar eruption that represented generalized herpes zoster in a patient with chronic lymphatic leukemia. A type of chronic cutaneous ulceration observed in two cases of chronic reticulo-endotheliosis may be one of the characteristic lesions of this disease. The essential feature of monocytic leukemia cutis is the infiltration with mature and immature monocytes. Such cells may be recognized by their large size and notched nuclei occurring together with other distinctive features. Acute or chronic reticulo-endotheliosis is characterized by the loose structure of the lesion; there are large reticular cells having vesicular nuclei, and within the reticular framework are large free mononuclear cells. A polymorphic infiltrate may be present. The resemblance between the pathologic changes in the specific cutaneous lesions of monocytic leukemia and of reticulo-endotheliosis is regarded as further support for the view that reticulo-endotheliosis is an aleukemic manifestation of monocytic leukemia.

**Lichen Ruber Moniliformis (Morbus Moniliformis Lichenoides).**—Wise and Rein find that of the cases recorded as instances of lichen ruber moniliformis there are only two in which microscopic examination definitely excludes lichen planus; namely, Kaposi's and their case. The similarity of clinical manifestations in these two cases and the obvious dissimilarity of the picture to that in cases in which microscopic examination revealed lichen planus seem to support the contention of the critics who regard the original "lichen ruber moniliformis" not only as a dermatosis unrelated to lichen planus but possibly as one which might prove to be a disease by itself. The histologic changes in their case would at least lead them to accept this view. There is a close parallelism between Kaposi's and the authors' case in the distribution of the lesions, their morphologic features, their multiformity, their variations in color, size and arrangement, the absence of marks of scratching, the chronicity, the similarity of some elements to papules of lichen planus, and the lack of discoverable etiologic and pathogenic features. The dermatosis in Kaposi's case differs from theirs in that the longitudinal banded keloid-like formations on the neck and extremities were far more pronounced and much more prominent in his case; in his case there were central depressions in some of the papular elements, lesions of the labial and buccal mucosa, a retiform design of papular chains on the thighs, longitudinal bands on the lower portion of the abdomen and a scattering of pigmented puncta in the midst of the other lesions. The buccal manifestations possessed none of the diagnostic features of lichen planus. In neither case was the glans penis involved. The dermatosis in Kaposi's case most likely was a manifestation of a much further advanced phase of development and evolution than that which obtained in their patient. A different name seems desirable. Taking into consideration the clinical similarity of the dermatosis exhibited by their patient to that described by Kaposi, its nonrelation to lichen planus, and the lack of etiologic and pathogenic clues to its identity, the authors suggest the neutral name morbus moniliformis lichenoides.

### Archives of Otolaryngology, Chicago

24: 533-686 (Nov.) 1936

- Ostium Maxillare: Anatomic Study of Its Surgical Accessibility. O. E. Van Alyea, Chicago.—p. 553.  
 Presence of Histamine-like Substance in Nasal Mucosa, Nasal Polyps and Nasal Secretion. Catherine C. Buhrmester and W. F. Wenner, St. Louis.—p. 570.  
 Postoperative Regeneration of Mucous Membrane of Paranasal Sinuses: Summary of Published Investigations. D. H. Brownell, Ann Arbor, Mich.—p. 582.  
 Ligation of Internal Maxillary Artery in Patients with Nasal Hemorrhage. C. Hirsch, New York.—p. 589.  
 Nasal Ventilation in Diagnosis and Control of Headache. S. N. Parkinson, Oakland, Calif.—p. 594.  
 Reparative Processes in Membrana Tympani: Some Interesting Manifestations. W. D. Simon, Memphis, Tenn.—p. 60.  
 Pandey's Operation for Asthma. D. S. De Sza, Pittsburgh.—p. 61.  
 Cervical Short Esophagus with Partial Thoracic Strach. M. A. Glass, Chicago.—p. 612.

**Treatment of Severe Epistaxis.**—In cases of severe epistaxis in which the source of bleeding is not accessible and which cannot be controlled by the ordinary means (such as

the application of methylamino-aceto-orthodioxylbenzene, galvanocautery or electrocoagulation), Hirsch finds ligation of the internal maxillary artery in the sphenomaxillary fossa the method of choice. The technic is rather simple, especially when one makes a large opening into the facial wall of the antrum at the beginning of the operation. It is not so necessary to enlarge the opening toward the lateral side, as it is imperative to remove the bone as far as possible toward the edge of the piriform opening. It is not necessary to take away the entire edge of the piriform fossa but, in order to have easy access to the anterior wall of the inferior medial border of the maxillary cavity, the incision in the oral mucosa should be made beyond the midline, so that the frenulum labii superioris is divided.

### Archives of Pathology, Chicago

22: 583-728 (Nov.) 1936

- \*Frequency and Significance of Hepatic Edema. H. W. Keschner and P. Klemperer, New York.—p. 583.  
 Chemical and Pathologic Study of Pneumoconiosis, with Especial Emphasis on Silicosis and Silicotuberculosis. H. C. Swamy, J. D. Porsche, Chicago, and J. R. Douglass, Webb City, Mo.—p. 593.  
 Histiocytic Response in Omental Carcinomatosis. A. M. Sala and R. J. Stein, New York.—p. 634.  
 Mesenteric Vascular Occlusion of Arterial and of Venous Origin: Report of Nine Cases. H. N. Harkins, Chicago.—p. 637.  
 Quantitative Study of Cell Growth in Regenerating Liver. A. M. Brues, D. R. Drury and Mildred C. Brues, Boston.—p. 658.  
 Diffusely Infiltrative Carcinoma: Hitherto Undescribed Correlation of Several Varieties of Tumor Metastasis. S. Jareho, New York.—p. 674.

**Significance of Hepatic Edema.**—Keschner and Klemperer studied sections of liver obtained in 505 consecutive necropsies for the presence of intralobular hepatic edema and found intraparenchymal edema in seventy-nine cases. Two types of intralobular hepatic edema occur: that due to the same physical factors which govern the development of edema in circulatory failure (mechanical edema) and that due to a primary increased permeability of the vascular wall caused by various factors not yet fully recognized (primary edema). Mechanical hepatic edema occurred in almost half of the seventy-nine cases; no difference in frequency of this condition was noted in the cases of circulatory failure due to rheumatic and those due to vascular myocardial lesions. The control series of cases, those of normal persons killed by violence, failed to reveal a single incidence of intralobular hepatic edema. The age incidence in the cases of hepatic edema was from 19 months to 75 years, with no especially prominent incidence in any particular age group. Hepatic edema was just about as frequent in cases of pulmonary embolism as in those of cardiac failure. All the persons with glomerulonephritis in whose liver edema was observed showed marked anasarca and ascites. Persons with chronic lipid nephrosis with generalized edema did not present hepatic edema. Hepatic edema was observed in 75 per cent of the cases of malignant nephrosclerosis. Except in three instances there was no clinical or anatomic evidence of even terminal cardiac failure. The proportion of cases in which hepatic edema was present was 39 per cent, far below that of cases of malignant nephrosclerosis with hepatic edema. The presence in uremia of an alteration in the chemical constitution of the blood suggested an investigation of cases of diabetic coma with the associated chemical changes of the blood. Five of eleven cases presented hepatic edema. The study of infectious diseases gave unexpectedly low figures, contrary to the statement of Roessle, Eppinger and Gerlach. Only influenza showed a strikingly high percentage (64). The negative observations in peritonitis indicate that the direct absorption of toxic products into the portal system does not necessarily cause hepatic edema. There was but one instance of hepatic edema in twenty cases of gastro-intestinal intoxication. The high incidence of hepatic edema in cases of exophthalmic goiter (43 per cent) conforms with the observations of Roessle. There was no instance of hepatic edema in eight cases of Addison's disease. Of sixteen instances of Laënnec's cirrhosis, intralobular hepatic edema was found only three times. In two of these cases the edema was associated with myocardial insufficiency, and in the third death was due to influenza. Hepatic edema was encountered in five of six patients dying in so-called status asthmaticus. In eight cases of death during operation regarded as due to the anesthesia

due to poisons. The author's purpose was to supply in English the widely scattered facts contained in the literature, together with his own observations, in a condensed yet comprehensive manner. The task has been accomplished well. It is an excellent little book to have at hand for reference.

**Die Philosophie der Selbstverständlichkeit (Fyslosofie): Ein Elementar-Versuch.** Von Franz Kalbel. Boards. Pp. 155. Welmar: The Author, 1936.

The title in English means "The Philosophy of the Self Evident" and the author calls it an elementary attempt which, unfortunately, cannot be denied. The author intends to give a world outlook, "weltanschauung," for the "man of the spirit," whom he differentiates from the "man of the masses." From then on the author states that the spiritual man is different in the structure of his brain and in his chemical and electrical properties. The spiritual man builds up his "weltanschauung" by means of logical knowledge, while the man of the masses needs ready made ideas. This is as far as one can understand the author's philosophy. The book is written in an extremely incoherent manner with a peculiar spelling of his own and without much regard for syntactical form. In a rather crude manner the author offers a philosophy of neomaterialism which assumes that the solution of all psychologic problems lies in their reduction to simple electrical changes, which can be measured by the laws of physics and mathematics. He presents an outline of a mind-soul physics that is quite fantastic. It is interesting that the book is published by the author himself, as it is obvious that no publisher in Germany would undertake the publication of the book.

**Favourite Prescriptions.** Edited by Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D., and Alan A. Moncreiff, M.D., F.R.C.P. Published on behalf of The Practitioner. Cloth. Price, 10s. 6d. Pp. 227. London: Eyre & Spottiswoode, Ltd., 1936.

This book, which is the collection of a series of eighteen articles originally published in the *Practitioner*, is of considerable interest if from no other than the historical standpoint. It is hoped that it does not, as claimed, "shed light in the trends of medical teaching and practice." As one looks over pages and pages of prescriptions for complex nasty mixtures such as were inflicted on patients by eminent practitioners of the past, which are still reverently quoted and presumably used, one cannot help receiving the impression that our British confrères are even more conservative than the physicians in the United States. We feel rather happy that the "Favourite Prescriptions" in the *Practitioner's Handbook* are by no means "favorite" in this country. In the foreword it is stated that "a sign of the present times is a diminution in polypharmacy and in the art of 'elegant' prescribing, which has coincided with and, it is to be hoped, is largely due to the scientific guidance of pharmacology towards really specific remedies." Unfortunately, with a few notable exceptions this book does not show this "sign of the present times." Nevertheless there are nuggets of gold hidden in the mass of rubble.

**Materia Medica, Pharmacology and Therapeutics.** By Maude B. Muse, R.N., A.M., Assistant Professor in Nursing Education at Teachers College, Columbia University. Second edition. Cloth. Price, \$2.75. Pp. 634, with 71 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

This book is replete with excellent and practical information for nurses. The only question is whether it is not too complete. The policy of presenting to nurses pharmacology from the same standpoint as that taken in teaching medical students may be questioned. It is doubtful, for instance, that attempts at localization of the point of action of the nerve-muscle poisons will add much to the nurse's understanding of the subject, while necessarily causing her a good deal of grief in trying to memorize so many facts that are entirely unrelated to the practical use of drugs in her hands. Such warning, on the other hand, is apropos that the nurse oversteps her authority in withholding a dose of morphine when the physician prescribes it "p. r. n." and the overscrupulous nurse permits a patient to suffer pain all night. There are other such practical nursing precepts on the use of drugs in this book. It would have been well had the nomenclature of the new Pharmacopeia been more completely adopted, e. g., sulfate been written with f instead of ph. In spite of these criticisms, Muse's book is probably one of the best on the subject.

**Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Röntgenatlas fröhntuberkulöser Veränderungen im Hilus bei systematischen Standardquerschnitten.** Von Dr. R. Czarniecki, Leiter der Tuberkulose-Abteilung im Staatl. Gesundheitsamt Leipzig-Land. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband 11. Herausgegeben von Prof. Grashey. Paper. Price, 24 marks. Pp. 98, with 308 illustrations. Leipzig: Georg Thieme, 1936.

As the name indicates, this is largely a book of illustrations showing the development of the primary tuberculosis complex, together with the subsequent secondary and tertiary lesions. The first part is a general consideration of the anatomy of the heart, bronchi and lymph nodes. The primary complex and the reinfection forms of lesions are described in the second half. Differential diagnosis is adequately treated, and there is also a discussion of treatment and classification. The remainder of the volume is devoted to illustrations and legends. Most of the illustrations are made from roentgenograms of the chest. In fact, in this series one is able to visualize almost every step in the evolution of tuberculosis in the human lung. A series of roentgenograms such as these represent, in an accessible form such as this book is, an invaluable reference material; hence, for the illustrations alone, this volume is worthy of a place in every physician's library.

**Osnovi patologichnoi fizologii. Tom drugiy. Za redaktsiyei O. O. Bogomolets.** [Principles of Pathologic Physiology. Volume II.] Cloth. Pp. 915. Kiev: Vydavnistvo vserukainskoi akademii nauk, 1935.

The present is volume 2 of Elements of Pathologic Physiology edited by the Ukrainian Academy of Sciences under the editorship of O. O. Bogomolets. The volume contains chapters on the pathology of metabolism, fatigue, pathology of the endocrine glands, pathology of the nervous system, constitution and diathesis. The major part of the contributions are by the well known investigator academician O. O. Bogomolets and his talented co-worker N. B. Medvedeva. The text is abreast of the present status of our knowledge of physiologic problems besides containing considerable original matter. It speaks well for the high standard of scientific research of the Ukrainian Academy of Sciences.

**Elements of Electrocardiographic Interpretation, with Thirty-Eight Plates Illustrating the More Important Deviations from the Normal.** Selected from the Files of the Michael Reese Hospital. By Louis N. Kntz, A.M., M.D., Physiologist and Director of Cardio-vascular Research, the Michael Reese Hospital, Chicago, and Victor Johnson, Ph.D., Instructor in Physiology, the University of Chicago. Second edition. Paper. Price, \$1. Pp. 39. Chicago: University of Chicago Press, 1936.

This booklet presents an outline of normal and abnormal electrocardiographic observations. The illustrations consist of well chosen electrocardiograms, which are clearly printed. The progressive electrocardiographic changes resulting from acute coronary thrombosis merit most favorable comment. An appendix contains a systematic outline of the procedure in reading an electrocardiogram. The booklet should be most useful to medical students and practitioners.

**Differentialdiagnose der Lungenkrankheiten mit besonderer Berücksichtigung der Tuberkulose.** Von Oberarzt Dr. med. P. G. Schmidt, Facharzt für Lungenkrankheiten und Chirurgie. Mit einem Geleitwort von Direktor Dr. H. Braeunling. Tuberkulose-Bibliothek, Beihefte zur Zeitschrift für Tuberkulose, Nr. 60. Herausgegeben von Dr. Franz Redeker, Oberregierungs- u. Obermedizinalrat, Berlin, und Dr. Karl Diehl, Dirigierender Arzt, Sommerfeld. Paper. Price, 18 marks. Pp. 182, with 109 illustrations. Leipzig: Johann Ambrosius Barth, 1936.

This monograph deals with a general consideration of the lungs and the various diseases that attack the lungs, bronchi and pleura. In addition to the more common diseases, almost all the rare conditions that involve the lungs, pleura and bronchial tree are presented and described. Special emphasis is placed on the finer points in differential diagnosis. Most of the illustrations are made from roentgenograms of the chest. In this series of illustrations virtually every disease in which the x-ray film is of value in diagnosis is illustrated. The text is presented in such a concise manner as to enable the physician to review the entire subject quickly.

**Manual for the Medical Services of the Peiping Union Medical College Hospital.** Revised by the Staff of the Department of Medicine. Edited by F. R. Dieulade, Head of the Department. Fifth edition. Cloth. Price, \$1.50. Pp. 204, with 4 plates. Peiping, China, 1936.

No unusual features are presented in this compendium for the resident medical staff of a 350 bed teaching hospital. Much carefully selected information on laboratory, diagnostic and therapeutic procedures is incorporated in direct, concise language. Parasitology is emphasized.

**Journal of Biological Chemistry, Baltimore**

116: 1-456 (Nov.) 1936. Partial Index

- Protein and Water of Serum and Cells of Human Blood, with Note on Measurement of Red Blood Cell Volume. Anna J. Eisenman, Laura B. Mackenzie and J. P. Peters, New Haven, Conn.—p. 33.
- Preparation of Extracts Containing Adrenal Cortical Hormone. G. F. Cartland and M. H. Kuizenga, Kalamazoo, Mich.—p. 57.
- \*Effect of Dextrose Ingestion on Cholesterol Fractions of Blood. W. M. Sperry, New York.—p. 65.
- Studies on Copper and Iron Content of Tissues and Organs in Nutritional Anemia. M. O. Schultze, C. A. Elvehjem and E. B. Hart, Madison, Wis.—p. 93.
- Studies on Copper Content of Blood in Nutritional Anemia. M. O. Schultze, C. A. Elvehjem and E. B. Hart, Madison, Wis.—p. 107.
- Unusual Case of Esterification in Muscle. Gerty T. Cori and C. F. Cori, St. Louis.—p. 129.
- Metabolism of Sodium Acetate Intravenously Injected into Dogs. T. E. Friedemann.—p. 133.
- Action of Acid and Alkali on Parathyroid Hormone. W. R. Tweedy, G. H. Smullen and W. P. Bell, Chicago.—p. 163.
- Higher Saturated Fatty Acids of Butter Fat. G. E. Helz and A. W. Bosworth, Columbus, Ohio.—p. 203.
- Determination of Cystine in Urine. M. X. Sullivan and W. C. Hess, Washington, D. C.—p. 221.
- Studies on Chemistry of Blood Coagulation: III. Chemical Constituents of Blood Platelets and Their Role in Blood Clotting, with Remarks on Activation of Clotting by Lipids. E. Chargaff, F. W. Bancroft and Margaret Stanley-Brown, New York.—p. 237.
- Chemical Studies of Suprarenal Cortex: II. Identification of Substance Which Possesses Qualitative Action of Cortin; Its Conversion into Diketone Closely Related to Androstenedione. H. L. Mason, C. S. Myers and E. C. Kendall, Rochester, Minn.—p. 267.
- Chemical Studies on Prolan (from Urine of Pregnancy). F. Bisehoff and M. Louisa Long, Santa Barbara, Calif.—p. 285.
- Stack of Constant Volume for Respiration Experiments with Humans. F. G. Benedict, Boston.—p. 307.
- Fate of Deuterium in Mammalian Body. P. K. Smith, Jane Trace and H. G. Barbour, New Haven, Conn.—p. 371.
- Relation of Leucine, Isoleucine and Norleucine to Growth. Madelyn Womack and W. C. Rose, Urbana, Ill.—p. 381.
- Metaphosphoric Acid in Extraction and Titration of Vitamin C. R. R. Musulin and C. G. King, Pittsburgh.—p. 409.

**Effect of Dextrose on Cholesterol in Blood.**—Sperry determined the concentration of total and free cholesterol in the blood serum before and after the administration of dextrose in healthy human subjects according to the technic of Fitz and Bruger. In contrast with their observation, no significant change in the proportion between the cholesterol fractions occurred. The result offers further evidence for the constancy of the proportion under physiologic conditions. Discussion of the apparent discrepancy with Fitz and Bruger revealed that they had employed highly abnormal patients as subjects; hence it is not possible to compare the results of the two investigations.

**Journal of Nutrition, Philadelphia**

12: 429-534 (Nov. 10) 1936

- Quantitative Method for Assay of Vitamin D with Chickens. O. N. Massengale and C. E. Bills, Evansville, Ind.—p. 429.
- Susceptibility of Different Strains of Rats to Nutritional Cataract. Helen S. Mitchell, Amherst, Mass.—p. 447.
- Distribution of Vitamin B<sub>1</sub> in Some Plant and Animal Products. O. L. Kline, H. R. Bird, C. A. Elvehjem and E. B. Hart, Madison, Wis.—p. 455.
- Vitamin B Assay Using Rat Curative Method with Modified Diets and Oral Administration of Addenda. Flemintine Peirce Dann, North Chicago, Ill.—p. 461.
- Effects of Glucose, Fructose and Galactose on Ketosis, Produced by Anterior Pituitary Extract and by Pancreatectomy. D. E. Clark and J. R. Murlin, Rochester, N. Y.—p. 469.
- Comparative Effects of Glucose, Sucrose and Fructose on Ketone Substance Production in Phlorhizinized Dogs. W. R. Murlin and R. S. Manly, Rochester, N. Y.—p. 491.
- Effect of Menocalcium, Dicalcium and Tricalcium Phosphates on Reproductive Success in Rats. W. M. Cox Jr. and Miriam Imboden, Evansville, Ind.—p. 509.
- Response of Rats, Chickens and Turkey Poults to Crystalline Vitamin G (Flavin). S. Lepkovsky and T. H. Jukes, Berkeley and Davis, Calif.—p. 515.
- \*Antirachitic Value of Irradiated Yeast in Infants. T. G. H. Drake, F. F. Tisdell and A. Brown, Toronto.—p. 527.

**Antirachitic Value of Irradiated Yeast in Infants.**—Drake and his co-workers found that the daily administration for five winter months of approximately 500 international units of vitamin D in the form of irradiated yeast to sixty-nine normally growing infants prevented the development in every instance of rickets of a moderate or marked degree. The daily administration of approximately 1,000 international units of vitamin D in the form of irradiated yeast to one infant

with marked rickets and of approximately 500 units to four infants with moderate or marked rickets brought about definite healing in the course of one month.

**Journal of Pediatrics, St. Louis**

9: 569-716 (Nov.) 1936

- Congenital Syphilis in the Light of Thirty Years' Investigation of the Spirochete and Twenty-Five Years' Experience with Salvarsan. E. Hoffmann, Bonn, Germany; translated by H. A. Haynes Jr., Ann Arbor, Mich.—p. 569.
- Edema Associated with Hypogenesis of Serum Proteins and Atrophic Changes in Liver, with Studies of Water and Mineral Exchanges. W. H. Thompson, I. McQuarrie and E. T. Bell, Minneapolis.—p. 604.
- Traumatic Pneumothorax in the New-Born. J. S. Leopold and F. Castrovinci, New York.—p. 620.
- Bacterial Flora of Meconium Specimens Collected from Sixty-Four Infants Within Four Hours After Delivery. M. L. Snyder, Denver.—p. 624.
- Bacterial Flora of Intestinal Contents of Twenty-Seven Stillborn Infants. M. L. Snyder, Denver.—p. 633.
- \*Active Artificial Immunization in Diphtheria: Relative Effectiveness of Various Antigens and Duration of Immunity. J. V. Cooke, St. Louis.—p. 641.
- Mechanical Lesions of Appendix in Children as a Basis for Appendicitis. P. Nicholson, Ardmore, Pa.—p. 647.
- Study of Birch-Hirschfeld Photometric Test for Vitamin A Deficiency. C. E. Snelling, Toronto.—p. 655.
- Carbon Tetrachloride Poisoning. II. L. Heyl, Boston.—p. 662.

**Active Artificial Immunization in Diphtheria.**—Cooke summarizes the results of immunization against diphtheria in more than 500 young adult student nurses during a period of eighteen years, with the use of several types of antigens and with a variance in the number and spacing of the injections. A number of subjects immunized from six to sixteen years previously were retested to determine the duration of the immunity. Toxoid and especially alum-precipitated toxoid were relatively more effective than toxin-antitoxin. Two doses of toxoid or a single injection of alum toxoid immunized only 75 to 80 per cent. By far the best results were obtained by two doses of alum-precipitated toxoid, the second after an interval of several months, and by three doses of plain toxoid separated by intervals of several weeks. During the three years immediately preceding the adoption of immunization in 1918, seventy student nurses were on duty in the contagious wards and twenty of them developed clinical diphtheria. Since 1918 only two cases of diphtheria have occurred among almost 1,000 students, both in known nonimmunes, accidentally exposed to the disease before immunization. Of the 102 cases retested from six to sixteen years after immunization by toxin-antitoxin and subsequent negative Schick tests, more than 95 per cent were immune.

**Journal of Urology, Baltimore**

36: 469-598 (Nov.) 1936

- Influence of Infection of Lower Urinary Tract and Reproductive Organs on Kidneys, with Especial Reference to Lithiasis and Hydronephrosis. H. P. Winsbury-White, London, England.—p. 469.
- Unsuccessful Plastic Operations for Hydronephrosis. J. K. Ormrod, Detroit.—p. 512.
- Primary Carcinoma of Seminal Vesicles. A. McNally and F. M. Cochems, Chicago.—p. 532.
- Lymph Vessels from Posterior Urethra, Their Regional Lymph Nodes and Relationships to Main Posterior Abdominal Lymph Channels. Alice E. Parker, Denver.—p. 538.
- \*Strangulation of Undescended Testicle by Loop of Omentum. S. E. Woodruff, Jersey City, N. J., and A. H. Milbert, New York.—p. 551.
- \*New Method to Eliminate Physiologic Error in the Phthalein Test. P. Blasucci, Rome, Italy.—p. 564.
- Behavior of Human Bladder Freed from Cerebral Control. O. B. Low worthy, L. G. Lewis and J. E. Dees, Baltimore.—p. 577.

**Strangulation of Undescended Testicle.**—Strangulation of the testis is usually attributable to basic anatomic maldevelopment. In the case reported here by Woodruff and Milbert a long tongue of omentum completely encircled the mesorchium and strangulated the testicle and epididymis. Pathologically, the changes in the testis and epididymis depend on the degree of vascular impairment. Experimentally, irreparable damage is produced by vascular embarrassment of the testicle within twenty-four to forty-eight hours. The classic picture of acute torsion or strangulation of the testicle embodies a sudden onset, acute pain at the site, distention, nausea or vomiting, slight temperature elevation and possible peritoneal irritation. With the exception of some of the clinical obstruction, this is the same syndrome that a patient with

## Current Medical Literature

### AMERICAN

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#### Alabama Medical Association Journal, Montgomery

6: 157-188 (Nov.) 1936

- Recent Developments in Study and Surgery of Goiter. W. D. Haggard, Nashville, Tenn.—p. 157.  
Diagnosis and Treatment of Brain Tumors. W. E. Dandy, Baltimore.—p. 162.  
Certain Factors Important in Etiology and Treatment of Peptic Ulcer. A. B. Rivers, Rochester, Minn.—p. 166.

#### American Journal of Cancer, New York

28: 461-680 (Nov.) 1936

- Synovial Sarcoma. Leila Charlton Knox, New York.—p. 461.  
Synovioma of the Hand: Report of Case. W. C. Black, Denver.—p. 481.  
\*Significance of Increased Phosphatase Activity of Bone at Site of Osteoplastic Metastases Secondary to Carcinoma of Prostate Gland. Ethel Benedict Gutman, Edith E. Sproul and A. B. Gutman, New York.—p. 485.  
Testicular Tumors Associated with Mammary, Prostatic and Other Changes in Cryptorchid Dogs. W. W. Greulich and T. H. Burford, New Haven, Conn.—p. 496.  
Bacteriologic Study of Mouse Tumors. M. J. Eisen, Milan, Italy.—p. 512.  
Mechanism of Carcinogenesis by Chemical Compounds. I. Hieger, London, England.—p. 522.  
Early Stages of Transplantation of Ehrlich-Putnoky Tumor into Mice and Rats. F. R. Selbie.—p. 530.  
Lymphoblastoma Occurring in Young Chicks Reared on Diet Treated with Ferric Chloride to Destroy Vitamin E. F. B. Adamstone, Chicago.—p. 540.  
Possible Effect of Oil of Gaultheria in Diet of Mice Susceptible to Spontaneous Carcinoma of Mammary Gland: V. Growth Rate and Certain Retrogressive Changes of Tumors After Onset of Malignancy. L. C. Strong, New Haven, Conn.—p. 550.  
Lymphosarcoma of Mediastinum with Metastases to Skeleton: Report of Case. W. S. Middleton, E. A. Polle and G. Ritchie, Madison, Wis.—p. 559.  
Carcinomatous Cirrhosis of Liver with Sarcomatosis of Peritoneum. S. Sanes and K. Terplan, Buffalo.—p. 565.  
Leiomyosarcoma of Duodenum: Report of Case. W. J. Seymour and S. E. Gould, Detroit.—p. 572.  
Combined Abscess and Carcinoma of Stomach. E. Kellert, Schenectady, N. Y.—p. 579.  
Choriocarcinoma of Jejunum. A. L. Soresi, Brooklyn.—p. 583.  
Osteogenic Sarcoma in Rabbit. A. M. Brues, London, England.—p. 587.  
Carcinoma of Urethra of Female Dog. L. K. Stalker and C. F. Schlotthauer, Rochester, Minn.—p. 591.  
Probable Hodgkin's Disease in Dog: Report of Case. L. K. Stalker, C. F. Schlotthauer and W. H. Feldman, Rochester, Minn.—p. 595.  
Action of Short Radio Waves on Tissues: I. Effects Produced in Vitro with Some Observations on Action of Heat on Tissue Metabolism. F. Dickens, S. F. Evans and H. Weil-Malherbe, Newcastle-upon-Tyne, England.—p. 603.

**Increased Phosphatase Activity of Bone.**—The Gutmans and Sproul state that recent determinations of serum phosphatase activity in patients with cancer suggest that values obtained in cases in which there are widespread osteoplastic metastases are, in general, significantly higher than those found in association with osteolytic metastases. In the series reported by Gutman, Tyson and Gutman (1936) the serum phosphatase activity exceeded 10 Bodansky units per hundred cubic centimeters in six of ten cases with osteoplastic metastases, but in only three of nineteen patients with osteolytic metastases. In two patients with very extensive osteoplastic skeletal lesions, values exceeding 100 Bodansky units per hundred cubic centimeters of serum were obtained, as contrasted with the normal maximum of 4 Bodansky units. The rise in phosphatase activity of the serum in such cases is the result of increased elaboration of phosphatase, which is subsequently released into the circulating fluids. Direct evidence in support of this assumption is afforded by the present investigation, which disclosed strikingly increased phosphatase activity of bone at the site of osteoplastic skeletal metastases in a patient with carcinoma of the prostate

gland. The mechanism of bone formation in metastatic osteoplastic neoplasms is fundamentally the same as that of normal bone formation. The capacity to stimulate production of phosphatase may play an important part in determining the osteoplastic character of the metastatic bone lesions observed in association with certain neoplasms. Chemical studies tend to support the views of pathologists who have long postulated the elaboration by certain tumor cells of a chemical factor initiating bone formation in osteoplastic metastases.

#### American Journal of Diseases of Children, Chicago

52: 1047-1292 (Nov.) 1936

- Effect of Acute Appendicitis and of Lobar Pneumonia on Thoracic and Abdominal Respiratory Movements in Children. W. B. McClure, Chicago.—p. 1047.  
Rational Treatment of Abnormal Labial Frenum. A. B. Schwartz and T. R. Abbott, Milwaukee.—p. 1061.  
Pathogenesis and Treatment of Myotonia Congenita. H. G. Poncher and Helen Woodward, Chicago.—p. 1065.  
Venous Pressure in Children. J. P. Lambert, New York.—p. 1088.  
Rate of Sedimentation of Erythrocytes in Rheumatic Infection in Children. W. M. Clifton, Chicago.—p. 1093.  
Respiratory Metabolism in Infancy and in Childhood: XIX. Respiratory Exchange in Premature Infants—Elimination of Water Through Skin and Respiratory Passages. H. H. Gordon and Margaret D. Kelly, New York.—p. 1100.  
Allergic Abdominal Pain in Children. J. H. Fries and G. A. Merrill, Brooklyn.—p. 1107.  
\*Effect of Thyroid Therapy on Mental and Physical Growth of Cretinous Infants. A. Gesell, Catherine Strunk Amatruda and C. S. Culotta, New Haven, Conn.—p. 1117.  
\*Effect of Thyroid Therapy on Cretinous Infants.—Gesell and his associates have assembled data on six cases of cretinism or hypothyroidism in which the condition was recognized and treated adequately in infancy. Physical and mental observations are presented in close association. They formulated the mental observations quantitatively by using the Yale norms of infant development. Extensive cinema records also served to place the data on mental growth on an objective and quantitative basis. The effects of thyroid substance on the cretinous infant are metabolic or dynamic, somatic and neurodevelopmental. The metabolic effects, which involve the vegetative system and the dynamics of behavior, are the most immediate and general. Marked physical improvement occurred in the six patients, with development of a normal appearance and acceleration in physical growth, particularly in the length of the legs. The mental status under treatment varied widely, from persisting severe mental deficiency to normal intelligence. Every cretin has a latent and distinctive optimal response, which is probably favored by early treatment. The ultimate response can be forecast by repeated careful determinations of physical growth and of behavior status during the early months of treatment. The therapeutic effects of thyroid substance depend on factors of biochemical readiness in the organism. The primary effect is on the thyroid itself and on associated glands, enabling them to resume their regulatory functions. The final influence on the cretin is contingent on the residual physiologic capacity and the latent growth potency of his neuro-endocrine system. Thyroid therapy cannot bring about normality if there has been a fundamental impairment of that system, hereditary or developmental. The initial response to treatment cannot be determined fully without a diagnosis of the behavior status. The development of the central nervous system can be tested only by an appraisal of the infant's behavior patterns.

#### American Journal of Ophthalmology, St. Louis

19: 841-950 (Oct.) 1936

- Studies on Action of Staphylococcus Toxin and Antitoxin, with Especial Reference to Ophthalmology. E. L. Burky, Baltimore.—p. 841.  
Precipitins in Ocular Tissues of Rabbits Generally and Locally Immunized with Crystalline Egg Albumin. R. Thompson, E. Gallardo and Devorah Khorazo, New York.—p. 852.  
Nature of Ocular Fluids. K. Meyer and J. W. Palmer, New York.—p. 859.  
Pathology of Lattice and Nodular Dystrophy of Cornea. F. H. Maury, Baltimore.—p. 866.  
Surgery of Retinal Detachment: End Results of Various Methods. H. S. Gradle and S. J. Meyer, Chicago.—p. 873.  
Accidental Freezing of Eye by Sulfur Dioxide. C. P. Clark, Indianapolis.—p. 881.  
Dinitrophenol Cataract. H. F. Whalman, Los Angeles.—p. 885.  
Contact Glass as Therapeutic Agent in Corneal Ulcers. D. M. Rolett, New York.—p. 888.  
Pupillary Variability in 108 Syphilitic Patients. T. M. Shapira and F. M. Crage, Chicago.—p. 891.



**New Jersey Medical Society Journal, Trenton**

33: 609-678 (Nov.) 1936

- Gastric Polyposis. L. L. Perkel, Jersey City.—p. 615.  
 Injection Treatment of Hemorrhoids. R. V. Gorseh, New York, and C. D. Smith, Paterson.—p. 620.  
 Socialized Tendencies in Medicine. T. K. Lewis, Camden.—p. 631.  
 Problems of Organized Medicine. A. C. Zehoder, Newark.—p. 633.  
 Some Simplified Methods of Artificial Feeding of Infants. C. S. Janifer, Newark.—p. 636.  
 Pharmacologic Action of Quinidine and Its Use in Heart Disease. S. Ben-Asher, Jersey City.—p. 639.

**New York State Journal of Medicine, New York**

36: 1699-1814 (Nov. 15) 1936

- Pneumonia: Prevention, Management and Serum Treatment. R. Cole, New York.—p. 1699.  
 Surgical Treatment of Peripheral Vascular Disease. G. de Takáts, Chicago.—p. 1709.  
 Allergic Manifestations in Dermatology. M. B. Sulzberger, New York.—p. 1717.  
 Precision Hearing Tests: Interpretations in Light of Recent Research. E. P. Fowler, New York.—p. 1724.  
 Industrial Diseases and Accidents to the Hand: Dermatoses of Hands. B. J. Slater, Rochester.—p. 1731.  
 Id.: Infections of the Hand. R. F. Barber, Brooklyn.—p. 1736.  
 Id.: Management of Injuries of Tendons and Nerves of the Hand. J. H. Garlock, New York.—p. 1740.  
 Id.: Fractures of Bones of the Hand. C. R. Murray, New York.—p. 1749.  
 Certain Aspects of Blood Flow. T. P. Sprunt, Baltimore.—p. 1762.  
 Gonococcus Filtrate (Corbus-Ferry) as a Skin Sensitization Test for Gonorrhea. C. K. Conrad, New York.—p. 1767.  
 Diagnosis and Treatment of Accidental Poisoning in Children. J. Aikman, Rochester.—p. 1769.  
 Old Remedy Book. L. J. Bragman, Binghamton.—p. 1775.  
 Between Mental Health and Mental Disease. B. Liber, New York.—p. 1776.

**Northwest Medicine, Seattle**

35: 403-440 (Nov.) 1936

- Some Circulatory Problems of Surgery. W. S. Middleton, Madison, Wis.—p. 403.  
 \*Surgical Treatment of Multiple Sclerosis. P. G. Flothow, Seattle.—p. 410.  
 Insulin and Protamine in Treatment of Diabetes Mellitus. L. J. Palmer and G. D. Capaccio, Seattle.—p. 414.  
 Intravenous Evipal Anesthesia. H. V. Findlay and F. M. Findlay, Santa Barbara, Calif.—p. 418.

**Surgical Treatment of Multiple Sclerosis.**—Flothow discusses the rationale of the treatment of multiple sclerosis by cervicodorsal sympathectomy. Recent studies on the pathogenesis of the disease indicate that the sclerotic plaques are in some way related to blood vessels and it is therefore possible that the disease is due to an inadequate blood supply to the central nervous system. By surgical resection of the sympathetic nerves it is felt that the blood supply to the brain and spinal cord is improved and that this may result in at least checking the progress or even improving the symptoms. A series of eighteen cases, ten women and eight men, is reported, in which sympathectomy has been performed. The results have been good in five men of the first six cases done, and in three of these five the results are considered excellent. The other two cases are too recent to make a prognosis. The results in women have been excellent in two cases and in two others sufficiently good to warrant the procedure. In the remaining six cases, apparently no benefit was obtained.

**Public Health Reports, Washington, D. C.**

51: 1533-1566 (Nov. 6) 1936

- Plague Eradication Measures on Island of Maui, Territory of Hawaii. A. L. Dopmeyer.—p. 1533.  
 51: 1567-1604 (Nov. 13) 1936  
 \*Efficiency of Rapid Sand Filters in Removing Cysts of Amebic Dysentery Organisms from Water. J. R. Baylis, O. Gullans and Bertha Kaplan Spector.—p. 1567.  
 51: 1605-1632 (Nov. 20) 1936

Audiometric Studies on School Children: II: Types of Audiometric Curves. A. Cicco.—p. 1607.

**Efficiency of Sand Filters in Removing Amebic Dysentery Cysts from Water.**—Baylis and his co-workers conducted experiments on the removal of *Endamoeba histolytica* cysts from water by rapid sand filtration and found this method effective. The filter used in the experiments had a surface area of 10 square feet and contained 24 inches of sand having an

effective diameter of 0.5 mm. The cysts were not in the water when it was coagulated but were added to the coagulated water going to the filter. They were fed into the influent water at a constant rate from 5 gallon portions of a suspension of the organisms. The number of cysts in the influent water varied from 362 to 2,370 per gallon of water. A total of 114 gallons of filtered water was tested and only four cysts were found. The percentage of reduction was in excess of 99.99. The duration of an experiment was from 3.7 to 13.7 hours. From nine to seventy-four liters of filtered water was collected at equal intervals during the period of the run. The filtered water collected for testing was first run through a Foerst centrifuge for concentrating the cysts. Prechlorinating the water did not affect the efficiency of the filters.

**Science, New York**

84: 465-490 (Nov. 27) 1936

- Propagation of Rabies Virus in Tissue Culture and Successful Use of Culture Virus as an Antirabic Vaccine. L. T. Webster and Anna D. Clow, New York.—p. 487.  
 \*Chemical Reagent for Detection and Estimation of Vitamin B<sub>1</sub>. H. J. Prebluda and E. V. McCollum, Baltimore.—p. 488.  
 Technique for Slide Culture of Fungi. Miriam T. Malakoff, Pittsburgh.—p. 490.  
 Simplified Preparation of Microscope Cross Hairs. A. W. Fuller, Palo Alto, Calif.—p. 490.

**Reagent for Detection of Vitamin B<sub>1</sub>.**—Prebluda and McCollum found that when a solution of *p*-amino acetanilid or methyl-*p*-amino phenyl ketone (*p*-amino acetophenone) is treated with nitrous acid and the resultant product is treated under certain conditions with vitamin B<sub>1</sub> there is produced a characteristic purple red compound which is stable and highly insoluble in water. The solutions of the treated amines will not react under these conditions with any substances as yet tried to form the same characteristic insoluble compounds which are colored. The colored vitamin-reagent compound may be extracted by means of a suitable selective solvent. Such a method may afford means of concentrating vitamin B<sub>1</sub>. Since the coloration is of a permanent nature, it provides a method for the quantitative as well as qualitative estimation of the vitamin. Determinations may be made within several millionths of a gram of the active material.

**Southern Medical Journal, Birmingham, Ala.**

29: 1045-1150 (Nov.) 1936

- Derangements of Semilunar Cartilages of Knee: Clinical and Experimental Study. A. R. Shands Jr., J. L. Hutchison and L. Ziv, Durham, N. C.—p. 1045.  
 Hypernephroid Tumors of Kidney: Hypernephroma, Adrenal-Rest Tumor, Grawitz Tumor, Cortical Renal Tumors (Walters), Carcinoma (in Part). E. R. Whitmore, Washington, D. C.—p. 1051.  
 \*Prolonged Virulence of Bacterium Tularensis in Human Tissue: Case Report. S. D. Blackford and D. C. Smith, Charlottesville, Va.—p. 1062.  
 Deep Mycotic Infection Caused by *Monilia nigra*: Report of Case Originating in New Mexico. L. M. Smith, El Paso, Texas, and G. M. Lewis, New York.—p. 1067.  
 Aspergillosis of Bone. F. W. Shaw and H. J. Warthen, Richmond, Va.—p. 1070.  
 Present Status of Contact Glasses. R. K. Daily, Houston, Texas.—p. 1071.  
 Some Points of Importance in Performance of Abdominal Hysterectomy. W. C. Stude, St. Louis.—p. 1076.  
 Silicosis and Silicotuberculosis: Clinical, Roentgenologic and Pathologic Study of Lungs of Five Patients. H. I. Spector, St. Louis.—p. 1079.  
 Absorption from Pathologic Colon. D. C. Browne, New Orleans.—p. 1086.  
 Exacerbations of Diabetes. H. J. John, Cleveland.—p. 1091.  
 Symptomatic Relation of Urinary Disturbances to Diseases of Intestinal Tract. W. A. Reed, New Orleans.—p. 1099.  
 Cardiovascular Aspects of Epigastric Pain. L. T. Gager, Washington, D. C.—p. 1101.  
 Sphenopalatine Neuralgia Simulating Tic Douloureux. H. W. Lyman, St. Louis.—p. 1106.

**Prolonged Virulence of Bacterium Tularensis in Human Tissue.**—Blackford and Smith obtained cultures of *Bacterium tularensis* from guinea-pigs inoculated with macerated skin tissues from the forearm of a syphilitic patient five months after the tularemia infection. An organism capable of producing visceral focal necrosis in guinea-pigs was obtained from granulation tissue in the amputation stump of the forearm twenty-one months following the onset of tularemia. The human body appears to have at least two protective mechanisms after inoculation with *Bacterium tularensis*: 1. The lymphatic system

**Annals of Internal Medicine, Lancaster, Pa.**

10: 569-716 (Nov.) 1936

- \*Postural Syndrome Related to Obesity Leading to Postural Emphysema and Cardiorespiratory Failure. W. J. Kerr and J. B. Lagen, San Francisco.—p. 569.
- Emphysema: Rebreathing, Basal Metabolic Rate Determinations, Vital Capacity. H. M. Thomas Jr., Baltimore.—p. 596.
- Clinical Studies on Verodigen, a Digitalis Glucoside. J. P. Baker Jr. and N. Bloom, Richmond, Va.—p. 605.
- Comparison of Symptoms, Physical and Laboratory Findings of Myxedema and Pernicious Anemia: Report of Three Cases. J. A. Greene, Iowa City.—p. 622.
- Control of the Tobacco Habit. J. L. Dorsey, Baltimore.—p. 628.
- Studies of Nitrogen and Sulfur Metabolism in Case of Cystinuria. G. P. Grabfield and B. Prescott, Boston.—p. 632.
- \*Use of Histidine Hydrochloride (Larostidin) in Treatment of Peptic Ulcer. J. T. Eads, Philadelphia.—p. 639.
- Relationship of Bacillary Dysentery to Distal Ileitis, Chronic Ulcerative Colitis and Nonspecific Intestinal Granuloma. J. Felsen, New York.—p. 645.
- History of Hospitals, with Especial Reference to Some of the World's Oldest Institutions. H. R. Carstens, Detroit.—p. 670.

**Postural Syndrome and Obesity.**—Kerr and Lagen discuss a type of obesity that appears to be exogenous in origin, arising in persons whose dietary habits lead to a caloric intake beyond their daily requirements. It is not easy to determine whether individuals with the relaxed habitus are predisposed to the train of events which follow, but it is apparent that, when medical attention is sought, these patients present the posture of relaxation. The gradual accumulation of adipose tissue in the normal depots for fat gives the appearance of rotundity usually designated as corpulence. The accumulation of fat in the third decade is relatively symptomless. In the fourth decade the appearance of the individual is one of increasing corpulence, with a tendency toward a florid complexion. The normal curves of the spine are accentuated. The added weight of fat of the abdominal wall and viscera moves the line of gravity forward, and to compensate for this the major portion of the thorax is moved backward, accentuating the lumbar curve. The upper part of the thorax and shoulder girdle move forward, increasing the normal thoracic curve; and the head and neck are thrust forward as is required for adjustment at a new line of gravity. The fifth decade marks the period of transition from the state of physical well being and activity of youth to one of gradual lessening of activity of middle and old age. The syndrome itself is certainly modified or delayed in susceptible individuals by proper exercise and diet. Heredity may be a factor in its development, as shown by the familial occurrence of arteriosclerosis, arthritis, premature gray hair and particularly corpulence. Environment is related directly. The condition singles out individuals of sedentary occupation. The most obvious result is the gradual development of a heavy, pendulous abdomen. The respiratory and circulatory manifestations are primarily due to interference with proper ventilation of the lungs based on postural defects and the disadvantages under which the diaphragm functions under the circumstances. The orthostatic dyspnea, reduced vital capacity and tidal air, polycythemia and cyanosis are closely related. In older subjects hypertension, systemic and pulmonary, and arteriosclerosis account for definite cardiac complications. Treatment requires temporary support for the pendulous abdomen and assistance in the evacuation of the lungs during expiration. A belt gives this support and aids in expiration. The weight should be gradually reduced to correct the distortion of the spinal axis and restore the spinal curvature. Postural training is of greater value after the adipose tissue has been reduced but is of little value in the patient with a pendulous abdomen and a great counterweight of visceral fat that interferes with the ascent of the diaphragm during expiration.

**Histidine Hydrochloride in Treatment of Peptic Ulcer.**

—Eads gives a follow up of eighty-five cases of peptic ulcer in which treatment was given with daily intramuscular injections of a 4 per cent solution of histidine hydrochloride. Forty-five of the patients have been followed for a period of about eighteen months, and forty for a period of six months. He has found that, although the immediate results secured by histidine hydrochloride therapy may be generally favorable, the effect is not continuous in a large percentage of cases. The mechanism by which histidine therapy produces benefit in patients showing immediate improvement is not explained satisfactorily. Some of the favorable effects may be psychic. As other observers

have found, the immediate results obtained in the use of histidine hydrochloride are excellent in a large number of cases of uncomplicated peptic ulcer. However, their end results after fairly short observation periods are not as good as those following the orthodox medical treatment. Histidine in the treatment of peptic ulcers has its place, for in many cases relief of symptoms is so prompt and so spectacular that this immediate effect alone would justify its use. Histidine hydrochloride therapy cannot supplant the dietary-alkaline medical treatment, but it may be a valuable addition to this treatment, particularly in cases which do not respond readily to the orthodox measures. In cases in which further surgery is contraindicated, histidine therapy offers aid.

**Archives of Dermatology and Syphilology, Chicago**

34: 755-934 (Nov.) 1936

- \*Aleukemic Reticulosis: Additional Member of Group of So-Called Cutaneous Lymphoblastomas. J. T. Wayson, Honolulu, T. H. and F. D. Weidman, Philadelphia.—p. 755.
- \*Cutaneous Lesions Associated with Monocytic Leukemia and Reticulo-Endotheliosis. F. W. Lynch, St. Paul.—p. 775.
- Sudoriparous Glands: I. The Eccrine Glands. S. C. Way, San Francisco, and A. Memmesheimer, Essen, Germany.—p. 797.
- Herpes Zoster Generalisatus: Report of Two Cases Occurring in Patients with Lymphatic Leukemia After Treatment with Roentgen Rays. J. Skeer, Brooklyn.—p. 809.
- Influence of Serum on Frei Test. Marion E. Howard and M. J. Strauss, New Haven, Conn.—p. 816.
- Dust from Dictaphone Cylinders as Cause of Dermatitis. H. J. Templeton and H. V. Allington, Oakland, Calif.—p. 828.
- \*Lichen Ruber Moniliformis (Morbus Moniliformis Lichenoides): Report of Case and Description of Hitherto Unrecorded Histologic Structure. F. Wise and C. R. Rein, New York.—p. 830.
- Pseudo-Achromia of Tinea Versicolor: Clinical and Experimental Studies and Observations on Use of Filtered Ultraviolet Rays (Wood Filter). G. M. Lewis and Mary E. Hopper, New York.—p. 850.
- Small Radium Needles in Treatment of Malignant Cutaneous Tumors. B. Shelmire and E. C. Fox, Dallas, Texas.—p. 862.
- Vitiligo of Lips. D. W. Montgomery, San Francisco.—p. 873.
- Probable Case of Third Generation Syphilis: Report of Case. C. R. Rein and Frances Shostac, New York.—p. 877.
- LXXXV.—Mycologic Technic in Dermatologic Practice. M. Moore, St. Louis.—p. 880.

**Aleukemic Reticulosis.**—Wayson and Weidman cite a case of aleukemic reticulosis in which there was a preliminary itchy diffuse dermatitis lasting five months; after a remission resulting from treatment, it recurred in a modified form in four months. Symptoms of pulmonary tuberculosis were recognized at the eleventh month. At the twelfth month a nonpruritic dermatitis developed. At the thirteenth month a moderate adenopathy and splenomegaly were detected. The tumor stage developed at the thirteenth month, after which the remaining course of the disease (nine weeks) was fulminating, consisting of marked emaciation, fever, severe symptoms in the joints and death. Roentgen studies demonstrated disease in the bone marrow with infiltration and destruction of bone—a point that may be of some diagnostic value in cases of similar disorders in the future. These observations were confirmed at necropsy, after which microscopic examination of tissue referred the proliferative processes to the reticulo-endothelial system. Since there was no leukocytosis, the disorder may be classified as an aleukemic reticulosis. With two important exceptions this disorder closely parallels the leukemic reticulosis (monocytic leukemia) studied by Mercer and Loveman—the clinical course was rapidly fatal, the adenopathy was not extreme and the cytologic picture was similar. The lesions were dusky or bluish red; this remains to be determined as a generality. By contrast with leukemic reticulosis, the disorder produced lesions of the order of tumors and did not produce a leukocytosis.

**Monocytic Leukemia and Reticulo-Endotheliosis.**—Lynch has seen a number of cases of monocytic leukemia and reticulo-endotheliosis. Monocytes observed in leukemic blood may develop directly from the reticulo-endothelial system in a manner related to the normal or in myeloid tissue as a development from the myeloblast. In the first type there is reticulo-endothelial hyperplasia with mobilization of the cells into the blood and differentiation to monocytes (Schilling type). In the second type the pathologic picture in the tissues is that of myelogenous leukemia, while myeloblasts and other immature granulocytes as well as immature and mature monocytes are present in the blood (Naegeli type). The clinical and microscopic observations in eight cases of monocytic leukemia and reticulo-endotheliosis associated with cutaneous changes are described. The difficulties in the clinical diagnosis of general-

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Bristol Medico-Chirurgical Journal

53: 75-124 (Summer) 1936

Corneal Transplantation: Its History, Development and Practice. J. W. T. Thomas.—p. 75.

\*Treatment for Sciatica. A. R. Short.—p. 87.

53: 125-186 (Autumn) 1936

Carcinoma of the Bronchus: Clinical Features. C. B. Perry.—p. 125.  
Id.: Primary Carcinoma of the Lung Radiologically Considered. G. B. Bush.—p. 131.

Id.: Bronchoscopic Diagnosis of Carcinoma of the Lung. G. Scarff.—p. 137.

Id.: Pathologic Aspect. A. L. Taylor.—p. 139.

Id.: Treatment of Carcinoma of the Lung. D. Wood.—p. 145.

Fatal Case of Meningitis Due to Infection of Sphenoidal Sinus by Pfeiffer's Bacillus: Short Review of Methods of Treatment. C. Elaine Field and H. Rogers.—p. 151.

Surgical Clinics in Scandinavia. A. R. Short.—p. 157.

**Treatment of Sciatica.**—Short points out that sciatica is only a name for a group of symptoms, and before it can be treated rationally one must know what is the underlying cause. Sciatica is seldom bilateral; if it is, the cause will probably be some definite disease, such as a pelvic tumor or a growth of the spine or spinal cord. Sciatica may be associated with lumbago. The physical signs are sometimes, especially in early cases, absolutely negative, but as a rule one can elicit tenderness on deep pressure on the buttock over the point of emergence of the nerve through the sacrosacral notch, tenderness along the nerve trunk down the back of the thigh and over the external popliteal nerve where it crosses the fibula, and pain when the knee is extended with the thigh flexed. No one cause will explain every case of sciatica. Sciatica may be classified into the following groups: the fibrositis group, pelvic growths, growths of the spine or spinal cord, sciatica with lumbar scoliosis, sacro-iliac disease and an unexplainable group. The author's experience is confined to three cases in which division of a tense fibrous band pressing on the sciatic nerve proved sufficient. In the first case the point of exit of the sciatic nerve was approached by Crawford Renton's incision with transection of the fibers of the gluteus maximus, in the other two by splitting that muscle directly over the nerve in the line of its fibers. A tense band was felt closely applied to the antero-external side of the sciatic nerve in the three cases. The operation is not called for until the simpler and generally recognized methods of treatment have been tried and have failed. It begins to be indicated for the intractable cases in which no definite cause is found, and particularly when there is definite wasting of the muscles supplied by the external popliteal nerve. It is not to be regarded as a cure-all; it will succeed only in cases of sciatica, probably a minority, in which the pain is due to the band pressing on the nerve.

## British Journal of Ophthalmology, London

20: 609-656 (Nov.) 1936

Eyelash Carried by Perforating Injury into Posterior Aqueous Chamber and Removed Eleven Weeks Later: Notes. L. H. Savin.—p. 609.

"Exophthalmic Ophthalmoplegia with Thyrotoxicosis": Case. H. B. Stallard.—p. 612.

Pernicious Anemia with Retrobulbar Neuritis. G. Talbot.—p. 619.

Retention Cyst of Unusual Size, Probably of Krause's Gland, Simulating Angioma of Orbit. D. V. Giri.—p. 621.

Papillomas and Other Tumors of Lids and Their Treatment with

Electrolysis Needle. J. Minton.—p. 624.

Differential Diagnosis of Orbital Gumma. Else Wolfsohn-Jaffé.—p. 626.

Some Remarks on Edema. J. A. van Heuven.—p. 631.

Clinical Value of Trypaphane Reaction. J. A. van Heuven.—p. 635.

## British Journal of Tuberculosis, London

20: 181-244 (Oct.) 1936

Senile Pulmonary Tuberculosis. F. P. L. Lander.—p. 183.

Chronic Diffuse Bronchopneumonia. J. G. Scadding.—p. 186.

Experimental Studies on Early Pulmonary Tuberculosis of "Adult Type." W. Paezel.—p. 204.

Physiologic Nature of Protective and Healing Principles in Tuberculosis. F. M. Potterer.—p. 216.

**Chronic Diffuse Bronchopneumonia.**—Scadding presents three cases that were characterized by a subacute to chronic course, the duration of symptoms from onset to death being

two years, seven months and three and a half months, respectively. Cough was an initial symptom in all cases; it was accompanied by sputum which, at first scanty and mucopurulent, gradually increased in amount and became frankly purulent. Small hemoptyses occurred in all cases. Dyspnea was prominent and was steadily progressive. Pleurisy was a feature of cases 2 and 3, followed by a clear, lymphocytic effusion in case 2, and by purulent effusion in case 3. Fever and parallel increase in pulse rate were present; the fever was not very constant. During the earlier stages of case 1 only slight or no pyrexia was present, but a rather marked diurnal swing was observed. In the terminal stage of this case the pyrexia was sustained. In cases 2 and 3 an irregularly swinging pyrexia was observed throughout. Roentgenologically, the common factor between the three cases was the presence of mottling of such a type as to suggest tuberculous infiltration. The increase of this mottling in the chronic case 1 and the acute "wholly" spread to the left middle zone observed in the more acute case 3 form interesting parallels to the similar changes observed in the progressive course of pulmonary tuberculosis. Pathologically, the essential lesion in each case was simple pneumonia in varying stages of evolution. The only unusual features were the diffuse distribution of the lesions through both lungs and the presence in different foci of all stages of pneumonia—early consolidation, resolving consolidation, organization and suppuration. A correlation of the clinical, roentgen and necropsy observations suggests that the underlying pulmonary lesion was essentially a diffuse bronchopneumonia in rather small foci, showing an unusual variety of modes of progress and spread, progress being toward resolution in some foci, toward organization leading to fibrosis in others and toward suppuration leading to minute abscesses in others; spread being not only by local extension but also, on the evidence of roentgen examination in cases 1 and 3, by the appearance of fresh foci in previously unaffected areas of lung. Consideration of the cases reported and of the similar cases collected from the literature leads the author to the conclusion that there is a group of cases of chronic diffuse bronchopneumonia which may form a recognizable clinical entity. Its clinical and roentgen manifestations closely resemble those of some forms of pulmonary tuberculosis, and it is from the latter condition that differential diagnosis is most important.

## British Medical Journal, London

2: 851-902 (Oct. 31) 1936

\*Variations of Blood Pressure in Diseases of Hypophysis. G. Marañon and F. Domenech.—p. 851.

Seborrheic Dermatitis. G. H. Percival.—p. 854.

Pathologic Sleep: Psychobiologic Interpretation of Case. I. Skottowe and Madeline R. Lockwood.—p. 856.

Fracture-Dislocation of Cervical Spine and Its Open Reduction. F. C. Pybus.—p. 860.

Anatomy of Peripheral Sensation. H. H. Woollard.—p. 861.

The Problems of Embryology. C. H. Waddington.—p. 862.

Morphologic and Functional Homologies of Male and Female Reproductive Systems. S. Zuckerman.—p. 864.

**Variations of Blood Pressure in Diseases of Hypophysis.**—Marañon and Domenech say there is no proof that the hypophysis or its diseases influence the blood pressure in any way. The opinions of some of the principal investigators on the subject differ widely. The high pressure of the basophil adenoma may be explained by a concurrent hyperfunction of the adrenals; the low pressure of hypophyseal cachexia by the coincidence of other lesions—probably the most frequent would be adrenal insufficiency—and, above all, a very poor general condition. The behavior of the blood pressure in other hypophyseal symptoms has no influence on the blood pressure, since states both of hyperfunction and of hypofunction of the anterior and the posterior lobes have no connection with uniform changes in blood pressure. The variations of pressure observed are merely the normal changes observed in any other group of patients and are clearly due to causes that have nothing to do with lesions of the hypophysis. It will be observed that the higher pressures, in each of the diseases under study, generally correspond to older patients. The pressures for the average age coincide with the average figures for that age, independent of the disease. In addition, with a few exceptions the highest pressures in isolated cases are in part explained by the concurrence of hypertensive vascular lesions (especially arterial

hepatic edema was present four times. Five of nine cases of thrombocytopenic purpura presented hepatic edema. The relatively high incidence of hepatic edema in cases of death following burns seems to conform with the observations of Eppinger. However, death occurred soon after the accident in only two cases. In only three cases in which death occurred subsequent to operation were the clinical criteria of shock satisfied and in these cases hepatic edema was not found. In three of seven cases of acute coronary occlusion terminating fatally with the picture of shock, hepatic edema was present. The most conspicuous hepatic edema was observed in two cases of unexplained death which were investigated by the medical examiner of New York City.

### Delaware State Medical Journal, Wilmington

S: 217-236 (Nov.) 1936

The Barber Surgeons Among the Early Dutch and Swedes Along the Delaware. S. X. Radbill, Philadelphia.—p. 217.  
Old Delaware Fee Bills—A Bit of History. W. E. Bird, Wilmington.—p. 226.

### Endocrinology, Los Angeles

20: 741-918 (Nov.) 1936

- Human Corpus Luteum and Progesterin, Studies II. J. P. Pratt, E. C. Hamblen, O. Kamm and D. A. McGinty, Detroit and Durham, N. C.—p. 741.  
Effect of Estrogenic Substances on Pituitary, Adrenals and Ovaries. E. T. Ellison and J. C. Burch, Nashville, Tenn.—p. 746.  
Time Element in Pituitary-Ovarian Response to Large Doses of Estrogenic Hormone. C. Mazer, S. L. Israel and B. J. Alpers, Philadelphia.—p. 753.  
Effect of Interruption of Supra-Opticohypophyseal Tracts on Anti-diuretic, Pressor and Oxytocic Activity of Posterior Lobe of Hypophysis. C. Fisher and W. R. Ingram, Chicago.—p. 762.  
Endometrium in "Endometrial Hyperplasia" After Therapy. E. C. Hamblen, Durham, N. C.—p. 769.  
\*Treatment of Sexual Underdevelopment in Human Male with Anterior Pituitary-like Hormone of Pregnancy Urine. D. L. Sexton, St. Louis.—p. 781.  
Visceral Temperatures in Intact and Unanesthetized Animal: II. Uterus of Rat. J. B. Hamilton, Albany, N. Y.—p. 788.  
Extracts Containing Cortin. F. A. Hartman and W. D. Pohle, Columbus, Ohio.—p. 795.  
Genesis of Thyroid Protein: Clinical Assays of Artificial Thyroid Protein in Human Myxedema. W. T. Salter and J. Lerman, Boston.—p. 801.  
Influence of Intake of Calcium on Blood Iodine Level. Juanita Thompson, New York.—p. 809.  
\*Subclinical Hypothyroidism in Children. M. Molitch, Jamesburg, N. J., and S. Poliakoff, Philadelphia.—p. 816.  
Nitrogen and Creatine Metabolism in Relation to Environmental Temperature and Thyroid Function. M. Bodansky and Virginia B. Duff, with technical assistance of C. M. Agress, C. L. Herrmann and Katherine R. Campbell, Galveston, Texas.—p. 822.  
Significance of Electrical Impedance Measurements on Human Body. J. W. Horton and S. Hertz, Boston.—p. 831.

**Treatment of Sexual Underdevelopment in Boys.**—During the last four and a half years Sexton treated eighteen boys in whom the testes were not definable in the scrotum with gonadotropic substance of pregnancy urine. Six of the eighteen were complicated by hernia and three of these had been operated on previously, and the unsatisfactory operative results precluded any result from organotherapy. Of the remaining fifteen cases (twenty instances) complete descent occurred in ten cases (fifteen instances) and incomplete descent (intermittent retraction into canals) in two. It is believed that, in those instances in which testicular tissue is not definable in any part of the genital tract, true cryptorchism does not necessarily exist. Instead there is rudimentary testicular tissue that cannot be differentiated from other soft tissue. On the average, treatment totaling 4,800 rat units of gonadotropic substance of pregnancy urine over a period of eight weeks should suffice to determine whether or not results are to be expected. Boys with obesity, of the pituitary types, responded more favorably than those of the eunuchoid types. Treatment of subnormal genital development was less effective than the treatment of nondescent. Delayed descent results in abnormal physical proportions with predominating excessive growth of the long bones. Surgery is recommended for all cases complicated by hernia and those in which organotherapy fails.

**Subclinical Hypothyroidism in Children.**—To determine the incidence of mild cases of hypothyroidism, Molitch and Poliakoff investigated the inmate population (514) of the New Jersey State Home for Boys. The ages of the boys

ranged between 8 and 17 years. The entire group was roentgenographed and those with delayed carpal development were studied in more detail. Total serum cholesterol determinations were made on the entire group, and norms were developed. Those with retarded osseous development and those with high cholesterol were given basal metabolism tests. The observations were then correlated with psychologic data, behavior and school achievement and were checked against the opinions of eleven well known endocrinologists, obtained by the questionnaire method. The results indicate that osseous retardation is the most consistent finding in hypothyroidism in children; fifty-four in the present series. Basal metabolism and serum cholesterol studies are of little aid in the diagnosis in children, because of variability and lack of consistent relationship to the clinical pictures. In the clinical picture only dryness of the skin and the brittleness of the hair were found consistently. A history of overweight at birth and a delay in development, such as teething, walking and talking, is of corroborative significance. The intelligence is not a reliable criterion: some hypothyroid children are bright and some are retarded. The behavior was found to be either hypo-active or hyperactive and hence of little aid in the diagnosis. Subclinical types of hypothyroidism may be recognized by the osseous retardation as revealed in the roentgenogram and by the favorable reaction of the patient to replacement therapy with thyroid substance.

### Florida Medical Association Journal, Jacksonville

23: 209-258 (Nov.) 1936

- Some Facts Concerning Communicable Disease. H. Hanson, Jacksonville.—p. 223.  
Management of Early and Advanced Obstruction to Urinary Stream from Prostatic Enlargement. D. P. Bird, Lakeland.—p. 225.  
Treatment of Eye Diseases by the General Practitioner. R. E. Russell, Ocala.—p. 228.

### Johns Hopkins Hospital Bulletin, Baltimore

59: 307-392 (Nov.) 1936

- Researches on Tetanus: V. Distribution and Fate of Tetanus Toxin in Body. J. J. Abel, E. A. Evans Jr. and Bettylee Hampil, Baltimore.—p. 307.

### Journal of Allergy, St. Louis

S: 1-112 (Nov.) 1936

- Study of Blood Constituents in Pollinosis With and Without Treatment. M. L. Hathaway, B. Z. Rappaport, C. I. Reed and H. C. Struck, Chicago.—p. 1.  
Studies on Pollen and Pollen Extracts: XIV. Effects of Varying Hydrogen Ion Concentration on Stability of Pollen Extracts. L. Unger and Marjorie B. Moore, Chicago.—p. 22.  
Effect of Massive Pollen Therapy on Skin Test Sensitivity. S. J. Levin, Detroit.—p. 26.  
Influence of Weather on Blood Density, Plasma Volume and Whole Blood Chloride. J. H. Black, Dallas, Texas, and A. H. Braden, Houston, Texas.—p. 39.  
\*Diagnosis and Treatment of Sensitization to Mosquitoes. R. L. Benson, Portland, Ore.—p. 47.  
House Dust Hypersensitivity in Perennial Asthma of Childhood. H. N. Pratt, Boston.—p. 60.  
Roentgen Treatment of Severe Asthma. C. K. Maytum and E. T. Leddy, Rochester, Minn.—p. 66.

**Sensitization to Mosquitoes.**—Benson presents the case histories of four patients who exhibited lesions due to the bites of mosquitoes. On repeated occasions the patient's arm, subjected to the sting of confined mosquitoes which had been hatched in the laboratory, developed typical immediate and delayed reactions, while normal controls, under the same conditions, showed no noteworthy deleterious effects. Simple buffered-saline extracts and concentrated extracts by precipitation with ammonium sulfate or, more often, cold alcohol or acetone gave strong specific reactions by intracutaneous inoculation in the sensitive patients and but little in the numerous normal controls. The concentrate gave uniformly larger reactions than the simple extract. Reinoculation of extract from the same or another species of mosquito in a former site two or more days after the first inoculation showed abolition of the late reaction, but not of the early wheal. This raised the question of a possible multiplicity of antigens. A relatively small number of injections desensitized three of the four patients treated, all of whom had been extremely reactive to the stings of mosquitoes.

**Bull. et Mém. de la Soc. Méd. des Hôpitaux, Paris**

52: 1343-1387 (Nov. 2) 1936. Partial Index

Bronze Diabetes and Adrenal Insufficiency. M. Labbé, R. Boulon and Ullmann.—p. 1347.

\*Variations of Cutaneous Reactions to Tuberculin in Course of Secondary Syphilis. C. Flandin, G. Poumeau-Delille and J. Le Melletier.—p. 1351.

Histologic Tests of Prehypophyseal Hypofunction in Emaciation. P. Merklen, M. Aron, L. Israël and A. Jacob.—p. 1360.

Acridine Yellow in Treatment of Cerebrospinal Meningitis. H. Eschbach.—p. 1364.

**Reactions to Tuberculin in Secondary Syphilis.**

Flandin and his co-workers attempted to determine the conditions that affected the cutaneous reactions to tuberculin in syphilis in comparison with other skin tests. The skin sensitivity to tuberculin was investigated in all their patients by means of cutaneous reactions and intracutaneous tests with tuberculin diluted 1:100. In the instances in which these reactions were negative, the results were controlled by tuberculin diluted 1:10. There were forty patients in their series, divided into three with primary syphilis, twenty-eight with secondary syphilis and nine with tertiary syphilis. The cutaneous and intradermal reactions were positive in all the patients with primary syphilis, in seventeen of the twenty-nine patients with secondary syphilis, and in six of the nine patients with tertiary syphilis. In interpreting these reactions, it is necessary to remember that variations in the reactions of the skin to tuberculin do not permit a priori conclusion as to the allergic modification of other tissues. Nevertheless, three points emerge from these studies: in all cases observed to give negative skin reactions there were florid mucous cutaneous syphilids; the specific treatment seemed to have a manifest influence on the evolution of these cutaneous reactions, and the rapidity with which these reactions varied was noteworthy. The mode of reaction of the skin to other tests, such as the histamine test, was also observed. No correlation could be determined, however, between the intensity of the skin reaction to histamine and that to tuberculin.

**Journal de Médecine de Lyon**

17: 693-734 (Nov. 5) 1936

Juvenile Acne. Carle.—p. 693.

Hepatic Insufficiency of Alcoholic Addicts. C.-R. Bocca.—p. 701.

\*Early Gastroscopic Diagnosis of Antropyloric Cancer. R. Chevallier.—p. 719.

**Gastroscopic Diagnosis of Antropyloric Cancer.**

According to Chevallier, the usual methods of examination do not allow the truly early diagnosis of cancer of the antropyloric region in the majority of cases. Operative control shows, in fact, that often the infiltration of the antral walls is advanced before the clinical symptoms, x-ray appearances or laboratory examination furnish any presumptive signs. Gastroscopy, on the contrary, in spite of certain difficulties of interpretation, seems to be undoubtedly the procedure of choice for demonstration of the initial aspects of malignant degeneration in this region. The endoscopic pictures which the author reproduces and discusses show all the early signs of cancerous infiltration. He believes that all the facts found can be grouped under one formula, consisting of a leukocytic and atrophic alteration with absence of mucous secretion of the antrum. An associated anatomic state exists with diffuse atrophy similar to that which is sometimes observed in pernicious anemia. This endoscopic syndrome, which the author has never seen in the absence of cancer, should be systematically searched for in all cases of gastric disease of the adult in which the cause is not rapidly discovered. Furthermore, discovery of this syndrome is one of the most important indications for exploratory laparotomy.

**Presse Médicale, Paris**

41: 1721-1744 (Nov. 4) 1936

Clinical and Therapeutic Study of Obstetric Hemorrhages. E. Lévy-S'hal and M. Sureau.—p. 1721.

\*Poisoning by Amanita Phalloides and Rechlorination. Le Calvé.—p. 1724.

**Mushroom Poisoning and Rechlorination.**—Le Calvé reports the illness of nine monks, from 21 to 62 years of age, following a meal containing a considerable quantity of poisonous

mushrooms (*Amanita phalloides*). Eight hours after their meal, one of them became ill with epigastric pain, vomiting and diarrhea. During the next four hours the signs of intoxication appeared in the other eight. In all, the poisoning was manifested by an initial phase with colic, increasingly frequent mucous stools, incessant vomiting and absolute intolerance of the stomach to ingested substances. The monk who first became ill died on the third day. The author gave the others cold water to which salt had been added and after a short time the patients were able to retain the solution. The effect was almost immediate. Vomiting ceased, and the critical situation of some of the monks changed immediately. Recovery progressed rapidly, and all the remaining monks survived in apparently good health. Rechlorination thus becomes an important indication in mushroom poisoning.

**Diagnosi, Bologna**

16: 85-142 (April) 1936

Recent Studies on Malaria. R. Silvestrini.—p. 85.

\*Influence of Cevitamic Acid on Metabolism of Carbohydrates. G. Dessy and F. Catagni.—p. 110.

Metastatic Cutaneous Nevocarcinoma of Stomach and Gallbladder: Case. L. Severi.—p. 130.

**Cevitamic Acid and Carbohydrate Metabolism.**—Dessy and Catagni studied the behavior of cevitamic acid on the metabolism of carbohydrates in normal persons and in those suffering from diabetes mellitus. The intravenous injection of from 0.05 to 0.3 Gm. of cevitamic acid increases glycemia in normal persons who are on a normal diet and decreases it in patients suffering from diabetes mellitus and avitaminosis C. In normal persons and in diabetic patients who for several days have been on a diet without vitamin C the glycemic curve, following oral administration of 150 Gm. of dextrose, does not change if an intravenous injection of 0.25 Gm. of cevitamic acid is given simultaneously. The oral administration of 150 Gm. of dextrose produces hyperglycemia, which is higher if the persons receiving it are given a diet without vitamin C. The simultaneous administration of insulin and cevitamic acid increases the duration but not the intensity of the hypoglycemic reaction to insulin in normal persons. In some diabetic patients it inhibits the action of insulin (no hypoglycemic reaction is produced). In other cases hyperglycemia follows the combined insulin-cevitamic acid injection. When administered alone in diabetes mellitus, it produces hypoglycemia. Its hypoglycemic action, however, does not strengthen that of insulin. It seems that the mechanism of action of each substance on the regulation of glycemia is different. Insulin induces the utilization of dextrose by the tissues, whereas cevitamic acid acts on the vessels.

**Prensa Médica Argentina, Buenos Aires**

23: 2583-2623 (Nov. 18) 1936

\*Phenols in Blood in Renal Diseases. M. R. Castex and A. F. Arnaudo.—p. 2583.

Duodenal and Postoperative Peptic Ulcer: Diagnostic Sign of Presence of Gaseous Bubbles. R. Finocchio.—p. 2609.

Orehiopidymitis in Torsion of Pedicle in Children. O. F. Mazzini.—p. 2610.

Splenic Anemia and Gastroenteritis. J. S. Scavaglione and L. Sivori.—p. 2614.

**Phenols in Blood in Renal Diseases.**—Castex and Arnaudo determined the amount of phenols in the blood of patients suffering from renal diseases with renal insufficiency and also in patients suffering from insufficiency of the right half of the heart. They believe that the intensity of phenolemia in renal diseases depends on the intensity of renal insufficiency. The presence of high hyperphenolemia corresponds to grave renal insufficiency. In cases of chronic and acute glomerulonephritis there is moderately increased phenolemia, as a rule, although in some cases it may be normal or exceedingly high. It is normal in patients suffering from hypertension in renal diseases if the function of the kidneys is well preserved. The amount of phenols in the blood of patients suffering from renal diseases of different nature (polycystic kidney, renal tuberculosis and lithiasis) is regulated by the renal function. Right cardiac insufficiency is associated with normal phenolemia or with moderate hyperphenolemia which is greater during the periods of anuria. Hyperphenolemia is generally associated with uraemia.



strangulated hernia would present. With a history of undescended testicle and the presence of a tender swelling in the groin, one must immediately suspect a vascular insult to the organ. Differential diagnosis lies among an acute epididymo-orchitis, acute inguinal adenitis, strangulated hernia, a strangulation of the testis or torsion of the cord. Once a diagnosis has been made, surgical intervention should be directed at removal of the involved organ and also to correction of the hernia, potential or actual, which is almost always present. Some favor the conservative course, when pain and systemic reaction is not a factor, feeling that an atrophic testis is better than none at all.

**Elimination of Physiologic Error in Phenolsulfonphthalein Test.**—Blasucci points out that the phenolsulfonphthalein output in arbitrarily fixed periods of time is an expression of kidney function carrying in itself an irremovable error (33 per cent), for which the kidney cannot be held responsible. It is possible to avoid this error by a comparison based on the "total limit output" and not on the injected quantity. The proportion between the output in a given time and the total limit quantity gives an extremely exact idea of the kidney's functional value. Sodium hydroxide is added and both the initial and residual samples are diluted with water and urine until the tone and quantity of color are identical in the two samples and then filtered. The residual limit sample is fixed at 10 mm. in any Duboscq type colorimeter and compared with the initial sample. The reading of this is usually 3.3 mm. and may vary from 3 to 4 mm. in normal kidneys, but no more. The smallest renal lesion will immediately bring this reading to 5, 10 or 20 mm. and in severe cases to 60, 100 mm. and even more. The proportion is read directly on the colorimeter and no calculations are required. The error most to be feared and prevented is the remaining of color in the pelvis and ureter dilated by back pressure. Forcing fluid helps prevent this source of error.

### Kansas Medical Society Journal, Topeka

37: 441-484 (Nov.) 1936

- Successive Spontaneous Pneumothorax Due to Silicosis. M. Snyder, Salina.—p. 441.  
Problems in Treatment of Hay Fever. O. R. Withers, Kansas City.—p. 444.  
Preoccupational Examinations. J. A. Britton, Chicago.—p. 448.  
Rammstedt's Pyloroplasty Local Anesthesia. W. Cox, Wichita.—p. 453.  
Lymphogranuloma Inguinale. O. R. Clark and W. M. Mills, Topeka.—p. 454.  
Status of Persons with Sinus Bradycardia. P. W. Morgan, Emporia.—p. 455.

### Medicine, Baltimore

15: 307-452 (Sept.) 1936

- Anemia of Infancy and Early Childhood. H. W. Josephs, Baltimore.—p. 307.

### Minnesota Medicine, St. Paul

19: 695-758 (Nov.) 1936

- Hepatic Physiology and Pathology from the Surgical Point of View: Review of Experimental Investigations. F. C. Mann, Rochester.—p. 695.  
Changes in Aortic Contour Following Injuries to Spine. M. H. Tibbetts, Duluth.—p. 702.  
Congenital Cardiac Defects. H. J. Lloyd, Mankato.—p. 705.  
Coarctation of Aorta: Report of Two Cases. C. H. Schroder, Duluth.—p. 707.  
Rheumatic Heart Disease. F. A. Willius, Rochester.—p. 711.  
Obliterating Arterial Disease. R. Earl, St. Paul.—p. 717.  
Oxygen Therapy. O. E. Locken, Crookston.—p. 721.  
Management of Minor Ailments of Pregnancy. M. O. Wallace, Duluth.—p. 724.  
\*Symptoms and Signs Which May Make Possible Earlier Recognition of Carcinoma of Stomach. D. L. Wilbur, Rochester.—p. 728.  
Treatment of Trichomonas Vaginitis with Silver Picrate. Nora Winther, Minneapolis.—p. 731.

**Earlier Recognition of Carcinoma of Stomach.**—Wilbur believes that patients who present themselves because of a general decline in their health, unexplained fatigue or loss of weight and strength not infrequently have malignant disease in the stomach, even though gastro-intestinal symptoms are absent. Anorexia may be the only symptom, or pallor and weakness may be the only signs. Carcinoma of the stomach is a disease which is often overlooked until it is too late for treatment. It is a disease which is often overlooked until it is too late for treatment. It is a disease which is often overlooked until it is too late for treatment.

age and persists for more such cases the disturbance upsets, anxiety, worry, diarrhea or colon or occurs from distention. Consider the possibility of a gastroenterologic study. Similar to middle aged persons who have had new symptoms develop. In brief, any change in the health that persists for a longer time in the history which should be noted. Sudden unexplained pallor or loss of weight, or any other change from that of previous good health, is a suggestive sign of carcinoma, but the diagnosis is often in question and to a search for it may lead to recognition of it.

### Nebraska State Journal

21: 401-402

- Choice of Treatment in Various Cases. Davis, Omaha.—p. 401.  
Malignant Tumors of Uterus. Present Status of Cancer Question. Report of Cancer Committee. Cancer. L. E. Moon, Omaha.—p. 402.  
Infections of Kidney. P. S. Low Back Pain. W. L. Suck. Major Fungus Infections in the Urinary Tract. p. 421.  
Migraine. V. V. Smrha, Mitchell.—p. 421.  
Diagnosis and Treatment of Hemorrhoids. J. C. Sharpe, Omaha.—p. 421.

### New England Journal of Medicine

215: 801-802

- Menorrhagia and Metrorrhagia. Forty-Five Years of Age, with a Review of the Literature. F. L. Good, Boston.—p. 801.  
Observations on Hemorrhage from the Uterus. Philadelphia.—p. 811.  
Hospital Puerperal Sepsis. G. Diabetic Deaths in Boston Du Forensic Medicine in Europe. Lande, New York.—p. 826.  
Sir Edward Carson and the Brookline, Mass.—p. 834.

215: 851-852

- Occupational Skin Disease: Modern Preventive Medicine. Effect of Protamine Insulin on the Venous Use in Rabbits. H. Living with a Colostomy. E. Gas Bacillus Infection Occurring in Chronic Appendicitis: Report.—p. 871.

215: 901-902

- \*Human Bite Infections of the Urinary Excretion of Estrogen. Menstrual Cycles, Period of Estrogen. S. Smith and O. W. Smith. Cerebrospinal Fluid in Acute Infection. R. Y. Herren, New Medicine in the Changing World. p. 916.  
Public Relations of the Medical Profession.—p. 921.

**Human Bite Infection.**—Eighteen cases of human bite infection reported from the Massachusetts General Hospital. Usually present in such an anaerobic Vincent's organism. Determination of prognosis within the joint, (2) the type of infection, (3) the length of time before surgery. Series of eighteen cases, six in five of fifteen operative cases. Diathermy excision in early cases. Primary amputation. From a review of all reported cases out of ten will require amputation.

1931 and 1935 the author concludes that a localized partial thoracoplasty, planned so as to correspond to the size and location of the cavity, is the operation of choice. It can take the place in the great majority of cases of the more formidable total paravertebral thoracoplasty. It is to be preferred to the operation of paraffin plugging in cases not restricted by the patient's general condition to a minimum intervention. Like the former operation, partial thoracoplasty need not be limited to one side. Stereoscopic roentgen presentations demonstrated that a satisfactory collapse of the apical region can be accomplished only with the widest possible resection of the first two upper ribs. He has demonstrated that old, stiff-walled cavities could be made to heal by a partial thoracoplasty. The danger of aspiration pneumonia was no greater than that with total thoracoplasty. The author reports 207 partial thoracoplasties with a mortality rate of 7 per cent. There were fourteen instances of aspiration pneumonia with eight fatalities. The mortality in 1935 (fifty-seven operations) was 2 per cent; 63 per cent of the patients were rendered free from tubercle bacilli in the sputum, 21 per cent were returned to work, 29 per cent were improved and 6 per cent were made worse.

**Heat Therapy in Surgery.**—Karitzky observed the spontaneous sweating of patients on the operating table or of patients in shock. The postoperative sweating ceases when the patient has recovered from operative trauma. Sweating while on the operating table is not due to the temperature of the air surrounding the body of the patient but to circulatory, respiratory and metabolic alterations produced by the operative trauma, anesthesia and shock. The author demonstrated that blood acidity and hydrogen ion concentration of the sweat secretion are interdependent. Inhalation of oxygen had the effect of terminating the sweating process. The method employed to induce sweating was to place between the blankets that covered the patient a number of electric bulbs sufficient to raise the temperature to from 60 to 80 C. This was kept up for twenty minutes when the lamps were removed. The body loses from 500 to 800 cc. of water during a sweat bath lasting one-half hour. To make up for the loss the patient is given 1,000 cc. of Ringer's solution by hypodermoclysis before the application of heat therapy. Patients in a grave state are given an intravenous drip of 5 per cent solution of dextrose. The entire process may be repeated two or three times within twenty-four hours. Achelis has demonstrated a lowered alkali reserve of the blood at the end of an operation. After ether narcosis it returns to normal four hours later; in the presence of a damaged liver, from eight to twelve hours later. The lactic acid blood content was found to be diminished after the sweating. Barcroft and Rein showed that the effect of heat on the skin was to accelerate the circulation of blood. The effect of heat therapy and sweating on the vegetative nervous system manifested itself by two phases. In the first there was lowering of the blood pressure, sinking of the blood alkali reserve, increase in the lactic acid blood content and depression of respiration. The second phase manifested itself by loss of acidity of the blood, leukocytosis, rise of blood pressure, accelerated circulation, faster pulse, deeper breathing and a sense of well being. There were no deleterious effects noted following this therapy in 300 patients thus treated in the surgical clinic of the University of Freiburg. The method was found to be most valuable in acute pancreatitis, intestinal paralysis and diffuse suppurative peritonitis.

### Medizinische Klinik, Berlin

32: 1585-1616 (Nov. 20) 1936. Partial Index

- Clinical Aspects of Benign Pulmonary Tumors. W. Hollmann.—p. 1585.  
Surgery and Diabetes. F. K. Störing.—p. 1589.  
Recurrence of Psittacosis. G. K. Wenckebach.—p. 1594.  
\*Diagnostic Significance of Appearance of Stippled Cells After Administration of Potassium Iodide in Doubtful Lead Poisoning. J. Böhm and K. Fellinger.—p. 1595.  
Tendovaginitis Stenosis of Extensor Pollicis Longus Sinister. H. Pehl.—p. 1597.  
\*Case of Case of Severe Hemorrhagic Colitis by Estrogen. R. Korbach.—p. 1602.

**Significance of Stippled Cells Appearing After Administration of Potassium Iodide.**—Böhm and Fellinger point out that in persons who have recovered from lead poisoning the mobilization of an old lead depot may result in the reappearance of stippled cells. Reappearance following treatment

with potassium iodide has been interpreted as a definite proof of a former lead intoxication. In order to determine the reliability of this test, the authors subjected normal persons and patients who had had lead poisoning to the so-called potassium iodide provocation test and found that even normal persons may show considerable numbers of stippled erythrocytes (five of twenty-four persons). Moreover, almost half of the patients failed to react with stippled cells to the potassium iodide provocation. The authors conclude that the test is not sufficiently reliable for the diagnosis of a former lead intoxication. To be sure, if a positive provocation test concurs with several other symptoms indicative of lead intoxication there is some probability, but the outcome of the test cannot be regarded as decisive.

**Estrogen in Hemorrhagic Colitis.**—Korbach directs attention to the concurrence of gastro-intestinal disorders with ovarian dysfunction and reports the clinical history of a woman, now 30, who was under his observation for seven years. Following treatment of an anal fissure at the age of 23, she developed proctitis, which soon became hemorrhagic. The bacteriologic examination of the erosions as well as a search for amebas remained negative. Various dietetic measures, irrigations, blood transfusions and other treatments failed to cure the disorder. On account of loss of considerable blood the prognosis seemed unfavorable until the cessation of the disorder in the course of two pregnancies suggested a new treatment; namely, endocrine therapy by means of estrogen. The first two injections of 100 mouse units each produced a noticeable change, and after four more injections of 2,000 mouse units each the rectal mucous membrane became normal again. Moreover, this treatment counteracted the existing frigidity and improved the general condition.

### Strahlentherapie, Berlin

57: 181-392 (Oct. 24) 1936. Partial Index

- \*Roentgenotherapy of Angina Pectoris. R. Gilbert.—p. 203.  
\*Keloid Tumor and Its Cure by Irradiation. A. Hinz.—p. 224.  
Further Observations on Influence of Wavelength of Roentgen Rays on Skin Tolerance. P. C. Hodges, A. Brunschwig and S. P. Perry.—p. 241.  
Experiences on Limits of Tolerance for Roentgen Rays and Their Utilization for Prevention of Injuries. H. Hothusen.—p. 251.  
Roentgen Treatment of Extensive Periarthritis of Knee Joint. G. Hus and P. Aimé.—p. 270.  
Cumulative Action of Various Types of Rays on Biologic Object. A. Liechti and J. H. Müller.—p. 284.

**Roentgenotherapy of Angina Pectoris.**—Gilbert shows that the roentgenotherapy of angina pectoris, in order to be effective, must be directed against the functional disturbances. The destructive action of the roentgen rays is not desired, nor is it the aim to effect anatomic changes; on the contrary, efforts are made to avoid such changes. Clinical experiences and experiments have proved that roentgen rays exert an influence on the sympathetic nervous system and the author thinks that it is this action of roentgen treatment which is responsible for the effects that develop without demonstrable histologic changes. As examples of such effects he mentions the results of the irradiation of the thyroid in exophthalmic goiter and of the irradiation of the ovaries with small doses in cases of amenorrhea or oligomenorrhea. He discusses the theories that try to explain the mode of action of the roentgen rays in these conditions. He thinks that they influence particularly the neuro-endocrine system. His own observations were made in ten clinically proved cases of angina pectoris. He obtained improvement in five; in two the improvement has persisted for from nine to ten months. He recommends roentgen treatment for patients in whom the condition has become stationary. The rays should not be applied during the attack. The aim of the treatment is to reduce the number and the intensity of the attacks or to counteract them entirely. Roentgen therapy is contraindicated in patients with cachexia, with considerable cardiac insufficiency and in those more than 70 years of age. The technic differs with the various authors. Equally good results have been obtained with rays of moderate and of considerable hardness. The rays are usually applied in the cardiac and the paravertebral regions. He uses 150 kilovolts, from 0.7 to 1 mm. of copper with 1 mm. of aluminum, 4 milliamperes and a focus skin distance of 50 cm. He employs small doses, realizing that large doses may cause exacerbations. He usually begins with a surface dosage of 40 roentgens, in order to test the sensibility of the patient. Later he increases the doses to 50 and 75 roent-

aids in localizing the infection; if its response is inadequate, systemic invasion may occur. 2. The formation of specific immune bodies is stimulated by *Bacterium tularensis*, agglutinins apparently persisting indefinitely. This patient's lymphatic system responded by marked enlargement of the epitrochlear and axillary lymph nodes, and, since there was no evidence of invasion of the lungs or mediastinal lymph nodes in a roentgenogram of the chest five months after infection, this defense was apparently sufficient to limit the process to the left arm and left breast region. The agglutination titers dropped from a recorded 1:320 at five months to only 1:40 at twenty-one months; even though the organism was still virulent. The patient's tularemic agglutination decreased while the syphilis responded well both clinically and serologically to treatment. It seems unlikely, therefore, that the course of the tularemia was influenced adversely by the concomitant syphilis. However, the effect of the tularemia on syphilis is interesting in that presumably syphilitic "recurrent secondaries" occurred after the tularemia inoculation. The case lends support to the theory recently advanced by Foshay and Mayer that the continued presence of specific agglutinins in tularemia results from the prolonged existence of the organism in the body acting as the antigenic stimulus. The pathogenicity of the bacterium appears to be influenced over a long period by ability of the body to combat the disease with specific immune bodies.

### Southwestern Medicine, Phoenix, Ariz.

20:409-446 (Nov.) 1936

- Emergency Treatment of Fractures. E. P. Palmer, Phoenix, Ariz.—p. 409.  
Management of Head Injuries. C. C. Nash, Dallas, Texas.—p. 411.  
Evaluation of Diagnostic Methods in Gallbladder Diseases. J. Bank, Phoenix, Ariz.—p. 415.  
Differential Diagnosis of Gallbladder Disease. M. K. Tedstrom, Santa Ana, Calif.—p. 419.  
Clinical Aspects of Jaundice. A. E. Brown, Rochester, Minn.—p. 421.  
Diagnosis and Treatment of Chronic Cholecystitis (Three Illustrative Case Reports). W. L. Reid, Phoenix, Ariz.—p. 426.  
Diagnosis of Early Tuberculosis. C. Mulky, Albuquerque, N. M.—p. 429.  
Practical Points in Diagnosis and Treatment of Cystitis. A. W. Multhauf, El Paso, Texas.—p. 430.  
Undescended Testicle Successfully Treated with Antuitrin-S. W. L. Brown, El Paso, Texas.—p. 431.  
Ureteral Stone Simulating Intraperitoneal Pathology. K. D. Lynch and R. F. Thompson, El Paso, Texas.—p. 431.

### Texas State Journal of Medicine, Fort Worth

32:445-508 (Nov.) 1936

- Cancer of Stomach. L. Rice, San Antonio.—p. 448.  
Problems in Gastric Surgery, with Especial Reference to Carcinoma of Stomach. C. W. Flynn, Dallas.—p. 451.  
Diagnosis and Surgical Treatment of Carcinoma of Stomach. J. W. Hendrick, Amarillo.—p. 456.  
Thrombo-angitis Obliterans: Report of Case in Negro. C. A. Smith, Texarkana.—p. 462.  
The Management of Occipitoposterior Position. H. R. Robinson, Galveston.—p. 466.  
Use of Cystogram in Diagnosing Placenta Praevia. J. McIver, Dallas.—p. 471.  
Disturbances of Genital Physiology Among Women. L. M. Randall, Rochester, Minn.—p. 474.  
\*Peritoneal Response to Glove Powder. May Owen, Fort Worth.—p. 482.  
Hodgkin's Disease: Report of Series of Eleven Cases. J. E. Williams and T. M. Oliver, Galveston.—p. 486.  
Argyria: Further Observations on Argyria from Use of Colloidal Silver Iodide Intranasally. M. R. Woodward, Sherman.—p. 492.

**Peritoneal Response to Surgical Glove Powder.**—Small foreign body granulomas were produced experimentally by Owen in the peritoneal tissue of rabbits that were identical, grossly and histologically, to the granulomas removed from the peritoneal surfaces of the intestine and ovary of a young woman two years after appendectomy. The peritoneal tissues of experimental rabbits reacted in essentially the same manner to the powder commonly used in preparing surgical gloves, as did the peritoneal tissues in the case reported. The reaction consisted of cellular proliferation and the formation of small foreign body granulomas. It is probable that the small nodules found on the surfaces of the cecum and colon had some influence on the symptoms of which the patient complained: cramping abdominal pain, nausea and vomiting, constipation and bloating. At the time of the second operation the surgeon did not find

sufficient adhesions to account for all the patient's symptoms. Powder should be removed from the surface of gloves before operation, either by careful cleaning with a towel or by washing in sterile solutions.

### Virginia Medical Monthly, Richmond

63:459-524 (Nov.) 1936

- The South in Medicine and Surgery. P. St. L. Moncure, Norfolk.—p. 459.  
\*Care of Feet in Diabetes. W. R. Jordan, Richmond.—p. 465.  
Malignant Neutropenia. W. B. Martin, Norfolk.—p. 468.  
Role of the General Practitioner in Prevention and Early Treatment of Mental Diseases. E. T. Terrell, Williamsburg.—p. 473.  
Drug Eruptions. A. C. Cipollaro, New York.—p. 477.  
Cyst of Neck—Report of Nine Cases, and Parotid Gland Tumor—Report of Two Cases. E. G. Gill, Roanoke.—p. 482.  
Interstitial Keratitis of Hereditary Syphilitic Origin: Case Report. E. R. Moorman, Kilmarnock.—p. 487.  
Practical Use of Audiometer. W. A. Wells, Washington, D. C.—p. 489.  
Endocrine Aspects of Thyroid Disease. A. M. Smith, Charlottesville.—p. 493.  
Poliomyelitis. F. H. Redwood, Norfolk.—p. 497.  
Keratoconjunctivitis Due to Emetine Hydrochloride. N. H. Turner, Richmond.—p. 500.  
Cerebrospinal Fluid in Treated Syphilis—532 Cases—Discussion of Postspinal Headaches. G. W. Creswell, Washington, D. C.—p. 503.

**Care of the Feet in Diabetes.**—Jordan believes that gangrene in diabetes is preventable in many, if not most, cases. The application of simple rules of hygiene and the prompt and correct surgical treatment of each lesion when it first appears will postpone or prevent disastrous situations. Regular visits by the patient for examination, treatment and instruction by the physician tend to prevent trouble. Cleanliness, correction of preformed defects and immediate attention to all lesions will prevent or at least postpone severe infection and gangrene. A corn and callus by pressure causes local irritation and ischemia so that necrosis and infection may occur. Similarly a bunion or hammer toe increases the danger of infection. Epidermophytosis with coarse nails and soft corns leads to many amputations. In addition to the daily bath, thorough drying and clean socks, one must often employ other methods to combat this stubborn disease. The liberal use on the feet and in the shoes of talcum containing 1 per cent of salicylic and benzoic acid is sometimes adequate. When a stronger remedy must be used, the daily application of a petrolatum ointment containing 6 per cent each of salicylic acid and sulfur should be continued until there is apparent cure of the disease. It is important to apply this not only on all obvious lesions and between and under the toes but also around the entire nail bed. After the disappearance of the lesions, applications should be continued indefinitely twice a week to prevent recurrence. It is a good rule for all diabetic patients to refrain from crossing the legs after they attain the age of 40 years. Constriction of any kind should be avoided. Exercises are of help in maintaining or restoring circulation. In instances of deficient circulation or damaged nerves, all irritants, hot water bags, electric pads and iodine or other chemical irritants are interdicted. Prevention and care of foot ailments in diabetic patients are dependent on control of the diabetes. The blood and urine sugar must be controlled, and also the diet must be sufficiently liberal to maintain good health.

### Western J. Surg., Obst. & Gynecology, Portland, Ore.

44:619-674 (Nov.) 1936

- Surgical Treatment of Essential Hypertension. A. W. Adson, Rochester, Minn.—p. 619.  
Head Injuries. S. N. Berens, Seattle.—p. 624.  
Clinical Pathologic Phases of Intestinal Obstruction. B. P. Mullen, Seattle.—p. 636.  
Phlegmonous Enteritis. R. D. Forbes, Seattle.—p. 641.  
Injuries to Bladder and Urethra: Discussion and Reports of Cases: Providence Hospital, 1933-1936. A. H. Peacock and J. K. Burns, Seattle.—p. 644.  
One Million Cubic Centimeters of Blood. W. C. Speidel, Seattle.—p. 651.  
Use of Neosalvarsan in Treatment of Acute Osteomyelitis and Blood Stream Infections Caused by *Staphylococcus Aureus*. E. LeCocq, Seattle.—p. 655.  
Use of Sulfur in Treatment of Arthritis: Note. E. LeCocq, Seattle.—p. 656.  
Intercondylar Fracture of Elbow: Case Report. J. F. LeCocq, Seattle.—p. 658.  
Improved Clavicle Crutch Splint. W. Kelton, Seattle.—p. 661.  
Osteitis Tuberculosis Cystica. H. J. Wyckoff, Seattle.—p. 665.

blood transfusions employing the continuous drip method in twenty-five patients. The method makes it possible to transfuse acutely anemic patients with massive doses of blood without embarrassing the cardiovascular system. Its advantage over the former method is that it permits the slow introduction of blood. The effect of continuous drip infusion manifested itself as an immediate replacement therapy as well as an activator of the hematopoietic activity. Massive transfusions are indicated in resistant anemic states with a markedly lowered regenerative capacity, as a preoperative measure, and in conditions in which replacement of blood in a given time is required in a bleeding patient. The therapeutic effect obtained is not always proportional to the amount of blood introduced. The hematologic response to the same quantity of blood varies in given cases. The authors suggest that the proper dose for a patient in a weakened state is from 1,000 to 1,500 cc. All their patients reacted with a brief chill, which as a rule occurred from one to two hours after the beginning of the transfusion when about 200 cc. of blood had been introduced. This was followed by a rise of temperature to 39 or 40 C. (102.2 to 104 F.). The temperature returned to normal the following day and the patients had a sense of well being. The authors emphasize the absence of grave symptoms even in the very weak patients in spite of the protracted reaction and ascribe it to the slow introduction of the blood.

**Treatment of Fibrous Encapsulating Peritonitis.**—Blumenthal was able to collect from the literature sixty-three cases of chronic encapsulating peritonitis in addition to three that he observed. The etiology of this rare condition has not been elucidated. It appeared in some cases to be of a tuberculous nature. However, it was not established that the existing tuberculous lesion was not secondary to the underlying pathologic process. The following factors were considered by various authors in its pathogenesis: diplococcus infection, rheumatism, typhus, malaria, chronic constipation leading to coprostasis and alterations in the serosa, acute enteritis with lymphatic extension to the serous surfaces of the intestine, and anomalous reaction of a constitutional nature to various infectious accidents within the abdominal cavity. The author leans to the view that polyserositis is a local manifestation of a general disease of unknown nature. He believes that a preoperative diagnosis is possible and should be based on manifestations of chronic partial intestinal obstruction with periodic exacerbations, characterized by only moderate distention of the abdomen and absence of a stormy peristalsis and the presence of a swelling and of loud intestinal sounds. The operative treatment consists in decapsulation and freeing of adherent intestinal coils. The postoperative period is characterized by manifestations of shock and intestinal paresis and should be combated by subcutaneous and rectal infusions, blood transfusions and administration of cardiac stimulants. Decapsulation leads to permanent cure in the majority of the cases.

### Acta Chirurgica Scandinavica, Stockholm

78: 379-576 (Nov. 11) 1936

\*Routine Spinal Anesthesia in Provincial Hospital: Comparative Study of Postoperative Complications Following Spinal and General Ether Anesthesia. K. K. Nygaard.—p. 379.

Infection of Testicles. J. Cedermark.—p. 447.

Typical Method for Reconstruction of Tip of the Nose, Septum and Median Portion of Ala Nasi. R. Falten.—p. 492.

\*Clinical Experience with Protamine Insulin in Diabetic Surgical Patients. E. Scheuch.—p. 513.

Treatment and Prognosis of Empyema in Childhood. O. Utter.—p. 545.

**Routine Spinal Anesthesia.**—Nygaard reports 1,198 cases in which operation was performed under spinal anesthesia during the years 1928, 1929, 1930 and 1931 in the Gundersen Clinic (La Crosse, Wis.). A solution made from crystalline procaine was injected in a concentration of from 3.4 to 6.9 per cent at the rate of 1 cc. in from eight to ten seconds. By this technic the level cephalad to which the spinal anesthesia extends is controllable by gravity. This is in contrast to the technic described by Labat, which is based on dilution and diffusion of the anesthetic agent. Spinal anesthesia was successful in 94.8 per cent of 1,198 cases. Nausea and vomiting were

observed in 33.5 per cent of 1,172 operations performed under spinal anesthesia. Symptoms referable to the cardiovascular system were recorded in 11.5 per cent and symptoms referable to the respiratory system were encountered in 2.9 per cent. A definite state of shock during anesthesia occurred in 0.85 per cent of the cases, with complete recovery of all except one patient, who died on the table. The incidence of the complications mentioned was higher in association with upper abdominal operations than with lower abdominal and extra-abdominal procedures. The mechanism of shock during spinal anesthesia may be due to the spinal anesthesia itself or to factors of extrinsic nature, such as incorrect posture of the patient, the use of the gallbladder bar or kidney bar, breaking open the operating table, the extreme Trendelenburg position, or the prolonged exposure of the operative field. Close cooperation is urged between the anesthetist and the surgical team when the patient appears to be in a condition of impending shock. Postoperative complications such as nausea, vomiting, headache, backache, urinary retention, pulmonary complications and nervous sequels in 1,172 cases of spinal anesthesia were compared with the postoperative complications that followed similar types of operations performed under ether anesthesia in 602 cases. Nausea occurred in 7.9 per cent of the cases in which spinal anesthesia was used and in 7 per cent of cases in which ether was used. Backache occurred in 6.9 per cent of the cases in which spinal anesthesia was used and in 7.8 per cent in which ether was used. Urinary retention occurred in 9.3 per cent of the cases in which spinal anesthesia was used and in 12.1 per cent in which ether was used. Pulmonary complications occurred in 2.3 per cent of the cases in which spinal anesthesia was used and in 4.7 per cent in which ether was used. The use of ether anesthesia was followed by a much higher incidence of postoperative vomiting (51.8 per cent) as compared to spinal anesthesia (36.3 per cent). Postoperative headache was more frequent and more severe following spinal anesthesia (22.4 per cent) than that of ether anesthesia (13 per cent). A much higher incidence of postoperative complication was noted among women than among men; this holds true for spinal as well as for ether anesthesia. The nervous sequels following spinal anesthesia were neuritis in both lower extremities, combined left-sided paralysis of the abducens nerve and partial paralysis of the right facial nerve, complete paralysis of the right facial nerve and progressive myelitis. A comparison of the total postoperative complications that were observed in each group of cases in this series would indicate that there are fewer complications following spinal anesthesia than following general anesthesia.

**Protamine Insulin.**—Schnohr states that, in patients suffering from diabetes complicated with abscesses, arteriosclerotic gangrene, moist gangrene and complications following operations on the kidneys, the effect of protamine insulin was smoother and more protracted than that of ordinary insulin, the effect of protamine insulin as a rule being about twice as long as that of ordinary insulin. By administration of ordinary insulin in the morning and interchanging ordinary insulin with protamine insulin in the evening an actual depression of high values of the fasting blood sugar was obtained and the larger fluctuations in the blood sugar throughout the day were avoided. During treatment with protamine insulin the hypoglycemic attacks disappeared or became fewer, the excretion of sugar decreased and the tendency toward acidosis was well controlled. It has been shown that protamine insulin is effective despite liberal intake of carbohydrate. Administration of protamine insulin was accompanied by a feeling of physical fitness and a sense of well being. Local reactions, protein reactions or failure of the insulin effect have not been observed. A patient having medullary symptoms either of diabetic origin or because of hypersensitiveness to ordinary insulin was relieved of symptoms when protamine insulin was substituted for half the ordinary insulin. Along with the improvement in the diabetic state as demonstrated by exact methods, the surgical disease seemed to take a beneficial course when treated with protamine insulin. The author concludes that protamine insulin should be used in surgical complications of diabetes when any significant fluctuations of the blood sugar are present.

## Guy's Hospital Reports, London

86: 377-504 (Oct.) 1936

- Studies in Clinical Endocrinology: I. Amenorrhea. P. M. F. Bishop and A. C. Hampson.—p. 377.  
Etiology of Intestinal Carbohydrate Dyspepsia. W. H. Owles.—p. 411.  
Bacillary Vaccines in Asthma: Assessment of Results. E. T. Conybeare and F. A. Knott.—p. 420.  
Letters of W. H. Trethowan: (2) Abnormalities of Back. C. Lambrinudi and T. T. Stamm.—p. 431.  
\*Ether Convulsions. R. V. Payne.—p. 461.  
Angular Pregnancy Associated with Incarceration of Placenta During Third Stage of Labor. G. F. Gibberd.—p. 476.  
Maintenance of Water Balance During Continuous Intravenous Infusion. R. A. Rateliff.—p. 488.  
Observations on Gastric Secretion. R. M. Kark and J. J. Davis.—p. 497.

**Ether Convulsions.**—Payne discusses ether convulsions from the study of five cases of generalized convulsions occurring during ether anesthesia. Ether convulsions appear to be a definite clinical entity. Convulsions are confined to anesthesia in which ether has played a part and are quite distinct from jactitation during cyanosis in prolonged nitrous oxide anesthesia. They are also to be distinguished from "ether clonus," as ether clonus develops early in anesthesia before full surgical anesthesia has been attained. Ether convulsions are rare, and, when fatal, death occurs without recovery of consciousness either on the operating table or as long as two or more hours after the onset of convulsions. They are not dependent on the position of the patient, are not confined to the limbs, and usually occur after anesthesia has been in progress for half an hour or more. Anesthesia is often deep, and the administration of more ether or chloroform is contraindicated. On the basis of an analysis of the five cases reported and of those recorded in the literature, it may be said that ether convulsions are due to a combination of several factors. The most important of these are the youth of the patient, the presence of acute toxemia or sepsis, deep ether anesthesia, the use of methods in which the ether is heated, and high external temperature. No one factor is sufficient by itself to cause convulsions. In the treatment of the established convulsions the anesthetic should be stopped at once and a clear airway obtained, the head raised, a 7 per cent carbon dioxide mixture in oxygen administered, and the apnea treated by insufflation of the lungs, artificial respiration and the introduction of an endotracheal catheter. In prolonged or recurrent cases N-methyl-cyclohexenylmethylmalonyl-urea sodium should be injected intravenously, a dose of from 3 to 8 cc. being usually sufficient. In these cases large doses of potassium bromide and chloral hydroxide should be given rectally.

## Lancet, London

2: 961-1020 (Oct. 24) 1936

- The Background to Harvey. W. Langdon-Brown.—p. 961.  
\*Vitamin C Deficiency in Addison's Disease. J. F. Wilkinson and C. A. Ashford.—p. 967.  
Estrin in Toxic Goiter. A. W. Spence.—p. 970.  
Inhibitory Effect of Follicular Hormone on Anterior Pituitary in Humans. M. S. Jones and T. N. MacGregor.—p. 974.  
\*Acid Values in Purulent Discharges: Investigation with Some Clinical Inferences. W. G. Waugh.—p. 976.  
Crohn's Disease: Case. Herta Schwabacher.—p. 978.  
Left-Sided Heart Failure with Pulmonary Edema: Its Treatment with "Pulmonary Plus Pressure Machine." E. P. Poulton.—p. 981.

**Vitamin C Deficiency in Addison's Disease.**—Wilkinson and Ashford discovered a vitamin C deficiency in three cases of Addison's disease by the urine titration method of Harris and Ray. There was a subnormal concentration of cevitamic acid in the urine and very low twenty-four hour excretion during the control period. This was followed by responses, of varying slowness, to the repeated oral administration of large test doses of the synthetic l-cevitamic acid. When therapy was discontinued, the increased excretion fell rapidly to values characteristic of the control period. The degree of subnutrition paralleled the severity of the disease in the three cases investigated. Therefore subnutrition may be a feature of the disease or it may simply be an entirely nonspecific index of the extremely low state of health of the patient. There may be an increased need for the vitamin or an increased destruction of it. Such increased destruction has been shown in different febrile conditions by a number of observers. Pyrexia, however, is not a feature of Addison's disease except

in the terminal few days of the tuberculous cases. It is not possible to relate the vitamin deficiency in the three cases to lack of storage in the damaged adrenals. The significance of the normally very high cevitamic acid content in the adrenals may be that it is concerned with the maintenance of a correct state of oxidation-reduction potential in the adrenals and would thus serve to stabilize both the medullary hormone and the cortical hormone, or that it is concerned in the regulation of skin pigmentation. The pigmentation of the cases reported did not show any appreciable change during the test period of intensive oral cevitamic acid therapy. It is possible that defective absorption may have contributed to this negative effect, but it was not considered desirable to give any further intramuscular treatment at this time. The patients were steadily getting better during the time of the tests, as a result of vigorous intramuscular injections of adrenal cortex extract. Since discharge from the infirmary, two patients have received a high vitamin C diet and intramuscularly small (2.5 cc.) doses of adrenal cortex extract at irregular intervals of several weeks. During the last three months the pigmentation has decreased. Whether this improvement is to be related in any way to the high vitamin C diet (the urinary vitamin C excretion has now reached "normal" levels) or to the gradual remission of the disease under the adrenal cortex extract is impossible to say, making further observations necessary.

**Acid Values in Purulent Discharges.**—Waugh made 314 examinations of pus from 175 cases, of which seventy-eight were taken from cases treated by the Winnett Orr method, and the  $p_H$  value was obtained in forty specimens. The investigation indicates that pus in a wound is normally alkaline in reaction. Pus in a wound treated by the Winnett Orr method undergoes a change to acidity. This acidity is a prime factor in hastening the separation of sequestrums and inhibiting the ectopic deposit of calcium and formation of involucrums. It is justifiable therefore to employ in the pack lotions of a definite acid character; procaine hydrochloride, being a hydrochloride, possessing a  $p_H$  value less than 7, is a suitable agent, having in addition a desirable analgesic effect. It is possible that the acidity acts as a stimulus to formation of primary mesoblastic tissue and the growth of granulations, and accelerated wound healing. There can be little doubt that the spread of immobilization methods in prevention and treatment of wound infections constitutes a considerable advance in the technic of treatment. Reports on these, however, have been predominantly clinical in character; further chemical and bacteriologic research is desirable in view of the widespread adoption of Winnett Orr methods.

## South African Medical Journal, Cape Town

10: 653-676 (Oct. 10) 1936

- Treatment of Leprosy. F. Drewe.—p. 655.  
Epilepsies. F. H. Kooy.—p. 659.  
Biochemical and Psychologic Aspects of Epilepsy. I. Liknaitzky.—p. 662.  
Lymphogranuloma Inguinale. F. D. du T. van Zyl.—p. 665.

## Quart. Bull., Health Org., League of Nations, Geneva

5: 391-570 (Sept.) 1936

- Report on Physiologic Bases of Nutrition, Drawn up by Technical Commission of Health Committee at Meeting Held in London (Nov. 25 to 29, 1935). Revised and Amplified at Meeting Held at Geneva (June 4 to 8, 1936).—p. 391.  
Report by Technical Commission on Nutrition on Work of Its Second Session Held in Geneva (June 4 to 8, 1936).—p. 416.  
Protein Component in the Human Diet. E. F. Terroine.—p. 427.  
Necessity for Biologic Supervision of Food, with Especial Reference to Its Vitamin Content. G. Lucie Randoine.—p. 493.  
General Program of Research into Biologic Measurements and Tests for Definition of States of Malnutrition: General Bibliography of Physiologic Researches into Fasting and Under Nourishment. H. Laugier and W. Liberson.—p. 505.  
Nutrition in Childhood. E. Lesné and G. Dreyfus-Sée.—p. 531.  
Clinical Methods for Determining State of Nutrition in School Children. P. Nobécourt and G. Vitry.—p. 544.  
Nutritional Requirements of Puberty. C. Richet.—p. 549.  
Indirect and Direct Data Relating to Nutrition of Rural Population of the Netherlands. J. J. Van Loghem.—p. 554.  
Nutrition and Dietary Habits in Various Provinces of the Netherlands. C. Banning and C. Den Hartog.—p. 560.  
Nutritive Food Requirements During the First Year of Life. E. Gortler and Cornelia de Lange.—p. 564.  
Nutrition of Various Groups of Families in the Netherlands (Showing Vitamin A and C Content, and Investigation of Blood and Urine for Presence of These Two Vitamins). L. K. Wolff, C. Banning and M. Van Eekelen.—p. 566.



which later returns to normal ciliated columnar (if there is not a chronic inflammatory process present); fibrosis of tunica propria; dehydration of edematous tissue; fibrosis of blood vessels, and in some cases cartilaginous necrosis.

Boling,<sup>7</sup> working in the department of cytology at Washington University School of Medicine, showed that following ionization of the sheep's nose there was a complete regeneration of the ciliated epithelium. Wenner has made the same observation on cats. In the human subject, probably because of the fact that we were dealing with chronic inflammation of the mucous membrane in the beginning, we have always found areas of persistent squamous cells following the ionization. Biopsies were made from the same area on the inferior turbinate before and after ionization. Before ionization the cells were all ciliated. One month after ionization no ciliated epithelium was present, the epithelium being all stratified squamous. Three months after ionization the only ciliated epithelium found is in a small depression in the mucous membrane, which may have caused the epithelium at that point to be unaffected by ionization. It is true that the more insult there is to the nasal mucous membrane the more stratified epithelium will be found. Theoretically it is to be expected that, following the necrosis of the superficial tissue that occurs with ionization, there will be more squamous epithelium than before.

During the last year we have been interested in the activity of the cilia of the cells that were regenerated following ionization. One patient had particularly good cilia in the microscopic section of a biopsy after ionization. Some of these cells were removed and studied by Miss Pfingsten. She compared their activity with the activity of the cilia of normal cells and also the length of time that the cilia beat when kept in nutrient solution in the culture chamber following removal. The activity and the length of time that they beat were practically the same in the normal and in the regenerated ciliated cells. This patient had been ionized some eight or ten months before because of a chronic vasomotor rhinitis. The mucous membrane of this patient was much drier than normal. Several members of the staff looked at this patient's nose and all agreed that, while the cilia might be beating in the lower layer of mucus, the mucus covering the membrane was so dry that it was impossible for the cilia to produce any movement on the surface.

We have convinced ourselves<sup>8</sup> that some form of mucosal test is necessary in studying allergic rhinitis. The comparison of the results of intramucosal tests with skin tests shows that often the skin will give a negative reaction for an allergen to which the mucous membrane of the nose is sensitive.<sup>9</sup> It has been found that, by avoiding the allergens to which the mucous membrane is sensitive and to which the skin did not react, a satisfactory result has been secured.

During the last year Wenner and Alexander<sup>10</sup> have made a study of the action of ionization and of the galvanic current on the vasomotor mechanism of the nose. They proved that the blood vessels of the nasal mucous membrane failed to react to vasoconstrictors and vasodilators for six weeks after zinc ionization in

the cat's nose and for four weeks after treatment with the galvanic current. They were unable to determine whether this was due to a paralysis of the vasomotor nerves or to a loss of vascular tone. The absorption of drugs by the mucosa was not affected by ionization.

During the last year we have also been interested in the influence of ionization in the nasal mucous membrane on the absorption of allergens by the membrane. Three patients who were ionized because of chronic vasomotor rhinitis were studied before and after ionization in order to determine the relative absorption of allergens through the untreated and treated mucous membrane. The method described by Sulzberger and Vaughan<sup>11</sup> of determining the absorption of allergens through the mucous membrane of the nose was used. These three patients were nonallergic to ragweed. Blood containing reagins to ragweed was injected into the skin of one arm. This produced a local sensitivity to ragweed pollen. A similar amount of blood without the reagins to ragweed was injected into the other arm. The first patient tested had had one side of the nose ionized sixteen days before. Twenty-four hours after the arm was injected, the ragweed pollen was placed in the un-ionized side of the nose. In fifteen minutes there was a reaction apparent on the arm at the site of the injection of the blood containing the ragweed reagent. The other arm did not react. This was repeated on the ionized side of the nose. There was no reaction on either arm in twenty-four hours. The other two patients had the same test made except that the test was made before and after ionization. In the first case before ionization the reaction in the arm started in ten minutes and reached a maximum in thirty-three minutes. Eight days following the ionization, the test was repeated with negative results. In the second case before ionization the reaction started in thirteen minutes after the injection and reached its maximum in one hour and thirty minutes. Twenty-one days after the ionization, the absorption test was again made. The reaction in the arm in this instance started in forty-three minutes and reached its maximum in one hour and forty-three minutes. The reaction following the ionization was more marked than that which preceded it.

We have had the opportunity of studying the influence of ionization on the absorption of allergens by the nasal mucosa in only three cases. It is interesting at least to note that in two cases there was no evidence of absorption at all of the ragweed pollen through the mucous membrane of the ionized nose, while in the third case the absorption was delayed.

Further studies during the last year on the human nose, taking biopsies before and after ionization, have suggested that the final results of ionization were fibrosis and thinning of the tunica propria; that the basement membrane is thicker and more dense; that there is a hyperplasia of the epithelium with increase in metaplasia; that very few goblet cells are present; that sometimes there is a thickening of the vessel wall, particularly the capillaries; that the number of eosinophils in the tissue is not decreased, and that the secretory glands are partially destroyed.

Some of the acini of glands appear to be completely obliterated by cellular hyperplasia. In others the secretory cells are atrophied. Marked inflammation may be present around the acini. These changes result in an

7. Boling, L. R.: Regeneration of Nasal Mucosa. *Arch. Otolaryng.* 22:659 (Dec.) 1935.

8. Dean, L. W., Linton, L. D., and Linton, C. S.: *Ann. Otol., Rhin. & Laryng.* 44:317 (June) 1935.

9. Linton, L. D.: A Comparison of Intramucosal Tests in Cases of Allergic Rhinitis. *Arch. Otolaryng.* 23:679 (June) 1936.

10. Wenner, W. F., and Alexander, J. H.: The Effect of Zinc Ionization and Galvanic Current on the Reaction of the Nasal Mucosa to Vasoconstrictor Drugs. *Arch. Otolaryng.* to be published.

11. Sulzberger, M. B., and Vaughan, W. T.: *J. Allergy* 5:174 (Sept.) 1934.

**Revista de la Soc. Argent. de Biología, Buenos Aires**

12: 319-389 (Oct.) 1936

- Iodamoeba Butschlii in Man and Hogs: Cases in Buenos Aires. J. Baicalupo.—p. 319.
- Golgi's Apparatus of System of Auriculoventricular Conduction. P. Rojas and R. M. E. Carrea.—p. 325.
- Ventricular Asynchronism by Section of Right Branch of Bundle of His. E. Braun Menendez and L. A. Solari.—p. 331.
- Functional Relation of Kupffer's and Liver Cells in Elimination of Vital Stains. E. De Robertis and L. S. Resta.—p. 350.

**Ventricular Asynchronism After Section of Branch of Bundle of His.**—Braun Menendez and Solari made experiments to ascertain the existence of ventricular asynchronism. The authors found that in normal dogs contraction of the two ventricles takes place synchronously (external cardiograms). The beginning of ventricular contraction is nonsynchronous. Aortic ejection may go 0.005 second before pulmonary ejection or the latter from 0.005 to 0.02 second before the former. The closure of the semilunar valves is, as a rule, nonsynchronous. The pulmonary semilunar valves may close 0.02 second before the aortic semilunar, or the latter from 0.02 to 0.03 second before the former. After section of the right branch of the bundle of His, the left ventricle contracts from 0.04 to 0.06 second before the right one. This fact can be observed by graphic determinations of intraventricular pressure and by external cardiograms. The period of aortic ejection begins within 0.015 and 0.055 second before pulmonary ejection. Closure of the aortic semilunar valves takes place in an average of 0.06 second before that of the pulmonary semilunar valves. There is reduplication and increased duration of the first heart sound. The authors' results show the rôle of the branches of the bundle of His in conducting stimuli from the auricles to the ventricles. Following section of the right branch, the ventricular contraction becomes asynchronous. The experimental asynchronism allows one to explain the clinical signs of bundle branch block.

**Archiv für klinische Chirurgie, Berlin**

187: 1-194 (Nov. 2) 1936. Partial Index

- \*Biopsy. A. Fehr.—p. 1.
- Significance of Blood Supply in Healing of Torn Meniscus. J. Köstler.—p. 15.
- Experimental Study of Effect of Trauma on Blood Sugar. T. Ogata.—p. 19.
- \*Question of Hepatorenal Syndrome. A. Pytel.—p. 27.
- Rare Late Results in Patients Operated on for Tumors of Sella by Endonasal Route. B. Kecht.—p. 49.
- Late Results of Artificial Oleogranuloma. I. Vinogradov.—p. 69.

**Biopsy.**—Between 1931 and 1935, Fehr states, 1,300 cases of malignant neoplasm were admitted to the surgical clinic of the University of Zurich. Biopsy was necessary and possible in 288. Of these, 248 proved to be malignant and forty benign. Diagnosis was not the sole indication for a biopsy. The roentgenologist who irradiated accessible neoplasms of the skin and mucous membranes depended entirely on the biopsy for the determination of the kind of tumor, its malignant or benign condition and its x-ray sensitivity. Biopsy is an indispensable first step in this method of therapy. Correct diagnosis by clinical methods alone was possible in 70.1 per cent of the material, while the biopsy method gave 87.8 per cent of correct diagnoses. The principal source of error in the biopsy method is the improper removal of the material to be examined. For this reason a negative histologic observation is not a sufficient proof that a malignant condition does not exist. The author mentions hemorrhage, infection and activation of the growth as the hazards of the biopsy method. They are rather infrequent and may be limited to an altogether negligible quantity by proper precautions. While the author is not aware of a single scientifically proved case of "wild dissemination" of cancer cells after a biopsy, he feels that the latter should never be performed in the case of melanocarcinoma because of its exceptional sensitiveness to trauma. He is likewise opposed to biopsy in mammary carcinoma except in doubtful cases. The author is an adherent of the frozen section method, which need not take more than ten minutes and is entirely reliable. Diagnosis of malignancy must be followed immediately by radical operation. Further prevention of infection and dissemination of cancer cells may be accomplished by the use of a diathermy knife and searing of the wound after the excision. It alters the histologic picture, however, and makes the finer differentiation of the morphology of the cells difficult. Malignant con-

ditions of the esophagus can be readily diagnosed with the aid of roentgenology and esophagoscopy, while biopsy is likely to produce bleeding or infection. Cystoscopy yields more information than biopsy. The latter secures only superficial layers, while a malignant degeneration is as a rule more deeply seated. Furthermore, it may produce hemorrhage or cystitis. The author calls attention to some of the difficulties in the histologic diagnosis. Thus differentiation between fibrous osteitis and osteogenic sarcoma or between osteomyelitis and Ewing sarcoma may be difficult or impossible. The excision here should be deep and preferably multiple; otherwise one will encounter only the tissue seat of a defense reaction produced by the growth and not the growth itself.

**Hepatorenal Syndrome.**—Pytel believes that certain phylogenetic, anatomic, physiologic and pathologic relationships of the liver and the kidneys point to an interdependence of the two organs. There is a definite clinical picture which may be properly designated as a hepatorenal syndrome. It may be observed in diseases of the liver and the bile passages, particularly in the postoperative period or following acute traumatic lesion of the liver. The syndrome caused by hepatic and renal insufficiency produces characteristic symptoms. The author succeeded in demonstrating in his animal experiments that damage to the liver is followed by suppression of the renal function with pathologic alterations in the glomeruli and in the convoluted tubules. His experiments point to a toxin originating in the areas of liver necrosis and circulating in the blood stream. He has performed four series of experiments in rabbits: (1) ligation of the hepatic artery, (2) subcapsular traumatization of the liver parenchyma, (3) intraperitoneal injection of liver extract and (4) intravenous injections into a normal rabbit of from 5 to 10 cc. of blood removed from a rabbit with an experimental hepatorenal syndrome. All the experimental animals developed varying degrees of oliguria, with albumin and erythrocytes in the urine, marked azotemia, loss of weight, apathy, and in some cases death. Necropsies demonstrated areas of necrosis in the liver, while the kidneys showed pronounced stasis in the blood vessels of the malpighian bodies, hemorrhages in the Bowman capsules, and cloudy swelling and degeneration of the epithelium of the convoluted tubules. The author assumes the existence of a toxic substance resulting from liver necrosis, circulating in the blood stream and exerting its influence particularly on the kidneys and to a lesser degree on other organs. The toxic substances originate in the areas of liver necrosis or are brought to the liver from the intestine and fail to be detoxified in the former as the result of loss of its functional capacity. The effect of these toxins is exerted on the blood vessels, in particular on those of the malpighian bodies, as well as on the epithelium of the convoluted tubules of the kidney.

**Deutsche Zeitschrift für Chirurgie, Berlin**

247: 663-780 (Oct. 23) 1936

- \*Greater Differentiation and Wider Indications for Surgical Therapy in Pulmonary Tuberculosis. A. Brunner.—p. 663.
- \*Effect of Heat and Heat Therapy in Surgery. B. Karitzky.—p. 683.
- Isolated Lesions of Lower Epiphysis of Elbow. M. Ernst.—p. 701.
- "Cold" and Appendicitis. M. Ernst.—p. 712.
- Thymus and Bone Regeneration. A. Haas and H. Hanke.—p. 724.
- Cancer and Heredity. H. R. Schinz.—p. 728.
- Replacement of Lower Third of Femur by Half the Head of Tibia. R. Nissen.—p. 774.

**Indications for Surgical Treatment of Tuberculosis.**—According to Brunner, bilateral pneumothorax therapy has demonstrated the possibility of treating bilateral tuberculous disease of the lung by compression of the pulmonary tissue. The author stresses the advantages of leaving functioning pulmonary tissue undisturbed while attempting surgically to affect definitely diseased foci. He advises against phrenico-exeresis in cases in which artificial pneumothorax therapy has failed. The effect of the former in the treatment of old, stiff-walled apical cavities is negligible. The operation itself is not without its hazards. In a review of the literature, Berry reported 4,697 phrenico-exeresis operations with fifty-seven grave complications and twenty-six fatalities. The author points out that, in the presence of normal lower lobes, phrenico-exeresis on the left side can lead to unrestricted rise of the diaphragm and serious disturbances on the part of the stomach, the esophagus or the heart. On the basis of his operative material between

chronic vasomotor rhinitis, ionization may be used. Its best and most permanent result is secured in chronic nonallergic vasomotor rhinitis. We have observed a patient with chronic vasomotor rhinitis who had one side of his nose ionized. Three months before, the patient had had acute upsets of the upper respiratory tract which were nonallergic. The un-ionized side of the nose was pink, blocked and actively secreting. The ionized side of the nose was dry with good breathing space and the mucous membrane; instead of being pink and actively secreting, it was pale and only slightly moist.

#### STUDY OF THE PATIENT

A second essential in the treatment of allergic rhinitis is a most careful study of the patient. With our patients we are definitely of the opinion that, if after careful study we are not getting a good result from treatment, we have overlooked something and the patient must be studied again. It is a common thing in the management of the treatment of perennial cases of allergy for us to go back and restudy the case.

The history is a most important part of the study, and still one must be sure not to be too much influenced by it. The finding of a gastro-intestinal allergy does not make a diagnosis of an allergic rhinitis in the patient if he has an upset of the upper respiratory tract. A patient may have a gastro-intestinal allergy and still have a chronic vasomotor rhinitis which is not necessarily allergic.

Nasal smears and a blood count should be made in every case. It is certain that in trichinosis and other parasitic diseases and in digitalis and other forms of poisoning one may have a great increase in the eosinophils in the nasal discharge without having an allergic rhinitis. At the same time there will be an increase in the eosinophils of the blood. Up to this time we have never seen a patient with an edematous nose and a marked increase in the eosinophils in the nasal discharge who did not prove to be allergic. An exception to this may be found at any time. An x-ray examination of the sinuses should be made, because a thickened sinus lining is always suggestive of an allergic condition.

A bacteriologic examination is most important whether there is definite infection of the nasal sinuses or not. There is such a thing as bacterial allergy. Biopsies of the tissue present the same picture of edema with a great increase in eosinophils, as is found in other forms of allergic rhinitis. If there is any suspicion of bacterial allergy and organisms have been cultured that are suitable for making a vaccine, the tests must await the preparation of a vaccine. Skin reactions and systemic reactions follow the use of vaccine in cases of bacterial allergy. We are inclined to think that the greater the reaction the better the prognosis from the use of a vaccine.

Dietary deficiencies must be sought. One should not put the patient on a diet that is made deficient by excluding certain substances to which the patient is sensitive. It is inexcusable to take from the food supply a given essential food without replacing it with something equally good. This is sometimes a definite problem.

We have proved conclusively in our clinic that we do not get as good results from the administration of vaccines or from the desensitization of patients with allergic rhinitis if the patient is not on a proper diet. Ragweed hay fever patients are sensitive to other sub-

stances, particularly foods. Not only are these patients improved by the avoidance of foods and other allergens to which they are sensitive, but a good diet helps with the hay fever.

Trauma of the nasal mucous membrane of the nose and malnutrition both do something to the protective lining of the nose that permits allergens to enter into the tissue. This is the reason there are so many cases of asthma following operations on the tonsils. It is interesting to note that some of these patients have asthma only when they return to the community where the tonsils were removed. The break in the protective epithelium permits the entrance of allergens into the tissue, and sensitization results.

Endocrine disturbances should be sought and, if present, corrected. We have a basal rate determination made in every case of allergic rhinitis. We make skin tests in every case. We realize that they are often more an indication of the past allergic history of the patient than of the present. Reagins are formed in all tissues of the body except the cerebrospinal fluid and the aqueous humor of the eye. As soon as the acute allergic attack is over the organism starts excreting the reagins. They disappear from the blood and other circulating mediums of the body first. The skin is one of the structures from which they disappear last. A child may have been sensitive to milk at the age of 2 years and the sensitivity may have disappeared before the child reaches  $2\frac{1}{2}$  years of age and still give a positive skin reaction to milk at the age of 15 years. We would be unwilling to treat cases of allergic rhinitis without some test of the sensitivity of the mucous membrane of the nose to the various suspected substances. We like the intramucosal test. We have done more than a thousand tests without any deleterious results. It is axiomatic that we have not used serums and other similar substances that are very likely to cause severe systemic reactions. There is little or no danger with the various pollens and foods in the proper dilutions. Certainly it is a common occurrence to find the mucous membrane of the nose sensitive to a substance to which the skin does not react.

Passive transfers are not done as a routine procedure. We do them whenever we wish to know just how sensitive a given patient is to a certain allergen. Before we make a passive transfer, careful serologic tests are made. The serum of the patient to be tested is injected into the skin of a nonallergic person. If reagins to ragweed are in the serum used they produce local sensitization at the site injected. At the end of three hours the site of the injection is tested with ragweed pollen and the amount of reaction determines the amount of reagin or antibodies to those allergens in the serum.

The leukopenic index as worked out by Gay has proved to be of the greatest value to us in studying food allergy. The technician doing this work must be capable of making exact blood counts. It takes much of her time. In a number of cases, after a thorough study, if the treatment is not satisfactory and we do not get a good result the leukopenic index to determine food sensitivity is used. The results secured by this procedure, particularly when clinical symptoms are produced, are exact guides for therapeutic purposes. We are aided in the study of our cases by the results that are secured by the withholding of certain allergens or by the symptoms that are produced by their administration.

gens. He gives three sessions each week, until a total of about fifteen has been reached. After an interval of three weeks, the series may be repeated.

**Irradiation of Keloid Tumors.**—Hintze employed irradiation in the treatment of twenty-six patients with keloids. In seven cases roentgen and radium rays were employed; fifteen patients received only roentgen irradiations and four were treated only with radium. The roentgen irradiations were usually distributed over several weeks or months. The filtration consisted as a rule of 1 mm. of aluminum. The individual doses were chosen so as to avoid severe reactions. The radium irradiations were given either in the form of contact irradiations or from short distances. The slight wall thickness of the platinum-iridium needles served as filtration, but 1 mm. of brass or 1 mm. of lead was occasionally added to this. As in the case of the roentgen treatment, the radium irradiations were distributed over several weeks or months. In case of extensive keloids, a certain retrogression was at first effected by means of roentgen irradiations and the remnant was then treated with radium. The result of the irradiation was satisfactory in all cases, and in the majority of cases it was exceptionally good. In order to determine whether roentgen or radium irradiation is better for the treatment of keloids, the author applied radium rays to one buttock and roentgen rays to the other buttock in a patient who had keloids resulting from burns on both buttocks. It was found that exclusive roentgen treatment as well as exclusive radium treatment successfully counteracts large keloids.

### Zeitschrift für Tuberkulose, Leipzig

76: 225-304 (Nov.) 1936. Partial Index

Position of "Round Foci" in Course of Tuberculosis. O. Koch.—p. 225.  
Anomaly of Ribs in Patient with Pulmonary Collapse After Hemorrhage. H. Harpgth.—p. 238.

\*Comparative Investigations on Meinicke's Tuberculosis Reaction (Curvature Reaction), Blood Picture and Sedimentation Speed of Erythrocytes. L. Hardt.—p. 240.

\*Hemorrhagic Pleural Exudates in Artificial Pneumothorax. B. Papanikolaou.—p. 244.

**Meinicke's Tuberculosis Reaction and the Sedimentation Reaction.**—Hardt reports investigations on eighty-seven patients with pulmonary tuberculosis. The Meinicke reaction was positive in eighty-four cases. The three negative serums were from one patient with inactive tuberculosis, one with doubtful tuberculosis and one with a severe toxic form of pulmonary tuberculosis. The blood picture and the sedimentation speed of the erythrocytes were determined at intervals of three weeks. The author shows that a comparison of the Meinicke tuberculosis reaction with the blood picture and the sedimentation speed helps in the prognostic evaluation of active tuberculosis. Strongly positive Meinicke reactions and high numbers of lymphocytes indicate a favorable prognosis. The author's investigations revealed a parallelism between the blood picture and the Meinicke reaction, but he found that the sedimentation speed of the erythrocytes did not go parallel with these two factors and he thinks that the prognostic value of the sedimentation speed should not be overestimated.

**Hemorrhagic Pleural Exudates in Artificial Pneumothorax.**—Papanikolaou points out that, although pleural exudates are the most frequent complication of artificial pneumothorax, the hemorrhagic exudates are comparatively rare. He describes three such cases that came under his observation in the course of the last twelve years. All these patients had a predisposition to hemoptysis previous to the induction of the artificial pneumothorax and it is probable that this hemorrhagic tendency favored the later development of the hemorrhagic pleuritic exudate. The author thinks that a tuberculous hemorrhagic pleurisy or an intrapleural vascular rupture are responsible for the development of the hemorrhagic pleuritic exudate in cases of artificial pneumothorax. From observations on his own patients and from reports in the literature he concludes that the prognosis of the hemorrhagic exudates in artificial pneumothorax is usually a favorable one, for there is usually a spontaneous resorption of the exudate. The treatment may at first be conservative. The patient should remain in bed. Puncture becomes necessary only if the dyspnea and pains become severe. However, in cases in which the hemorrhagic exudate recurs again and again, extrapleural thoracoplasty should be done. The author ascribes the favorable outcome of one of his cases to an early extrapleural thoracoplasty.

### Wiener klinische Wochenschrift, Vienna

49: 1449-1480 (Nov. 27) 1936. Partial Index

Old and New Problems in Dietetics. W. Falta.—p. 1449.

\*Total Thyroidectomy in Cardiac and Vascular Disorders. F. Mandl.—p. 1453.

Qualitative Physicochemical Changes of Blood Protein Bodies in Pathologic Conditions. J. Glass.—p. 1460.

Inflammations and Strictures of Urethra in Women. W. K. Fränkel.—p. 1463.

Treatment of Articular Tuberculosis. F. Starlinger.—p. 1466.

**Total Thyroidectomy in Cardiac Disorders.**—Favorable reports of American authors about total thyroidectomy in angina pectoris induced Mandl to investigate this method. He employed the operation in seventeen cases. Four of the patients had hyperthyroidism with a predominance of cardiac symptoms, eight had chronic cardiac defects that could not be influenced by internal methods, two patients had angina pectoris with hypertension, one had obliterating endarteritis, one had dyspnea with severe emphysema and one had cardiac asthma and rectal carcinoma. Total thyroidectomy was done in all these cases and in spite of the poor general condition of the patients there was no operative fatality. All operations were done under local anesthesia (without epinephrine). The author discusses certain aspects of the surgical technic, particularly the management of the parathyroids. He corroborates the good results of other authors. The efficacy of the intervention is especially striking in patients with severe cardiac decompensation. He observed that cyanosis, pulmonary stasis, coughing and anxiety disappear within a few weeks. Regarding angina pectoris, he says that total thyroidectomy has competition from other operative methods, from the paravertebral injection of alcohol and from the surgical interventions on the sympathetic and the parasympathetic, so that the operative method which promises the best results is chosen for each individual case. The same applies to the cases of obliterating endarteritis, in which Leriche's operation is done with good success, but the author found that total thyroidectomy produced better results. In discussing the indications for total thyroidectomy, he warns against a too extensive application of this method. He does not consider it justified, as do some, in gastric ulcers, diabetes and severe infections.

### Wiener medizinische Wochenschrift, Vienna

86: 1265-1292 (Nov. 14) 1936. Partial Index

Histologic Studies on Syphilitic Changes. J. Almkvist.—p. 1266.

\*Etiology of Striated Meadow Dermatitis. M. Oppenheim.—p. 1276.

Inguinal Lymphogranulomatosis a Newly Recognized Venereal Disease. K. Schreiner.—p. 1282.

Conjugal Inguinal Lymphogranulomatosis. R. O. Stein.—p. 1285.

**Etiology of Striated Meadow Dermatitis.**—Oppenheim reviews his own earlier studies and those of others on the etiology of striated meadow dermatitis and then describes his more recent studies on this problem. He demonstrates that striated meadow dermatitis is caused by a hypersensitivity of the skin to the volatile oils present in plants in meadows along river banks. Pressure and the prevention of the evaporation of the volatile oils doubtless are contributing factors in the development of this dermatitis, for in the numerous cases which the author observed in the course of the last ten years the dermatitis was always most severe on the sites that had been exposed to pressure: the back and the buttocks when the bather had lain in the dorsal position, the extensor surfaces of the arms and thighs, after lying on the side and the anterior side of the chest, and the abdomen and thighs after being in the prone position.

### Sovetskaya Khirurgiya, Moscow

Pp. 1-165 (No. 7) 1936. Partial Index

Effect of Hypertonic Solutions on Tissues in Vitro. Y. P. Kovtunovich.—p. 20.

Effect of Vitamin C on Healing of Wounds. Y. A. Uzbekov.—p. 26.

Diagnostic and Prognostic Value of Seyderhelm Dye Reaction of Pus in Surgery. Y. S. Levin.—p. 30.

\*Continuous Drip Method of Blood Transfusion. F. P. Vinograd-Finkel, M. S. Dulcin and I. I. Yurovskaya.—p. 42.

\*Diagnosis and Treatment of Fibrous Encapsulating Peritonitis. N. L. Blumental.—p. 60.

Chronic Encapsulating Fibrous Peritonitis. A. A. Rush.—p. 69.

**Continuous Drip Method of Blood Transfusion.**—Vinograd-Finkel and his associates of the Central Institute of Hematology at Moscow, report their experiences with massive

## DIATHERMY

A study also was made of the microscopic changes brought about by the use of the submucous diathermy. The subject of this study was a woman, aged 27, suffering from sneezing and rhinorrhea on an allergic basis. Relief was not obtained by the withdrawal of allergens.

Before diathermy, biopsies of the inferior turbinates showed a mucosa covered with pseudostratified ciliated columnar epithelium with many goblet cells. There were many areas of edema in the tunica propria, especially in the more superficial layers. A dense infiltration of lymphocytes, plasma cells and eosinophils was present. The glands were increased in number.

One month after diathermy, biopsy of the inferior turbinate showed the epithelium to be unchanged. The basement membrane was thicker but less dense than formerly. The inflammatory infiltration was unchanged. In the tunica propria was a dense band of fibrous tissue. Its fibers radiated inward to the fibrous layer of the periosteum and out to the epithelial layer. The epithelium was drawn in, forming a deep fissure on the surface of the turbinate as though by contraction of the scar tissue. The glands in this region were distorted by the scarring.

At the time of biopsy, one month after diathermy, diathermy was repeated on the left side because some edema persisted. A week later another biopsy was taken. The same changes were observed; that is, scarring and loss of edema. In addition there was a metaplasia of the glandular epithelium and the epithelium of the ducts, whole groups of acini being lined by stratified epithelium.

## TRICHLOROACETIC ACID

In London in 1897 it was said that 50 per cent trichloroacetic acid was good to use in rose colds because it paralyzed the end organs of the vasomotor nerves. Norval Pierce used it after the removal of edematous polyps to prevent their return.

A case of chronic vasomotor rhinitis associated with perennial allergy was selected for the study of the action of this drug. Cotton on a probe dipped into 50 per cent trichloroacetic acid was used to make a streak on the medial surface of the turbinate extending from the posterior to the anterior end. At the end of a week the nasal stoppage had disappeared and the patient had a good clinical result, at least for the time being.

Antedating the application of the trichloroacetic acid, a biopsy was taken from the right middle turbinate. Thirteen days following the application of the 50 per cent trichloroacetic acid, a biopsy was taken from the right inferior turbinate. The first biopsy was taken from the middle turbinate and the second from the inferior turbinate in order to obviate changes in the second biopsy due to trauma. The piece removed before the application of the acid showed the following: The epithelium was ciliated and columnar and numerous goblet cells were present; the basement membrane was pale and thickened; the tunica propria was edematous and infiltrated with a large number of eosinophils together with a few plasma cells and lymphocytes; the glands were active; the blood vessel walls appeared normal.

The biopsy taken thirteen days following the application of trichloroacetic acid showed the following: On the margin of the inferior turbinate there was a deep ulceration, the base of which was necrotic. The

necrotic tissue and the viable tissue around it were densely infiltrated with chronic inflammatory cells. The epithelium at the edges of the ulceration was stratified and squamous, while that farther away from the ulcer was ciliated. There was a hyperplasia of the fibrous tissue in the region of the base of the ulcer.

## THE ACTUAL CAUTERY

To study the action of the actual cautery, a biopsy was taken of a patient who had been cauterized four months before because of nonallergic vasomotor rhinitis. The patient secured only partial relief from the cautery. To study the immediate action of the cautery, puncture was made of edematous tissue on the middle turbinate of a patient suffering from chronic vasomotor rhinitis, and in another patient an edematous polyp was punctured with the cautery tip. The biopsy through the right inferior turbinate which had been cauterized four months before showed that the epithelium was ciliated. In it there was a depression, at the base of which was an area of dense fibrous tissue. Glands in this region were distorted by scarring but were active. There was no edema in the tunica propria in the region of the scar, although at some distance from it edema was seen.

The edematous tissue on the middle turbinate seven days after the application of the cautery showed that the area not cauterized was covered with ciliated columnar epithelium; the tunica propria was moderately edematous with some infiltration with plasma cells, lymphocytes and eosinophils. At the site of the cautery puncture there was a coagulation necrosis; the surrounding tunica propria was fibrous; there was a metaplasia of cells in the acini of the secretory glands; the blood vessel walls were thickened; around the site of the puncture was an infiltration of a large number of polymorphonuclear neutrophils and a few lymphocytes.

When the edematous polyp was punctured, a large amount of clear fluid escaped from the puncture. Three days after the cautery, grossly, a thick white membrane covered the polyp; the membrane was adherent to the underlying tissue. Microscopically this membrane was a thick exudate covering the area where the epithelium had been destroyed. The surface of the polyp not cauterized was lined by ciliated columnar epithelium. Beneath the exudate there was a marked infiltration of polymorphonuclear neutrophils and there were a few lymphocytes. The lesion produced was one of coagulation necrosis with fibroblastic proliferation in the polyp.

## ALCOHOL

Cats were used for the study of the action of alcohol on the mucous membrane of the nose. The cats were anesthetized by the intraperitoneal injection of 2 or 3 cc. of a 10 per cent solution of sodium amytal. After the nasopharynx was packed off with petrolatum gauze, one nostril was filled with 70 per cent alcohol, which was left in for twenty minutes. Dr. Robert E. Parrish<sup>22</sup> suggested that if alcohol packs were used in the nose for allergic rhinitis they should remain in the nose twenty minutes.

In each case there were sneezing and struggling movements. In about ten minutes a bloody discharge was noted. Cats were killed at various intervals and the nostrils were sectioned and stained for histologic study.

In cats killed two days after treatment, the treated nostril was occluded by a red edematous mucous mem-

22. Personal communication to the author.



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## THE TREATMENT OF ALLERGIC RHINITIS

WITH PARTICULAR REFERENCE TO IONIZATION AND  
THE CONTROL OF CHRONIC VASO-  
MOTOR RHINITIS

L. W. DEAN, M.D.; LLOYD D. LINTON, B.S.;  
H. M. SMIT, M.D.; L. W. DEAN JR., M.D.  
AND  
CHARLES MAHONEY, M.D.  
ST. LOUIS

Twenty months ago the Department of Otolaryngology in the Medical School of Washington University decided to make a study of allergic rhinitis. The late Frank E. Ball of Muncie, Ind., created the Frank E. Ball Research Fund to carry out this study.

Antedating this research, two observations regarding ionization had already been made in the department. McMahon<sup>1</sup> reported that ionization in dogs produced a fibrosis of the subepithelial tissue with marked hyperplastic bone changes; that the epithelial changes in the nose consisted of a primary destruction of cells with a later return to normal. The Alexanders<sup>2</sup> reported that it was the patient who suffered from hay fever and had no reagins in the blood stream who was more likely to get a good result from ionization, while the one who had an abundance of reagins in the blood stream as a rule had an unsatisfactory result following the treatment. Hansel<sup>3</sup> made an excellent and comprehensive review of allergic rhinitis.

A group of scientists, some doctors of medicine and some not, were engaged to further this investigation. This is a report of part of the work done. The immunologic work reported was done by L. D. Linton; the pathologic work was done by and the study of the action of radium and of surgical diathermy on the mucous membrane was made by L. W. Dean Jr.; the study of the action of alcohol and of phenol (carbolic acid) in the nasal mucous membranes of animals was made by Charles Mahoney, the study of the action of trichloroacetic acid and the actual cautery on the nasal mucous membranes by H. M. Smit. Wenner<sup>4</sup> has shown that ionization of the frog's foot slowed the circulation in

from eight to fifteen minutes; that a clumping of the red blood cells took place in forty-five minutes; that the circulation was completely stopped in one hour; that if the electric current alone was used the circulation was not stopped and the clumping of blood cells did not take place. Similar observations were made on a rabbit's ear. Wenner studied the influence of zinc iontophoresis on the feet of guinea-pigs and concluded that the resulting ulceration of the skin and gangrene of the feet was probably in part, at least, caused by the circulatory disturbances and made the observation that small electrodes if used in ionization were more likely to cause ulceration than the larger ones.

### RESULTS OF IONIZATION

Later Wenner<sup>4</sup> demonstrated that so-called ionization was in reality iontophoresis; that the zinc ions actually penetrated the skin and cartilage of the rabbit's ears during the process of ionization.

Linton<sup>5</sup> made intramucosal tests before and after iontophoresis. If the patient gave a positive intramucosal reaction before ionization he always gave a positive reaction after the treatment. Some patients who received relief from allergic rhinitis from the use of iontophoresis did not react to the topical application of allergens to the mucosa, but they always reacted to the intramucosal injection of the ragweed pollen if they were ragweed hay fever cases. He secured a reaction in one case as early as eleven days after iontophoresis. He has since noted that trauma and other procedures in the nose influence the reaction of the mucous membrane to allergens; that is, for instance, the removal of polyps, submucous resection and the like may interfere with the reactions when intramucosal tests are made. He has also noted that local desensitization of the mucous membrane may result from the injection of an allergen. For example, in a case of hay fever in which ionization has been done an intramucosal injection of ragweed pollen was given to test the sensitivity of the mucous membrane. This resulted in a terrific attack of hay fever, which could be controlled only by an injection of epinephrine. A repetition of this injection ten days later produced no reaction. It has been noted many times that intramucosal tests in allergic rhinitis may themselves produce a clinical improvement.

Smit<sup>6</sup> studied the tissue changes following zinc iontophoresis. His observations are as follows:

Summarizing the tissue changes which one finds following zinc iontophoresis, there occur: coagulative necrosis of the epithelium; early stages of inflammation with polymorphonuclear leukocytes which are later replaced by round cells; atrophy of glands and loss of glands; metaplastic changes in glands and ducts; formation of stratified squamous epithelium

5. Linton, L. D.: *Ann Otol., Rhin. & Laryng.* 45:163 (March) 1936.

6. Smit, H. M.: *Ann Otol., Rhin. & Laryng.* 45:138 (March) 1936.

This investigation was made possible by the Frank E. Ball Research Fund.

From the Oscar Johnson Institute, Washington University School of Medicine.

Read before the forty-first annual convention of the American Academy of Ophthalmology and Otolaryngology, New York, Sept. 28, 1936.

1. McMahon, B. J.: *Ann Otol., Rhin. & Laryng.* 43:643 (Sept.) 1934.

2. Alexander, H. L., and Alexander, J. H.: *J. Allergy* 6:240 (March) 1935.

3. Hansel, F. K.: *Allergy of the Nose and Paranasal Sinuses*, St. Louis, C. V. Mosby Company, 1936.

4. Wenner, W. F.: *Ann Otol., Rhin. & Laryng.* 45:131 (March) 1936.

These observations bring us to the conclusion that if a successful result can be secured in chronic vasomotor rhinitis by treatment on an allergic, dietary or endocrine basis, or by the correction of septal deformities, or by the removal of adenoids or the eradication of infection, the desired result will be secured without deleterious changes in the mucous membrane of the nose. When one resorts to ionization or to the use of phenol, trichloroacetic acid, alcohol, the cautery or any of the methods mentioned in the latter part of this paper, one produces deleterious changes in the nasal mucosa.

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## THE VISCERAL NERVOUS SYSTEM AND ITS RELATION TO THE ENDOCRINES

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Many vegetative functions of the human organism have been shown to be under the influence of the visceral nervous system.<sup>1</sup> It has also been shown that many vegetative functions are under the influence of the endocrine system. At least some of these vegetative functions have been observed to be affected by both systems. These facts have led to various conclusions. By some investigators the visceral nervous system has been given the dominant rôle, while other investigators have relegated the visceral nervous system to a minor rôle, placing the primary importance on the endocrines. On the other hand, statements are not uncommonly found in the literature that suggest a duality of control between these two systems. Zondek<sup>2</sup> says "It should be emphasized that the hormonal system does not, as was supposed by many writers, fulfil the rôle of sole governor of vital functions but that in this respect it is an equivalent link with the nervous system." Jelliffe<sup>3</sup> concludes that "From the evolutionary attitude the vegetative nervous system looks after the chemisms of the human body, hence its function is related to the earliest part of the past in the unconscious denominator. The phylogenetically oldest part of the vegetative nervous system and that part which still maintains the loosest of structural relationships is the endocrinous gland system." I feel that vegetative regulation is the result of a most complicated interdependence between these two systems and offer the following examples to substantiate this point of view:

1. The visceral nervous system does produce an effect on certain endocrine glands. This opinion seems justified in the case of the posterior lobe of the pituitary when the following work of Ranson<sup>4</sup> is reviewed: He and his co-workers have shown that permanent

polyuria (diabetes insipidus) could be produced by specific lesions, bilaterally, involving the supra-optic nucleus, the tractus supra-optico-hypophyseus, or the posterior or intermedial lobe of the hypophysis. It is usually reasoned that these lesions prevent the anti-diuretic principle which is a specific hormone coming from the posterior or intermediate lobe from acting directly on the kidneys to prevent excessive excretion of urine, which diuretic action they show from the diuretic factor produced by the anterior lobe. It is further interesting to note that Ranson<sup>5</sup> has been able to control the polyuria of the nerve lesion by injecting an endocrine product; namely, solution of posterior pituitary. Here, then, is an example of a visceral nervous lesion apparently producing symptoms because of a lack of the hormone being excreted in an endocrine gland, and these symptoms can be relieved when this hormone is readministered to the organism.

Dandy<sup>6</sup> has shown that sympathetic fibers from the carotid plexus accompany vessels down the stalk of the pituitary to the anterior lobe. Kary<sup>7</sup> and Lewy<sup>8</sup> have observed retrograde cell changes in the supra-optic and tuber nuclei of the hypothalamus after injury to the posterior lobe of the pituitary in the dog. Davis,<sup>9</sup> working in Ranson's laboratories, made the following observations: Stimulation of the superior cervical ganglions produces glycosuria and hyperglycemia. If a hypothalamic lesion was previously produced, this effect was not obtained. Furthermore, it was not obtained after bilateral splanchnic section. When to these observations are added those of Houssay<sup>10</sup> in which he was able to control the hyperglycemia of depancreatized dogs by pituitary removal, one may conclude that the pituitary has a distinct effect over carbohydrate metabolism and that this effect may be influenced by the visceral nervous system.

One seems justified in assuming that certain clinical observations reinforce the aforementioned laboratory results. The classic example is the development of exophthalmic goiter following psychic trauma. The observations of de Takáts<sup>11</sup> and others that diabetes mellitus has been frequently influenced by denervation of the adrenals is suggestive of some nervous control over this gland.

2. There is some regulation of the endocrine function by higher centers. The experiments of Ranson would be suggestive of this conclusion. Beattie and his co-workers<sup>12</sup> have been able to show that stimulation of certain hypothalamic centers caused a widespread flow of impulses over the sympathetic system. This would lead to an increase in adrenal output.

3. In some instances, it appears as though a given tissue reaction needs both the visceral nervous system and the endocrine system. The foregoing work not only suggests the probability of central control over certain ineritory activity but further suggests the

Read before the Section on Nervous and Mental Diseases at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. The terminology used by Livingston (The Visceral Nervous System, Springfield, Ill., Charles C. Thomas, 1933) to include both efferents and afferents of sympathetics and parasympathetics.

2. Zondek, Hermann: The Diseases of the Endocrine Glands, Baltimore, William Wood & Co., 1935.

3. Jelliffe, S. E.: The Psyche and Vegetative Nervous System with Special Reference to Some Endocrinopathies, New York N. Y. J. 115: 192 (April 5) 1922.

4. Fisher, Charles; Ingram, W. R.; Hare, W. K., and Ranson, S. W.: The Degeneration of the Supraoptic Hypophyseal System in Diabetes Insipidus, Anat. Rec. 63: 29 (Aug. 1933). Fisher, Charles; Ingram, W. R., and Ranson, S. W.: Relation of Hypothalamic Hypophyseal System to Diabetes Insipidus, Arch. Neurol. & Psychiat. 34: 123 (July) 1935.

5. Ranson, S. W.: Personal communication to the author, January 1936.

6. Dandy, W. E.: The Nerve Supply to the Pituitary Body, Am. J. Anat. 15: 334, 1913-1914.

7. Quoted by Davis.<sup>9</sup>

8. Davis, Loyal: The Relationship of the Hypophysis, Hypothalamus and the Autonomic Nervous System to Carbohydrate Metabolism, Ann. Surg. 100: 634 (Oct.) 1934.

9. Houssay, B. A.: A Series of Lectures on the Hypophysis, J. A. M. A. 101: 1167 (Oct. 7) 1933.

10. de Takáts, G.: Splanchnic Nerve Section in Juvenile Diabetes, Ann. Surg. 102: 22 (July) 1935.

11. Beattie, John; Brown, G. R., and Long, C. N., III: Physiological and Anatomical Evidence for the Existence of Nerve Tracts Connecting the Hypothalamus with Sympathetic Centers, Proc. Exp. Biol. Med. 106: 25 (May 3) 1933.

interference with the secretory function of the nasal membrane, and the membrane does not swell as easily as it did before. Biopsies taken from the human nose are necessarily superficial. Periosteal changes have been found in the occasional biopsy in which a piece of bone was secured. In human biopsies the cartilage of the septum could not be studied. In dogs and guinea-pigs, some cartilage cells were killed by the ionization.

We have proved to our satisfaction that ionization does not change the allergic status of the body in any way. While dusting allergens in the nose may not cause a reaction after ionization, the tissues of the nose always react as before ionization to the intramucosal injections of allergens. With intramucosal tests there is a difference; namely, the tissues do not swell as before. There is no change in the reagin content of the blood. It has been found however that, by using different individuals to test the reagin content of the blood and by using the same blood, different results may be secured. This may explain the suggestion that has been made that the allergic status of the individual is changed by the ionization.

We do not find it necessary to use ionization for the control of hay fever. It is used to control the chronic vasomotor rhinitis that persists after the hay fever season. It is interesting to note that we had on Sept. 1, 1936, in our research clinic five patients who were ionized one or two years ago for hay fever with unsatisfactory results. One of these patients is doing very well with desensitization, diet, hormones and the like. The other four are not doing well. The patients who are highly sensitive to ragweed pollen, those who have plus 4 reagins in the blood stream, are very difficult to handle with any kind of treatment except the avoidance of allergens. All other hay fever patients in the clinic are doing well with desensitization, diet, avoidance of other allergens to which they are sensitive, correction of endocrine dyscrasias, and other measures.

We have used ionization for the control of chronic vasomotor rhinitis when other forms of treatment have failed. It has been used when all the mucous membrane of the nose and that on the septum and in the meatuses, as well as on the turbinates, is boggy.

#### NECESSITY OF DIAGNOSIS

In treating allergic rhinitis, an exact diagnosis is essential. We have seen patients with edematous nasal mucous membranes in which at first glance we have thought it was allergic rhinitis. Some of these cases after being studied for a year and a half have proved not to be allergic. The only thing that brought about an improvement in the nasal condition was a proper diet plus adrenal cortex extract.

Rackemann<sup>12</sup> states that 50 per cent of the cases of vasomotor rhinitis are nonallergic. Cameron<sup>13</sup> of Glasgow puts it at 40 per cent. These percentages, as we view them, are very high. No one has ever proved that the cases of nonallergic vasomotor rhinitis were not at one time allergic. We had under observation a patient with allergic rhinitis who secured a most excellent result by the avoidance of certain allergens to which she was sensitive and by undergoing a submucous operation. Examination of the nose showed good breathing space; the turbinates, however, were paler

and softer than normal. The biopsy of the tissue taken after the treatment showed edematous tissue with no increase of eosinophils in the tissue.

Vasomotor disturbances in the nose may result from infection and inflammation. Even a simple irritation of the mucous membrane causes vasomotor changes. Clinically one must assume that there are many cases of vasomotor rhinitis which are not at the time of examination allergic. Further, it must be realized that many of these conditions will improve with treatment for dietary and endocrine defects.

Repeated attacks of acute allergic rhinitis leave behind a chronic vasomotor rhinitis. During the last year we have seen only one hay fever patient who had a normal mucous membrane. This patient had had only one attack of hay fever. The treatment of allergic rhinitis is so intimately tied up with the treatment of chronic vasomotor rhinitis that the two cannot be separated. We feel that every case of edematous nasal polyps and every case of chronic vasomotor rhinitis should have a complete allergic work up. We have not yet seen a case of edema of the mucous membrane presenting a great increase of eosinophils in the nasal discharge which did not prove to be allergic. On the other hand, we have all seen cases in which, with one or two or three studies of the nasal discharge no increase of eosinophils has been found but further study of the vasomotor rhinitis proved the case to be allergic and a good result was secured by allergic treatment.

Every case of boggy mucous membrane should have not only a complete allergic study but dietary, bacteriologic and endocrine studies. The first thing to do in the treatment of all cases of chronic vasomotor rhinitis is to correct the allergic condition if it is present. Dietary defects and endocrine disturbances should be corrected and infection should be eradicated. If this has been done there will be a certain percentage of boggy noses in which a good result can be secured only by some type of therapy applied to the mucous membrane of the nose.

One of the essential things in the treatment of allergic rhinitis is that the patient should be under the care of a rhinologist. The examination of the nose is necessary for a proper diagnosis. It is only by watching the nose that one gets the best idea as to the result of a given therapeutic procedure. Last and by no means least is the fact that one of the essential factors in the treatment of allergic rhinitis is to bring the nose into as normal a condition as possible. Infection of the nasal sinuses must be corrected. In perennial allergy we often get good results following the correction of deflected septums, the removal of exostoses or the removal of adenoids. Before very much was known about allergy it was known that cases of vasomotor rhinitis were often favorably influenced by the removal of adenoids in children. Most striking results often follow the correction of nasal lesions.

In cases of allergic rhinitis in which the biopsy has shown a typical allergic picture, complete subjective relief with objective shrinking of the mucous membrane of the nose has followed a submucous operation or the removal of adenoids. One might immediately ask the question How long will the patient be benefited? The question might well be answered by asking How long is a patient with allergic rhinitis benefited by desensitization or any other form of treatment? It is often necessary to eradicate a chronic vasomotor rhinitis in order to get the nose normal. In certain cases of

12. Rackemann, F. M.: *Clinical Allergy, Particularly Asthma and Hay Fever: Mechanism and Treatment*, New York, Macmillan Company, 1931.

13. Cameron, J. A. M.: *J. Laryng. & Otol.* 50:493 (July) 1935.

which a gonad tumor was responsible for the symptomatology. Laurie<sup>18</sup> has summarized the literature, finding eight instances in which pineal tumors seemed responsible for this syndrome. On the other hand, LeMarquand<sup>19</sup> reports a case in which a boy aged 4½ years had accessory brain tissue connecting with the hypothalamus. Because of these varying etiologic factors producing a similar picture, LeMarquand offers the following hypothesis: "In cases in which the pineal, adrenal, hypothalamus or gonads are involved, they each and all cause pubertas praecox by an influence on the hypothalamic centers and from thence on the pituitary."

Because of these links found in this chain of evidence, I believe that the statement made in the first paragraph of this paper, that vegetative regulation is the result of a most complicated interdependence between these two systems, is more than highly suggestive; therefore the visceral neurologist should have an understanding of the endocrine system, and likewise it becomes necessary for the endocrinologist to have an understanding of the visceral nervous system if the best clinical medicine is to be practiced.

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#### ABSTRACT OF DISCUSSION

Dr. T. HOMER COFFEN, Portland, Ore.: It is always difficult to appraise contemporary medical thought and trends in a new field, often revolutionary and of absorbing interest, arousing clinical and laboratory investigation and gradually becoming established, with a united attack on it. Our modern concepts of diabetes, with resulting treatment with insulin, our modern concepts of cardiovascular disease leading to better understanding of coronary obstruction and angina pectoris, blood dyscrasia and the modern treatment of pernicious anemia with liver extract are the results of intensive investigation in recent years. All these, perhaps, will go down in history as of epochal importance. Fifteen years ago endocrinology was a field of intensive study. The special journal was voluminous, containing hundreds of contributions. By 1928 it appeared that the subject was almost a closed book. In the meantime, research on the visceral nervous system absorbed interest, and the attack was as intense as on the endocrine disturbances previously. More and more it became evident that there is an interdependence between these two systems. The revolutionary discovery of the gonadotropic hormone in the blood stream in recent years, resulting in a laboratory test for the diagnosis of pregnancy, sought for centuries, opened up many avenues of research and clinical correlation, so that today we find ourselves in a renaissance of interest in endocrinology, correlating its phenomena with the visceral nervous system. From the laboratory come astounding facts to be interpreted in clinical syndromes. One of these is the effort syndrome, or neurocirculatory asthenia. This syndrome presents symptoms of heart disease and disturbed circulatory function in the absence of heart disease. It masquerades to some extent under the guise of thyrotoxicosis, but there is no thyroid disease. It also presents symptoms of neurasthenia. The term effort syndrome acknowledges all these and makes it possible to pigeonhole these cases diagnostically. In the gastro-intestinal tract, pylorospasm or colon spasm are seen as a result of nervous tension exaggerated in some cases by thyrotoxicosis; here one may speculate on the possibility too of adrenal influence. Clinical observations certainly are of equal importance with laboratory experiments, and, from the evidence presented by Dr. Rush, it is perfectly obvious that there is a very definite interdependence between these two systems.

## MECHANICAL DECOMPRESSION OF THE SMALL INTESTINE IN ILEUS

### III. CLINICAL OBSERVATIONS WITH REPORT OF CASES

ALTON OCHSNER, M.D.

AND

AMBROSE H. STORCK, M.D.

NEW ORLEANS

The difficulty or impossibility of replacing tremendously or even moderately distended loops of intestine that have been either accidentally or intentionally eviscerated during operation for intestinal obstruction and the danger of producing "waterhose" kinks when rigidly distended intestine is forcibly replaced in the abdomen quite naturally led to the practice of evacuating the contents of distended loops by performing an enterostomy and "milking" or "stripping" out the intestinal contents at the time of operation (fig. 4). The use of stripping has been extended by some to the treatment of intestinal obstruction in which distention is only slight or moderate in degree. Those who have advocated the procedure under such circumstances have felt that the attendant beneficial effects were sufficient to warrant its use as a procedure of election. The practice of stripping the intestine under these less urgent circumstances certainly should not be justified unless it could be established that it is quite safe and not accompanied or followed by immediate or delayed undesirable effects and unless the results obtained are better than those resulting from simple relief of the obstruction.

Conflicting opinions concerning the merit and facility of operative evacuation of distended loops of small intestine have been expressed by clinicians of equal or comparably wide experience in the management of intestinal obstruction. Basing conclusions on their clinical observations and certain theoretical considerations and experimental data, one group strongly advocates such a procedure, whereas other clinicians unequivocally condemn it. The following references are of interest with respect to the development of the procedure and furnish some notable examples of the various estimates of this method of treatment. Monks<sup>1</sup> in 1903 demonstrated that almost the entire small intestine could be puckered or "gathered up" on a 1 foot long segment of a rod introduced into the intestinal lumen. Bottomley<sup>2</sup> credits Monks with suggesting the use of a glass tube introduced through an opening in the bowel for the purpose of evacuating the distended intestine, but, he adds, "in my own experience the successful employment of this procedure is not very easy." Holden<sup>3</sup> believes that the imprisoned intestinal contents above the obstruction should be removed at the time of operation for intestinal obstruction and Van Zwalenburg<sup>4</sup> says:

Does not the procedure of Holden seem reasonable and encouraging? By gently emptying the bowel he relieves the

From the Departments of Surgery, Tulane University School of Medicine, and Charity Hospital.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Monks, G. H.: Intestinal Localization, *Tr. Am. S. A.* 21:412, 1903; *Ann. Surg.* 38:574, 1903.

2. Bottomley, J. T.: Diseases and Injuries of the Jejunum and Its Mesentery, in Ochsner, A. J.: *Surgical Diagnosis and Treatment*, Philadelphia, Lea & Febiger, 2472, 1921.

3. Holden, W. B.: Surgical Treatment of Acute Intestinal Obstruction, *Surg., Gynec. & Obst.* 50:194 (Jan., No. 1A) 1930.

4. Van Zwalenburg, C.: *Hydraulic Vacuum Cords as It Develops in the Intestine; Effect of Intraluminal Pressure on the Pathology and Physiology of the Bowel*, *Ann. J. Surg.* 1931: 60-71, 1933.

18. Laurie, W. S.: *Macroglossia and Other Disturbances of Growth and Development*, M. J. Australia 2:103 (July 25) 1931.

19. LeMarquand, H. S.: A Case of Pubertas Praecox (Macroglossia) in a Boy Associated with a Tumor in the Floor of the Third Ventricle, *Royal Berkshire Hosp. Rep.* 1934-1935, p. 21.

## TREATMENT

After the completion of our study of the case, the treatment is the avoidance of allergens, desensitization, dietary measures, making the nose normal and, if it is indicated, endocrine therapy.

In connection with desensitization it is well to remember that if a person is made sensitive to one protein he may react to proteins with similar composition. In the same way, in desensitization, using an allergen may desensitize the patient to other allergens with a similar chemical composition.

Getting rid of the chronic boggy edematous nasal membrane that so often complicates allergic rhinitis is a very difficult matter. As we said before, ionization often gives good results. Hollender<sup>14</sup> has used ionization for ten years with good results in intumescent rhinitis.

Ionization may give a good result in patients with a maximum of chronic vasomotor rhinitis and a minimum of allergy. A patient suffered all the year round from nasal stoppage and sneezing. During the hay fever season she was confined to her bed. She worked in an atmosphere containing white flour dust. White flour gave a mild reaction in the nose; there were no reagins for white flour in her blood. The mucous membrane reacted violently to ragweed pollen. She had plus 4 reagins for ragweed in her blood. Ionization controlled her vasomotor rhinitis and gave her an excellent result until the next hay fever season, when she had as much trouble as ever. After the hay fever there was a partial return of her chronic vasomotor rhinitis.

Among other remedies the following have been recommended for the control of chronic vasomotor rhinitis: radium, the cautery, surgical diathermy, 95 per cent alcohol, concentrated phenol and 50 per cent trichloroacetic acid. A study was made of the action of each of these on the tissues with the hope that something as efficient as ionization with a less deleterious action might be found. All the agents mentioned that are said to be beneficial in chronic vasomotor rhinitis act by splinting the membrane. The resulting fibrosis keeps the membrane from swelling.

## RADIUM

A study was made of the use of radium in the treatment of nasal polyps and its effect on the nasal mucosa. Several authors have been prompted to use radium in the treatment of nasal polyps because of the fact that radium stimulates the formation of fibrous tissue. It has been a common observation that the more fibrous a polyp is found to be, the less are its chances of recurring after removal.

The first to use radium for this purpose was Sluder.<sup>15</sup> Others who used this method and modified it in various ways were Lyons,<sup>16</sup> McCullagh and Robinson,<sup>17</sup> Robinson<sup>18</sup> and Scal.<sup>19</sup> The general method used by these authors was to remove the polyps first and then, in from twenty-four to forty-eight hours, to place radium in the nose, using from 150 to 400 milligram hours. Lyons used 400 milligram hours three times (forty-eight hours, eight days and fifteen days after the removal of

the polyps) without noting any burning or other harmful effects. The aforementioned authors all found a delay in the recurrence of polyps and all stress treatment of the allergic condition or infection as the only means of complete cure. No detailed microscopic examinations were reported by these observers.

In order to study the changes brought about in edematous polyps by radium we placed 50 mg. of radium in each side of the nose of a patient, leaving it in place for four hours (total dose 200 milligram hours on each side). The polyps became diffusely reddened in three days and there was a profuse mucopurulent discharge. The edema of the polyps and adjacent mucosa was increased. This lasted for two weeks, at the end of which time the polyps were again pale and the same size as before treatment.

Polyps removed before radium treatment were covered by pseudostratified columnar ciliated epithelium lying on a thick pale basement membrane. The stroma was very edematous, and scattered through it were a few lymphocytes, plasma cells and eosinophils.

One week after radium treatment the epithelium was unchanged. The small blood vessels were engorged. In the spaces between the fibers of the reticulum in the stroma was an increased amount of fluid, which stained more deeply with eosin. A much greater number of plasma cells and lymphocytes were found in the stroma. The number of eosinophils was unchanged.

Three weeks after radium treatment, changes in the epithelium appeared. These cells lost their cilia, the nuclei became pyknotic, the cytoplasm was granular and numerous vacuoles appeared. The pseudostratified epithelium was reduced to a single layer of cuboidal cells. In the stroma were young fibroblasts in numbers sufficient to change its appearance entirely. Edema was still present, the fluid in tissue spaces now taking no stain. Plasma cells and lymphocytes were present in large numbers, the eosinophils remaining in the same numbers as before.

Thus we have definite evidence of a stimulation of fibrous hyperplasia in edematous polyps occurring two weeks after irradiation. In addition there is temporary edema and congestion, an increase in the chronic inflammatory cells infiltrating the stroma and destructive cytologic changes in the epithelium.

In order to study the end results of the action of radium on the nasal mucosa, 400 milligram hours of radium was used in one side of a dog's nose. In six weeks the dog was killed and serial sections were made of the snout.

At this point should be mentioned the work of Bernheimer and Cutler<sup>20</sup> and of Bernheimer.<sup>21</sup> They studied the action of radium on the allergic nasal mucosa of human beings and gave detailed microscopic observations and illustrations. The end result was one of fibrosis and loss of edema with no evidence of atrophic or infectious changes in the mucosa.

The only change noted in the dog at six weeks was fibrosis on the treated side. The tunica propria was the same thickness on the two sides but more dense on the treated side. Glands, epithelium, periosteum and vessels remain unchanged, although there may have been temporary changes present earlier.

14. Hollender, A. R.: *Arch. Phys. Therapy* 15: 581 (Oct.) 1934.

15. Sluder, Greenfield: *Laryngoscope* 34: 124 (Feb.) 1924.

16. Lyons, H. R.: *Ann Otol., Rhin. & Laryng.* 40: 249 (March) 1931.

17. McCullagh, Samuel, and Robinson, G. A.: *Radium in Polypoid Ethmoiditis*, *Arch. Otolaryng.* 4: 215 (Sept.) 1926.

18. Robinson, G. A.: *Treatment of Polypoid Sinusitis*, *Arch. Otolaryng.* 10: 72 (July) 1929.

19. Scal, J. C.: *Laryngoscope* 37: 735 (Oct.) 1927; *Nasal Polyps: Treatment and Prevention of Recurrence*, *Arch. Otolaryng.* 16: 199 (Aug.) 1932.

20. Bernheimer, L. B., and Cutler, Max: *Effects of Radiation on Allergic Nasal Mucosa*, *Arch. Otolaryng.* 16: 561 (Oct.) 1932; 17: 658 (May) 1933.

21. Bernheimer, L. B.: *Effects of Irradiation on Allergic Nasal Mucosa: Final Report*, *Arch. Otolaryng.* 22: 165 (Aug.) 1935.



a strong stimulus to intestinal secretion and in obstruction this must work in a vicious circle." In previous publications,<sup>17</sup> the investigations of Raine and Perry,<sup>18</sup> Henderson,<sup>19</sup> Hotz,<sup>20</sup> Usadel,<sup>21</sup> Hartwell, Hoguet and Beekman,<sup>22</sup> Murphy and Brooks,<sup>23</sup> Stone,<sup>24</sup> the Dragstedts, McClintock and Chase,<sup>25</sup> Gatch,<sup>26</sup> Van Beuren<sup>27</sup> and Hofmann<sup>28</sup> on the effect of distention on intestinal activity and vascularity have been discussed. Whereas theoretically the immediate relief of the intra-intestinal pressure and intramural strangulation by stripping of the intestine may seem imperative, it is important to determine the dangers of such a procedure and also whether the subsequent intestinal activity is as great as that which is present after the use of more conservative measures. Although one of us (A. H. S.) had used stripping of the intestine clinically in cases of mechanical ileus, it was considered desirable to obtain additional information concerning the value and dangers of the procedure by experimental observations. In previously reported experiments on dogs,<sup>17</sup> observations were made concerning the comparative effects of stripping of the intestine and simple relief of the obstruction in mechanical ileus. The results of one group of experiments<sup>17a</sup> corroborated Læwen's and Morton's observations as regards the depressing effect on blood pressures (fig. 2). In another group of experi-

stripping of the intestine, as might be surmised because of the relief of vascular disturbances but there was actually less activity than in those animals in which only simple relief of the mechanical obstruction was done (fig. 3).

#### ANALYSIS OF CASES

In sixteen clinical cases of intestinal obstruction stripping was used, and the present report is based on an analysis of these cases. All these patients were operated on between 1928 and 1931 before Waugensteen<sup>2</sup> suggested preoperative duodenal decompression, and probably at the present time many of the cases would not present the problem they did at that time. In this group is included one case of adynamic ileus of undetermined cause in which stripping was done in order to facilitate replacement of intestine and closure without causing kinking and because it was thought that immediate evacuation was advisable or even necessary as the only means by which the hydraulic vicious circle could be overcome and intramural vascular strangulation relieved at once. For the same reasons stripping was used in one case in which the preoperative symptoms and signs suggested the presence of a mechanical obstruction but in which at operation a severe enteritis was found, and in two cases of intestinal obstruction associated with peritonitis. As mentioned previously,

Chieever<sup>3</sup> also reports having employed the procedure in cases of intestinal obstruction associated with peritonitis. The causes of ileus in the other twelve cases were as follows: bands, three cases; carcinoma of the cecum, two cases; adhesions, fecalith, inguinal hernia, ventral hernia, volvulus, and obstruction due to constriction by an acute suppurative

Fig. 2.—Kymographic tracing illustrating the fall in blood pressure caused by stripping the small intestine of a dog with intestinal obstruction of twenty-four hours' duration. The upper tracing indicates the periods of stripping and the other tracings show the blood pressure changes, the respiratory activity and the time intervals, respectively, from above down.

ments<sup>17b</sup> the intestinal activities twenty-four hours after either simple relief or stripping of the intestine in mechanical obstruction were determined. The duration of the mechanical ileus varied from twenty-four to 144 hours. It was found that not only was there no greater increase in intestinal activity following

gangrenous appendix, each one case. Stripping was employed also in one case in which the condition of the patient was very poor but in which immediate relief of intramural vascular strangulation by stripping in addition to performing a jejunostomy seemed imperative. The cause of obstruction in this last case was not revealed during the procedure of stripping, and further exploration was not considered advisable.

There were ten males and six females. Five of the patients were white and eleven were Negroes. The average age was 41 years, the oldest being 71 and the youngest 9 years old. The duration of the intestinal obstructions averaged 62.8 hours, with the shortest duration 24 hours and the longest duration 120 hours.

Cramping pain, nausea and vomiting were complained of in all cases except in the one presenting adynamic ileus. Stercoraceous vomiting occurred before or shortly after admission in five cases in which the average duration of obstruction was fifty-eight hours. Purgation before admission had been attempted in three cases, all of which ended fatally. Eight patients received enemas or flushes before admission, six of whom died and two recovered.

#### PAST HISTORY

There was a history of previous abdominal operation in seven cases, three of which were simple laparotomies. One was an exploratory laparotomy, one an

17. (a) Storck, A. H., and Ochsner, Alton: Mechanical Decompression of the Small Bowel in Ileus: I. Effect of Stripping on Blood Pressure, *Arch. Surg.* 33: 664 (Oct.) 1936; (b) II. Effect on Intestinal Activity, *ibid.* 33: 670 (Oct.) 1936.
18. Raine, Forrester, and Perry, Margaret C.: Intestinal Obstruction: Experimental Studies on Toxicity, Intra-Intestinal Pressure, and Chloride Therapy, *Arch. Surg.* 19: 478 (Sept.) 1929.
19. Henderson, V. E.: Studies in Peristaltic Fatigue, *Am. J. Physiol.* 66: 380 (Oct.) 1923.
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22. Hartwell, J. A., Hoguet, J. P., and Beekman, Fenwick: An Experimental Study of Intestinal Obstruction, *Arch. Int. Med.* 13: 701 (May) 1914.
23. Murphy, F. T., and Brooks, Barney: Intestinal Obstruction. An Experimental Study of the Causes of Symptoms and Death, *Arch. Int. Med.* 15: 392 (March) 1913.
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25. Stone, H. B., and Fitor, W. W.: Absorption in Intestinal Obstruction: Intra-Intestinal Pressure as a Factor, *Tr. South. S. A.* 27: 173, 1924.
26. Dragstedt, L. R., Dragstedt, C. A., McClintock, J. T., and Chase, C. S.: A Study of the Factors Involved in the Production and Absorption of Toxic Materials from the Intestine, *J. Exper. Med.* 30: 107 (Aug.) 1919.
27. Dragstedt, L. R.: Blood Chemistry in Intestinal Obstruction, *Proc. Soc. Exper. Biol. & Med.* 25: 239 (Jan.) 1928.
28. Gatch, W. D.: The Blood Chemistry, Toxemia, and Mechanism of Advanced Intestinal Obstruction with Deductions on Treatment, *Illinois M. J.* 60: 236 (Sept.) 1931.
29. Van Beuren, F. T., Jr.: The Mechanism of Intestinal Perforation Due to Distention, *Ann. Surg.* 83: 69 (Jan.) 1926.
30. Hofmann, M.: Das Verhalten des Darmes bei Intoxikation, *Verhandl. an den Naturforsch. Vers. z. Phys. Ch.* 54: 86, 1907.

brane and a serosanguineous discharge filled the treated nostril. There was hyperemia and edema to a lesser degree on the untreated side. Microscopic study showed the treated side to be partially denuded of epithelium, especially along the septum. In the recesses between the turbinates, ciliated epithelial cells persisted although the nuclei stained poorly and the cytoplasm appeared granular and cloudy. Cilia were still present. Strips of epithelium were seen to be separated from the tunica propria by serous fluid (bullae). The tunica propria contained massive areas of edema and extravasated blood. The vessels of the tunica propria were markedly engorged. The cells of the mucous glands showed cloudy swelling just as did the epithelial cells when present. No reaction was noted in the periosteum or perichondrium. Between the turbinates and the septum there was a thin serous fluid containing blood pigment and scattered polymorphonuclear neutrophils.

The untreated side showed hyperemia and edema of a small degree. There was some thin acellular serous fluid between the turbinates.

Cats killed three weeks after treatment with 70 per cent alcohol showed, on the treated side, masses of granulation tissue between the turbinates and the septum. This granulation tissue was deeply infiltrated with chronic inflammatory cells (polymorphonuclear neutrophils, lymphocytes and plasma cells). The epithelium covering the turbinates was for the great part missing and, when present, was of the stratified squamous type. The tunica propria was thick; its vessels were engorged. Nothing but skeletal remains of glandular epithelium was seen. The tunica propria was infiltrated with many chronic inflammatory cells. Deep in the turbinates, numerous islands of young proliferating bone could be seen.

The untreated side of the three weeks specimen was entirely normal except for a mild congestion of the small vessels.

At three months in the cats treated with 70 per cent alcohol the only gross difference noted in the treated and untreated sides was a thinning of the turbinates on the treated side. Microscopically, on the treated side, the epithelium was entirely of the stratified squamous type. Comparing the mucosa of the two sides, the treated side was found to be thinner and the tunica propria composed of denser fibrous tissue. The blood supply of the treated side was less; there were fewer glands. The bone and cartilage of the two sides were identical. The picture on the treated side was one of atrophy and fibrosis.

The instillation of 70 per cent alcohol in the noses of cats produced violent congestion and exudation with sloughing of the epithelium. This was followed by the formation of granulation tissue in the nose, a loss of glands, proliferation of bone and metaplasia of the epithelium. In three months' time definite atrophy of the mucosa had taken place.

At the suggestion of Dr. E. C. Bryce,<sup>22</sup> edematous nasal polyps were injected with 95 per cent alcohol, a tuberculin syringe and hypodermic needle being used, or the needle used in the clinic for making intramucosal tests.

Clinically a decrease in size of the polyps is seen as early as the day following the injection. In one instance, two days following injection of a medium sized polyp the patient returned with no polyp tissue visible to be removed for study.

The day after injection, a bright red spot is seen at the site of the injection. An ulcer may form at this

point. Part of the polyp sloughs off into the nose and the remaining stump shrinks up to form a small bud of tissue or disappears from sight in the meatus.

The usual pathologic picture of a polyp six or seven days after the injection of alcohol is demonstrated by this case. At the site of injection is an area of complete necrosis, the necrotic area being densely infiltrated with polymorphonuclear neutrophils. The tissue superficial to this area has sloughed off, leaving an ulcerated surface. Around the necrotic area is an area of hemorrhage into the tissues resembling the picture seen in an infarct. Outside this area the tissue is seen to be involved by coagulation necrosis, which diminishes in severity as one leaves the site of injection. Finally, an area of cloudy swelling is seen which may or may not include the remainder of the polyp, depending on its size and the amount of alcohol injected.

#### PHENOL

To study the action of concentrated phenol on the mucous membrane of the nose, dogs were used. Dogs were anesthetized with intraperitoneal injections of sodium amylal according to the method of Palmer;<sup>23</sup> their noses were swabbed on one side only with a concentrated solution of phenol. They were killed by air embolism at varying time intervals.

Those killed in two days showed grossly, on the treated side, a small amount of red exudate limited to the parts of the nasal cavity reached by the cotton swab. Microscopically the exudate was serosanguineous. In the region of the exudate the epithelium was denuded, the tunica propria was edematous and contained a small amount of extravasated blood, and the vessels were deeply engorged. Small areas of hemorrhage had separated the tunica propria from the periosteum. On the whole, the reaction was less violent than that seen in cats two days after instillation of alcohol into the nose. In areas not accessible to the phenol swab and on the untreated side, no change whatever was apparent.

Three weeks after the phenol swab was used, much of the epithelium was still absent from the treated side. Where present, it was ciliated. The mucous glands were merely dilated spaces in the tunica propria with no epithelial lining. The vessels were still dilated but did not contain much blood. The bone showed no change. The untreated side appeared normal, as it did at the two day period. Early atrophy with a retarded formation of the epithelium of the glands and mucous membrane seemed evident.

In the three month specimens the treated side was lined by stratified squamous epithelium. The tunica propria was fibrous but more vascular than the untreated side. The stratified epithelium was hyperplastic. Glands were present and appeared healthy. This is inconsistent with the picture of early atrophy seen at three weeks.

#### SUMMARY

Swabbing the nasal mucosa of dogs with strong phenol solution resulted in a partial loss of epithelium, a hemorrhagic exudate and engorgement of the mucous membrane limited to the areas in contact with the solution. In three weeks what seems to be early atrophy is present, but at three months there is a definite picture of fibrosis and hyperplasia. Palmer<sup>23</sup> reported that the essential change following the use of phenol was fibrosis of the nasal membrane.

23. Palmer, Arthur: *Ann. Otol., Rhin. & Laryng.* 44:25 (March) 1935.

nias, consisted of performing an enterostomy by introducing a No. 32 Pezzar catheter into the intestinal lumen and evacuating the intestinal contents by beginning in the region of the ligament of Treitz and stripping the entire small intestine. In order to prevent spillage, a single or double row of purse string sutures was employed to coapt the intestine tightly around the Pezzar catheter at the site of the enterostomy, and a moistened laparotomy sponge was held tightly pressed against the point at which the catheter entered the intestine. In order to minimize shock from the exposure of the intestine, the eviscerated loops of bowel were kept covered as much as possible by means of moist warm sponges.

Multiple intestinal obstructions were present in two cases. In one instance resection of the small intestine followed by side-to-side anastomosis was done. In one case with fixation of the ileum to the posterior abdominal wall with resulting angulation it was deemed inadvisable to attempt to detach the ileum, so an ileo-ileostomy was done. Appendectomy was done in one case in which the inflamed appendix lay across and compressed the terminal ileum.

Whereas in most instances the enterostomy tube was removed after evacuation of the intestinal contents and the opening in the intestine closed by a double row of sutures, in six instances the catheter was allowed to remain in place to serve as an enterostomy following operation. In three instances the catheter thus left in place had been introduced into the ileum and in two instances into the jejunum. In one case there was no record of the location or site of enterostomy. Also noteworthy in this last case is the fact that a Paul tube was used instead of a Pezzar catheter.

#### POSTOPERATIVE TREATMENT

A heat tent was placed over the abdomen of eight patients. In most instances it was allowed to remain in place for at least the first five or six postoperative days. Hot turpentine stupes were applied to the abdomen in one case.

Morphine was given postoperatively to eight patients. Fluids were administered subcutaneously and intravenously to all.

#### POSTOPERATIVE COMPLICATIONS

Postoperative adynamic ileus was recorded in two cases, in one of which survival occurred while death occurred in the other. Gastric dilatation was a postoperative complication in one fatal case. Acidosis (carbon dioxide combining power 23 volumes per cent) occurred postoperatively in one fatal case. Pneumonia (postoperative) occurred in one fatal case. Delirium and coma were each recorded as postoperative complications. All these patients except the one having postoperative delirium died. Two patients had infected wounds and one had an axillary cellulitis and cystitis, but these three survived.

An indwelling gastric catheter was employed postoperatively in twelve cases. In eight instances postoperative gastric lavage was performed and three of these patients lived, whereas five died. In two instances repeated aspirations through the Jutte tube was done, with one survival and one fatality. In two instances the tube was allowed to hang over the side of the bed for the purpose of permitting emptying of stomach contents by simple siphonage. Both these patients died.

The average stay in the hospital was thirteen days. Hospitalization in the survival cases averaged thirty-two days, whereas that in the fatal group was three and a half days.

#### MORTALITY

Of the sixteen patients in whom stripping of the intestine was done, five (31.2 per cent) lived and eleven (68.7 per cent) died. The average duration of obstruction in the group that lived was fifty-one and a half hours, whereas that in the fatal group was 68.4 hours. A mortality rate of 68.7 per cent is prohibitively high, but this probably cannot be considered as being due to the type of operation in all instances, because each patient in the group was a very poor operative risk when admitted to the hospital. Granted that the mortality rate in this group of cases would have been high irrespective of the procedure employed to relieve the obstruction, we believe that the additional trauma caused by intestinal stripping further aggravated the ileus and also caused surgical shock. At least the stripping, with its increased danger of infection, did not improve the condition of the intestine enough to lower the mortality rate. This belief is also corroborated by our experimental observations, in which it was demonstrated that the intestinal activity twenty-four hours after intestinal stripping was actually less than that in control animals in which there had been simple relief of the obstruction.

One death occurred on the operating table shortly after stripping the intestine, and in several instances the patients never recovered from the operative shock, which was precipitated or exaggerated by the stripping.

#### COMMENT

Whereas closure is facilitated and there is no immediate postoperative distention when the intestine has been emptied by stripping, we believe that the blood pressure lowering effect, the impairment of intestinal muscular tone and peristaltic activity, and the danger of peritoneal contamination incident to the procedure more than outweigh its good effects. For these reasons we contend that stripping should seldom be employed. Even when most carefully done, the necessary manipulation of the intestine causes considerable shock and local trauma, the latter being evidenced by subserous hemorrhages such as we have observed in some of our own cases, despite most careful handling of the intestine.

We believe that stripping is to be especially deprecated in cases of adynamic ileus without associated mechanical obstruction and in cases of mechanical obstruction with associated peritonitis.

We further believe that the institution of preoperative measures such as the replacement of electrolytes, administration of heat to the abdomen, administration of liberal doses of morphine, and employment of an indwelling gastric catheter attached to suction apparatus will in most instances relieve the excessive intestinal distention and intramural strangulation. Intestinal stripping is not indicated for a patient who has been so prepared. In the case in which relief of distention cannot be obtained preoperatively, we believe that stripping of the intestine should seldom if ever be done because, as shown by our clinical and experimental investigations, the results following stripping are no better than those following simple relief of the distention, whereas the untoward effects are greater following the former procedure.

interdependence of the visceral nervous system and endocrine system in the responses obtained. A similarity of action between epinephrine response and that of widespread sympathetic stimulation suggests that possibly epinephrine needs the same receptor as does the sympathetic nerve to obtain this response. This is further suspected when one considers Cannon's<sup>12</sup> long list of observations regarding the chemical mediator sympathin, a hormone apparently formed at the nerve ending and capable of giving epinephrine-like response to similarly sympathetic innervated tissue at a distant point. Burget and Zeller<sup>13</sup> have shown that the erosive lesions seen in the small intestine after parathyroidectomy are remarkably less frequent following vagus section. Davis prevented glycosuria and hyperglycemia by splanchnic section. Speculation now becomes tempting. One wonders whether possibly all hormones act by way of the visceral nervous system, particularly their receptors, or are hormones needed for certain visceral nerve responses.

4. The visceral nervous system is affected by the endocrine system. This conclusion is supported by the ingenious work of Cushing.<sup>14</sup> He has observed in the human being that the injection of solution of posterior pituitary intraventricularly produces a response, apparently stimulatory, characterized by widespread vasodilatation, sweating, vomiting and lowering of the body temperature. He further noted that this response could not be obtained in the presence of a lesion which impaired the functional activity of the interbrain, more particularly the hypothalamotuberal portion or after the administration of atropine or the use of tribromethanol, a hypnotic which supposedly acts on the diencephalon.

A second example is afforded by the experiments of Marine,<sup>15</sup> who observed a progressive exophthalmos in young rabbits by the use of cyanide. They believe this phenomenon not the result of thyroid activity but of an increased amount of thyrotropic substance coming from the anterior pituitary, which stimulated sympathetic centers in the hypothalamus. They were able to control the exophthalmos by iodine or thyroxine administration and suggest that a delicate physiologic balance between thyroxine and the thyrotropic principle must be needed.

Clinically, examples are quite numerous to show the effect of glandular dyscrasias on the psychic response of a human organism. Thus, in hyperthyroid activity, apprehension is usually seen; in myxedema, mental sluggishness and emotional torpidity; in tetany, anxiety; in Addison's disease, mental fatigue, and during the menopause or after spaying, mental depression and emotional instability. This array of psychic disturbances is similar at least to the emotional imbalance of the anxiety tension state and is likewise associated with visceral nerve disturbance functions. Thus are seen changes in heart rate, changes in vasomotor response, changes in intestinal activity and changes in sweat gland activity, as well as other symptoms. Who knows how much of this is produced by a direct effect

from the disturbed hormone function and how much is produced by the disturbed visceral nervous system?

Jelliffe<sup>3</sup> reports in great detail the case of a housewife who complained of nervousness, tachycardia, increased perspiration and fatigue, giving, in fact, the symptoms of exophthalmic goiter, which condition was diagnosed. However, with painstaking care it was shown that this case belonged in the group of anxiety tension states and her clinical cure was the result not of thyroid therapy but of psychotherapy with relief of the tension state. Such a case is not uncommon and the differential diagnosis may be extremely difficult because of the interdependence of these two systems.

The following is a brief report of a case that came under the observation of the surgical staff at the University of Oregon Medical School:

A male adult Negro was admitted to the Multnomah County Hospital with a distinct exophthalmos and the customary signs and symptoms of exophthalmic goiter. A subtotal thyroidectomy was performed, following which the symptoms subsided. The patient was not seen again for about six months, at which time he again presented himself with the signs and symptoms of a thyrotoxicosis. His exophthalmos had become more marked, his basal metabolic rate was again high, nervousness and tachycardia were present, but, most bothersome of all, there was a pyloric obstruction, which was verified by x-ray studies. Approximately 1,500 cc. a day was aspirated from his stomach. The patient also complained of intermittent claudication in both arms; that is, muscle pain brought on by exercise and relieved by rest. The gastro-intestinal problem became so acute that the surgical staff contemplated the necessity of emergency surgery for feeding. However, it was finally decided to attempt the thyroid surgery first, and a second subtotal thyroidectomy was done. Following this operation the gastric retention rapidly subsided, being about 300 cc. the following day; it dropped to 150 cc. the next day or so and, after a few days, aspirations were no longer necessary. X-ray examinations were repeated and the pyloric obstruction had entirely disappeared. The intermittent claudication which involved the arms also disappeared, although the exophthalmos progressed and became a very troublesome condition.

This case exhibited three pronounced symptoms that are usually interpreted as of visceral nervous origin; namely, the exophthalmos, the pyloric spasm and the intermittent claudication. Two of these entirely disappeared following an endocrine operation; namely, thyroidectomy.

Some clinical entities seem to be caused by either a lesion of the visceral nervous system or an endocrine dyscrasia. Clinical syndromes are present which may have either an endocrine etiology or a visceral nerve etiology. This conclusion is well demonstrated by the varying opinions offered as to the cause of Frölich's syndrome, diabetes insipidus, certain disturbances in carbohydrate metabolism, thermoregulation and pathologic sleep. Apparently the hypothalamic pituitary mechanism is involved in these conditions and at times medical thought has been swayed toward the endocrine side and at times toward the neurologic side.

Perhaps the most classic example is that of pubertas praecox, an unusual clinical entity which has attracted interest over the years. Lisser<sup>16</sup> reports a case in which a boy showed this syndrome; an adrenal cortical tumor was found and successfully removed, with some regression of signs and symptoms. Sutherland<sup>17</sup> reports a case in a boy with similar signs and symptoms in

12. Cannon, W. B.: Chemical Mediators of the Autonomic Nerve Impulses, *Science* 78: 43 (July 21) 1933.

13. Burget, G. E., and Zeller, Werner: Relation of the Vagi to Hyperemia and Erosions in the Gastro-Intestinal Tract Following Parathyroidectomy, *Am. J. Physiol.* 113: 23 (Sept.) 1935.

14. Cushing, Harvey: Pituitary Body, Hypothalamus and Parasympathetic Nervous System, Springfield, Ill., Charles C. Thomas, 1932.

15. Marine, David: The Exophthalmos of Graves' Disease: Its Experimental Production and Significance, *Am. J. M. Sc.* 188: 565 (Oct.) 1934.

16. Lisser, Hans, and Player, L. P.: Adrenal Sexual Precocity, *Urol. & Cutan. Rev.* 36: 758 (Nov.) 1933.

17. Sutherland, D. M.: Macrogonitosis, *Brit. J. Surg.* 20: 343 (Oct.) 1932.

lost by vomiting in the high obstructions. Adequate and aseptic decompression is the only therapeutic measure that can favorably influence the low obstruction.

DR. ALTON OCHSNER, New Orleans: I didn't give Dr. Gatch credit for his contribution on the importance of intra-enteric pressure. This is something which has not been sufficiently appreciated in the past. Van Zwalenburg was the first to call attention to it. Wilkie has emphasized the importance of it in the obstructive type of appendiceal disease, and Gatch and his co-workers have done a great deal with this work. I agree with Dr. Gatch that enterostomy is seldom necessary with the use of these other preoperative measures, particularly the trans-duodenal decompression and the use of large doses of morphine. We have been using oxygen for a number of years, believing that it prevented anoxemia in individuals who receive large doses of morphine. Dr. Fine of Boston has shown recently that the inhalation of oxygen is of distinct benefit in aiding in the elimination of gas from the intestinal lumen, and I am sure that the results obtained from the inhalation of oxygen is largely due to this mechanism. The individualization in these cases is of the utmost importance, and there is no set rule that can be laid down. Possibly there still will remain some few cases in which a general "stripping" might be necessary, but they certainly represent the exception and not the rule.

ANOMALIES AND FRACTURES OF  
THE VERTEBRAL ARTICULAR  
PROCESSES

WILBUR BAILEY, M.D.  
LOS ANGELES

Fissures across the vertebral articular processes may be formed by the presence of an ununited accessory center of ossification opposite the tips of the articular processes, or they may be the result of fracture of the articular processes. The differentiation between these anomalies and isolated fractures of the vertebral articu-

center of ossification opposite the tip of an articular process in the lumbar region. Such fissures are usually transverse, well demarcated and often bilateral or multiple. There are, however, variations which are shown in the present series of cases and which depend for their appearance on whether or not partial fusion has occurred between the accessory center of ossifica-

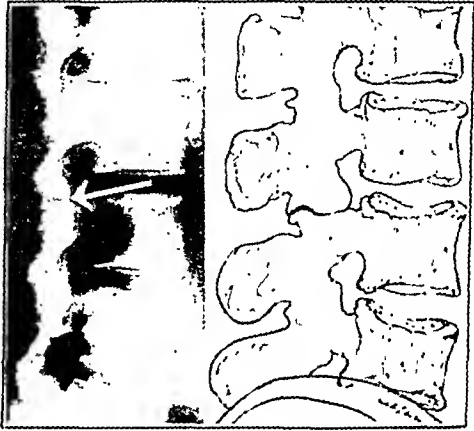


Fig. 2 (case 1).—Lateral view. The anomalous fissure formation can often be seen in this position.

tion and the tip of the articular process and, if so, how much. The commonest location is at the tips of the inferior articular processes of the second and third lumbar vertebrae, but nearly any lumbar vertebra may be so affected, as is indicated by the present series of cases.

The etiology of this anomalous fissure formation has been attributed by various authors to at least three possibilities. Müller<sup>1</sup> first considered these fissures as "umbauzonen" by which he meant to imply that they were like the fairly well delineated areas of rarefaction which he had found in spinous processes that bordered on a tuberculous lesion in the spine. In this and other locations in which there was abnormal strain on a spinous process, the bone of the process reacted by

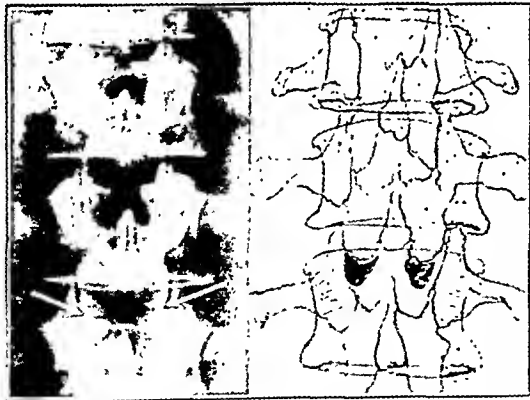


Fig. 1 (case 1).—H. H., aged 40, a laborer, fell from a scaffold, complained of transient numbness of the extremities and pain in the back. Symptoms disappeared soon. Anomalous fissure formation through tips of both inferior articular processes of second lumbar vertebra.

lar processes can nearly always be made, but even in the literature considerable confusion exists in making the distinction, and anomalies have been mistaken for fractures. If proper value is given to the history of the injury and to the appearance in the roentgenograms, such mistakes are preventable.

ANOMALIES

Much more common than fractures are the fissures due to anomalies which arise because of an accessory

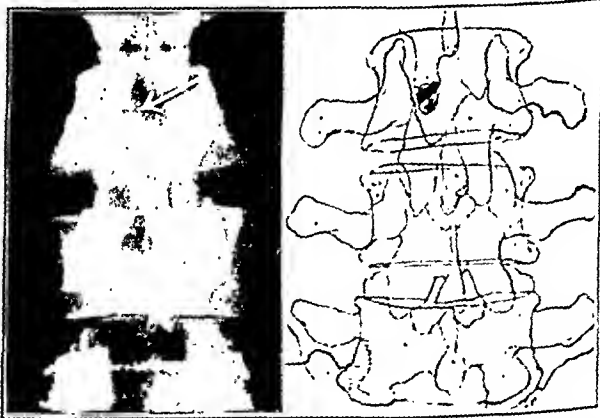


Fig. 3 (case 2).—G. B., aged 28, a laborer, gave a history of having wrenched the lower part of the back while lifting. Persistent pain in the lower part of the back. Anomalous fissure at right inferior articular process of second lumbar vertebra.

showing a well delineated transverse line of rarefaction. At a slightly later date, Grashey<sup>2</sup> called attention to this articular process fissure phenomenon and described

From the Department of Radiology, University of Southern California School of Medicine.  
Read before the Section on Radiology, at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

1. Müller, Walter. "Stoffwechselvorgänge an Gelenk- und Bänderregionen der Wirbelsäule und der Röhre vom Menschen, Festschr. a. d. Geb. d. Patholog. Anat. 44: 643-648 (Nov. 1, 1931).  
2. Grashey, R. "Discussion at 22d Congress der Deutschen Röntgenologen, Festschr. a. d. Geb. d. Röntgenstrahlen 44: 100-101 (Aug. 1931).



circulation, restores normal capillary function more promptly, and removes toxic and infective material. Prompt restoration of adequate circulation is the important result. It is obvious that he must avoid trauma. When carefully done, there should be little shock from this procedure.

According to Moynihan:<sup>5</sup>

No operation for acute obstruction can be considered complete which leaves an intestine, whose function it is to absorb, overdistended by contents of an offensive and poisonous nature. To empty the bowel of its feculent contents is not to add a danger to the operation by reason of the opening and subsequent suture, but to remove, at the cost of a trifling expenditure of time, that condition which makes most speedily for failure.

Although Moynihan<sup>5</sup> does not advocate stripping, he suggests that evacuation of the bowel be accomplished by drawing the distended bowel on to a long glass enterostomy tube, a procedure which in practice frequently involves at least almost as much manipulation of the intestine as does stripping. Cheever<sup>6</sup> contends that the need for the immediate relief of distention is so great that evisceration and evacuation of the contents of the intestine, both in mechanical obstruction and even in some cases of ileus associated with peritonitis, should be done. On the other hand, Læwen<sup>7</sup> showed that the trauma associated with intestinal stripping results in cardiovascular disturbances, particularly fall in blood pressure, and Morton<sup>8</sup> contends that emptying of a distended loop of toxic material, even by the slightest manipulation, causes damage to the friable mucosa, hemorrhage and absorption of toxin. He thinks that stripping the intestine is a very dangerous procedure and has evidence that it acts the same in human cases as it does in animals. Stripping of normal intestine causes carotid blood pressure to fall, but it recovers and in forty-five minutes is normal. When the same thing is done after an ileus of twenty-four hours' duration, he says, the blood pressure falls and shows little tendency to return. A proportion of these animals quickly die.

Whereas the theoretical advantages of relieving intra-intestinal pressure and dilatation of the intestine in ileus cannot be denied, especially when one considers the possibility of accompanying intramural strangulation, it is necessary by careful clinical and experimental investigations to evaluate the advantages of mechanical stripping of the intestine. The intelligent use of duodenal decompression preoperatively, as suggested by Wangenstein,<sup>9</sup> usually will obviate the necessity of such a procedure, but still there are cases in which such preoperative measures are contraindicated or unsuccessful and in which stripping might be used.

In any attempt to evaluate the procedure, some pertinent laboratory and experimental observations must be considered. Blalock<sup>10</sup> states that:

One of the most frequently used methods of producing shock experimentally consists of traumatizing the intestines. In experiments on twelve dogs, this was done by passing the intestines gently [italics ours] between the fingers. This was continued until a sustained low blood pressure resulted.

Dragstedt, Lang and Millet<sup>11</sup> have shown that there is considerable variation in the intramural blood supply of various parts of the intestine and, owing to this anatomic variation, intra-intestinal pressures exert varying influences on the blood supply (fig. 1). Kocher<sup>12</sup> in 1899 showed that intra-intestinal pressure might interfere with circulation and cause gangrene of the intestinal wall, and Van Zwalenburg<sup>13</sup> made observations on blood flow in the intestinal wall as affected by varying pressures within the intestinal lumen. The latter concluded:

The demonstration seems complete that distention of the gut (or of other hollow viscera) interferes with the circulation in its wall and allows infiltration and effusion to take place into its wall and lumen and any other open spaces which may come within its influence. The return circulation is retarded at comparatively slight pressures. Effusion follows, as in all obstructions to venous flow. As the average venous pressure in the intestine under ordinary circumstances probably varies from 4 to 10 mm. of mercury, any pressure beyond that will offer some resistance to the return current.

Gatch, Trusler and Ayers<sup>14</sup> showed that the blood flow through the intestinal wall decreased as the distention increased and ceased when the pressure within

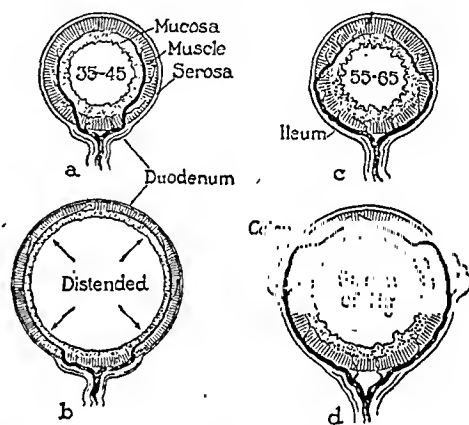


Fig. 1.—Diagram showing the relative points at which the vasa recta pierce the muscular coat at different segments. Distention occurring in the higher levels more readily causes compression of the blood vessels against the muscular layer, producing intramural vascular strangulation. (Modified after Dragstedt, Lang and Millet<sup>11</sup> and Morton.<sup>8</sup>)

the intestine equaled the systolic blood pressure. Burget, Martzloff, Suckow and Thornton,<sup>15</sup> working with subcutaneous, closed intestinal loops with intact mesenteries, showed that no clinical manifestations developed unless the pressures in the loops were high and produced vascular disturbances. Morton<sup>8</sup> found that the duodenum secreted from five to ten times as much fluid as the ileum and that, whereas the normal intra-intestinal pressure varies from 2 cm. to 4 cm. of water, after twenty-four hour obstruction the pressures within the duodenum and ileum increase from 28 cm. to 36 cm. and from 4.5 cm. to 5 cm., respectively. Herrin and Meek<sup>16</sup> studied the effect of distention on dogs with varying types of fistulas. They state: "Distention is

11. Dragstedt, C. A.; Lang, V. F., and Millet, R. F.: The Relative Effects of Distention on Different Portions of the Intestine, *Arch. Surg.* 18: 2257 (pt. 2, April) 1929.

12. Kocher, Theodor: Ueber Ileus, *Mitt. a. d. Grenzgeb. d. Med. u. Chir.* 4: 1899 (cited by Gatch, Trusler and Ayers<sup>14</sup>).

13. Van Zwalenburg, C. A.: Strangulation Resulting from Distention of Hollow Viscera, *Ann. Surg.* 46: 780, 1907.

14. Gatch, W. D.; Trusler, H. W., and Ayers, K. D.: The Effects of Gaseous Distention on Obstructed Bowel, *Arch. Surg.* 14: 1215 (June) 1927.

15. Burget, G. E.; Martzloff, Karl; Suckow, George, and Thornton, R. C. B.: The Closed Intestinal Loop: I. Relation of Intraloop Jejunum Pressure to the Clinical Condition of the Animal, *Arch. Surg.* 21: 829 (Nov.) 1930.

16. Herrin, R. C., and Meek, W. J.: Studies on Intestinal Obstruction, *Am. J. Physiol.* 97: 532 (June) 1931.

5. Moynihan, Berkeley: *Abdominal Operations*, ed. 4, Philadelphia, W. B. Saunders Company, 1926, vol. 1.

6. Cheever, David: Operative Evacuation of the Small Intestine in Paralytic Stasis, *New England J. Med.* 207: 1125 (Dec. 22) 1932.

7. Læwen, A.: Zur Operation des Ileus, *Zentralbl. f. Chir.* 34: 1037 (April 23) 1927.

8. Morton, J. J.: The Treatment of Ileus, as Indicated by Clinical Experience and Experimental Studies, *Ann. Surg.* 95: 836 (June) 1932.

9. Wangenstein, O. H.: Therapeutic Consideration in the Management of Acute Intestinal Obstruction, *Arch. Surg.* 26: 933 (June) 1933.

10. Blalock, Alfred: The Mechanism of the Production and the Treatment of Shock, *J. M. A. Alabama* 1: 94 (Sept.) 1931.

the right inferior articular process of the fourth lumbar vertebra and the adjacent superior articular process of the fifth lumbar vertebra were fractured.

Dohan<sup>11</sup> in 1910 recorded a case in which the right superior articular process of the sacrum was fractured and Graessner<sup>12</sup> in 1912 mentioned three similar cases as having been found in a series of various types of



Fig. 7 (case 5).—W. H., aged 77, a physician, with no history of trauma, complained of enlargement of prostate. Oblique anomalous fissure in the right inferior articular process of first lumbar vertebra.

spinal injuries. There are several other similar reports in the old German literature. Lippens and Dejardin<sup>13</sup> in 1932 recorded three cases in which the articular processes of the fifth lumbar vertebra were believed to be fractured. It was not until 1933, however, that a clear-cut case was demonstrated by Mitchell<sup>9</sup> in a report to which reference has already been made.

In view of the frequency with which an apparent fissure formation may be simulated, especially in the lumbosacral region, when two articular processes overlap because the lateral articulations are in an oblique plane, it becomes apparent that some of the reports of fractures, especially before the present advances in radiologic technic, may not be well founded. It seems also true, however, that articular process fractures may

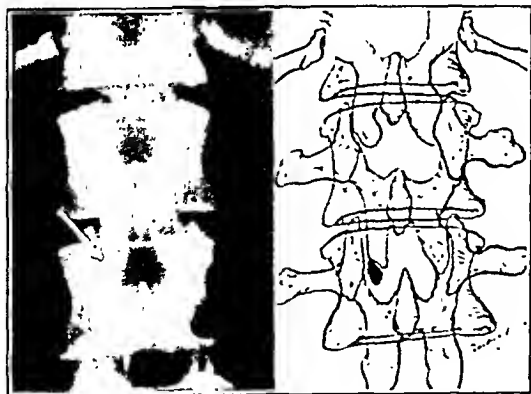


Fig. 8 (case 6).—Miss M. K., aged 26, a secretary, with no history of trauma, complained of indigestion. Anomalous oblique fissure formation in the right inferior articular process of first lumbar vertebra. Note notching in the humeral process of the twelfth thoracic vertebra.

sometimes be overlooked because the plane of the fracture is not seen in the usual routine view. The importance of radiographic exposures in the oblique as well as in the lateral position cannot be overempha-

sized as a means of thoroughly examining the lateral articulations and articular processes.

Both the case reported by Burk<sup>14</sup> and the one reported by Koch demonstrate the importance of the history, the mechanism of the trauma and the severity of the after-effects in cases of true fracture. Burk's 30 year old patient, in an effort to put heavily loaded platters on a low cabinet shelf near the floor, was squatting with her spine flexed forward when a sudden and severe twist of the spine toward the right was occasioned by her efforts. She promptly felt a sharp pain in the lower part of the back and could no longer stand completely erect. A year and half later she was still unable to bend over or lift heavy objects. An x-ray examination showed an exactly sagittal fracture fissure, which separated off a small fracture fragment through the right inferior articular process of the fifth lumbar vertebra. (The plane of the lumbosacral articulation in this case was so oblique as to be almost frontal). Operation showed the lateral lumbosacral joint space to be obliterated and motion to be occurring at a pseudo-arthritis between the fracture fragments. Although there had been much attempt at callus forma-



Fig. 9 (case 7).—J. B., aged 21, a laborer, strained his back six months prior to examination by falling over a box. Injured same place again by overreaching. Incomplete anomalous fissure at tip of right inferior articular process. Note also anomalous failure of fusion of the spine of the fifth sacral segment.

tion, no actual union had occurred. Two months after operative removal of the fracture fragment the patient was entirely well.

Koch's patient was flexed forward helping other men lift an anchor when another laborer shoved him sideways. A terrific pain immediately developed in his back and the patient became unconscious for a short time as a result. This is another instance of a patient who was seriously crippled until the fracture fragments (tip of the inferior articular process of the right fourth lumbar and adjacent superior articular process of the right fifth lumbar) were removed.

Both these cases show clearly that mere flexion and extension of the spine never cause such fractures, but such motion, if there is also a sideways twist, especially if a component of rotation is added, will be sufficient to cause trouble if the amount of motion is more than physiologic. Under such conditions the ligamentary pull plus the abnormal leverage of the articular processes against one another are the factors that may be sufficient to cause fractures. The factor of ligamentary pull is important in diagnosis, for the fragment is often by this mechanism pulled away from its point of attachment and does not lie in close apposition to

11. D. Sin. N. R. *Beitrag zur Lehre von den Lumbal-traumata*, Wien med. Wochenschr., 60:976-982, 1910.

12. Graessner. *Der posttraumatische Nachweis von Verletzungen der Wirbelsäule*, Med. Klin., 8:1633-1635, 1912.

13. Lippens, A., and Dejardin, L. *La fracture des apophyses articulaires vertebrales*, Bruck's *Chir.*, 124:732-733 (May 1) 1932.

14. Burk, W. *Ueber einen Bruch des Gelenkfortsatzes des 5. Lumbalwirbels*, Beitr. z. Klin. Chir., 54:511-519, 1910.

appendectomy and one an umbilical hernioplasty. The length of time elapsed since the previous operation varied from two days to fifteen years. There was a definite history of previous peritonitis in two cases, caused in one instance by a ruptured appendix and in the other by pelvic disease. One patient gave a history of severe trauma to the abdomen thirty years previously.

#### SIGNS

Abdominal distention was severe in most of the cases and in one of the cases presenting adynamic ileus was of such degree that there was no abdominal movement during respiration. In several cases the abdomen presented a corrugated appearance owing to the underlying distended loops of intestine.

Tenderness of the abdomen was noted in nine cases and abdominal rigidity was present in four cases. Both these signs were present in one of the cases in which there was associated peritonitis.

Peristaltic activity was audibly or palpably detected in five cases.

The average preoperative temperature was 99.3 F., with a range from 97.2 to 102.6 F. The preoperative pulse rate averaged 99 beats per minute, with a range from 52 to 140.

The average respiratory rate was 26 per minute, with a range from 20 to 40 per minute.

#### LABORATORY EXAMINATIONS

Pronounced concentration of the blood, indicated by high red blood cell counts and high hemoglobin values, was observed in four cases, all of which ended fatally. The carbon dioxide combining power of the plasma for the entire group averaged 50.3 volumes per cent and varied between 76 and 26 volumes per cent. Both patients who manifested these extremes of carbon dioxide combining power lived. There were four cases in which the carbon dioxide combining power was above 50, and three of these patients died. The carbon dioxide combining power was below 50 volumes per cent in four cases, two of which ended fatally.

The blood nonprotein nitrogen was above 30 in eleven cases, the values varying from 34 to 300 mg. per hundred cubic centimeters of blood. The average nonprotein nitrogen in the survival group was 56 and that in the fatal group 133. The highest nonprotein nitrogen recorded in a survival case was 87.

Blood chloride determinations ranged from 363 to 774, with an average of 472 mg. per hundred cubic centimeters of blood. The average blood chloride content in the survival group was 587 mg. and that for the fatal group was 469 mg. per hundred cubic centimeters.

Albumin was present in the urine in five cases in the entire group. Only two of the patients having albumin in the urine lived. Pus cells were present in the urine of two patients, both of whom lived. Casts were present in four cases, three of which were fatal. Indican was present in one case, and this patient died.

Preoperative x-ray studies consisting of plain films taken with the patient either erect or lying on the side were made in nine cases. Four of these patients lived and five died. Barium sulfate enemas were not employed in any of these cases and in none of these was barium given by mouth. The average amount of time elapsing between the onset of obstruction and the making of the x-ray examination was fifty hours. Diffuse gas accumulation was noted in two cases, both of which were fatal. In no instances in this group were

localized accumulations of gas alone found. There were localized or moderately pronounced fluid levels in two cases, in both of which survival occurred, whereas in six cases in which fluid levels were pronounced and diffuse there were five deaths and only one survival. In only seven of the nine cases in which plain plates were made was the extra evidence of obstruction quite definite.

A small stomach tube or Jutte tube was introduced preoperatively in twelve cases. In seven of these cases gastric lavage was done. In one case the tube was aspirated at intervals and in four cases the tube was simply allowed to hang over the side of the bed to permit evacuation of stomach contents by simple siphonage. Ten of the patients on whom some type of preoperative gastric drainage was done died and two lived. Hypodermoclysis or phleboclysis was used preoperatively in each case.

#### ANESTHESIA

Spinal analgesia was employed in eight cases with six deaths. In seven of these cases procaine crystals dissolved in spinal fluid were used and in one instance a preparation of procaine with strychnine sulfate was

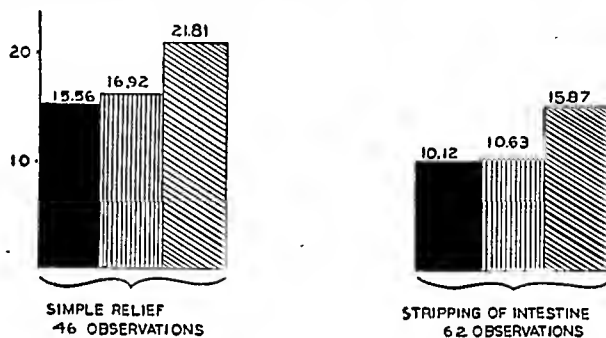


Fig. 3.—Comparison of the degree and character as well as of the duration of intestinal activity in ileus treated by simple relief of obstruction and by relief of obstruction plus stripping. The black area denotes the average increase in tone in millimeters, the vertical shading the average increase in amplitude in 0.1 mm., and the oblique shading the average duration of activity in minutes.

used. Local analgesia was used for four patients, all of whom were in extremely poor condition, with three deaths. Ether was administered to three patients with one death. One patient who received ethylene anesthesia died.

#### OPERATIVE RESULTS

A definite and complete absence of peristalsis was recorded in two cases, both of which were fatal. Discoloration of the intestine was present in four patients, only one of whom survived. Mesenteric thrombosis was present in one fatal case. An excessive amount of clear peritoneal fluid was recorded in one fatal case, but this finding was present in several other cases in which no specific notation of such a condition was made. Peritonitis was present in three patients, one of whom survived. Edema of the intestine was definitely recorded in only one fatal case. The degree of distention, recorded as 1, 2, 3 or 4+, averaged for the entire group 2.8+. The average degree of distention for the survival cases was 2.6+, whereas that for the fatal group was 3.0+. The average duration of operation in seven cases in which it was recorded was sixty-five minutes.

#### OPERATIVE PROCEDURE

The operative procedure used, aside from division or resection of bands and adhesions or reduction of her-

Since eight of the present series of ten anomaly cases were selected from 2,000 cases in which a radiographic examination of the spine was conducted, it seems likely that such anomalies are more common than would appear from the literature. As previously noted, isolated fractures of the articular processes are quite rare.

#### CONCLUSIONS

1. The chief importance of fissures across the vertebral articular processes lies in the differentiation of anomalous centers of ossification at the tips of the articular processes from isolated fractures of the articular processes.

2. Such accessory ossicle formation is not very unusual. The history of antecedent trauma may be vague or entirely absent, as it was in over half the cases in this series; the defect is often bilateral, and the inferior, and very rarely the superior, articular processes are affected.

3. Fracture of the articular processes without severe concomitant injuries of the spine is a rare lesion. The mechanism is understood and the history should conform to it; the pain is prompt, severe and disabling; the fragments are usually displaced, owing to ligamentary pull; the fracture fissures are characteristically irregular and a small comminuted fragment may be produced.

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### ANOMALOUS BONES OF THE WRIST AND FOOT IN RELATION TO INJURY

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Compensation for industrial injury has become one of the major problems of our social organization, and the treatment of injuries under various forms of industrial insurance is probably the largest single field in the practice of medicine. Among the injuries sustained by workmen, those which involve the hands make up the largest group, and those involving the foot are a close second; the two combined probably comprise 50 per cent of the aggregate of industrial accidents. The manual laborer or machine operator whose hand is crippled is disabled until his injuries have healed and function has been restored. Injuries to the feet which interfere with weight bearing and locomotion are nearly as serious.

The evaluation of an industrial injury is largely influenced, perhaps too much so, by the presence or absence of bone lesions. Consequently, a knowledge of the anatomic variations in the bones and joints becomes a very essential part of the training of a physician for industrial practice. There are many bony anomalies in the body, but my aim in this paper is to confine its discussion to the principal extra bones that are found in the wrist and foot and that cause confusion in interpreting roentgenograms and evaluating injuries to those important joints.

#### WRIST

Dwight lists twelve anomalies represented by distinct supernumerary bone formations in and about the wrist.

any one of which can be mistaken for fracture. Several of these are rare and have not been seen in my experience.

1. Probably the most troublesome anomaly in the wrist, so far as the industrial surgeon is concerned, is the divided scaphoid (navicular) bone. Like the other carpals, this bone usually ossifies from a single center but may develop from two centers, and these may fail to fuse. In a considerable number of wrists, evidence of incomplete fusion may be observed on films (fig. 1) and occasionally the bone will be found divided into two fragments, usually of unequal size. Dwight cites a case, diagnosed as fracture, in which a careful histologic examination was made and two distinct bones with a cartilaginous plate between were shown to exist. Closely akin to this, but less frequently seen, is the divided semilunar (lunate). These two bones in their articulation with the os magnum (capitate) form the keystone of the wrist joint. The clinical importance of a divided scaphoid (or semilunar) is that the condition represents a mechanically faulty construction. Dislocation forward on the os magnum occurs more readily, a situation hardly compensated for by the fact that reduction can be more easily accomplished than is otherwise the case. The line of division in a subdivided scaphoid or semilunar is not a true joint, and trauma is usually followed by bone reaction along this line of junction. Such a reaction is difficult to distinguish from that which occurs in traumatic fracture with an abortive attempt at union. When a person with such anomalous conditions in the wrist attains full growth and enters an occupation that subjects the joint to strenuous use and repeated trauma, the first x-ray examination thereafter is very likely to reveal a dense and devitalized bone—the typical Preiser or Kienböck lesion. It is quite obvious that the management of a case of congenitally divided scaphoid, or one that has been divided by some old injury, should be quite different from a case of recent fracture. Therefore the proper interpretation of the conditions shown by x-ray becomes of paramount importance.

2. The industrial surgeon and the roentgenologist meet a somewhat similar situation in the interpretation of the os triangulare or ununited styloid process of the ulna. The existence of an additional bone distinct from the styloid process (fig. 2) is said to be rare, but it seems purely academic whether the detached fragment is an extra bone or an ununited styloid epiphysis. I am quite certain that I have seen instances of both types of anomaly, and the condition occurs often enough to be a matter of importance to industrial surgeons in determining whether the separate fragment found by x-ray examination following an injury to the wrist is a true anomalous bone, an old fracture with nonunion, or a recent fracture. When found associated with Colles' fracture, it is not of major importance because it will be repaired by bony or fibrous union by the time the fracture of the radius unites. It is when the separate styloid is the only suggestive finding that it becomes important. Correct interpretation requires a high degree of technical skill in producing suitable films and critical judgment by the roentgenologist in drawing conclusions. I have seen many wrists in which I am quite certain that the separate fragment has never been united, others in which fracture was definite and still others in which a single examination was not conclusive.

From the Pathological Laboratory.  
Read before the Section on Radiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

## SUMMARY AND CONCLUSIONS

1. The relief of intestinal distention in mechanical and adynamic ileus is desirable because of the beneficial effects of such a procedure on the blood supply of the intestine.

2. Stripping of the intestine during the operative relief of the obstruction will empty the intestine of its contents.

3. As shown by clinical and experimental observations, this procedure is attended with considerable risk, especially the danger of producing shock, contamination and injury of the intestinal wall.

4. The ultimate activity of the intestinal musculature is no better and in experimental observations is actually less marked in those cases in which stripping has been used than in those cases in which simple relief of the obstruction is employed.

5. Careful preoperative preparation of patients with ileus by means of duodenal decompression, replacement of electrolytes, and liberal doses of morphine in most cases will relieve the excessive intestinal distention and intramural strangulation.

1430 Tulane Avenue.

## ABSTRACT OF DISCUSSION

DR. WILLIS D. GATCH, Indianapolis: The value of this paper is in the exposition of the disastrous results of radical operation for advanced bowel obstruction. The intestinal mucosa possesses a power of selective absorption, which enables it to permit the passage into the blood of substances beneficial to the body and to prevent the entrance of poisonous materials. Many substances produced by the action of digestive ferments of bacteria on the contents of the normal or obstructed bowel are intensely toxic when introduced directly into the blood stream. The mucosa holds them back. It does so in the presence of intestinal obstruction as long as it is alive and uninjured. The operation of bowel stripping must certainly injure the mucosa and thus cause the absorption of toxic material. The complete drainage of this material by the operation is obviously impossible. The chief cause of the appalling death rate of intestinal obstruction has been the practice of subjecting patients to radical operation before they have been properly studied and prepared. Our present knowledge of bowel obstruction justifies the conclusion that the condition of a patient with intestinal obstruction is never so urgent as to justify the omission of complete preoperative study and treatment. This applies especially to the apparently advanced cases. They should not be treated as immediate surgical emergencies. I suggest the following plan of management: 1. The administration by intravenous injection of enough salt solution and dextrose to relieve dehydration and lack of nourishment. 2. Continuous gastric lavage by means of a nasal tube connected to a siphoning apparatus. 3. A thorough diagnostic study of the case, including a roentgenogram of the abdomen taken after the administration of a barium sulfate enema. If it is at all possible, the cause, site and state—whether early or late—of the obstruction should be determined. 4. The administration of enough morphine to relieve the patient of pain and apprehension. Morphine causes tonic contraction of the bowel and thus aids its decompression. These measures can be carried out simultaneously without disturbing the patient or removing him from his bed. This treatment will produce a great improvement in the condition of all but moribund patients. It is sufficient to relieve the obstruction in many instances. In all cases it will at least make the patient a much better operative risk. The treatment outlined has been planned to correct the local and systemic derangements caused by bowel obstruction. It reduces the peril of radical operation by deferring it until the systemic circulation is normal, until the site and cause

of the obstruction are fairly well known, and until the danger of manipulating distended and fragile loops of bowel is past.

DR. OWEN H. WANGENSTEEN, Minneapolis: I find myself in accord with the expressions of the authors. My displeasure with the method of stripping the bowel arises largely from the inability of preserving absolute asepsis throughout such a procedure. The most fundamental requisite for a successful issue is that the sterility of the peritoneum be preserved inviolate. The minutest escape of intestinal contents is synonymous with failure. The forbidding mortality of the operative treatment of bowel obstruction is due in large measure to lack of regard for the importance of this factor. The time has come to speak of the mortality of the disease and the mortality of treatment. My practice in dealing operatively with late cases of simple obstruction has been to do an enterostomy; it has been my experience that, if a vent for drainage can be established in this manner without spillage, a successful issue can be predicted. Operations of election are not well tolerated by patients with acute obstruction. An x-ray film of the abdomen gives reliable information as to where the obstruction will be found. Similarly, in the colon, aseptic decompression is the first considera-



Fig. 4.—Method employed to empty the small intestine by stripping after introduction of a Pezzar catheter, the eyelets of which have been enlarged.

tion. Such patients are to be identified preoperatively by the great distention frequently unaccompanied by vomiting and by the absence of gastric retention. The x-ray film indicates the degree and extent of the distention. I decompress such patients through a short transverse incision made directly over the transverse colon. As the authors have said, a number of patients may be satisfactorily managed without recourse to surgery, through the employment of suction applied to an inlying duodenal tube. In the main, however, the use of this therapeutic expedient as a sole therapeutic agent must be limited to instances of physiologic and adhesive types of obstruction. In its employment it is necessary to exclude instances of acute obstruction of the colon with great distention as well as strangulating types of obstruction. It is also important to follow the progress of the distention with subsequent x-ray films to be certain that the bowel is actually being decompressed. The need for the administration of enough para-oral fluids to insure an adequate daily urine output (from 700 to 800 cc.) is obvious. The significance of distention in the ill effects of bowel obstruction and the importance of decompression as a relief measure have become so apparent that I believe the time has come to change the adage concerning the danger of the high obstructions to read: The low obstructions are the most serious, for they carry the greatest hazard for the bowel wall. In saline solution, a good substitute is available for the fluids



tibialis posterior muscle is inserted into this tuberosity and is one of the chief muscles of plantar flexion, a forcible dorsiflexion might, and no doubt often does, rupture this attachment and along with the tendon injury may detach a fragment of bone. The surgeon and roentgenologist frequently have the responsibility of differentiating between an actual fracture and an unfused tuberosity. Roentgenograms of the opposite side do not help much, as Pitzner is said to have found the anomaly unilateral in more than one third of his observations. Examples of the sesamoid type, as well as various sizes, shapes and degrees of union of the tuberosity, are frequently seen; sometimes it is subdivided. It is readily understood how an x-ray examination taken two or three weeks after a foot injury, such as dropping a weight on top of the foot, may show such a detached bone fragment, which can easily be interpreted as a fracture, and it is usually the responsibility of the roentgenologist to say positively that such a condition is or is not a fracture.

3. *The Os Peroneum*.—This is the most commonly observed extra bone in the foot, and probably the least important. It is a sesamoid bone in the tendon of the peroneus longus where that muscle grooves the cuboid bone. Its position varies considerably, sometimes well forward under the cuboid, at other times more posterior beneath the head of the os calcis (calcaneum) or in an intermediate position under the calcaneocuboid articulation; it also varies much in size, shape and density and may be subdivided. Though of less clinical importance than some other anomalous bones, cases have been encountered in which dispute and confusion have arisen over this bony fragment.

4. *The Os Vesalianum Pedis*.—This bone corresponds to the bone of the same name in the hand, being the unfused tuberosity at the base of the fifth metatarsal bone. It is said to be rare; I have not observed



Fig. 4.—Os Vesalianum Pedis, represented by unfusion of the tuberosity at the base of the fifth metatarsal bone.

in an adult foot. In the developing foot it is common, especially in the female, and is usually found in the first few years of life. It is a small, irregularly shaped bone, and is usually found in the first few years of life. It is a small, irregularly shaped bone, and is usually found in the first few years of life.

(calcaneum) are great. Often the interosseous space between this process and the scaphoid and cuboid is quite wide and filled with cartilage. By calcification in this interosseous cartilage a secondary os calcis may arise. Such an extra bone may fuse with the projecting angle of the os calcis proper or with the scaphoid, or it may remain as a distinct extra bone (fig. 6). In two instances I have made the error of diagnosing such an anomaly as a fracture only to conclude after observing treatment over a period of weeks that the condition was not a fracture but an anomalous bone. The appearance of a freshly fractured process is usually distinctive (fig. 7).

6. *The Intermetatarsium*.—This is an extra bone located between the internal cuneiform and the first two metatarsal bones. It is said by Dwight to be present in 10 per cent of people,

but I have seen only one definite example and erroneously diagnosed that as fracture, changing the interpretation when I learned that there was no tenderness, pain or disability in that part of the foot.

7. *The Secondary Cuboid*.—This may occur as a separate fragment but is usually fused with the scaphoid at the lower and outer edge of that bone.

8. *The Subdivided Internal Cuneiform*.—This is mentioned by Dwight as a rare occurrence; I have never observed it.

9. *The Intercuneiform*.—This, another rare anomaly, is a wedge-shaped bone on the dorsum of the foot in front of the scaphoid.

10. *A Divided Sesamoid of the Great Toe*.—This anomaly is fairly frequent. When found in a patient who has dropped a heavy weight on the toe, it is difficult to convince surgeon, patient or oneself that it is an anomaly and not a fracture.

11. *A Separate Styloid Tip of the Fibula*.—This anomaly corresponds to that found in connection with the ulna and is occasionally observed. When found in connection with a sprained ankle, it requires good judgment on the part of the radiologist and considerable confidence in that judgment on the part of the surgeon to decide that the detached fragment was not torn off by the sprain. Sometimes the evidence is clear, at other times it is not.

12. *A Separate Styloid Tip of the Tibia*.—This anomaly corresponds to that found in connection with the ulna and is occasionally observed. When found in connection with a sprained ankle, it requires good judgment on the part of the radiologist and considerable confidence in that judgment on the part of the surgeon to decide that the detached fragment was not torn off by the sprain. Sometimes the evidence is clear, at other times it is not.

13. *A Separate Styloid Tip of the Fibula*.—This anomaly corresponds to that found in connection with the ulna and is occasionally observed. When found in connection with a sprained ankle, it requires good judgment on the part of the radiologist and considerable confidence in that judgment on the part of the surgeon to decide that the detached fragment was not torn off by the sprain. Sometimes the evidence is clear, at other times it is not.

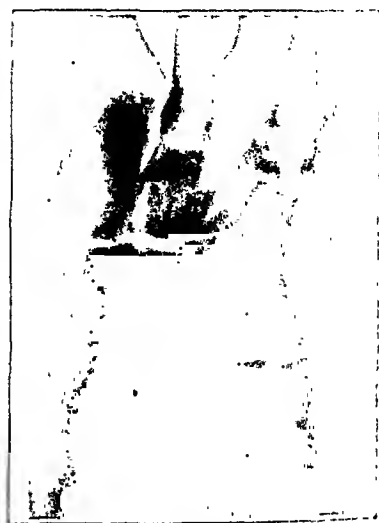


Fig. 5.—Tibiale externum, represented by unfusion of the tuberosity of the first scaphoid.

correctly an appearance resulting from the presence of an accessory center of ossification.

Meyer and Forster,<sup>3</sup> describing a case in the Belgian literature, entertain the question as to whether there are not epiphyses normally appearing at the tips of the articular processes early in life. If this should be the case, failure of fusion might reasonably be expected to occur occasionally. Whether such epiphyses regularly occur in early life does not appear to be of great importance for, as pointed out by Mardersteig,<sup>4</sup> Reisner<sup>5</sup> and others, accessory centers of ossification occur with considerable frequency opposite the heads of the ribs and opposite the tips of the spinous processes as well as opposite the tips of the transverse processes. With such anomalous ununited epiphyses in mind it seems not illogical, especially in view of the frequent bilaterality of the anomalies at the tips of the inferior articular processes, also to consider them as ununited epiphyses. That these cases are merely accessory bones in the same class as the os trigonum, which appears so frequently opposite the dorsal lip of the astragalus, is the opinion expressed by Rendich and Westing,<sup>6</sup> who believe that



Fig. 4 (case 2).—Lateral view. The anomalous fissure shows clearly in this view.

because of this etiology the name accessory articular process (*processus accessorius articularis*) would be appropriate.

Of much more importance than the etiology of these anomalies is their differentiation from fracture. As with anomalous epiphyses anywhere else, the cortex is as well delineated opposite the opposing bony surface as it is in the periphery of the epiphysis. Not only is the delineation sharp but the fissure is usually well defined (in those cases in which there has not been partial fusion) and often it is to be found with a reasonable degree of symmetry on both sides. These facts were recognized by Nichols and Shifflett<sup>7</sup> and by Fulton and Kalbfleisch<sup>8</sup> as well as by the others who have already been quoted as having described cases of this anomaly. The importance of not making a diag-

nosis of "old fracture" unless there is a definite history of trauma, complained of urinary calculus. Anomalous fissure, right inferior articular process of the second lumbar vertebra.

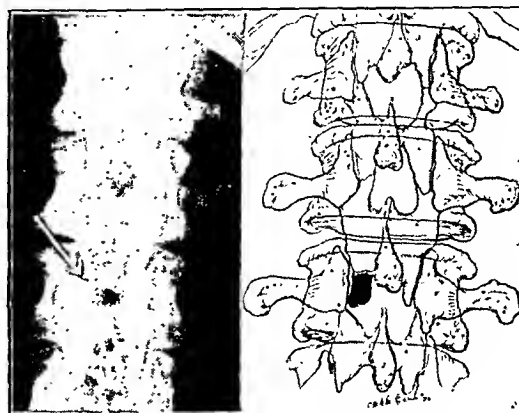


Fig. 5 (case 3).—A. M., aged 48, a physician, with no history of trauma, complained of urinary calculus. Anomalous fissure, right inferior articular process of the second lumbar vertebra.

third lumbar vertebra. The history of a twisting injury is definite, and the case seems definitely one of fracture. With the remaining cases the situation is somewhat different, however, for in three of them bilateral lesions were found and in none was there a history of trauma such as seems to be necessary to produce isolated fractures of the articular processes. There is also nothing about the radiographic appearance of these cases to differentiate them clearly from anomalies.

#### FRACTURES

Fractures of the articular processes in combination with severe injuries of the spine in which there is an actual dislocation of one vertebral body on another are not at all unusual. One or more articular processes are frequently sheared off under such circumstances.

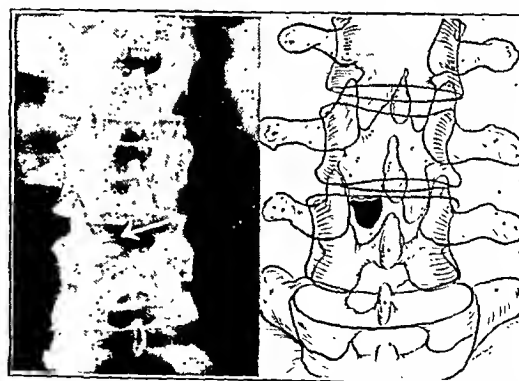


Fig. 6 (case 4).—J. M., aged 28, a carpenter, with no history of trauma, complained that he had swallowed nails. Anomalous fissure at tip of right inferior articular process of third lumbar vertebra.

Isolated fractures in which the vertebral bodies alone are involved, however, constitute a rarity. Burk reported such a case in 1908 in which the right inferior articular process of the fifth lumbar vertebra was fractured. In 1923 Koch<sup>10</sup> recorded a case in which

3. Meyer, M., and Forster, E.: Arrêts de développement d'une vertèbre lombaire pouvant prêter à confusion avec une fracture vertébrale. *Scalpel* 86: 1344-1347 (Sept. 2) 1933.

4. Mardersteig, K.: Fortschr. a. d. Geb. d. Röntgenstrahlen 46: 441-449 (Oct.) 1932.

5. Reisner A.: Unterscheidungsmerkmale normaler, entzündlicher und posttraumatischer Zustände an der Wirbelsäule, Fortschr. a. d. Geb. d. Röntgenstrahlen 44: 726-751 (Dec.) 1931.

6. Rendich, R. A., and Westing, S. W.: Accessory Articular Process of Lumbar Vertebrae: Differentiation from Fracture, *Am. J. Roentgenol.* 29: 156-160 (Feb.) 1933.

7. Nichols, B. H., and Shifflett, E. L.: Ununited Anomalous Epiphyses of the Inferior Articular Processes of the Lumbar Vertebrae, *J. Bone & Joint Surg.* 15: 591-600 (July) 1933.

8. Fulton, W. S., and Kalbfleisch, W. K.: Accessory Processes of Lumbar Vertebrae, *Arch. Surg.* 29: 42-48 (July) 1934.

9. Mitchell, C. L.: Isolated Fractures of the Inferior Articular Processes of Lumbar Vertebrae, *J. Bone & Joint Surg.* 10: 100 (July) 1928.

10. Koch, K.: Die isolierten Fracturen der unteren Gelenkflächen der Lendenwirbelsäule, *Deutsche Ztschr. f. Chir.* 100: 100 (1923).

with regard to establishing the constancy or inconstancy of the epiphysis of the tuberosity of the fifth metatarsal. As Dr. Watkins showed, there is an area of density below the fifth metatarsal, near the tuberosity; in the study of these children we found that that epiphysis, in all probability—it is difficult to establish positively unless one follows children over a long period—is fairly constant. It is present, however, for such a short time during the life of the individual that the impression is gained that it is inconstant. A child of 11 may show the epiphysis; by the age of 12 frequently it has fused to the bone and cannot be seen. What I wanted to emphasize particularly was that a fracture occurring in that fashion certainly must be very rare. When fracture of the tuberosity of the fifth metatarsal occurs, it goes across in transverse fashion, and the disk-like shadow of the epiphysis should never be mistaken for it. My impression of the os vesalianum is that it is a very different structure; it is a little density proximal to rather than on the inferior outer surface of the tuberosity of the fifth metatarsal, and it is an extremely rare extra ossicle. Some years ago I studied a series of twins and triplets, and there was one set of identical triplets in all three of which the small ossicle of the internal malleolus of the tibia which Dr. Watkins demonstrated was present. Certain other anatomic variations occurred in some identical twins. Some of these variations are so unusual that it is reasonable to assume, in view of their presence in all three, that they are preformed, entirely genetic, and not due to changes in utero or later acquisition.

DR. WILBUR BAILEY, Los Angeles: Dr. Chandler brings up a significant point when he says that these anomalies may be points of lessened resistance and that after a trauma the question always arises whether the anomalous fissure may not have been a weakened point. We really do not have enough information as yet on this subject to be certain. There were six cases in which there was no history of immediate trauma, which if considered with the remaining four cases in which there was a definite history of trauma show no characteristics sufficiently marked to enable one to separate the traumatic from the nontraumatic cases.

DR. W. WARNER WATKINS, Phoenix, Ariz.: The title of my paper as published here, is misleading, as it says "bony anomalies." I confined myself to anomalous bones rather than to other anomalies and so did not try to include synostoses in the hand and wrist. I wanted to deal with those injuries that are mistaken for fractures. The paper came out of my experience with the Industrial Commission work. A plan has been adopted in Arizona which is rather unique; the referee of the Industrial Commission has been asking that all x-ray films made by practitioners all over the state, except the large corporations carrying their own insurance, shall be sent to his office. I have been called on for interpretations on doubtful injuries. Practically every anomaly shown here today came out of that experience and had been diagnosed fracture by some practitioner, not by a radiologist. In isolated districts the doctors have made their examinations and have done the best they could, but they made some very serious mistakes as far as the Industrial Commission was concerned. I am glad to know Dr. Rigler's explanation of the os vesalianum. I have never seen one and I am glad to know where it ought to be. I hoped to find it in making a review of all the hands and feet in my file but did not. I should like to express my appreciation of Dr. Bailey's paper, because in this work we have a medical rating board, of which I am consulting radiologist, and before this board the Industrial Commission every month brings its difficult cases. Out of 126 cases that we have had during the past year, seventy were supposed back injuries. In most of them I could not find the back injury. I shall review all the cases and see whether this particular lesion, which I confess I have not yet looked for, is present.

**No Syphilis in Gilbert Islands.**—Syphilis continues to be nonexistent, and only a few cases of gonorrhea are seen from time to time. The incidence of visible yaws in the Gilbert Islands is said to have declined markedly, secondary manifestations now being rarely met with; 10,073 anti-yaws injections were given at the various hospitals during the year.—*Trop. Dis. Bull.*, 33:214 (Oct.) 1936.

## CONGENITAL LUNG CYST

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AND

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Congenital cyst of the lung may be defined as an intrapulmonary fluid sac of which the wall is composed of bronchial tissue and the fluid content is a product of the bronchial epithelium. Its formation is attributed to an anomalous occlusion of the bronchus in the embryo.

This condition, formerly seldom encountered, is now being recognized with increasing frequency with present day improved methods of roentgenologic technic. The literature is sufficiently complete to enable the well informed to make a diagnosis of cystic disease when the proper procedure of examination is followed. We believe that a larger number of cases would be discovered if routine roentgenograms of the chest were made on atypical pulmonary infections at the end as well as at the beginning of the disease. This statement is well supported by the cases cited by Kostlin,<sup>1</sup> Barlow,<sup>2</sup> Coats,<sup>3</sup> Frühwald,<sup>4</sup> Debré and Blinder<sup>5</sup> and many others. Further, after the early cases reported by Bartholinus<sup>6</sup> in 1687 and Meyer<sup>7</sup> in 1859, Koontz<sup>8</sup>

was able to collect only 108 from the world's literature to 1925, all of which were observed at autopsy, whereas 152 cases have been described in the past decade. We believe, therefore, that this pathologic entity should receive more thoughtful regard in the differential study of chest diseases.

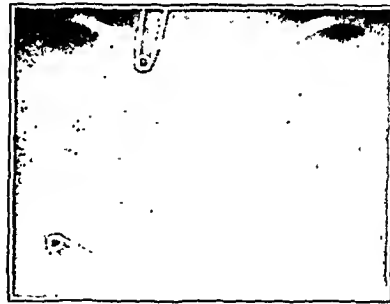


Fig. 1 (case 1).—Roentgen appearance of chest, November 7, demonstrating fluid cyst as opacity in midportion of the right lung field.

The number of cases of cyst of the lung found at autopsy gives an inaccurate conception of its true incidence. The growth may be masked by secondary complications, such as abscess or rupture, and may be overlooked by the pathologist unless the bronchi are carefully searched for the site of obstruction. Also, those cases not diagnosed clinically which undergo spontaneous recovery never come to necropsy.

### REPORT OF CASES

The following case of expansile air cyst is the second recognized by one of us (King):

**CASE 1.**—D. S., a Negro girl, aged 8 months, was the only child of healthy parents. She was born after a normal labor and weighed 6 pounds (2,720 Gm.) at birth. Her infant cry and primary respirations had been spontaneous. There was nothing unusual in the child's progress until a few days before Nov. 5, 1935, when she was brought to the Memphis General Hospital. At that time a nasal discharge and a cough which

Read before the Section on Radiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Kostlin. *Arch. f. phys. Heilk.*, 1849.
2. Barlow. *T. Brit. M. J.*, 1:14, 1889.
3. Coats, quoted by Koontz.
4. Frühwald, F. *Jahrb. f. Kinderh.*, 23:418, 1885.
5. Debré, R., and Blinder, H. *Bull. et mémoires. Soc. méd. d. P. d. P.*, 48:818 (June 6, 1932).
6. Bartholinus, T. *Malignant Opera Omnia*, Leyden ed., p. 240.
7. Meyer, H. *Vierteljahrs Arch. f. path. Anat.*, 16:77, 1859.
8. Koontz, A. R. *Bull. Johns Hopkins Hosp.*, 37:349 (Dec.) 1925.

the articular process as do the anomalous ossicles. It is also to be noted in these cases that pain is prompt and severe, and impairment of function is lasting. It seems logical to believe that the occurrence of bony union will be dependent on blood supply as well as on treatment. If the fracture occurs near the tip of the process, the chances of union, as in the cases described, are not good. If the fracture is near the base, however, union will occur. This has been the experience in the cases I have seen in which more severe concomitant spine injuries were also present.

#### COMMENT ON CASES

Because of their similarity to cases 1 and 4 respectively, the roentgenograms in cases 9 and 10 are not shown. Their details were as follows:

CASE 9.—J. K., a man, aged 28, a laborer, complained of pain since straining his back while lifting. Anomalous fissures, bilateral, through the inferior articular processes of the third lumbar vertebra were found.

CASE 10.—A. B., a man, aged 35, a laborer, with no history of trauma, complained of indigestion. An anomalous fissure at the tip of the right inferior articular process of the third lumbar vertebra was found.

It is particularly instructive to note that in six of the ten cases which are presented the discovery of the artic-

ular process anomaly was incidental to an examination for some other purpose, and no history of significant trauma to the spine was elicited. If the anomaly cases with a history of trauma are compared with those giving no such history, no essential differences will be found.

The most usual locations of these anomalies are at the tips of the inferior articular processes of the second and third lumbar vertebrae, but in my experience all lumbar vertebrae have been involved. The fissures across the inferior articular processes of the fifth lumbar vertebra, however, were oblique and the impression from these cases was that the fissure appearance was due to an articular shelf in the transverse plane of the body, much as in the case of the cervical vertebrae, and that the tip of the articular process was not actually severed from its base.

It seems entirely logical that anomalous ossicles should occur in the dorsal region; I have heard of one such case but none appear in the literature.

Although most of these anomalies appear in males, a few females are so affected. In the cases in which partial fusion has occurred, the fusion is always on the lateral side and the gap left on the mesial side has a smooth wedge shape which in no way suggests a fracture line. In some cases the only remaining evidence of these anomalous centers of ossification is to be found in the presence of a sharply defined notch in the mesial side of an inferior articular process.

In case 11, the history of a severe twisting injury to the spine due to a wagon wheel having passed over the

patient's back, as well as the finely serrated edges of the straight fissure which extends almost but not quite to the lateral edge of the inferior articular process, suggested the presence of the fracture. This belief was further substantiated when in the oblique view the fissure was seen to fork at its lateral end and thus to produce a tiny wedge-shaped fragment (fig. 12).

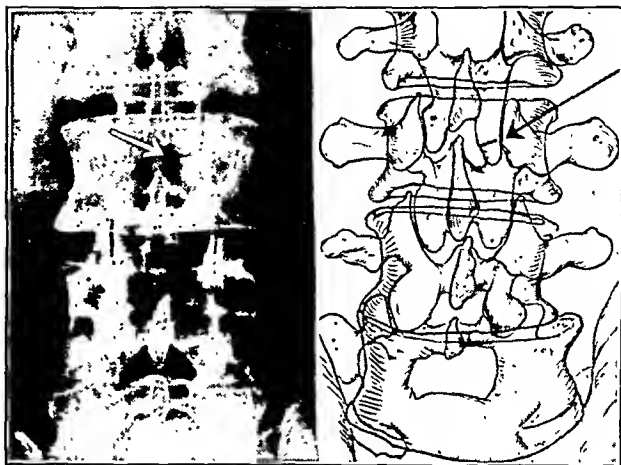


Fig. 11 (case 11).—J. A., aged 25, a laborer, gave a history of trauma capable of causing fracture. He complained of persistent pain after a wagon wheel ran over the middle of the back. There is a dark, straight fissure which extends almost to the lateral edge of the left inferior articular process of the second lumbar vertebra. The edges of this dark line show a fine serration which is not seen in the anomaly cases.

#### INCIDENCE

There are nineteen cases of these articular process anomalies reported in the literature, six of which are bilateral. Ten more cases are added in this study, two of which are bilateral. Most of the patients described in the literature are males; in most of them there has been a history of trauma, and all are in the inferior articular processes of the lumbar region. The exceptions to the last statement are a case reported by

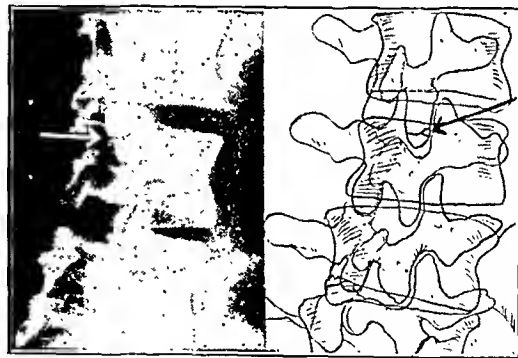


Fig. 12 (case 11).—Left oblique view. The same inferior articular process is seen to have a dark line running across it. The line once again shows irregular edges and at the lateral aspect it forks so that a definite tiny triangular fragment is formed.

Litten,<sup>15</sup> in which a fissure was found across the right superior articular process of the third lumbar vertebra in a patient with a history of trauma after heavy lifting, and case 8 of this series, in which there was an anomalous fissure through the right superior articular process of the fourth lumbar vertebra with no antecedent history of trauma.

15. Litten, F.: Ueber Spaltbildungen an den Gelenkfortsätzen der Wirbelsäule, *Röntgenpraxis* 4: 1039-1043 (Dec.) 1922.

Pearson,<sup>13</sup> in commenting on this case, diagnosed it as bilateral cystic disease. Apparently he failed to observe that the large cyst of the left lung herniated through the mediastinum into the right side of the chest while under intense pressure and that the entire sac returned to the left side of the chest when it collapsed.

#### ETIOLOGY AND PATHOGENESIS

It is almost unanimously agreed that cystic disease is congenital in origin. Many theories have been advanced to explain the anomaly, yet this academically important issue still is unsettled. Lohlein,<sup>14</sup> Buchmann,<sup>15</sup> Couvelaire,<sup>16</sup> Stoerk,<sup>17</sup> and Hückel<sup>18</sup> observed epithelial and connective tissue proliferations and considered the lesion neoplastic in nature. Blatt and Jacobs<sup>9</sup> recently described similar changes. Heuter<sup>19</sup> and Grawitz<sup>20</sup> believed it to be a congenital bronchiectasis; Francke<sup>21</sup> and Heller<sup>22</sup> regarded it as a congenital atelectasis and de Lange<sup>23</sup> as an atelectatic bronchiectasis with defective development of the alveolar tissue and excessive dilatation of the bronchi. Virchow<sup>24</sup> and Klebs<sup>25</sup> considered it a lymph vessel dilatation. Sandoz<sup>26</sup> and Oudendal<sup>27</sup> were of the opinion that congenital syphilis

ing on these factors. In 1928 Mueller<sup>33</sup> published an excellent article giving a critical review of theories advanced prior to that time, to which the reader is referred.

Microscopic studies of the structure of a fluid cyst, as obtained from autopsy reports, reveal the following characteristics: The walls are formed of fibrous and elastic tissue and concentric muscle fibers with interspersed cartilaginous plaques. The lining of a small cyst possesses stratified ciliated columnar epithelium, which is flattened into cuboidal shape as the cyst increases in size. The albuminous fluid content is composed of mucus, cellular debris, desquamated epithelial cells and white blood cells.

In order to understand clearly the formation of a cyst in the lungs, it is necessary to analyze the lung development in the embryo. According to Simpkins,<sup>34</sup> the bronchi develop as small ramifications of solid entodermal tissue, which become canalized almost immediately. It is our opinion that an unknown process interferes with the canalization at some point proximal to the termination of that ramification, resulting in its occlusion and causing a portion of the radicle to persist

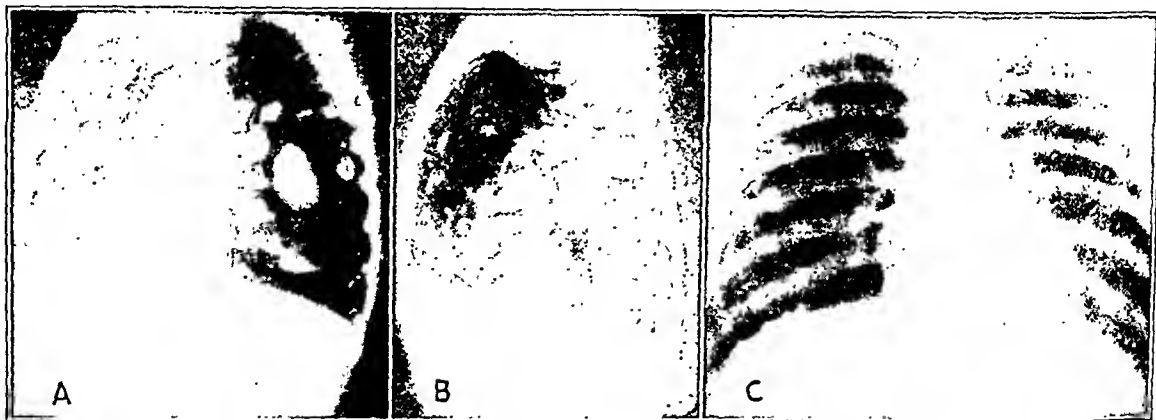


Fig. 4 (case 2).—Roentgen appearance after injection (through chest wall) of iodized oil: A and B are posterior anterior and lateral views; C, same case four and one-half years after complete recovery.

was an underlying cause. Box<sup>28</sup> and Bernstein<sup>29</sup> concluded that the process was a sequel of bronchopneumonia, possibly because of the frequently concurring pneumonitis. Parmelee and Apfelbach<sup>30</sup> advanced the idea that the cysts originate as small bronchiectatic cavities, which become distended with fluid during prenatal growth. Miller<sup>31</sup> and Wood<sup>32</sup> are of the opinion that there may be many unknown factors which are instrumental in the production of congenital cysts of the lung and believe that the subsequent progress has little bear-

as a mass of cells. Canalization begins again distal to the occlusion, producing an isolated canalized segment with normal mucous membrane, which assumes its natural secretory function. This secretion accumulates and, since it has no exit, forms a cyst (fig. 5). Lung cysts with wall structure characteristic of bronchial tissue have been found at autopsy performed on infants who died at birth, as reported by Wolman,<sup>35</sup> Pappenheimer,<sup>36</sup> Kessler,<sup>37</sup> Smith,<sup>38</sup> Collins<sup>39</sup> and others. In some of these the cysts formed prior to the development of alveolar tissue. Necropsies of those patients who lived for a time failed to reveal pigment in the cystic area, although it was present in the remaining lung tissue. These facts seem to establish the congenital bronchogenic origin of the cysts.

Probably the rapidity of prenatal growth and the size of the cyst at birth are dependent on (1) the amount of functioning bronchial mucosa entrapped and (2) the capsular strength of the cyst.

Postnatal growth usually is more rapid, being encouraged by the negative intrathoracic pressure, which

13. Pearson, E. F.: *Am. J. Thoracic Surg.* 4: 84 (Oct.) 1934; Illinois M. J. 67: 28 (Jan.) 1935.

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24. Virchow, Rudolf: *Gesammelte Abhandlungen zur wissenschaftlichen Medizin*, ed. 2, 1862, p. 982.

25. Klebs, E.: *Die allgemeine Pathologie*, Jena 2: 334, 1889.

26. Sandoz, E.: *Beitr. z. path. Anat. u. z. allg. Path.* 41: 495, 1907.

27. Oudendal, A. J. E.: *Virchows Arch. f. path. Anat.* 244: 59, 1923.

28. Box, C. R.: *Lancet* 1: 16, 1907.

29. Bernstein, I. M.: *Tr. Path. Soc. London* 56: 336, 1905.

30. Parmelee, A. H., and Apfelbach, C. W.: *Congenital Air Cyst of the Lung*, *Am. J. Dis. Child.* 41: 135 (June) 1951.

31. Miller, R. T., Jr.: *Congenital Cystic Lung*, *Arch. Surg.* 12: 392 (Jan. 2) 1926.

32. Wood, H. G.: *Proc. Staff Meet., Mayo Clin.* 9: 414 (July 11, 1934); *Congenital Cystic Disease of the Lungs*, *J. A. M. A.* 103: 843 (Sept. 15) 1934.

33. Mueller, H.: *Handb. d. spez. path. Anat. u. Histol.* 3: 576, 1927.

34. Simpkins, S. S.: Personal communication to the authors.

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3. A secondary pisiform bone may exist, seen more distal in the carpus than the os triangulare.

4. Still more rare is the ulnare externum, a separate fragment associated with the cuneiform (triquetral) bone.

5. The os centrale more often persists as cartilage, even in the fully developed wrist (fig. 1). In such cases it is seen as an area of absent density in the radial side of the os magnum. When ossified, it may be joined to the scaphoid or more rarely may exist as a separate ossicle (fig. 3).

6. The radiale externum is a separate bone fragment found just distal to the styloid process of the radius. It is not associated with the radius but is an unfused tubercle of the scaphoid (navicular) bone.

7. The epilunatum is the dorsal tip of the semilunar (lunate) bone, which occasionally exists as a separate fragment.



Fig. 1.—Divided scaphoid (navicular). The division apparently is not complete, the two fragments being united by a thin bridge of bone. There is no history of injury. A cartilaginous os centrale is also shown, represented by the notch in the radial side of the os magnum (capitate).



Fig. 2.—A distinct separate bone distal to the styloid process of the ulna. This is more likely a small sesamoid than an ununited styloid tip.



Fig. 3.—An os centrale associated with the scaphoid bone, but showing as a distinct ossicle.

8. The pretrapezium is the distal end of the ridge of the trapezium (multangular majus), which may occasionally exist as a separate fragment.

9. The subcapitatum is the distal end of the os magnum (capitate) on the palmar surface, which has been found as a separate fragment.

10. The secondary trapezoid is a free bone found in almost the same position as the pretrapezium but arising from the base of the second metacarpal bone.

11. The styloid process of the second metacarpal bone may develop independently and remain free or become fused with the trapezoid (multangular minus) or os magnum (capitate).

12. The os vesalianum manus is a free bone situated at the base of the fifth metacarpal. The tubercle for the attachment of the extensor carpi ulnaris varies considerably in size, and a fragment of it may exist as a separate ossicle. I have never encountered this anomaly, but I can easily see how it would offer difficulties and that it would probably be diagnosed as a sprain-fracture involving the attachment of the muscle mentioned.

## FOOT

In the foot and ankle region there are twelve anomalous bones which need to be recognized.

1. *The Os Trigonum*.—The posterior projecting portion of the astragalus (talus) is grooved for the tendon of the flexor hallucis longus. External to this groove is a prominent tubercle, the posterior process, to which the talofibular ligament is attached. This process varies greatly in size and shape; it is often observed developing as a separate epiphysis in the growing individual, and various degrees of fusion are found in the adult. In about 10 per cent of cases this process or tubercle is found as a separate or incompletely fused bone (fig. 4). There seems to be some disagreement among anatomists as to whether such a separate bone, when present, is an unfused posterior process or a distinct bone lateral to the posterior process. Pfitzner, probably the greatest authority on skeletal variations, contends

that it is a distinct bone. When such a detached fragment is shown in a roentgenogram of the foot, taken after an injury, the question of its status immediately becomes important. Decision must be made as to whether it is an anatomic variation and of no clinical importance or whether it is a fractured posterior process probably associated with rupture of the talofibular ligament. Sometimes the x-ray evidence is clear cut that it is either a congenital nonunion or a fragment detached at a time so remote that definite structural changes have developed. Usually the question of traumatic detachment must be answered by the x-ray evidence and observation, by a series of films suitably spaced.

2. *The Tibiale Externum*.—Two structures are called by this name. One is a sesamoid in the tendon of the tibialis posticus; the other is the unfused tuberosity of the scaphoid (navicular) bone (fig. 5). Both of these are seen frequently. The sesamoid bone is usually separated sufficiently from the scaphoid so that the question of fracture is not raised. However, the ununited epiphyseal tuberosity, or true tibiale externum, is often quite confusing. Since the tendon of the

early months of life and is first brought for examination because of an attack that was not unlike the previous ones until the child became dyspneic and cyanotic. The dyspnea, as a rule, is persistent, but the cyanosis is characterized by periods of remission. The child may recover spontaneously or may die during one of the attacks, as did one of the patients in this series. Large expansile cysts present this picture. Prior to the onset of cyanosis and dyspnea, one frequently obtains the history of a cough productive of a tenacious mucilaginous substance. The appearance of the fluid indicates the beginning of bronchial communication. Expectoration of blood-tinged pulmonary secretions, occasionally observed, is explained by rupture of the small adjacent vessels when coughing efforts increase the pericystic pressure. It should be remembered, however, that a cough is not always a symptom.

These patients are acutely ill at some stage of the disease. They appear lethargic, have anorexia, suffer

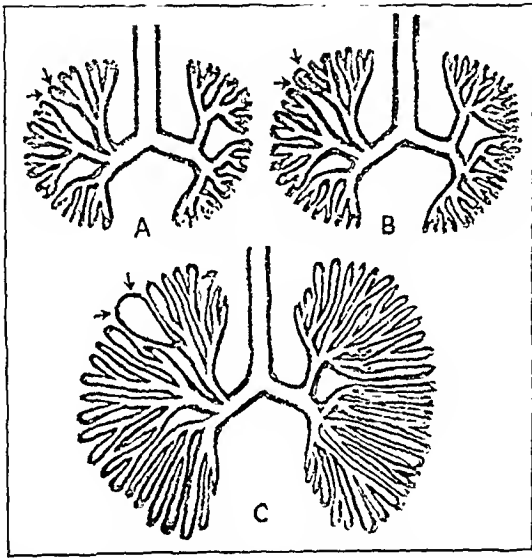


Fig. 5.—Diagrammatic illustration of embryonic ramifications of the bronchial tree: A, interrupted canalization of a ramification; B, canalization starts again distal to occlusion; C, fluid cyst formation.

with nausea and vomiting, either lose weight or fail to gain, and often show evidence of dehydration. These, however, cannot be labeled as prominent manifestations. The most one can say about the symptoms of cystic disease of the lung in children is that they coincide with those of pulmonary infection until the time the air chamber forms.

#### DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS

In our review of the literature we were able to find only one instance in which a clinical diagnosis of uncomplicated lung cyst was made prior to roentgenologic examination, which demonstrates the significance of the rôle of roentgenology in the diagnosis. This is not surprising, since there is so little in the symptomatology and nothing in the physical changes pathognomonic of the disease. It is obvious, however, that the importance of the clinical record is becoming more apparent with the accumulation of reported cases.

A careful roentgenologic study includes examination with the fluoroscope in all positions, as well as films made in vertical, horizontal and lateral positions. One finds single or multiple, sharply defined intrapulmonary shadows having the density of either fluid or air, or both, with a fluid line.

Cystic disease of the lung should be suspected in infants and children who suffer repeated attacks of respiratory infections in which dyspnea and cyanosis are unduly prominent. The suspicion should be stronger when these appear immediately after the child has coughed or expectorated a quantity of albuminous fluid.

Small fluid cysts, per se, seldom produce physical signs. When large and located peripherally, regional dullness and diminished vocal and breath sounds are elicited but are subject to variation in the presence of secondary infection.

Balloon cysts produce the physical appearance of pneumothorax under pressure; i. e., bulging thoracic cage, limitation of motion, tympany on percussion, absent breath sounds, and contralateral displacement of the mediastinum and diaphragm. In the roentgenogram, the entire lung field may be replaced, and the normal convex mediastinal and diaphragmatic contours compressed into concave lines.

The diagnosis of balloon cysts should present little or no difficulty from the history and physical and roentgenologic examinations, but the dense intrapulmonary ovoid shadow of fluid cysts must be differentiated from pulmonary consolidation, atelectasis, interlobar sacculations of fluid, pleural empyema, pulmonary abscess, solid tumors, and cysts of the echinococcal and dermoid varieties.

Of the many perplexing problems offered in differential diagnosis, the one that we wish to stress is the distinction between fluid cysts and pneumonic processes. As previously pointed out, one is confronted with the clinical picture of pneumonia. Unfortunately, this diagnosis often is confirmed by the roentgenologist, who demonstrates a curvilinear density in the pulmonary field. Since the concurring pneumonitis frequently responds in a short time to the usual treatment, one is further deceived as to the original disease process. The child is pronounced cured, when another roentgenogram of the chest would show the persistence of the cystic opacity and give a clue to the diagnosis. This explains why the diagnosis is not made until rupture occurs, even though the history obtained relates repeated cycles of the course described.

Atelectasis, as a rule caused by a foreign body in a portion of the bronchial tree, can be distinguished in the majority of cases by the history, by bronchoscopy, and by the clinical progress.

We have observed interlobar sacculations of fluid which presented a clinical picture identical to that of fluid cysts, as well as similar intrapulmonary densities in the roentgenogram. Lateral views, however, illustrated the line of thickened interlobar pleura leading to the fluid accumulation, establishing its identity.

A secondarily infected cyst, or one with extensive surrounding infection, simulates lung abscess and localized empyema. Wood<sup>22</sup> emphasized the point that abscesses either regress or progress, and the change may be observed roentgenologically. Eloesser<sup>23</sup> directed attention to the wedge-shaped shadow of localized empyema as compared with the ovoid shadow of cysts. Bronchoscopic examination and visualization of the bronchial tree with iodized oil may be necessary. More often than not, exploratory thoracotomy is required for differentiation.

From solid tumors, which are more dense, more sharply defined and develop later in life, cysts may be distinguished by aspiration or at operation. Echino-

<sup>22</sup> E. Eloesser, *Ann. S. Clin. North America* 8:1391 (D. J.) 1924.  
<sup>23</sup> Surg., Gynec. & Obst. 52:747 (March) 1931.

genologist in studying and treating injuries to the joints of the extremities. Only the most scrupulous care in making and interpreting roentgenograms, coupled with good critical judgment by the surgeon, both based on exact anatomic and physiologic knowledge, will prevent injustice to the patient and costly errors in diagnosis.

507 Professional Building.

### ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BAILEY AND WATKINS

DR. ARTHUR STEINDLER, Iowa City: Accessory centers of the vertebrae are known to be present regularly at the tips of the transverse and the spinous processes. Less is known of the secondary centers of ossification over the tips of the articular processes. It was a good point to bring in the so-called absorption zones of Loeser because of the fact that these absorptive zones are observed and considered of importance in those cases of separation which occur between the upper and lower articular processes, that is, in the so-called isthmus, where they are supposed to be responsible for spondylolysis and the development of a separate neural arch. I have observed four cases of fracture of the articular processes of the lumbar spine. The fractures were caused three times by direct violence and once by indirect violence. In two cases the lower articular process was fractured and in two cases the upper articular of the fifth lumbar was fractured. They were all associated with back injuries, especially sacro-iliac injuries. The roentgenogram showed what was considered to be healed fractures of the lower articular processes of the lumbar spine. All these articular processes demonstrated here were directed in the sagittal plane. The greatest encroachment in the mobility of the lumbar spine, with the exception of the sacral lumbar juncture, is the rotation. I believe that when the force strikes the vertebrae it is not so much the lateral deviation as the rotation by which a locking of the articular processes occurs and brings about the fractures seen in the demonstration of Dr. Bailey. I have occasionally seen divided scaphoids. One has to decide from the smoothness of the joint surface and the density of the two portions of the bone that the condition is an anomaly and not a fracture. Cystic degeneration often accompanies fractures and is significant of traumatic origin. Congenital synostoses occur between the carpal or tarsal bones.



Fig. 6.—The secondary os calcis, due either to nonfusion of the anterior process of the os calcis or to calcification in the interosseous cartilage. This was diagnosed as a fracture at first.

I have observed a woman with fusion of the first three and the last two metacarpals, and exostosis between the metatarsals and six toes, who had a congenital synostosis between the hamate and the capitate. As to the etiology, one can only speculate. With regard to synostosis of the tarsus, however, one is probably getting a better idea of how the condition comes about. The condition has been known since 1880. Slomann has made quite a study of the calcaneoscaphoid synostosis, which I have observed in two cases. It is probably due to the ossifica-

tion of the os calcis with the os calcis secundarium, which, according to Pfitzner, occurs in 1 per cent of the cases. Six such cases were reported by Bentzon. I have observed two.

DR. FREMONT A. CHANDLER, Chicago: The ossification of the posterior element of the spine progresses from a center at the base of the transverse process posteriorly. One therefore must look for the interruption of the ossification rather than the formation of an extra center to account for the lesions



Fig. 7.—True fracture of the anterior process of the os calcis

demonstrated by Dr. Bailey. Similar defects of ossification may be seen in the total absence of the articular process or the great variety of anomalous shapes which this process may have. The clinical recognition of such a lesion is undoubtedly of the greatest importance, and it is significant that the illustrations shown by Dr. Bailey were taken from patients presenting no local complaints. Whether or not an injury produces such a transverse lesion or whether it aggravates it introduces a most important question regarding the compensability of such a lesion. In most states, aggravation of a preexisting condition is recognized, and I believe that in these lower articular process lesions this state of affairs exists. Occasionally loose ossicles may be encountered during the course of a spine fusion operation. The most significant point of differentiating a congenital defect from a fracture at this site would be the alteration of the bone substance over a period of time, as reflected in the x-ray films. If due to fracture, progressive absorption and eventual recalcification would probably occur. In one or two of the illustrations shown by Dr. Bailey there was evidence of spur formation at the margins of the vertebral body. To me the occurrence of such spurs would indicate that trauma, acute or chronic, may have some direct relationship to the separate center of ossification. Dr. Watkins has given a thorough review of the major works dealing with the bony anomalies of the hand and foot. An orthopedic surgeon is interested in these anomalies as a means of differentiating fractures as well as explaining local symptoms. In the foot, the os tibiale externum is probably the most important. It is seen frequently in pronated feet and presents the clinical and pathologic picture similar to that found in Osgood-Schlatter's disease. Next in importance is the bipartite sesamoid, usually found in relationship to the head of the first metatarsal. These may be bilateral and have no clinical significance. They do, however, give a poor weight-bearing surface, which is susceptible to direct or indirect strain. Excision of such a divided sesamoid must be done with the greatest caution so as not to disturb the action of the short flexor tendon of the first toe. Third in importance is the separate center of ossification at the proximal end of the fifth metatarsal bone. This may be confused with fracture.

DR. LEO G. RIGLER, Minneapolis: I want to comment on the paper of Dr. Watkins and report two pieces of unpublished work that might be of interest. One of my assistants, Dr. John Eneboe, and I, some years ago studied several hundred children

observation, with prophylaxis against infection, should be carried out in these patients until they reach an age when procedures in thoracic surgery may replace the less efficacious palliative efforts to cure a condition of grave prognosis.

860 Madison Avenue.

#### ABSTRACT OF DISCUSSION

DR. L. R. SANTE, St. Louis: We have all been guilty in the past of calling certain shadows, especially along the side of the mediastinum, localized pleural effusions when they really were cysts of the lung. Whether it is lined with a secreting membrane or not it is impossible to tell in the roentgenogram. Due consideration of the clinical symptoms will aid in the differentiation. The fullest consideration of the clinical history and the subsequent developments of the case is always essential for the differentiation of this condition. If there is associated infection of the cystic area, it may be impossible from the roentgenogram alone to make a differential diagnosis. If, however, there are relatively few symptoms and signs and the case is observed over a considerable time under varying conditions of distention of the cyst with fluid, the diagnosis at least becomes presumptive. The absolute proof is dependent on conditions found at the autopsy. The expansile air cyst of the lung gives an entirely different picture. This type has been most frequently encountered in the very young. One must not get the wrong impression about the formation of balloon cysts of the lung as to how much they inflate and as to the mechanism by which inflation takes place. A check valve may give the impression that with every respiration the balloon cyst gets larger and larger until it ruptures. This can hardly be the case mechanically, because air enters the lung at all only by reason of the enlargement of the thoracic cage, and the amount of distention is dependent on its enlargement as exerted against the counter force of the elasticity of the lung, so that in the case of a cyst the thickness of the wall and its elasticity seem to be the determining factors as to how large it will get as the result of inspiration. After it has attained that size, and after that pressure has been equalized, it never gets any larger by subsequent respiration. It does have the effect of increasing the pressure in this area, however, so as to inhibit subsequent secretion from the living membrane, and perhaps that is the reason it remains an air cyst. Injection of iodized oil in a certain type of cases gives the typical appearance of bronchiectasis. I believe these represent multiple cystic areas, intimately connected with the bronchi, which leave, as is evident, free ingress and egress of air and yet actually maintain themselves as cystic areas in the lung.

DR. JAMES L. DUBROW, Des Moines, Iowa: I saw a patient hospitalized for five months in the orthopedic ward, who developed a sudden dyspnea although there was no history of any previous pulmonary or heart disease. Based on the physical examination and the bedside chest film he undoubtedly had spontaneous pneumothorax. He seemed fairly comfortable but died a few hours later in spite of treatment. Autopsy showed displacement of the heart and the mediastinum to the right side with much air in the left pleural cavity. The collapsed left lung showed numerous air cysts, the right lung also showing a few. I cannot state whether these cysts are congenital, not having as yet conclusive histopathologic data on the case.

DR. CARLETON B. PEIRCE, Ann Arbor, Mich.: I feel that, considering the rapidity with which the lung will excavate in a certain area following a lobular pneumonia or bronchopneumonia and develop cysts or a cyst in that area, the production of such a cystic area is entirely too common to permit one to call a great many of these "congenital cysts." Furthermore there is usually not much information about these youngsters until a certain age period. It seems to me that we must be extremely cautious in calling these congenital cysts. I am inclined to believe that most of the pneumocysts are acquired.

DR. LEO G. RIGLER, Minneapolis: I reported a case in which I was able to observe this phenomenon of destruction, mentioned by Dr. Peirce, occurring in staphylococcal pneumonia, which eventually produced a typical picture of a lung cyst in an adult. There is no doubt that this type of check valve obstruction of the bronchus may occur: with a previous excavation of the

lung from some inflammatory process a cavity may remain, and what is exactly similar to a cyst may remain and continue to fill with air because of the change in the bronchus. It takes a good deal of evidence to demonstrate clearly that these are not acquired.

DR. J. CASH KING, Memphis, Tenn.: One reason for making this presentation was the fact that we had discovered this one case in which we were able to study the fluid cyst in a young child and then to see it pass on into the expansile stage. I agree that there are many cases of apparently acquired lung cyst. We refer to them as emphysematous air sacs and we have seen them form within a short period of time and disappear in an equally short period. They were caused by the check valve type of occlusion, the result of a pathologic condition. Fluid cysts exist in many cases at birth, and they have been found in embryos to form prior to the time alveolar tissue develops. And in those patients who have lived they do not show pigmentation within the cystic area, even though this is present in the remaining lung tissue, which shows that they must be present. We have had some discussion with reference to the possibility of these lung cysts collapsing. Many authors have not seen a case in which the cyst has collapsed, and from the appearance of the autopsy specimens of the cases that have been present for a long time it would seem as though it would be impossible for that cyst cavity to collapse. In infants, however, it does not exist over too long a period, as shown in the second case reported. These cystic cavities will collapse completely and leave little or no evidence of their presence. We did not attempt to discuss the treatment but I want to emphasize the idea that treatment of fluid cysts encountered in small infants should be prophylactic, infection being warded off in every way possible. If necessary, more radical measures may be used to eradicate the cyst at a later period.

#### THE RELATIVE IN VITRO ACTIVITY OF CERTAIN ANTISEPTICS IN AQUEOUS SOLUTION

ROBERT N. NYE, M.D.

BOSTON

In the past ten years, innumerable articles concerning antiseptics have been published. Hardly a year passes without the appearance of a new proprietary bactericide. In advertisements in medical journals, magazines and newspapers and even in programs over the air the marvelous germ-killing properties of this or that antiseptic are brought to one's attention. Less credulous physicians are puzzled as to the solution of choice, whereas the more credulous are easily influenced by the astonishing claims of the manufacturers of certain solutions. One only needs consult the pharmacist of a large general hospital to learn of the many kinds of antiseptic solutions that are demanded by different staff physicians.

The experiments subsequently described were undertaken in an effort to determine the relative in vitro activity of certain proprietary and nonproprietary solutions which are ordinarily used as antiseptics for minor wounds and for irrigations. It is hoped that the accumulated data will serve to point out the discrepancies between the claims for certain proprietary solutions and the experimental facts and will enable the practicing physician to use and to recommend the use of antiseptics more advisedly.

What are the prerequisites of a solution of this sort? Although bactericidal action, as determined in the usual way, is of primary importance in evaluating the value of any antiseptic, this property alone is of

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produced mucoid material had developed, and she began tugging at her ears. Two days prior to admission she had become dyspneic and febrile.

On physical examination she was well developed and well nourished. Her temperature was 103 F., and respirations were 46 per minute. She had an occasional cough, a mucoid nasal discharge, pharyngeal hyperemia and a catarrhal injection of both tympani. Scattered râles were heard throughout both lungs.

Laboratory studies revealed white blood cells 28,000, red blood cells 4,300,000, hemoglobin 13.2 Gm. per hundred cubic centimeters, polymorphonuclear neutrophils 71 per cent, polymorphonuclear eosinophils 2 per cent, lymphocytes 21 per cent, myelocytes 4 per cent, and large mononuclears 2 per cent. The results of urine analysis and other laboratory tests were insignificant.

Examination of the patient's chest two days after admission elicited signs of consolidation in the midportion on the right. The temperature was now further elevated and showed a septic curve. Bilateral myringotomy induced the drainage of frank pus. Roentgenograms of the chest at this time demonstrated a well circumscribed curvilinear area of opacity measuring 1 by 1½ inches in the upper part of the lower lobe of the right lung (fig. 1). Following myringotomy and routine treatment, the child improved to some extent. The clinical course, however, continued to indicate a septic condition, and on November 23, eighteen days after entering the hospital, she became lethargic, her respiratory rate increased, and her cough ceased to be productive. November 27 it was noted that evidences of consolidation had disappeared over the right side of the chest and breathing on both sides had become wheezy. Two days later a bilateral mastoidectomy was performed. The temperature rose to 106 F., coincident with the appearance of the signs of meningismus. The râles were more diffuse and the percussion note over the lower right side of the chest was hyperresonant. For the first time cyanosis was apparent. Although these symptoms were fairly continuous, there were exaggerated periods in which death seemed inevitable. The child vomited frequently, refused food and showed evidences of early dehydration.

It was not until December 7 that a second roentgenogram disclosed a multilocular air sac replacing not only the area of cloudiness seen at the previous examination but also the lung tissue of the middle and lower lobes of the right side of the chest. The diaphragm was displaced downward and the heart to the left (fig. 2). The pressure within the cystic sac increased during inspiration. A differential roentgenologic survey resulted in a diagnosis of lung cyst.

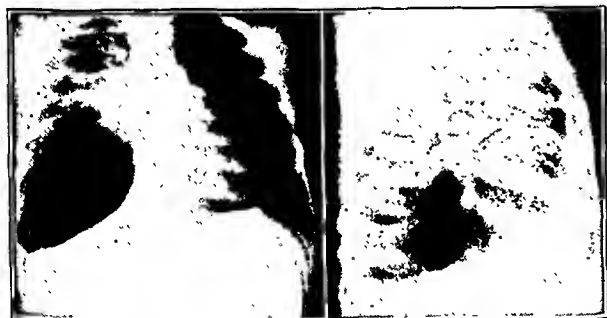


Fig. 2 (case 1).—Second examination, December 7, apparently fourteen days after bronchial communication. Anteroposterior and lateral views showing replacement of fluid cyst by large expansile air cyst.

The clinical course continued as before until December 11, about five weeks after the patient's admission, when the intensity of the paroxysm of cyanosis, dyspnea and lethargy failed to subside, and she died.

The case presented is that of a multilocular solitary cyst involving a portion of the right lung. The picture, as visualized through the history, the physical and roentgenologic observations and the clinical course, illustrates, first, a classic expansile fluid cyst colored by secondary infection, and, secondly, the usual fatal termination of congenital cystic disease following the

establishment of a certain type of bronchial communication.

The child enjoyed a normal existence, carrying a lung cyst from birth with impunity, until subjected to a severe infection of the upper respiratory tract. During a seizure of vigorous coughing the fluid cyst ruptured into an adjoining bronchiole, causing the expectoration of its albuminous contents. The bronchial aperture thus formed acted as a one-way valve mechanism. After allowing the exit of the cystic fluid, air entered and the valve closed the opening, preventing its egress. With each respiratory cycle the cystic cavity was further distended. When roentgenograms were subsequently made, no retained fluid was observed; air occupied the entire cavity, which was greatly enlarged and had extremely thin walls. The air was under pressure, thus displacing the mediastinum and depressing the diaphragm on the right. The decreasing pulmonary field caused progressive dyspnea, cyanosis and eventual death. Although autopsy was refused, we feel justified in labeling the condition a congenital cyst. Similar cases have been found by Blatt and Jacobs,<sup>9</sup> Hünemann and Sievers,<sup>10</sup> Fontanus<sup>11</sup> and others.

Following is a follow-up report on a patient with congenital air cyst of the lung who has now been well for four and one-half years. The case was reported in *THE JOURNAL* in 1933 by Dr. Clyde Croswell and one of the authors.<sup>12</sup>

CASE 2.—N. D., a white boy, born without incident to normal parents, showed no signs of an abnormality until he was 5 months of age. At that time he had an acute illness which was diagnosed as bronchopneumonia, from which he recovered under the usual treatment. At 12 months of age he had a recurrence of the illness and for three consecutive months suffered a similar attack, with a similar recovery from the first two. The third, however, was complicated by otitis media, and it was also noted that the child expectorated a large quantity of yellow material on several occasions. When the fever subsided in the last paroxysm he continued to suffer from progressive dyspnea. The physical and roentgen manifestations were those of expansile air (balloon) cyst of the lung (fig. 3).

The child was kept alive for thirteen weeks by repeated thoracenteses, neutralizing the intrathoracic pressure. A spontaneous recovery was observed seven days after the injection of iodized oil into the cystic cavity (fig. 4). He has continued to be well and has developed normally. A recent examination revealed a small amount of the iodized oil in the left side of the chest but no other residual evidence of the original cyst.

It is our belief that cure resulted from occlusion of the bronchial communication and destruction of the bronchial mucosa lining the cyst and that the iodized oil and infection brought about this change.



Fig. 3 (case 2).—Posterior anterior view of very large air (balloon) cyst, originating in the left apex, herniating through mediastinum, compressing the upper half of the right lung and the entire left lung.

9. Blatt, M. L., and Jacobs, H. M.: *Arch. Pediat.* 52: 250 (April) 1935.

10. Hünemann, C., and Sievers, H.: *Ztschr. f. Kinderh.* 50: 451, 1930.

11. Fontanus, quoted by Debré and Blinder.<sup>5</sup>

12. Croswell, C. V., and King, J. C.: *Congenital Air Cyst of the Lung*, *J. A. M. A.* 101: 832 (Sept. 9) 1933.



coccus aureus of standard resistance to 5 cc. of increasing dilutions of each antiseptic. After incubating in a water bath at 37 C. for exactly five minutes, one 4 mm. platinum loopful is transferred to 10 cc. of beef extract broth, prepared with a special batch of peptone (Armour's). After completion of these transfers, four 4 mm. loopfuls are transferred from the first tube to a second tube of broth. The latter is a modification suggested by Shippen<sup>2</sup> to eliminate the bacteriostatic effects of many of the mercury compounds. All tubes are incubated at 37 C. for forty-eight hours. The effective killing dilution is the highest dilution from which transfers failed to grow in both tubes.

fluid of a twenty-four-hour culture of *Staphylococcus aureus*, which had been slowly centrifugated for five minutes. This amount of culture was approximately seven times the minimum amount of the culture that would grow in control broth tubes. As will be seen from table 1, none of the solutions showed bacteriostatic effects except those of the mercury group. All but one of the latter were bacteriostatic, but the effect was less marked than that shown by the first transfers. This was most probably due to the combination of the effective traces of mercury in the higher dilutions with the protein substances in the broth during the primary incubation period.

TABLE 1.—Bactericidal Activity

Antiseptic Solutions	Dilutions									
	W	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{1}{32}$	$\frac{1}{64}$	$\frac{1}{128}$	$\frac{1}{256}$	$\frac{1}{512}$
<b>Iodine solutions</b>										
Compound solution of iodine, U. S. P. (1:20).....	....	....	....	....	....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$
Iodine solution, Amend (1:128).....	....	....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....
Compound solution of iodine diluted 1:6.4 (1:128).....	....	....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....
Compound solution of iodine diluted 1:27.8 (1:553).....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....	....	....
<b>Mercury solutions</b>										
Metaphen (1:500) .....	$\frac{0^0}{0}$	$\frac{0^0}{+}$	$\frac{0^0}{+}$	$\frac{0^0}{+}$	$\frac{0+}{+}$	$\frac{0+}{+}$	$\frac{+}{+}$	....	....	....
Merthiolate (1:1,000) .....	$\frac{0^0}{+}$	$\frac{0^0}{+}$	$\frac{0^0}{+}$	$\frac{+}{+}$	....	....	....	....	....	....
Mereurochrome (1:50) .....	$\frac{0^0}{+}$	$\frac{0^0}{+}$	$\frac{0^0}{+}$	$\frac{+}{+}$	....	....	....	....	....	....
Mercuric oxycyanide (1:4,000) ..	$\frac{+}{+}$	....	....	....	....	....	....	....	....	....
Mercuric bichloride, V-A (1:1,000).....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....	....	....
Merphenyl nitrate (1:1,500).....	$\frac{0^0}{+}$	$\frac{0^0}{+}$	$\frac{0+}{+}$	$\frac{0+}{+}$	$\frac{+}{+}$	$\frac{0+}{+}$	$\frac{+}{+}$	....	....	....
Merphenyl borate (1:500).....	....	$\frac{0^0}{0}$	$\frac{0^0}{+}$	$\frac{0+}{+}$	$\frac{0+}{+}$	$\frac{0+}{+}$	$\frac{+}{+}$	....	....	....
<b>Chlorine solutions</b>										
Zonite diluted 1:2 (1:100).....	....	....	....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....
Apeo no. 25 diluted 1:8.3 (1:260) .....	....	....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....
<b>Miscellaneous solutions</b>										
Hexylresorcinol (1:1,000) .....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....	....	....	....
Listerine (25 per cent alcohol).....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....	....	....	....	....	....
Pepsodent (25 per cent alcohol).....	....	....	....	$\frac{0+}{0}$	$\frac{+}{+}$	....	....	....	....	....

Numerator = result of first transfer; denominator = result of second transfer; 0 = no growth; + = growth; boldface type = highest bactericidal dilution; exponential sign = result of reinoculation of first transfer.

The results are shown in table 1. Compound solution of iodine, U. S. P., was by far the most effective. The bactericidal activity of the other solutions containing iodine was directly proportional to their iodine content. In all an actual iodine concentration of about 1:4,500 killed the cocci. Solutions containing chlorine came next in effectiveness, then the miscellaneous group and finally the mercury compounds. The last group showed considerable bacteriostatic power, but actual killing was accomplished by only three, of which one had to be used undiluted and another diluted only 1:2.

To recheck on bacteriostatic effects, all first transfers failing to grow in forty-eight hours were reinoculated with one drop of a  $10^{-4}$  dilution of the supernatant

#### BACTERICIDAL ACTIVITY IN MIXTURES CONTAINING FIFTY PER CENT HORSE SERUM

Each antiseptic was mixed with an equal amount of horse serum, which had been sterilized by passage through a Berkefeld filter. This mixture was allowed to stand at room temperature (about 22 C.) for approximately sixty minutes. Dilutions were then made with sterile 0.85 per cent salt solution and their bactericidal activities were determined by using the same method as in the previous tests.

The results are shown in table 2. As the antiseptics were diluted 1:2 with the horse serum, this is obviously the lowest dilution that could be tested. The three strongest iodine solutions were the only ones that retained bacteria-killing power in the presence of serum. The activity of the strongest as compared with its activity in the absence of serum was unaffected,

2. Shippen, L. P.: A Fallacy in the Standard Methods of Examining Disinfectants. *Am. J. Pub. Health* 18: 1231 (Oct.) 1928.

begins with respiration. Growth of the cyst compresses the surrounding bronchi, causing atelectasis distal to the compression and thus encouraging infection in the bacteria-laden lung tissue. The course of the cyst may be altered by these changes, or its presence may be entirely obscured. Infection likewise plays an important part in the rupture and evacuation of the cystic fluid. However, Ribadeau-Dumas and Rault,<sup>40</sup> Cautley,<sup>41</sup> Wood<sup>32</sup> and others report necropsics in which no inflammation was apparent.

Grossly, the subsequent behavior of a lung cyst may take one of two courses: First, it may rupture into a bronchus or, second, it may remain a fluid sac without bronchial communication. A study of these actions constitutes the most interesting and instructive phase of cystic disease, since it is from this point forward that the varied clinical pictures develop. For simplification of this study, we submit the diagram shown in figure 6.

From a survey of the literature, the termination most frequently observed is rupture into a bronchus. This establishes different degrees of bronchial obstruction, on which the clinical manifestations depend.

Chevalier Jackson<sup>42</sup> described the types of bronchial obstruction and correlated their mechanics and physical signs. He stated that these obstructions are represented in mechanics by (1) a stop valve, (2) a check valve and (3) a bypass valve.

The obstruction that is commonly accepted for an explanation of the expansile balloon cyst formation is Jackson's check valve type (fig. 6). This valve-like action occurs when a bronchial connection is established which permits the ingress of air without corresponding egress. The autopsy records of Nelson<sup>43</sup> and Jacobs<sup>44</sup> clearly demonstrate this mechanism, and the two cases that we describe were, at one stage, also examples.

In another type, the ruptured opening is small but sufficiently large to allow both ingress and egress of air, forming a bypass valve and resulting in a nonexpansile air cyst. Hünemann and Sievers,<sup>10</sup> Miller<sup>31</sup> and Hennel<sup>45</sup> have reported cases belonging to this group. A number have likewise come under our observation.

When the opening is large and free, unobstructed bronchial communication is established and the cyst is cured spontaneously. Zarfl,<sup>46</sup> Vollmer<sup>47</sup> and Schenck and Stein<sup>48</sup> describe cases in point. This form of termination occurs more often than one is aware of and may be a factor in the low incidence reported at necropsy.

All fluid cysts of the lung are caused by Jackson's so-called stop-valve occlusion. When the wall of the cyst is sufficiently strong to support an intracystic pressure which inhibits the secretory activity of the mucous cells of the germinative lining membrane, the fluid cyst remains as an asymptomatic parasite, as illustrated by Wood,<sup>32</sup> Basso<sup>49</sup> and Paviott.<sup>50</sup> This type is important from a standpoint of differential diagnosis, since usually it is discovered by accident. Kleine<sup>51</sup> and Mencarelli<sup>52</sup>

have each reported a case in which an unruptured asymptomatic cyst aborted through the visceral pleura, remaining attached by a pedicle.

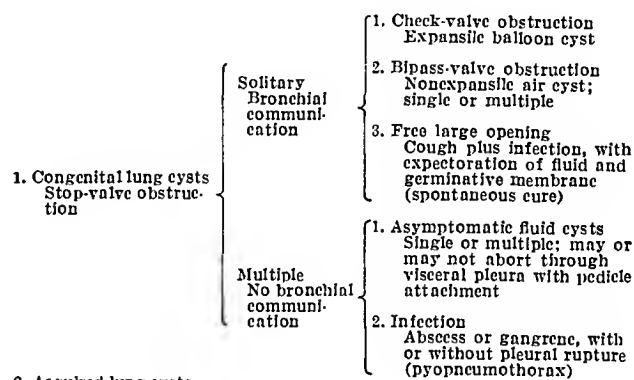
Infection of a cyst may occur by extension of bacteria through its walls, causing isolated abscesses. This was true of three cases cited by Sergeant and his co-workers<sup>53</sup> and was further substantiated by the work and case reports of Zdansky,<sup>54</sup> Siems<sup>55</sup> and Pollock and Marvin,<sup>56</sup> who recovered pure cultures of Pfeiffer's bacilli from lung cysts.

If the cyst ruptures into the pleural cavity, a hydrothorax results; or, if infected, a pyothorax results. If pneumatized tissue is encountered in rupture, air will be present above the fluid line.

#### CLASSIFICATION

Cystic disease of the lung may be divided into two main varieties, (1) congenital and (2) acquired, either of which may be solitary or multiple. Anspach and Wolman<sup>57</sup> and Dubrow<sup>58</sup> have offered classifications according to the pathogenesis. We have delayed making a classification because we note that there is little difference between solitary and multiple cysts so far

#### Classification of Lung Cysts



as their etiologic or pathologic manifestations are concerned. It is our opinion that any classification of cystic disease of the lung which goes beyond the division of congenital and acquired constitutes merely an enumeration of the different pathologic states that may develop in the progress of the growth. The diagrammatic illustration presented in figure 6 is derived from a study of our cases and a review of the literature as well.

#### SYMPTOMATOLOGY

Unfortunately, there is no symptom or train of symptoms pathognomonic of lung cysts. Many congenital cysts without secondary infection are symptom free and may not be recognized at all, as in the cases of Miller,<sup>31</sup> Wood<sup>32</sup> and Pollock and Marvin.<sup>56</sup> The symptoms that usually bring the disease to mind are related to the infection present and to the changes produced in intrathoracic pressure following rupture into a bronchus.

According to the usual history, the patient has had recurring attacks of respiratory infections since the

40. Ribadeau-Dumas, L., and Rault, H.: *Paris méd.* 2:381 (Nov. 5) 1932.

41. Cautley, E.: *Brit. J. Child. Dis.* 21:138 (April-June) 1924.

42. Jackson, Chevalier: *Mechanism of Physical Signs in Neoplastic and Other Diseases of Lung*, J. A. M. A. 95:639 (Aug. 30) 1930.

43. Nelson, R. L.: *J. Pediatr.* 1:233 (Aug.) 1932.

44. Jacobs, H. M.: *Congenital Cyst of the Lung (Solitary)*, *Am. J. Dis. Child.* 48:457 (Aug.) 1934.

45. Hennel, Herman: *Cystic Disease of the Lung*, *Arch. Int. Med.* 57:1 (Jan.) 1936.

46. Zarfl, M.: *Ztschr. f. Kinderh.* 54:92, 1933.

47. Vollmer, Hermann: *Ztschr. f. Kinderh.* 46:810, 1928.

48. Schenck, S. G., and Stein, J. L.: *Radiology* 24:420 (April) 1935.

49. Basso, R.: *Arch. ital. di anat. e istol. pat.* 5:913 (Sept.-Oct.) 1934.

50. Paviott, M.: *Lyon méd.* 152:566, 1933.

51. Kleine, H. O.: *München. med. Wchnschr.* 77:110 (Jan. 17) 1930.

52. Mencarelli, Lodovico: *Pathologica* 24:763 (Nov. 15) 1932.

53. Sergeant, Emile; Durand, H.; Kourilsky, R., and Patalano, R.: *Bull. et mém. Soc. méd. d. hôp. de Paris* 51:305 (March 4) 1935; *Arch. méd.-chir. d. l'app. respir.* 10:142, 1935.

54. Zdansky, E.: *Röntgenpraxis* 7:79 (Feb.) 1935.

55. Siems, H.: *Beitr. z. Klin. d. Tuberk.* 80:655, 1932.

56. Pollock, W. C., and Marvin, H. P.: *Am. Rev. Tuberc.* 27:59 (Jan.) 1933.

57. Anspach, W. E., and Wolman, I. J.: *Surg., Gynec. & Obst.* 56:635 (March) 1933.

58. Dubrow, J. L.: *Radiology* 24:480 (April) 1935.

amount of sterile 0.85 per cent salt solution for exactly five minutes. To promote more efficient diffusion, the sac was partially and rapidly removed and immersed ten times at two minutes, four minutes and four and one-half minutes after the start of the dialysis. The fluid levels inside and outside the sac were approximately equal. The dialysate was tested for bactericidal activity by the "F. D. A. (special) *S. aureus*, 37 C." method, except that dilutions were made with sterile salt solution rather than with sterile water.

The results are given in table 4. Only five of the dialysates were bactericidal. The three strongest iodine solutions had diffusion rates of 12.5 per cent. One

and resuspending in 5 cc. sterile Locke's solution. The cocci were killed by heating for six hours at 53 C. The tubes were then slowly rocked in an incubator room at 37 C. for twenty minutes. Smears were made on slides and these were stained with Wright's stain. The slides were examined microscopically and the number of neutrophilic polymorphonuclear leukocytes judged to be dead or badly injured at the time the bacteria were added was determined. Cells containing no cocci or only two or three were considered functionally inactive. Those containing moderate numbers of cocci were also noted, as these seemed to be cells that were active at the time the suspension was added but were subse-

TABLE 4.—Diffusibility

Antiseptic Solutions	Diffusions of Dialysate							
	W	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{1}{32}$	$\frac{1}{64}$	$\frac{1}{125}$
<b>Iodine solutions</b>								
Compound solution of iodine, U. S. P. (1:25).....	....	....	....	....	$\frac{0}{0}$	+	....	•
Iodine solution, Amend (1:125).....	$\frac{0}{0}$	+	....	•	....	....	....	....
Compound solution of iodine diluted 1:6.4 (1:123).....	....	$\frac{0}{0}$	+	....	•	....	....	....
Compound solution of iodine diluted 1:27.3 (1:553).....	+	....	•	....	....	....	....	....
<b>Mercury solutions</b>								
Metaphen (1:500) .....	$\frac{0}{+}$	....	....	....	....	....	....	....
Merthiolate (1:1,000) .....	+	....	....	....	....	....	....	....
Mercurochrome (1:50) .....	—	....	....	....	....	....	....	....
Mercuric oxycyanide (1:4,000).....	+	....	....	....	....	....	....	....
Mercuric bichloride, V-A (1:1,000).....	$\frac{6}{1}$	+	•	....	....	....	....	....
Merphenyl nitrate (1:1,500).....	+	....	....	....	....	....	....	....
Merphenyl borate (1:500).....	+	....	....	....	....	....	....	....
<b>Chlorine solutions</b>								
Zonite diluted 1:2 (1:190).....	+	....	....	....	....	•	....	....
Apeo no. 25 diluted 1:8.3 (1:260).....	$\frac{0}{0}$	+	....	....	•	....	....	....
<b>Miscellaneous solutions</b>								
Hexylresorcinol (1:1,000) .....	+	•	....	....	....	....	....	....
Listerine (25 per cent alcohol).....	+	....	....	....	....	....	....	....
Pepsodent (25 per cent alcohol).....	+	....	•	....	....	....	....	....

Numerator = result of first transfer; denominator = result of second transfer; 0 = no growth; + = growth; boldface type = highest bactericidal dilution; • = bactericidal potency, if diffusion 100 per cent.

of the mercury solutions had a rate of 25 per cent, which was not surprising in view of the fact that it was a solution of an inorganic salt which was probably highly ionized because of the presence of a small percentage of hydrochloric acid. One of the chlorine solutions showed 6.25 per cent diffusion.

TOXICITY

Mixtures of 0.25 cc. each of freshly defibrinated human blood and of different dilutions of the antiseptic solutions, prepared with Locke's solution as a diluent, were incubated in a water bath at 37 C. for exactly ten minutes. Then to each was added one drop of a heavy suspension of killed *Staphylococcus aureus*. This suspension was prepared by washing down with sterile 0.85 per cent salt solution the growth from two large agar slants (in 200 by 25 mm. test tubes), centrifugating, washing two more times with salt solution

and resuspending in 5 cc. sterile Locke's solution. The cocci were killed by heating for six hours at 53 C. The tubes were then slowly rocked in an incubator room at 37 C. for twenty minutes. Smears were made on slides and these were stained with Wright's stain. The slides were examined microscopically and the number of neutrophilic polymorphonuclear leukocytes judged to be dead or badly injured at the time the bacteria were added was determined. Cells containing no cocci or only two or three were considered functionally inactive. Those containing moderate numbers of cocci were also noted, as these seemed to be cells that were active at the time the suspension was added but were subse-

quently killed or injured. Ruptured cells were not included in the counts. With each different lot of defibrinated blood, controls with Locke's solution were made. These invariably showed practically all the polymorphonuclear leukocytes packed with cocci. Occasional small dead cells (from 2 to 4 per cent) with multilobulated nuclei were found in the controls. To control the primary toxicity of the potassium iodide in the compound solution of iodine, U. S. P., tests were carried out with a 5 per cent solution of iodine in 10 per cent sodium iodide.

The results of these tests are summarized in table 5. The toxicities of the iodine solutions were directly proportional to their iodine content. The leukocytes withstood a primary iodine concentration of about 1:1,100 for ten minutes. The iodine solution made with sodium iodide had a toxicity identical with that

coccic cysts usually appear in the lower lobes. If secretions are obtained either by aspiration or by expectoration, diagnostic hooklets may be found. The complement fixation test is useful in diagnosis. Urticaria and eosinophilia are distinctive features. Dermoid cysts originate generally near the mediastinum and do not develop until the age of puberty. Hair may be recovered from discharged cystic secretions. Too, roentgenograms may reveal dense structures, such as teeth and bone. Elimination of these various types, therefore, should not be difficult in the differential diagnosis.

#### TREATMENT

The kaleidoscopic clinical course, as well as the character, extent and location of the lesion, presents a difficult therapeutic problem. The measures employed depend on the age of the patient and the stage to which the disease has progressed at the time of discovery.

Asymptomatic fluid cysts are dealt with principally by prophylaxis or prompt therapeutics of concomitant respiratory infections. Therefore, rigid clinical and roentgenologic observation is indicated until the patient reaches an age when surgery may be safely undertaken. This allows a period of time to elapse during which a spontaneous cure may be established.

Miller,<sup>31</sup> Zdansky,<sup>54</sup> Melchior,<sup>60</sup> Sauerbruch,<sup>61</sup> Braeuning,<sup>62</sup> Harrington<sup>63</sup> and Clairmont<sup>64</sup> have found removal of fluid cysts in toto eminently effective in selected cases. Lobectomy has also proved satisfactory. When infection exists, treatment as for any lung abscess is indicated.

In balloon cysts, thoracentesis has been employed successfully by Crosswell and King,<sup>12</sup> Vollmer<sup>47</sup> and Fleming,<sup>65</sup> but was ineffectual in cases of Pearson<sup>13</sup> and Wood.<sup>32</sup> It may serve, however, to prevent a fatal accident until more radical measures can be applied. Adams<sup>66</sup> emphasized the importance of attaching to the needle a rubber tube and placing its end under water, thus maintaining equalized intrathoracic pressure. Iodized oil should be injected into the cyst at the first thoracentesis. Single aspirations are of no value; in fact, they may prove harmful.

Surgery probably will meet the demand for cure of expansile cysts. However, Eloesser's<sup>69</sup> patient died of postoperative shock when a balloon cyst was removed, and Graham<sup>66</sup> was unsuccessful in his attempt to suture the bronchial opening by way of the transthoracic route. The use of the thoracoscope, or straight cystoscope, and cauterization of the aperture with sclerosing solutions or other destructive agencies, according to the method of Adams,<sup>66</sup> seems to us the most logical and hopeful surgical approach.

Multiple cysts lend themselves less readily to therapy than do solitary cysts. Should these lesions fail to respond to sclerosing solutions, surgery is the best treatment. Operation is likewise necessary in the majority of cases complicated by infection. Many patients, however, show little effect of the infection, as is shown in reports by Gibson,<sup>67</sup> Ehlers<sup>68</sup> and Miller.<sup>31</sup> The most popular procedures are postural and bronchoscopic drainage, and vaccines. These, however, are

seldom curative. When the cysts involve an accessible portion of the lung, lobectomy may be employed. Phrenic interruption has been attempted in an effort to collapse the cavity. Pneumothorax has been tried, but with dubious success.

#### PROGNOSIS

An analysis of the reported cases of congenital lung cysts indicates a high mortality rate in infants and children. Of the total of 152 reported since 1925, forty-six of the patients were under 3 years of age. Of the forty-six, thirty-six are dead. A record of cure is available in only seven of the remaining ten. We note, however, that a far higher percentage of deaths occur in the first two years of life, probably because of the poorly developed accessory muscles of respiration, the flexible infant mediastinum, and the inability of the lung tissue to withstand the pericystic pressure. The overwhelming infection present in some cases is also a factor.

Fluid cysts, it seems, do not of themselves carry a grave outlook, but the development of infection and the establishment of bronchial communication are fatal complications.

It follows, then, that the prognosis of a given case of congenital lung cyst, like the treatment, is governed by

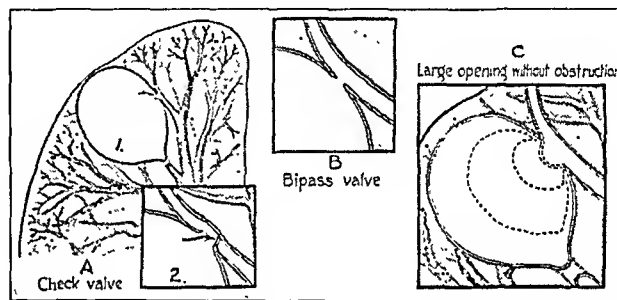


Fig. 6.—Mechanism of action of the types of bronchial communication. A 1, check valve allows ingress of air on inspiration; A 2, expiration—closure of bronchial opening by flap prevents egress resulting in expansile air cyst. B, bypass valve allows ingress and egress of air; result, non-expansile air cyst. C, large free opening results in collapse of cyst with spontaneous recovery.

the age of the child and the stage of the disease when recognized.

#### SUMMARY AND CONCLUSIONS

Although an increase in reported cases of congenital cystic disease of the lung has occurred during the past decade, many more probably would be discovered if the condition were kept in mind and the proper method of examination employed. We have discussed the embryologic, physiologic and pathologic background of the disease and presented a graphic outline of the various states encountered in its course. It is our opinion that the condition is the result of some anomaly that interrupts the canalization of a ramification in a bronchial radicle in the embryo and that the portion thus separated later develops into a stunted structure retaining bronchial characteristics, the entrapped secretory mucosa of which furnishes the fluid for the cyst found at birth. The subsequent clinical behavior has no bearing on the congenital factors of its production but is dependent on the development and extent of infection and, if any, the type of bronchial communication established.

The symptomatology, diagnosis, differential diagnosis and methods of treatment have been presented in detail. We wish to stress, particularly, the point that, once a diagnosis is made, a careful clinical and roentgenologic

60. Melchior, E.: *Zentralbl. f. Chir.* 56: 2626 (Oct. 19) 1929.

61. Sauerbruch, Ferdinand: *Die Chirurgie der Brustorgane*, ed. 3, Berlin, Julius Springer, 1928, p. 869.

62. Braeuning, H.: *Ztschr. f. Tuberk.* 73: 106, 1935.

63. Harrington, S. W.: *Ann. Surg.* 96: 843 (Nov.) 1932; *Surgical Treatment of Intrathoracic Tumors*, *Arch. Surg.* 19: 1679 (Dec., pt. 2) 1929.

64. Clairmont, P.: *Deutsche Ztschr. f. Chir.* 200: 157, 1927.

65. Fleming, G. B.: *Arch. Dis. Childhood* 9: 201 (Aug.) 1934.

66. Quoted by Pearson.<sup>13</sup>

67. Gibson, D. N.: *Am. J. Roentgenol.* 22: 155 (Aug.) 1929.

68. Ehlers, H. W. E.: *Deutsche Ztschr. f. Chir.* 213: 189, 1929.

The nontoxic intradermal doses are included in table 5. Those of the iodine and miscellaneous groups agree with their respective dilutions that were nontoxic for leukocytes, within the limits of error of both tests. The mercury solutions were much more toxic on intradermal injection than they were in the whole blood mixtures, whereas in the chlorine group the reverse was found to hold true. From these observations it would seem reasonable to conclude that the compounds resulting from the combination of body proteins with antiseptics of the iodine and miscellaneous groups are relatively innocuous, that those formed with mercury solutions are able to cause necrosis and that human polymorphonuclear leukocytes are particularly susceptible to antiseptics belonging to the chlorine group.

## COST

A list of the antiseptic solutions was sent to two reputable retail pharmacists with the request that they furnish the retail price of the different solutions, based on a unit volume of 8 ounces (240 cc.). In the case of proprietary antiseptics which were not marketed in this size bottle, it was asked that the price of a bottle nearest 8 ounces be given, together with the volume of its contents. In one instance in which the product had not been nationally marketed, the retail price was obtained from the manufacturer.

TABLE 6.—Cost

Antiseptic Solutions	Size	Retail Price		Average Unit (\$ Oz.) Price
		Pharmacy	Manufacturer	
<b>Iodine solutions</b>				
Compound solution of iodine, U. S. P. (1:20)	8 oz.	\$1.25	\$1.50	.... \$1.38
Iodine solution, Amend (1:128).....	8 oz.	....	....	? ?
Compound solution of iodine diluted 1:6.4 (1:128)	8 oz. undil.	1.25	1.50	.... 0.21
Compound solution of iodine diluted 1:27.8 (1:555)	8 oz. undil.	1.25	1.50	.... 0.05
<b>Mercury solutions</b>				
Metaphen (1:500).....	4 oz.	1.35	1.35	.... 2.70
Merthiolate (1:1,000).....	4 oz.	1.00	0.75	.... 1.75
Mercurochrome (1:50).....	8 oz.	1.25	2.25	.... 1.75
Mercuric oxyganide (1:4,000)*.....	8 oz.	0.50	0.75	.... 0.63
Mercuric bichloride, V-A (1:1,000)*.....	8 oz.	0.75	0.75	.... 0.75
Merphenyl nitrate (1:1,500).....	16 oz.	....	....	1.63 0.82
Merphenyl borate (1:500).....	16 oz.	....	....	? ?
<b>Chlorine solutions</b>				
Zonite diluted 1:2 (1:190).....	6 oz. undil.	0.50	0.50	.... 0.33
Apeo No. 25 diluted 1:8.3 (1:200).....	6 oz. undil.	0.50	....	.... 0.06
<b>Miscellaneous solutions</b>				
Hexylresoreinol (1:1,000).....	12 oz.	1.00	1.00	.... 0.67
Lj-sterine (25 per cent alcohol).....	7 oz.	0.50	0.45	.... 0.51
Pepsodent (25 per cent alcohol).....	7 oz.	0.50	0.40	.... 0.46

\* Indicates on prescription only.

The unit costs, listed in table 6, were obtained by averaging the costs from the two lists. Where dilution was necessary, no extra expense was added. In general, the unit prices of the mercury solutions were the highest and the miscellaneous solutions were next. The chlorine solutions and the iodine dilutions were by far the least expensive. While it is realized that these costs do not represent those of a hospital or even of the physician, they do give some idea of the relative expense to the patient.

## COMMENT

The tests here reported were selected or devised with the purpose of measuring certain prerequisites that seemed to be desirable in antiseptics used in wounds,

on cuts and abrasions and for irrigations. As the methods differ from the majority of those used by other investigators, no attempt will be made to correlate the results in detail.

In brief, it may be said that the bactericidal potencies are much lower than those previously reported. This is partly explained for all solutions by the choice of the highest dilution killing in five minutes as the bactericidal limit, rather than that killing in ten minutes but not in five minutes. The potency of the mercury solutions was reduced even further by eliminating the bacteriostatic effect more effectively than has been done before in the majority of instances. Similarly, the potencies in the presence of serum are lower, as a result not only of the foregoing but also of the use of 50 per cent serum in the mixtures. No reference has been found in which diffusibility and toxicity have been determined by the methods used in this paper. Salle and Lazarus<sup>3</sup> have recently compared several antiseptics with regard to toxicity for chick embryo tissue cultures and to bactericidal activity against *Staphylococcus aureus*, but such comparison does not appear valid, in that the antiseptics were in contact with the tissue cultures for forty-eight hours and with the cocci for ten minutes, and in that the solutions used to determine bacteria killing power were not serum mixtures.

The method used to estimate penetration is far from ideal. One is concerned with the penetration of animal membranes, but the standardization of such membranes seemed to be impractical. The factors governing penetration of cell membranes are much more complex than those concerned in diffusion through collodion membranes. With the latter, as shown in the tests, the diffusion rate is more rapid in solutions of simple inorganic compounds of relatively small molecular size. From analogy and with certain qualifications the same probably holds true for the penetration of animal membranes, although no experimental proof has been given.

When one considers this group of experiments as a whole, the superiority of iodine as an *in vitro* antiseptic is obvious. The bactericidal strength of any iodine solution is directly proportional to its free iodine content. It is the only antiseptic of the series that is potent in the presence of an equal amount of serum. It is diffusible and is not unduly toxic for human leukocytes. In dilutions that are suitable for their particular purposes it is inexpensive. In other words, solutions of iodine possess the prerequisites that were considered desirable for an antiseptic solution to be used in wounds, on cuts and abrasions and for irrigations.

A certain antipathy has arisen to iodine because of the fact that it is usually employed as the standard (7 per cent) or half strength (3.5 per cent) tincture. Such a solution is painful to apply and irritating, owing partly to the high iodine content and partly to the alcohol. The use of aqueous iodine solutions has been recommended but has not been generally accepted. By referring to the tables, it will be seen that even a 1:6.4 dilution of compound solution of iodine, U. S. P., is much more active *in vitro* than any of the other types of antiseptic solutions. This suggests that a 1 per cent or even a 0.5 per cent aqueous solution, containing the necessary amount of potassium or sodium iodide for solution, can be used to advantage in wounds and

3. Salle, A. J., and Lazarus, A. S.: Comparison of Resistance of Bacteria and Embryonic Tissue to Germicidal Substances. *Proc. Soc. Exper. Biol. & Med.* 22: 665 (Feb.), 937 (March), 1937, 1119 (April) and 1491 (June) 1935.



relatively little significance when applied to solutions to be used in wounds, on cuts and abrasions or for irrigations. In all these instances the antiseptic is in contact with blood, lymph, tissue juice or secretions of the mucous membranes and its bactericidal power must be measured in the presence of one or another of these substances. This type of antiseptic should possess a certain degree of penetration. Ideally, it should be able to kill bacteria in at least as high a dilution as it does normal tissue cells—in other words, its toxicity for tissue cells should be no greater than its bactericidal power. Finally, its cost should be reasonable.

As has already been mentioned, hundreds of articles have appeared in medical literature during the past ten years in which one or more of these essential properties have been determined. Such papers have usually featured one antiseptic, and comparison has been made with only a few other solutions. Furthermore, effective dilutions have always been expressed in terms of the solid salt or compound. This is apt to be misleading, for dilutions in such instances are significant only when the usable dilution is taken into account. For example, usable dilutions of compound solution of iodine, U. S. P., and mercury bichloride are 1:20 and 1:1,000, respectively. If it is assumed that the highest bactericidal dilutions are found to be 1:4,000 and 1:20,000, respectively, at a casual glance it would appear that the mercury bichloride solution is five times as bactericidal as the iodine solution. The iodine solution, however, is actually ten times as strong as the mercury bichloride solution, for 1:4,000 is a 1:200 dilution of the usable strength of the former and 1:20,000 is a 1:20 dilution of the usable strength of the latter. In other words, the usable iodine solution can be diluted 200 times and still be bactericidal, whereas the usable mercury solution can be diluted only twenty times.

As alcohol or alcohol and acetone are undesirable and unnecessary in antiseptic solutions for minor wounds and irrigations and, in addition, are of themselves bactericidal in low dilutions, aqueous solutions, with two exceptions, were employed in the series. The different antiseptics are herewith listed:

#### LIST OF ANTISEPTICS EMPLOYED

All proprietary solutions were purchased, when possible, in the open market. The nonproprietary solutions were prepared in this laboratory. In each instance the usable strength is given. The dilutions noted in the subsequent results refer to dilutions of the respective usable dilutions.

#### SOLUTIONS CONTAINING IODINE

1. Compound solution of iodine, U. S. P. Usable strength undiluted. Iodine content 5 per cent (1:20) when titrated with a standardized tenth normal sodium thiosulfate solution.
2. Iodine solution (nonalcoholic). Usable strength undiluted. Iodine content 0.78 per cent (1:128), titrated as above. Submitted by Amend Laboratories, Inc., New York.
3. Compound solution of iodine, U. S. P., diluted 1:64. Usable strength undiluted. Iodine content 0.78 per cent (1:128), titrated as above.
4. Compound solution of iodine, U. S. P., diluted 1:27.8. Usable strength undiluted. Iodine content 0.18 per cent (1:555), titrated as above.

#### SOLUTIONS CONTAINING MERCURY

1. Metaphen (1:500). Usable strength undiluted. Manufactured by Dermatological Research Laboratories, Philadelphia.
2. Merthiolate (1:1,000): Usable strength undiluted. Manufactured by Eli Lilly & Co., Indianapolis.

3. Mercurochrome (1:50). Usable strength undiluted. Salt manufactured by Hynson, Westcott & Dunning, Inc., Baltimore. Solution prepared in the dispensary, Boston City Hospital.

4. Mercuric oxycyanide ("containing mercury cyanide"—Merck) (1:4,000). Usable strength undiluted.

5. Mercury bichloride (Vaichulis-Arnold modification,<sup>1</sup> aqueous) (1:1,000). Usable strength undiluted.

6. Merphenyl nitrate (1:1,500). Usable strength undiluted. Obtained through the courtesy of Hamilton Laboratories, Inc., Hamilton, Ohio.

7. Merphenyl borate (1:500). Usable strength undiluted. Obtained through the courtesy of Hamilton Laboratories, Inc., Hamilton, Ohio.

#### SOLUTIONS CONTAINING CHLORINE

1. Zonite. Usable strength 1:2. Available chlorine content (diluted) 0.53 per cent (1:190), titrated, after conversion to iodine, with a standardized tenth normal sodium thiosulfate solution. Manufactured by Zonite Products Corporation, New Brunswick, N. J.

2. Apco No. 25, diluted 1:8.3. Usable strength undiluted. Available chlorine content 0.39 per cent (1:260), titrated as above. Dilution made in the dispensary, Boston City Hospital. Manufactured by Ampere Products Company, West Orange, N. J.

#### MISCELLANEOUS SOLUTIONS

1. Hexylresorcinol (1:1,000). Usable strength undiluted. Manufactured by Sharp & Dohme, Baltimore.

2. Listerine (25 per cent alcohol). Usable strength undiluted. Manufactured by Lambert Pharmacal Company, St. Louis.

3. Pepsodent (25 per cent alcohol). Usable strength undiluted. Manufactured by Pepsodent Company, Chicago.

All these antiseptics were tested simultaneously for (1) bactericidal activity, (2) bactericidal activity in mixtures containing 50 per cent horse serum; (3) diffusibility and (4) toxicity. In addition, figures representing unit costs were obtained. The methods employed and the results obtained are given in the following sections.

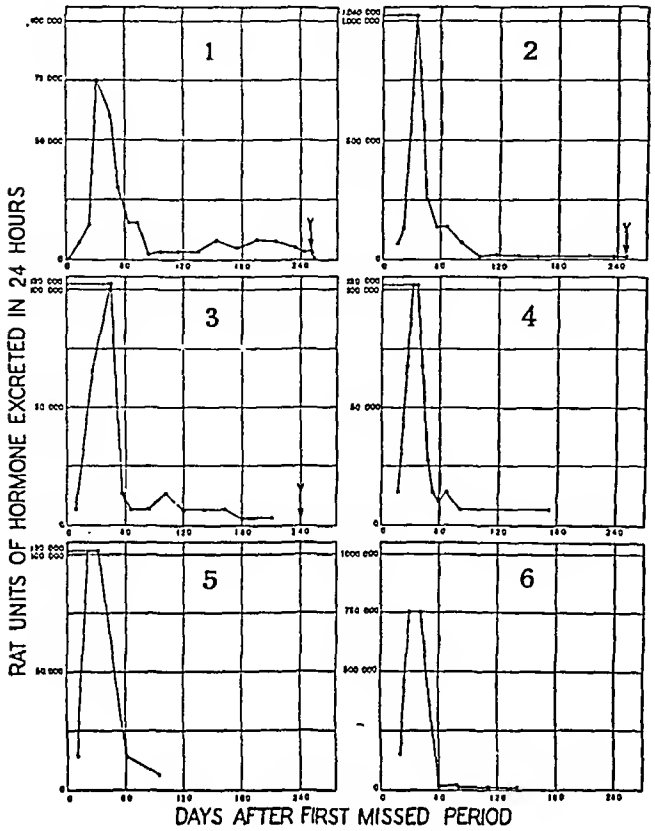
#### BACTERICIDAL ACTIVITY

As a measure of bactericidal activity the "F. D. A. method (special) *S. aureus*, 37 C.," as recommended by the Food and Drug Administration and described in circular 198 (December 1931), U. S. Department of Agriculture, was followed explicitly with two exceptions. In the first place, the highest dilution killing in five minutes was considered the limit of bactericidal activity, rather than the highest dilution killing in ten minutes but not in five minutes. This modification seemed advisable for two reasons; namely, that the effective action of any antiseptic in the ordinary wound was probably less than ten minutes and that the technic of the test was simplified. Secondly, standardized pipets were not used in making the dilutions, as it was felt that the accuracy so afforded was not necessary when equal amounts of diluent were added for succeeding dilutions. The culture of *Staphylococcus aureus* was obtained from the Food and Drug Administration Laboratories in Washington. In all the separate tests for bactericidal activity and in all subsequent tests in which live bacteria were used, the resistance of the culture was assured by control tests with 1:80 and 1:90 dilutions of phenol, prepared from a standardized 5 per cent phenol solution.

The method, in brief, consists of adding 0.5 cc. of a twenty-two to twenty-six hour culture of *Staphylo-*

1. Vaichulis, J. A., and Arnold, L.: Compound Colored Alcoholic Solution of Mercuric Chloride for Skin Disinfection, Surg., Gynec. & Obst. 61:333 (Sept.) 1935.

between the twentieth and the fiftieth day, usually about the thirtieth day, shown in table 2 and in the accompanying charts. The amount of hormone excreted at the peak seems to differentiate our cases into two groups: one in which total unitage per day is perhaps between 75,000 and 150,000 rat units, and another group in which it is between 750,000 and 1,000,000 units.



Concentration of gonadotropic principle in six cases.

Equally remarkable is the abrupt decrease in the concentration of gonadotropic hormone after the maximum has been reached. In all but one case the hormone concentration is below 10,000 rat units per liter by the sixty-fifth day and continues at or below this level until the termination of pregnancy. The amount of hormone excreted per day is therefore low during the last two thirds of pregnancy as compared with that involved in the ascent, summit and descent from the peak, all of which occur in the first two months. It is undoubtedly due to their transient presence and to the lack of sufficiently careful titrations that the regular occurrence of these high urinary hormone values has been previously overlooked.

It is unnecessary to comment on the speed with which the body frees itself of gonadotropic hormone following parturition because this fact is already well established. By the fifth day following parturition there is no trace of the hormone in the urine.

It is highly interesting that the urinary "peak phenomenon" herein reported is paralleled by the hormone levels of the blood. In case 5 on the thirty-seventh day the blood serum contained 100,000 rat units per liter of hormone and the urine exactly the same titer. In case 6 on the fortieth day the blood serum contained 500,000 units per liter of hormone with an identical level in the urine.

That the early normal tremendous rise in the hormone content of urine and blood is not an indication of toxicosis<sup>3</sup> is shown by the fact that in the two cases which exhibited the phenomenally high concentrations there was practically no indication of the minor disturbances commonly occurring in the early part of pregnancy, while patients with lower concentrations experienced these minor disturbances, such as varying degrees of nausea and discomfort during the early months of gestation. There is even a suggestion here that a higher hormone level is protective.

The great difference in hormone concentration between the two groups cannot be accounted for on the basis of the sex of the fetus, for patient 1 with a maximum daily excretion of 75,000 rat units, patient 2 with over 1,000,000 rat units and patient 3 with 100,000 rat units all gave birth to females. Since patients 1, 3 and 6 were multiparas while patients 2, 4 and 5 were primiparas, it is obvious that the factor of previous pregnancies is not involved. Since the cause of the

TABLE 2.—Gonadotropic Hormone (Rat Units) Excreted in Twenty-Four Hours

Days After First Missed Period	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
3	150	.....	.....	.....	.....	.....
10	.....	.....	6,500	.....	13,000	.....
13	7,500	.....	.....	.....	.....	.....
14	.....	65,000	.....	.....	.....	.....
17	.....	.....	.....	13,000	.....	.....
20	.....	.....	.....	.....	130,000	150,000
22	15,000	125,000	.....	.....	.....	.....
26	.....	.....	65,000	65,000	.....	.....
30	75,000	.....	.....	.....	130,000	750,000
32	.....	.....	.....	130,000	.....	.....
36	.....	1,040,000	65,000	130,000	.....	.....
40	.....	.....	.....	65,000	.....	750,000
46	60,000	260,000	130,000	26,000	.....	.....
53	30,000	.....	.....	13,000	.....	.....
56	.....	130,000	13,000	.....	.....	.....
60	.....	.....	.....	10,400	13,000	15,000
64	15,000	.....	.....	.....	.....	.....
66	.....	130,000	6,500	13,000	.....	.....
74	15,000	.....	.....	.....	.....	.....
80	.....	65,000	.....	6,500	.....	7,500
84	1,500	.....	6,500	.....	.....	.....
90	.....	.....	.....	.....	.....	.....
96	3,000	.....	.....	.....	6,500	.....
99	.....	10,400	13,000	.....	.....	.....
111	.....	.....	.....	.....	.....	7,500
114	3,000	.....	.....	.....	.....	.....
118	.....	13,000	.....	.....	.....	.....
120	.....	.....	6,500	.....	.....	.....
140	3,000	6,500	6,500	.....	.....	7,500
150	7,500	.....	.....	.....	.....	.....
158	.....	6,500	.....	.....	.....	.....
163	.....	.....	6,500	.....	.....	.....
174	4,500	.....	.....	6,500	.....	.....
180	.....	.....	2,600	.....	.....	.....
194	7,500	.....	.....	.....	.....	.....
210	7,500	6,500	2,600	.....	.....	.....
236	4,500	6,500	.....	.....	.....	.....
240	.....	.....	.....	.....	.....	.....
244	3,000	.....	.....	.....	.....	.....
247	.....	.....	.....	.....	.....	.....
250	3,600	.....	.....	.....	.....	.....
Postpartum						
1	1,500	.....	.....	.....	.....	.....
2	300	.....	.....	.....	.....	.....
3	120	.....	.....	.....	.....	.....
4	0	.....	.....	.....	.....	.....

normal hormone peak is obscure, it is obvious that conclusions can hardly be hazarded as to the cause of the striking variation in the height of the peak.

3. Ehrhardt<sup>1</sup> is unaware of the "peak phenomenon" but familiar with occasional surprisingly high levels of urinary hormone in normal early pregnancy. He reports, for instance, encountering a normal case of 70,000 mouse units per liter between the first and the second month. Although he therefore speaks guardedly, he has associated fetters vomiting in the first to the third month with "high" hormone content of the urine, which his figures show to have varied from 270,000 to 1,000,000 units in his cases.

whereas with the two weaker solutions the next lower dilution was required to kill. With the weakest iodine solution, even the second lower dilution was ineffective. This suggested that the weaker the iodine solution the greater the percentage neutralization of the iodine by the serum. In order to confirm this observation, mixtures of equal parts of horse serum and compound solution of iodine, U. S. P., undiluted and diluted 1:8 and 1:32, were made and the amounts of iodine in samples removed at seven minutes, one hour, two hours and three hours were titrated with tenth normal sodium thiosulfate. The results of these titrations are shown in table 3. The total amount of free iodine in each at

prepared by dissolving 30 Gm. of Parlodion (Malinckrodt) in 250 cc. of a mixture of equal parts of ethyl alcohol and sulfuric ether. Each sac was standardized for its permeability by determining the amount of iodine passing into the dialysate from a measured amount of compound solution of iodine, U. S. P., in a definite period of time. Only sacs deviating less than 25 per cent above or below the arbitrarily chosen standard were used in the test.

The sacs were sterilized by immersion in a 1:25 dilution of compound solution of iodine, U. S. P., over night. A calculated amount of sterile tenth normal sodium thiosulfate was added which was slightly in

TABLE 2.—Bactericidal Activity of Mixtures Containing 50 Per Cent Horse Serum

Antiseptic Solutions	Final Dilutions									
	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{1}{32}$	$\frac{1}{64}$	$\frac{1}{128}$	$\frac{1}{256}$	$\frac{1}{512}$	
Iodine solutions										
Compound solution of iodine, U. S. P. (1:20).....	....	....	....	....	....	....	....	<b>0•</b>	+	
								0		
Iodine solution, Amend (1:128).....	....	....	....	$\frac{0}{0}$	$\frac{+•}{0}$					
Compound solution of iodine diluted 1:6.4 (1:128).....	....	....	....	$\frac{0}{0}$	$\frac{+•}{0}$					
Compound solution of iodine diluted 1:27.8 (1:555).....	—	.....	•							
Mercury solutions										
Metaphen (1:500) .....	$\frac{0}{+}$									
	$\frac{0}{+}$									
Merthiolate (1:1,000) .....	$\frac{0}{+}$									
	$\frac{0}{+}$									
Mereurochrome (1:50) .....	$\frac{0}{+}$									
	$\frac{0}{+}$									
Mereuric oxycyanide (1:4,000).....	$\frac{0}{+}$									
	$\frac{0}{+}$									
Mercury bichloride, V-A (1:1,000).....	$\frac{0}{+}$	....	•							
	$\frac{0}{+}$									
Merphenyl nitrate (1:1,500).....	$\frac{0}{+}$									
	$\frac{0}{+}$									
Merphenyl borate (1:500) .....	$\frac{0•}{+}$									
	$\frac{0}{+}$									
Chlorine solutions										
Zonite diluted 1:2 (1:190).....	$\frac{+}{+}$	....	....	....	....	•				
	$\frac{+}{+}$									
Apeo no. 25 diluted 1:8.3 (1:260).....	$\frac{+}{+}$	....	....	....	•					
	$\frac{+}{+}$									
Miscellaneous solutions										
Hexylresorcinol (1:1,000) .....	$\frac{+}{+}$	•								
	$\frac{+}{+}$									
Listerine (25 per cent alcohol).....	$\frac{+}{+}$									
	$\frac{+}{+}$									
Pepsodent (25 per cent alcohol).....	$\frac{+}{+}$	....	•							

Numerator = result of first transfer; denominator = result of second transfer; 0 = no growth; + = growth; boldface type = highest bactericidal dilution; • = bactericidal potency in the absence of serum.

the end of one hour was decreased 23, 58 and 85 per cent, respectively. These figures correspond to the observed changes in bactericidal activity of the iodine solutions brought about by the addition of 50 per cent horse serum.

Titration of available chlorine in a mixture of equal parts of horse serum and one of the chlorine solutions showed a diminution in one hour of less than 50 per cent. Bactericidal activity, however, was diminished more than 95 per cent. This would seem to indicate that some combination or reaction had taken place which rendered the antiseptic ineffectual as a bacteria-killing agent, in spite of the persistence of presumably adequate amounts of available chlorine.

DIFFUSIBILITY

Parlodion sacs were made in test tubes having an internal diameter of 16 mm. The solution used was

TABLE 3.—Percentage Interval Decrease in the Iodine Content of Mixtures Containing Equal Parts of Horse Serum and of Different Dilutions of Compound Solution of Iodine

Iodine Solution	Percentage Decrease			
	7 Min.	1 Hr.	2 Hr.	3 Hr.
Compound solution of iodine, U. S. P. ....	12	23	27	28
Compound solution of iodine diluted 1:8....	39	58	69	73
Compound solution of iodine diluted 1:32..	64	85	90	94

excess of that needed to remove the free iodine. After the iodine color had disappeared from outside and inside the sacs, each was washed twice in sterile distilled water and blotted relatively dry between large sheets of sterile filter paper. Twelve cubic centimeters of antiseptic was placed in each sac and the sac placed in a 150 by 25 mm. test tube containing an equal

added to the excellent contributions of Downey and McKinlay<sup>3</sup> and Downey and Stasney.<sup>12</sup>

The report is based on a serologic study of thirty cases of infectious mononucleosis, of seventeen cases of serum disease, of a group of borderline cases which were indistinguishable from infectious mononucleosis clinically and hematologically, and of a series of normal controls with a negative history as to infectious mononucleosis and horse serum injection.

#### ABSORPTION

The serum is heated for thirty minutes at 56 C. Portions of the serum are absorbed with the following antigens: kidney of the guinea-pig and of the rabbit, beef heart, sheep erythrocytes, beef erythrocytes, and kaolin. The kidneys are kept frozen in the refrigerator until needed. They are then thawed and washed repeatedly in physiologic solution of sodium chloride until the washings are free from blood. They are now mashed into a fine pulp and used for absorption as a 20 per cent suspension in physiologic solution of sodium

TABLE 1.—*Technic of Test for Infectious Mononucleosis*

Tubes	Saline Solution, Cc.	Serum, Cc.	Serum Dilutions	2 per Cent Sheep Cells, Cc.	Final Dilutions of Serum	Shake tubes well; keep at room temperature for 2 hours and read	Titers in This Series No. of Cases Per Cent
1	0.4	0.1	1:5	0.1	1:7		
2	0.25	0.25 of 1:5	1:10	0.1	1:14		
3	0.25	0.25 of 1:10	1:20	0.1	1:28		
4	0.25	0.25 of 1:20	1:40	0.1	1:56		
5	0.25	0.25 of 1:40	1:80	0.1	1:112	1	3.5
6	0.25	0.25 of 1:80	1:160	0.1	1:224	2	6.5
7	0.25	0.25 of 1:160	1:320	0.1	1:448	3	6.5
8	0.25	0.25 of 1:320	1:640	0.1	1:896	4	27.0
9	0.25	0.25 of 1:640	1:1,280	0.1	1:1,792	5	27.0
10	0.25	0.25 of 1:1,280	1:2,560	0.1	1:3,584	6	13.0
11	0.25	0.25 of 1:2,560	1:5,120	0.1	1:7,168	7	6.5
12	0.25	0.25 of 1:5,120	1:10,240*	0.1	1:14,336	8	10.0
Control							
13	0.25	.....	.....	0.1			
Total.....							30 100.0

\* Discard 0.25 cc. from last tube.

chloride. The suspensions are boiled for one hour on the water bath, and the loss by evaporation is made up with distilled water.

For the beef heart suspension the product of the Digestive Ferment Company is used. The suspension is not boiled.

The sheep and beef red cells are washed three times, packed well in the centrifuge, suspended in four volumes of physiologic solution of sodium chloride and boiled for one hour on the water bath. The loss by evaporation is made up with distilled water. The kaolin is also used as a 20 per cent suspension in physiologic solution of sodium chloride. This suspension is not boiled. Enough phenol is added to all antigenic suspensions to make a 0.5 per cent solution. The antigens may be kept in the icebox for many months without a noticeable change.

For absorption, different quantities of the antigens are added to the serum; the mixtures are kept at room temperature for one hour and shaken vigorously at intervals of fifteen minutes. They are then centrifugated and the clear supernatant serum is transferred to other test tubes.

Two series of absorptions were carried out with different techniques. In one series the serum was absorbed

with the varying amounts of the antigens (from 0.03 to 0.12 cc. to 0.1 cc. of serum). After the absorption a quantity of the serum sufficient for the various titrations was removed and a second absorption carried out by treating the remainder of the serum with an equal amount of the suspension of the antigen. Again, enough serum was removed to study the effect of the second absorption. The third and further absorptions were then carried out. The effect of the repeated absorptions on the dilution of the serum was taken into consideration. This repeated absorption supplied the quantitative data concerning the relation between the absorbing antigen and the absorbed antibody.

In the second series of absorptions, the serum (in quantities of 0.1 cc.) was treated only once with varying amounts of antigens.

#### TITRATION

Dilutions of the untreated and of the absorbed serum ranging from 1:5 to 1:5,120 or more are set up. The total quantity of the dilution is 0.25 cc.; 0.1 cc. of a 2 per cent suspension of washed sheep cells is added. The tubes are left at room temperature for two hours. The tubes are shaken vigorously until the sediment of the cells becomes suspended. The reading is done with the low power of the microscope (32 mm. objective). The titers as they are recorded represent the so-called one plus reading and signify distinct microscopically discernible clumping. A difference of about one dilution may result when the reading is done with the naked eye. The titers are estimated in the terms of the final dilutions (see table 1 in a previous publication<sup>9</sup>).

Table 1 brings out the details of the test for infectious mononucleosis. The last columns list the incidence of titers in my series.

#### THE RESULTS OF THE ABSORPTION STUDIES

Serum from normal persons, from patients with serum disease, and with infectious mononucleosis was absorbed with different antigens. The titers of the sheep agglutinins were determined before and after the absorptions. The effect of the absorption was expressed in the percentages of the antibodies that were removed.

As stated, agglutinins for sheep erythrocytes are found in low titers in the blood serum of most normal persons. In a previous series<sup>9</sup> they were below the lowest titer of 1:3.5 in only 7 per cent of 217 normal persons, and in only 1 per cent of them was the titer 1:56, while the remainder had titers varying from 1:3.5 to 1:28.

The titers of the serums of five normal persons varied from 1:14 to 1:28, the average titer being 1:20. The kidney of the guinea-pig and the erythrocytes of the sheep, both carriers of the Forssman antigen, removed completely the agglutinins for the sheep red cells. The kidney of the rabbit and the erythrocytes of the beef absorbed on the average 35 per cent of the agglutinins. The results are in accord with the well known fact that the agglutinins for sheep erythrocytes in normal persons are of the Forssman heterophilic type. The inability of beef erythrocytes to remove the heterophilic agglutinins is worthy of note, mainly in view of their different action in mononucleosis.

Four serums of patients with serum disease were absorbed with the antigens repeatedly until the agglutinins for sheep erythrocytes were completely removed, and three serums were absorbed only once with an ade-

12. McKinlay, C. A.; Downey, Hal, and Stasney, Joseph: Infectious Mononucleosis, J. Am. M. A. 105: 761-768 (Sept.) 1935.

of compound solution of iodine, U. S. P. The chlorine solutions were extremely toxic and the mercury solutions varied from no toxicity to moderate toxicity. The miscellaneous solutions were only moderately toxic. The two containing alcohol behaved quite similarly in that there were many secondarily killed leukocytes, which suggests that the alcohol or some other common ingredient was responsible. Cells killed after the addition of the cocci were also noted in preparations from both chlorine solutions and two of the mercury solutions.

A consideration of the toxicity of each antiseptic as compared with the bactericidal activity is of the

each 0.6 cc. of the mixture contained 0.5 cc. of blood and 0.1 cc. of culture. Transfers were made after ten minutes' incubation at 37 C. Second transfers were made in the usual way. Stained smears of the blood and culture mixture showed no phagocytosed cocci.

The results are given in table 5. It will be seen that neither the strongest dilutions permitted survival of the leukocytes, nor those twice as strong that killed over 50 per cent of the leukocytes were able to kill all the staphylococci. With the three strongest iodine solutions the staphylococci were killed in the mixtures made with the lowest dilutions. None of the mixtures with the other antiseptics were bactericidal. In three, which had

TABLE 5.—*Leukocytic Toxicity and Bactericidal Activity in Mixtures Containing 50 Per Cent Whole Blood: Intradermal Toxicity*

Antiseptic Solutions		Final Dilutions							Nontoxic Intradermal Dose
		$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{1}{32}$	$\frac{1}{64}$	$\frac{1}{128}$	
Iodine solutions									
Compound solution of iodine, U. S. P. (1:20).....	....	....	....	0	100+	$\frac{29+}{2}$	$\frac{4}{0}$	1:64	
Iodine solution in 10% NaI (1:20).....	....	....	....	....	100	$\frac{20}{2}$	$\frac{4}{0}$		
Iodine solution, Amend (1:128).....	0	100+	$\frac{8+}{0}$	$\frac{0}{0}$	....	....	....	1:16	
Compound solution of iodine diluted 1:6.4 (1:128).....	0	$\frac{98+}{0}$	$\frac{20+}{0}$	$\frac{4}{0}$	....	....	....	1:16	
Compound solution of iodine diluted 1:27.8 (1:553).....	$\frac{8+}{20}$	$\frac{0}{0}$	....	....	....	....	....	1:2	
Mercury solutions									
Metaphen (1:500) .....	100+*	$\frac{60+*}{24}$	$\frac{4+}{0}$	....	....	....	....	1:32	
Merthiolate (1:1,000) .....	100+	$\frac{8+}{8}$	....	....	....	....	....	1:8	
Mercurochrome (1:50) .....	+	+	100+	$\frac{0+}{0}$	....	....	....	1:16	
Mercuric oxycyanide (1:4,000) .....	$\frac{12+}{8}$	....	....	....	....	....	....	1:8	
Mercuric bichloride, V-A (1:1,000).....	100+*	$\frac{4+}{4}$	....	....	....	....	....	1:32	
Merphenyl nitrate (1:1,500).....	$\frac{50+}{4}$	$\frac{4}{0}$	....	....	....	....	....	1:8	
Merphenyl borate (1:500).....	100+	$\frac{38+}{8}$	$\frac{2}{16}$	....	....	....	....	1:16	
Chlorine solutions									
Zonite diluted 1:2 (1:100).....	+	....	....	100+	$\frac{62+}{14}$	$\frac{0+}{0}$	....	1:4	
Apeo no. 25 diluted 1:8.3 (1:200).....	+	....	....	+	$\frac{88+}{8}$	$\frac{4+}{14}$	....	1:8	
Miscellaneous solutions									
Hexylresorcinol (1:1,000) .....	+	$\frac{92+}{6}$	$\frac{2+}{4}$	....	....	....	....	1:4	
Listerine (25 per cent alcohol) .....	+	100+	$\frac{16+}{74}$	....	....	....	....	1:4	
Pepsodent (25 per cent alcohol).....	+	100+	$\frac{24+}{62}$	....	....	....	....	1:8	

Numerator = percentage dead polymorphonuclear leukocytes; denominator = percentage secondarily killed leukocytes; boldface type = lowest dilution permitting 50 per cent survival; exponential signs = results of bactericidal tests; + = growth; 0 = no growth; \* = first transfer showed no growth, second transfer growth.

utmost practical significance. The results given in table 2 cannot be taken as comparative measures of bactericidal activity, for the method varied considerably from that used in determining toxicity. In order to make an equitable comparison, the bactericidal test was repeated, mixtures of equal amounts (0.5 cc.) of sterile defibrinated human blood in which the leukocytes were dead and three dilutions of the antiseptic solutions being used. The latter were such that the highest dilution was the lowest permitting the survival of 50 per cent of the leukocytes and the other two were the two next stronger. With nontoxic solutions only the undiluted antiseptic was used. The culture of *Staphylococcus aureus* was mixed with defibrinated blood so that

such a high toxicity that mixtures with the undiluted solution were not included in the test, such mixtures were tried, and even these failed to show killing power.

As a further check on toxicity, 0.2 cc. amounts of different dilutions of all the solutions were injected intradermally on the cleanly shaved abdomens of several rabbits. White rabbits of approximately the same age and size were used for each test, and 24 gage needles were used for each injection. All the undiluted antiseptics caused necrosis. Dilutions of each were made until no lesion or a questionable lesion was observed at the site of inoculation six days after the injection. The lowest dilution producing no necrosis was taken as the nontoxic intradermal dose.



patients with an atypical, frequently very severe and alarming course and with rare complications. Here belong also the patients who do not show the usual increase in the numbers of the mononuclear cells in the early stages of the disease.

**CASE 2.—Infectious mononucleosis resembling agranulocytosis.** A college student, aged 18 years, had been taking for some time aminopyrine for menstrual pains and headaches. She was suddenly taken ill with chills, fever, swelling of the cer-

TABLE 3.—*The Differential Test in Cases of Infectious Mononucleosis with a Low Titer of Heterophilic Antibodies*

Percentage of Absorption of Agglutinins for the Erythrocytes of the Sheep with														
Case	Date	Titer Before Ab- sorp- tion	Erythro- cytes of Beef, Ce.		Beef Heart, Ce.		Kidney of							
							Guinea-Pig, Ce.		Rabbit, Ce.		Kaolin, Ce.			
			0.05	0.1	0.05	0.1	0.05	0.1	0.05	0.1	0.05	0.1		
31	4/ 1/36	56	100	100	100	100	50	75	75	75	50	50		
7	3/20/35	896	...	100	...	...	...	50	...	50	...	50		
7	4/27/35	56	...	100	...	...	...	50	...	50	...	50		

vical lymph nodes and an ulcerative lesion of the pharynx. The white blood count was 1,500, with 15 per cent granulocytes. The diagnosis of agranulocytosis was made. It was then decided to carry out the agglutination test for heterophilic antibodies. It was strongly positive (1:896+). The diagnosis was changed to infectious mononucleosis. The patient recovered soon afterward. The leukopenia disappeared early; the white count on the fifth day was 9,300. The mononucleosis persisted for many weeks and showed from 60 to 80 per cent lymphocytes.

**CASE 6.—Infectious mononucleosis with features of an acute abdominal condition and of an acute leukemia; absence of a mononucleosis in the first blood count.** A college student, aged 18 years, was admitted, complaining of severe abdominal pains, nausea, vomiting and fever. Six weeks before admission she had a skin eruption diagnosed as measles. The lymph nodes of the neck were slightly enlarged but not tender. The left upper part of the abdomen was extremely tender. Blood examination revealed 6,720 white blood cells, with 51 per cent neutrophils and 3 per cent eosinophilic leukocytes and 46 per cent lymphocytes. On the following day the fever assumed a septic character. The percentage of mononuclear cells rose to 58. An acute abdominal condition was suspected. An exploratory operation was considered imminent if improvement should not take place in a few days. Six days later a marked change in the blood took place: the white cells rose to 12,600 and the mononuclear cells to 93 per cent; 8 per cent among them resembled lymphoblasts. That, together with the serious clinical condition, made it necessary to consider acute leukemia. However, the test for infectious mononucleosis was then found to be positive (1:224). The attending physician was thus able to give a favorable prognosis. The patient made a rapid and uneventful recovery and has been well since. Various laboratory tests were negative. They included blood cultures, blood chemistry, Wassermann and Kahn tests, coagulation and bleeding time, and agglutinations for typhoid, paratyphoid, dysentery and undulant fever. Repeated blood counts were carried out during the patient's illness (table 5). The mononucleosis persisted until her discharge. It varied from 80 to 93 per cent.

In this case the agglutination test established the diagnosis of infectious mononucleosis; without it the patient might have been subjected to an exploratory operation.

**CASE 12.—Infectious mononucleosis with an acute gastritis, hepatitis, jaundice, with a severe toxemia and acute heart failure.** A man, aged 37, was admitted complaining of gastric distress for about six weeks. He lost 6 pounds (2.7 Kg.) in the last two weeks. He had a history of rheumatic heart disease in the past. Moderate jaundice, slightly enlarged but not tender lymph nodes of the neck and axillae, and an enlarged spleen and liver were found. The heart was enlarged and the

changes were those of a mitral endocarditis. There were 16,250 white cells with 84 per cent mononuclear cells and among them 8 young cells resembling lymphoblasts. The temperature kept on rising steadily, the pulse rate went up to 150 and the patient became very toxic. Pulmonary edema developed and the patient was considered critically ill. In addition to an acute endocarditis, acute leukemia, and infectious hepatitis were considered. At that time the high percentage of lymphocytes in the differential blood smear suggested the test for infectious mononucleosis. It was strongly positive (1:896). The result surprised all who attended the case and was accepted with a considerable measure of doubt. On the seventh day a dramatic turn for the better took place, with a sudden drop of the temperature. The jaundice reached a maximum on the ninth hospital day (icterus index 42 with a biphasic van den Bergh reaction) and then declined gradually. The patient was discharged on the twenty-fourth day. He remained well. His blood was studied repeatedly after his discharge during a period of 296 days (table 5).

The acute heart failure in an individual with a damaged myocardium brought about by the severe toxemia was a striking feature of the case.

These three cases are of the type in which the diagnosis of infectious mononucleosis would have been very difficult without the serologic test; only the later course might have suggested it.

Another form of diagnostic difficulties is encountered in cases that are indistinguishable from infectious mononucleosis clinically as well as hematologically and can be separated from it only by means of the serologic test, as the following case history will illustrate:

**Lymphocytic angina with a low titer of heterophilic antibodies; test for infectious mononucleosis negative.** A boy, aged 8 years, was taken ill with a sore throat and fever. His cervical lymph nodes were markedly enlarged and tender. The blood smear on the fifth day of illness showed polymorphonuclear leukocytes 22 per cent, eosinophils 1 per cent, lympho-

TABLE 4.—*The Changes in the Titers of the Heterophilic Antibodies and the Differential Blood Picture*

Case	Mono-nuclear Cells, %	Abnormal Lymphocytes, %	Sheep Agglutinins +	Condition	Days Since Onset of Illness
12	83.5	8.0	896	.....	45
			1,792	.....	48
	37	1.0	896	.....	50
	65	5.0	448	.....	52
	65	3.0	...	.....	54
	63	3.0	...	.....	57
	60	6.0	224	.....	59
			112	.....	62
	57	1.5	...	.....	65
	56	3.5	112	Discharged improved	68
	43	...	60	Improved	92
			56	.....	106
			56	Improved	117
	43.5	0.5	14	Well	296
17	60	5.0	448	.....	13
	70	4.0	448	Discharged well	16
	61	1.5	224	Well	23
			224	Well	29
	54	...	56	Well	42
			28	.....	57
			28	.....	85
			14	Well	291

cytes 69 per cent, abnormal lymphocytes 1 per cent and monocytes 7 per cent (77 per cent mononuclear cells). The blood picture was indistinguishable from that generally seen in infectious mononucleosis and the clinical appearance was like that of mononucleosis; however, the agglutination test for mononucleosis was negative (1:7+). The child recovered rapidly.

In this case the low titer of agglutinins for sheep cells made it easy to exclude infectious mononucleosis. The decision is difficult in the third group, in which the clinical and hematologic picture suggests infectious mononucleosis and the titer of agglutinins for sheep

TABLE 1.—Weights and Characteristics of Ovaries in Rats  
Injected with Various Dilutions of Urine from Case 6  
at the Peak of Hormone Secretion, 750,000  
Rat Units per Day

2. Zondek, for instance, states that suspicion of the pathologic alteration of pregnancy may justifiably occur if the morning urine contains more than 50,000 mouse units per liter of the hormone (Zondek,<sup>1</sup> p. 367). Ascheheim declares: "Values of more than 100,000 mouse units per liter point to the presence of hydatid mole with great probability" (Ascheheim, Selmar: Pregnancy Tests, J. A. M. A. 104: 1324 [April 13] 1935).

result of the test was accepted with considerable skepticism. When seen by me two months after the onset, the patient was worried over the possibility that he may have had agranulocytosis. The agglutination test for sheep cells was 1:56+. The differential test showed failure of the guinea-pig kidney to remove the agglutinins and their removal by beef cells, indicating that the patient was recovering from infectious mononucleosis.

The results indicate the persistence of the quality of the antibodies in infectious mononucleosis even at a time when they are quantitatively indistinguishable from the normal agglutinins for sheep cells. It is therefore necessary to employ the differential test in cases that suggest the possibility of mononucleosis even if the titer of the agglutinins is less than 1:112.

#### HOW LONG DO THE HETEROPHILIC ANTIBODIES PERSIST IN INFECTIOUS MONONUCLEOSIS?

It was attempted to answer the question How long do the heterophilic antibodies persist in infectious mononucleosis? by a study of those cases which could be followed until the titers of the agglutinins for sheep cells returned to the normal level. Ten cases were followed up with blood counts and serologic tests. Only two will be reviewed in detail and then a summary of all ten cases will follow.

Table 4 shows the course of two such cases. The history of case 12 was presented previously. This patient was ill for forty-five days with gastric symptoms when the test was made. On the sixty-eighth day the titer was 1:112 and on the one hundred and seventeenth day it was still at the critical level of 1:56. On the next examination, on the two hundred and ninety-sixth day, the titer was within the normal limits (1:14). The so-called abnormal lymphocytes disappeared between the sixty-eighth and the ninety-second day, while the mononuclear count dropped to below 50 per cent at about the same time.

Case 17 might serve as another illustration. Here the drop of the titer from 1:224 to 1:56 occurred between the thirtieth and the forty-second day, and by the fifty-seventh day the titer fell to the normal level.

Table 5 summarizes the course of hematologic and serologic events in the ten patients. The clinical improvement was not always synonymous with a complete recovery but coincided in most cases with the discharge of the patient from the hospital. It paralleled quite closely the disappearance of the so-called abnormal lymphocytes. The drop of the mononuclear cells to below the 50 per cent level came about somewhat later. The number of 50 per cent was chosen arbitrarily as a rough indicator of a return to approximately normal relations. The disappearance of the abnormal lymphocytes and the return of the mononuclear count to below the 50 per cent level could be referred to as the hematologic recovery that followed the clinical recovery and was in turn followed by the serologic recovery, the latest of the three. The first finding of the normal titer of less than 1:56 varied from fifty to 296 days (average 119 days) after the onset of illness in the eight cases in which it could be observed.

The fifth and final group of cases in which the value of the differential test becomes particularly apparent are those with a history of a recent injection of immune horse serum and especially those with serum disease. In such a case the question arises whether the elevated titer of the heterophilic antibodies is due to infectious

mononucleosis or to the serum injection. The following case belongs to that group:

**CASE 27.—Infectious mononucleosis with involvement of the central nervous system and complicated by serum disease.** A high school girl, aged 16 years, contracted a cold about Nov. 20, 1935. When she was seen by her physician two weeks later she had a high fever, a sore throat, and enlarged and tender cervical lymph nodes. The physician was called two days later and found the girl unconscious and in convulsions. The patient was admitted to the hospital, where the cerebrospinal fluid was found clear, with 18 cells per cubic millimeter. Antimeningococcus serum was given. The patient continued to be very restless and unconscious. On the third day after admission, she became conscious. An ulcerative and membranous pharyngitis set in at that time. The white blood count showed on admission 8,500 cells, with 60 per cent polymorphonuclear leukocytes and 40 per cent lymphocytes. In the course of the next few days the blood showed 54 per cent and later 61 per cent mononuclear cells, with 2 per cent of so-called abnormal lymphocytes. Four days later, the patient developed serum disease. A few weeks later when the encephalitic symptoms had subsided, the blood examination suggested the possibility of infectious mononucleosis. December 27 the test was strongly positive (1:896). The interpretation of the test was complicated by the history of recent serum disease. The high titer of the agglutinins for sheep cells could have been due to serum disease. The differential test showed complete absorption of the sheep agglutinins by beef cells and only partial removal by the guinea-pig kidney and established the diagnosis of infectious mononucleosis. The patient was followed hematologically and serologically for 135 days (table 5). The complicating involvement of the central nervous system and the absence of an elevated mononuclear count in the beginning of the disease are notable features.

#### CONCLUSIONS

The test for heterophilic antibodies is of confirmatory diagnostic value in cases of infectious mononucleosis with typical clinical and hematologic features.

It is of a deciding diagnostic importance (a) for the early recognition of cases that show unusual hematologic signs and clinical symptoms, some of which are due to complicating factors, and (b) for the exclusion from the group of infectious mononucleosis of cases that are otherwise clinically and hematologically indistinguishable from it.

The differential test for infectious mononucleosis is of deciding diagnostic value (a) for the exclusion of cases that are clinically and hematologically indistinguishable from infectious mononucleosis and that have a so-called borderline titer of heterophilic antibodies (1:56 or 1:112); (b) for the recognition of late cases of infectious mononucleosis with a relatively low titer of heterophilic antibodies, and (c) for the recognition of cases that are complicated by a recent therapeutic injection of a horse immune serum or by serum disease.

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#### ABSTRACT OF DISCUSSION

DR. RICHARD H. JAFFÉ, Chicago: There are two points in Dr. Davidsohn's paper in which I am much interested. I believe that the demonstration of the heterophilic antibodies suggests that infectious mononucleosis is a specific disease. So far some pathologists were inclined to consider infectious mononucleosis as the lymphatic reaction to any kind of infection, but now it seems to be a disease entity. Secondly, as Dr. Davidsohn has pointed out, the blood picture is not always characteristic, particularly in the early stages. There may be a polymorphonucleosis, and the demonstration of the heterophilic antibodies will help identify those cases in which the blood picture is not or not yet typical. As far as the blood picture is concerned, in some cases the characteristic large lymphatic cells are found. These lymphatic cells are not young lympho-

## CONCLUSIONS

1. Charts are presented showing the actual quantitative content of the urine in gonadotropic hormone at various times throughout six normal pregnancies.
2. The charts show the invariable existence of an exceedingly steep and high hormone peak at a time which is quite accurately one month from the beginning of the first expected but missed menstruation.
3. The peak must be recognized as a normal phenomenon in all studies attempting to relate high hormone levels with pathologic insignia.

## SEROLOGIC DIAGNOSIS OF INFECTIOUS MONONUCLEOSIS

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Infectious mononucleosis has been known under different names since 1889, when it was described by E. Pfeiffer<sup>1</sup> as glandular fever. Thirty-four years later, Tidy and Daniel<sup>2</sup> and Downey and McKinlay<sup>3</sup> described the characteristic blood changes and inaugurated the hematologic diagnosis of infectious mononucleosis. The blood changes are very helpful in the recognition of the disease, but they are not pathognomonic. Similar changes are found in several clinically unrelated diseases, particularly acute infections of the pharynx. Furthermore, in the early stages of infectious mononucleosis the characteristic elevation of the mononuclear cells may be absent and the blood picture may show merely a slight to moderate increase of the total number of white cells with a normal differential count.

A second phase in the diagnosis of infectious mononucleosis was initiated in 1932 by Paul and Bunnell,<sup>4</sup> when they found that the blood serum of the patients is able, even in high dilutions, to clump sheep red cells.

It has been known for a long time that the blood serum of a large majority of persons is able to lase and to clump the erythrocytes of the sheep, but only in very low dilutions.<sup>5</sup> It has also been known that the lytic and agglutinative power of human blood serum rises considerably after the injection of horse serum, normal or immune, particularly if followed by serum disease.<sup>6</sup> It was in the course of checking my observations in horse serum disease that Paul and Bunnell discovered the presence of similar antibodies in infectious mononucleosis.

The hemolysins and agglutinins of normal persons and of persons injected with horse serum are called heterophilic antibodies. The term "heterophilic" refers to the property of such antibodies to react with an

antigen (sheep erythrocytes) that seemingly had nothing to do with their development. They possess that property in addition to the ability to react with the homologous antigen. Some heterophilic antibodies are specifically removed from human or animal serum by the tissues of various animals (guinea-pig, horse, chicken and others) and by some bacteria (pneumococci, dysentery bacilli and others). The antigen in these animals and bacteria is known under the name of its discoverer as the Forssman heterophilic antigen. It is well to remember that there are varieties of heterophilic antigens and antibodies that differ from the Forssman type. Further information may be found in reviews of the subject.<sup>7</sup>

It was shown by proper absorption tests that the antibodies against sheep red cells in normal persons and after horse serum therapy are of the Forssman type and by analogy it was assumed by many writers that the antibodies in infectious mononucleosis are also of that type.

In February 1934 I presented before the Chicago Pathological Society a modification of the technic of the agglutination test for infectious mononucleosis that has greater speed and precision than the older technic that I employed previously in the study of serum disease.<sup>8</sup> I now began a study of the nature of the heterophilic antibodies in infectious mononucleosis and a preliminary report of my studies was given at the meeting of the American Society of Clinical Pathologists in June 1935.<sup>9</sup> It is of interest that similar investigations were carried on independently of each other by C. A. Stuart and his associates,<sup>10</sup> and by Bailey and Raffel.<sup>11</sup>

In view of the fact that nothing definite is known at present about the etiology of infectious mononucleosis and that the morphologic changes in the blood are characteristic but not absolutely specific for the disease, the study of the antibodies in the blood serum offers a basis for recognition as well as for classification of the disease. It may be that the finding of the etiologic factor will modify or even nullify the significance of the serologic changes in infectious mononucleosis. It may then become apparent that we are dealing here with more than one disease. However, until such time, considerable help can be derived from what is already known about the heterophilic antibodies in mononucleosis.

The purpose of my report is to demonstrate the value of the agglutination test in the diagnosis of atypical cases of infectious mononucleosis and to present a differential test for infectious mononucleosis which widens greatly the usefulness of the serologic diagnosis. The hematologic aspect of the diagnosis of infectious mononucleosis will not be discussed, because nothing can be

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Age apparently has no effect in the demonstration of air under the diaphragm. The youngest patient in our positive group was a new-born white boy who had a perforated duodenal ulcer, bilateral inguinal hernia, pneumoperitoneum and pneumoscrotum. The oldest patient was a white woman aged 71. There are practically equal numbers in each of the four decades between the ages of 20 and 60 years, but there are only three females in the entire group.

The roentgen technic employed is fortunately very simple. Brilliant films are by no means necessary. Most of the films in our collection have been exposed with a small mobile unit in the ward or operating room. The one absolute essential is that the patient be put in the upright position during the x-ray exposure. It is helpful to turn the patient on his left side for a short period before elevating the upper part of the body.

SUMMARY

The series of forty-two cases of proved perforated gastric and duodenal ulcers gave a positive roentgen diagnosis in thirty-five, or 83 per cent. It is important that the roentgen examination be made as soon as possible after the perforation, as the small amount of air present is soon resorbed. With all factors under better control, the percentage of positive results will probably be considerably higher. The method is of decided value in differential diagnosis and is entitled to more emphasis than is given it in textbooks of roentgen interpretation.

HEMOLYTIC TRANSFUSION REACTION PRODUCED BY THE BLOOD OF A "UNIVERSAL DONOR"

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Since the blood of group O contains no agglutinogens, Ottenberg<sup>1</sup> in 1911 proposed the use of individuals of this group as "universal donors." It was thought that the agglutinins  $\alpha$  and  $\beta$  would be sufficiently diluted in the recipient's serum as to be ineffectual.

Titration of Hemolysins and Agglutinins in Donor's Serum

Corpuscles		Dilutions of Donor's Serum (Oa $\beta$ )												
		1:4	1:10	1:12	1:16	1:20	1:30	1:40	1:50	1:60	1:70	1:80	1:100	1:110
ABo	Henry (recipient)...	Hemolysis.....	4+	2+	2+	1+	1+	—	—	—	—	—	—	—
		Agglutination												
	Cole.....	Hemolysis.....	4+	2+	1+	—	—	—	—	—	—	—	—	—
		Agglutination			$\pm$	1+	4+	4+	3+	3+	2+	1+	1+	$\pm$
A $\beta$	Hall.....	Hemolysis.....	4+	2+	1+	$\pm$	—	—	—	—	—	—	—	—
		Agglutination			2+	4+	4+	4+	4+	4+	3+	2+	$\pm$	—
	Randall.....	Hemolysis.....	4+	2+	1+	1+	—	—	—	—	—	—	—	—
		Agglutination												
Ba	DeGowin.....	Hemolysis.....	2+	—	—	—	—	—	—	—	—	—	—	—
		Agglutination...	4+	4+	2+	$\pm$	—	—	—	—	—	—	—	—
Oa $\beta$	Van Epps.....	Hemolysis.....	—	—	—	—	—	—	—	—	—	—	—	—
		Agglutination...	—	—	—	—	—	—	—	—	—	—	—	—

The practice of transfusing group O blood into individuals of other groups has become fairly common, although many writers have warned against it. Copher<sup>2</sup> stated that the use of the "universal donor" was dangerous. Levine and Mabee<sup>3</sup> studied the blood of one individual belonging to group O whose serum agglutinated the corpuscles of group A in a dilu-

tion of 1:120. Freeman and Whitehouse<sup>4</sup> found a group O blood the  $\alpha$  agglutinin of which was active in a dilution of 1:80. The  $\beta$  agglutinin reacted in a dilution of 1:48. Neither of these bloods was actually used for transfusions. Thomsen<sup>5</sup> determined the hemolysin titer of twenty-four serums of group O and found that the majority hemolyzed A corpuscles in dilutions of 1:4, although one was potent in a dilution of 1:64 and two were potent in a dilution of 1:16. In general, the  $\alpha$  hemolysin was more potent than the  $\beta$ .

Hemolytic reactions from the transfusion of group O blood into recipients of other types have been reported by Unger,<sup>6</sup> Wichels and Lampe,<sup>7</sup> Tiber<sup>8</sup> and many others. Hesse<sup>9</sup> has recently collected forty-six cases from the literature in which group O blood caused reactions when injected into recipients of other groups. He reports a case of his own in which the group O serum of the donor agglutinated the recipient's A corpuscles in a dilution of 1:2,048. This is probably the highest titer on record.

As there are only three or four reports in which agglutinins in the donor's blood have been titrated, the following case seems worthy of consideration:

REPORT OF CASE

E. H., a woman, aged 25, had a medical induction of labor in the University Hospital June 6, 1936. Postpartum fever developed for which a blood transfusion was contemplated. The patient was found to belong to group AB. No donors of this type were available from the hospital donor list at that time, so her blood was cross-matched with that of a group O donor by the open slide technic of Vincent. No agglutination or hemolysis occurred in the mixture of the donor's corpuscles and the recipient's serum, but the donor's serum was seen to produce prompt agglutination and hemolysis of the recipient's cells. As this reaction was expected, citrated blood from the donor was transfused slowly into the patient by gravity. When 125 cc. of blood had been given, the patient complained of a feeling of constriction in the chest and

severe shortness of breath. The administration of blood was promptly discontinued. She became intensely cyanotic and dyspneic. A marked chill occurred and the oral temperature

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quate quantity of the antigen, which was found to be 0.1 cc. of the antigenic substance to 0.1 cc. of the undiluted serum.

All antigens had a marked tendency to absorb the agglutinins for sheep erythrocytes. However, the absorption by the kidney of the rabbit was noticeably less than that of the other antigens, particularly when smaller quantities of the antigen were used, while with larger quantities the nonspecific effect became more and more pronounced. The readiness with which the agglutinins were removed by beef erythrocytes was striking, particularly by comparison with the normal serum.

Serums of thirteen patients with infectious mononucleosis were absorbed repeatedly with the different antigens until maximum absorption was obtained. Serums of nine patients with mononucleosis were treated with the optimum quantities of antigens (0.05 and 0.1 cc. to 0.1 cc. of serum); 0.1 cc. of the beef cells and of beef heart removed promptly all agglutinins for sheep cells. Kaolin and kidney of the guinea-pig and of the rabbit removed between 50 to 75 per cent of the agglutinins. The average absorption was 50 per cent by kaolin, 61 per cent by the rabbit kidney, and 69 per cent by the guinea-pig kidney. Further absorptions did not remove any more of the antibody. The

TABLE 2.—Comparison of the Effect of Absorption

Averages of Titers Before Absorption	Percentages of Absorption of Agglutinins for Erythrocytes of the Sheep with											
	Erythrocytes of						Kidney of					
	Beef, Cc.		Sheep, Cc.		Beef Heart, Cc.		Guinea-Pig, Cc.		Rabbit, Cc.		Kaolin, Cc.	
	0.05	0.1	0.05	0.1	0.05	0.1	0.05	0.1	0.05	0.1	0.05	0.1
Normal controls (five cases).....	20	35	...	100	..	..	100	...	35	..	0	..
Serum disease (three cases)...	91	...	97	...	..	..	100	...	100	..	95	..
Infectious mononucleosis (nine cases).....	342	100	100	...	..	99	100	...	69	..	61	..

ability of the beef red cells to absorb the agglutinins for sheep cells from serums of patients with infectious mononucleosis was first reported by Bailey and Raffel<sup>11</sup> and was recently confirmed by Stuart and his associates.<sup>10d</sup> I observed the same phenomenon before the publication of their reports and have confirmed it since in every case of infectious mononucleosis. Beef heart tissue had the same effect as beef erythrocytes. However, in a few cases with very high titers, the beef heart removed the agglutinins for the sheep erythrocytes less efficiently than did the beef red cells.

Table 2 emphasizes the different behavior of the sheep agglutinins in the serum of normal persons and of persons with serum disease and with infectious mononucleosis with regard to the different antigens.

The failure of the guinea-pig kidney to remove the agglutinins for sheep erythrocytes from the serum of patients with infectious mononucleosis establishes that the heterophilic antibodies in that disease are not of the Forssman type. The readiness with which beef erythrocytes removed the antibodies in serum disease is contrasted with their failure to do it in normal serum. It is apparent that absorption with beef erythrocytes cannot be employed for the separation of infectious mononucleosis from serum disease but that absorption with guinea-pig kidney can clearly differentiate the two conditions. Removal of the agglutinins for the erythrocytes of sheep with beef erythrocytes and the failure

of the guinea-pig kidney to remove them completely establishes the diagnosis of infectious mononucleosis, while removal of the sheep agglutinins with the guinea-pig kidney excludes mononucleosis. That the absorption of a serum with beef erythrocytes and of another sample of the same serum with the guinea-pig kidney offers a convenient method for the differential diagnosis of infectious mononucleosis will be illustrated by concrete examples.

#### TECHNIC OF THE DIFFERENTIAL TEST FOR INFECTIOUS MONONUCLEOSIS

##### ABSORPTION WITH BOILED BEEF ANTIGEN

Place in a test tube (85 by 16 mm.) 0.5 cc. of the thoroughly shaken 20 per cent suspension of boiled beef erythrocytes. Add 0.1 cc. of serum that has been heated for thirty minutes at 56 C. Shake and let stand at room temperature for one hour, shaking at fifteen minute intervals. Centrifugate at 1,500 revolutions for ten minutes. Remove the supernatant fluid with a capillary pipet. To a row of six tubes (75 by 12 mm.) add 0.25 cc. of physiologic solution of sodium chloride. To the first tube add 0.25 cc. of the absorbed serum. Mix and transfer 0.25 cc. to the second tube and so on. Discard 0.25 cc. from the last tube. The serum dilutions are 1:10, 1:20, 1:40 and so on. Add 0.1 cc. of a 2 per cent suspension of sheep cells. Shake well. Final dilutions of serum are 1:14, 1:28 and so on. Let stand at room temperature for two hours. Read.

##### ABSORPTION WITH BOILED GUINEA-PIG KIDNEY

Exactly the same procedure as before, using 0.5 cc. of the thoroughly shaken 20 per cent suspension. If it is necessary to begin with a dilution of 1:7, as may be the case in serums with titers below 1:112 (see case 31), add 0.2 cc. of serum to 1 cc. of the antigen suspension. For titration omit the physiologic solution of sodium chloride from the first tube, but in the other tubes, place the usual amount of 0.25 cc. From the absorbed serum, add 0.25 cc. to the first and to the second tube. Proceed as before. The final dilutions are 1:7, 1:14 and so on.

#### THE DIAGNOSTIC PROBLEMS IN INFECTIOUS MONONUCLEOSIS

It is stated frequently that infectious mononucleosis can be easily diagnosed from the results of the clinical and hematologic examinations. That is undoubtedly true in the majority of cases. However, my experience has taught me that not infrequently cases are encountered that present great diagnostic difficulties. The histories of the thirty cases that form the basis of this report confirm fully the opinions of those authors who emphasize the great variety of the manifestations of mononucleosis. Bernstein<sup>13</sup> enumerates twenty-nine conditions that may simulate mononucleosis. Among them he did not mention chronic lymphatic leukemia and monocytic leukemia, both of which may have to be differentiated from mononucleosis. He also failed to include eight conditions from which mononucleosis may have to be separated, as was the case in our series: acute appendicitis (case 1<sup>24</sup>), acute surgical conditions of the abdomen (other than appendicitis) (case 6), acute leukemia (cases 6 and 12), acute gastritis and hepatitis (case 12), agranulocytosis (case 2), acute meningitis and encephalitis (case 27).

I shall confine myself to a brief presentation of a few reports that will illustrate the value of the agglutination test and of the differential test for infectious mononucleosis.

The diagnostic difficulties in mononucleosis can be divided into five groups. To the first group belong the

13. Bernstein, Alan: Antibody Responses in Infectious Mononucleosis, *J. Clin. Investigation* 13: 419-435 (May) 1934.

14. Davidsohn, Israel: Infectious Mononucleosis, *Am. J. Dis. Child.* 49: 1222-1231 (May) 1935.

the relative height of the bottle to the pleural cavity. I have found that a bottle 20 cm. high and with a capacity of 700 cc. works very satisfactorily and will empty about once in thirty minutes when fluid is added by a moderately slow drip.

Clinical results have been excellent in all cases in which this apparatus has been used in conjunction with a closed type of thoracotomy.

Stuart Building.

## Council on Physical Therapy

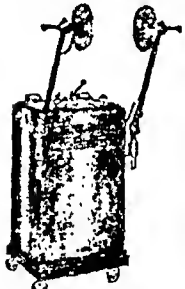
THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

HOWARD A. CARTER, Secretary.

### SW-500 DELUXE MODEL SHORT WAVE GENERATOR ACCEPTABLE

Manufacturer: The Liebel-Flarsheim Company, Cincinnati.

The SW-500 DeLuxe Model Short Wave Generator is recommended for medical and surgical diathermy and hyperpyrexia. Application of the current may be made by the coil (electromagnetic field), pad or cuffs, and so-called spaced plates (electric field). The firm does not make any claims of advantages of one method of application over another, except that one method may be more convenient than another in some instances. Standard accessories supplied with the machine consist of supply cable, two 4 by 6 inch pad electrodes, two 6 by 8½ inch pad electrodes, two 9½ inch diameter plate electrodes, one 11 foot inductance cable, two 5 inch diameter plate electrodes, two adjustable supporting arms for plate electrodes, one set of felt spacers, one roll of elastic bandage and one set of cable retaining clips. Special applicators and surgical accessories are available as extras. The shipping weight of the unit is about 200 pounds.



De Luxe Model  
SW-500 Short  
Wave Generator  
(Liebel - Flarsheim).

High frequency currents of two wavelengths are available: one between 6 and 8 meters, the other between 18 and 20 meters. The power consumption is about 700 watts on 110 volt alternating current line.

The firm was asked to submit evidence substantiating the claims made for the heating ability of the unit. The firm engaged a reliable investigator to conduct the tests. He seated the subject in a comfortable position, with the legs spread apart. An incision was made in the thigh, approximately

6.3 inches from the knee, under aseptic conditions. A cannula was inserted in the quadriceps extensor muscle and in the subcutaneous tissue. Temperatures were read by three thermocouples of copper constantan, especially prepared to facilitate manipulation of them for taking readings at the cannula and on the surface of the skin. The thermocouples were removed from the field when the short wave current was passed through the thigh.

The voltage generated by the thermocouples was read by a type K potentiometer, manufactured by Leeds and Northrup Company. The thermocouples and potentiometer were calibrated in degrees Fahrenheit. Six observations were recorded.

A cotton face towel was held over the thigh on each side of the cannula. The under side of the thigh was uncovered, since the patient rested in a sitting position. Electrodes were 4.8 and 9.5 inches in diameter, and placed 1.4 inches from the skin surface. The 6 to 8 meter band was employed.

Readings were taken after every five minutes of application until a total of twenty minutes of application had been administered. The average time consumed during the temperature readings was three and one-half minutes. The cooling time temperature readings were also taken at ten and twenty minute intervals after the twenty minute application ceased. Oral temperatures were taken at the beginning and end of each treatment.

The time allowed between successive tests for the local temperature to drop to normal was sixty minutes.

The averages of six observations are recorded in table 1.<sup>1</sup>

The manufacturer cooperated with the Council by submitting the short wave diathermy unit and the aforementioned data for consideration. The Council selected an independent investigator to test the unit. He conducted tests using the 6 to 8 meter band and employing "spaced-plate" electrodes. Three subjects were used in this test and a total of eight observations were recorded. The subject's treatment table had to be raised on four chairs before it was possible to apply the electrodes because the holders were too short when the subject was in a recumbent position. Two trocars placed in hard rubber cannulas were inserted into the thigh. One was inserted midway between Poupart's ligament and the knee and straight down into the depth of the muscular tissue until the instrument was at an approximate depth of 2 inches, or until the femur was encountered. The second was introduced as nearly parallel to the skin as possible and subcutaneously at an approximate depth of one-eighth inch. The trocars were removed, leaving the rubber cannulas in situ. Temperature measurements were then taken by means of thermocouples of the hypodermic needle type and introduced through the cannulas. The constant junction was immersed in ice enclosed in a quart vacuum bottle. The electromotive force due to the difference in temperature of the junctions was read in millivolts from the Leeds and Northrup portable potentiometer. The thermocouples were calibrated in degrees Fahrenheit against a Bureau of Standards certified thermometer. Initial temperatures were taken and then each subject was submitted to a twenty minute application of maximum current intensity consistent with skin comfort. At the end of this period, temperatures were again recorded until the

TABLE 1.—Average Temperatures of Six Observations

Deep Muscle		Subcutaneous		Oral Temp.	
Initial	Final	Initial	Final	Initial	Final
97.5	104.8	96.9	104.1	98.6	99.1

temperature began to drop. The highest temperature attained was recorded as the final temperature in each instance. Oral temperatures also were taken.

The "spaced-plate" electrodes, 4.8 inches in diameter, were placed laterally on the thigh equidistant from the cannulas. The distance from the skin to the electrode was from 1¼ to 2 inches.

Each reading in table 2 is the average of eight observations obtained on the spaced plates.

The results of the Liebel-Flarsheim tests indicate that the final temperatures in the muscle, subcutaneous tissues and mouth are somewhat higher than those obtained by the Council's investigator. It is to be remembered that, in the investigation carried out under the direction of the firm, the subject was placed in a sitting position, whereas in the Council's investigation the subject was in a recumbent position, or in the position in which patients are ordinarily treated.

A discussion of the reasons for the difference in results of the two investigations may be of interest. When the Council's

TABLE 2.—Average Temperatures in Eight Observations on Spaced Plates

Deep Muscle		Subcutaneous		Oral Temp.	
Initial	Final	Initial	Final	Initial	Final
99.5	102.9	98.9	102.6	99.1	99.4

subject was in a recumbent position, he was lying on a non-conducting and nonmetallic couch. A portion of the electrical energy, however, may have been absorbed by the mattress and the couch. On the other hand, with the firm's subject in a sitting position, there was less foreign material to absorb the energy, and furthermore precautions were taken to keep the other leg away from the inside electrode. In the thighs of the subjects investigated by the Council, the cannulas were inserted from 1 to 1½ inches proximal to the knee from those in the manufacturer's subject. The diameter of the "spaced-plate" electrode used by the Council's investigator was 4.8 inches, whereas the manufacturer's investigator used electrodes 4.8 and

1. The Council did not use these data as a basis for acceptance.

cells is on the borderline (1:56 and 1:112). It is in these cases that the new differential test for infectious mononucleosis becomes invaluable. Mononucleosis is excluded if the absorption with the guinea-pig kidney removes the agglutinins for sheep cells. Bailey and Raffel<sup>11</sup> suggested the absorption with beef erythrocytes as sufficient for differentiation, claiming that removal of the agglutinins for the sheep cells establishes the diagnosis of infectious mononucleosis. The results of the absorption experiments as presented in the first part of the paper demonstrated that in serum disease the agglutinins for sheep erythrocytes are readily removed by boiled beef erythrocytes. A considerable number of absorptions of serum from patients without infectious mononucleosis showed the ability of beef erythrocytes to remove agglutinins for sheep erythrocytes. If the absorption with beef erythrocytes were the only criterion, erroneous conclusions would result. Such errors are prevented by absorbing the serum with the guinea-pig kidney and with beef erythrocytes. Two cases will serve as illustrations:

*Lymphocytic angina with high (borderline) titers of heterophilic antibodies.* A boy, aged 7 years, was admitted with a

would have been erroneous, as was demonstrated in the differential test by the complete removal of the sheep agglutinins by the guinea-pig kidney.

Such cases, which are clinically and hematologically indistinguishable from infectious mononucleosis and are serologically negative as established by the agglutination test or by the differential test, are not infrequent. As I stated in my discussion of the paper of Downey and McKinlay,<sup>12</sup> there is a need for the separation of infectious mononucleosis as a serologically homogeneous group from the other group that is serologically negative. To avoid confusion it may be advisable to apply to the serologically negative group the old term "lymphocytic angina."

While in the foregoing cases with borderline titers the differential test helped to exclude infectious mononucleosis, in the fourth group of clinically and hematologically similar cases the differential test helps to establish the diagnosis of mononucleosis, as is illustrated by the following report:

*CASE 31.—Infectious mononucleosis with a low titer of heterophilic antibodies.* A man, aged 50, took ill in Florida in February 1936. He had enlarged inguinal and axillary lymph

TABLE 5.—Hematologic and Serologic Follow Up in Ten Patients with Infectious Mononucleosis

Case	Age	Number of Days Since Onset of Illness Until							
		Days Under Observation	Clinical Improvement (Discharge from Hospital)	Hematologic Recovery			Serologic Recovery		
				Last Finding of Abnormal Lymphocytes	First Blood Count Without Abnormal Lymphocytes	Last Finding of a Mononuclear Count of 50% or More	First Blood Count with a Mononuclear Count Below 50%	Last Finding of an Abnormal Titer (1:112 or Over) of Sheep Agglutinins	First Finding of a Normal Titer (Less Than 1:56) of Sheep Agglutinins
1	19	139	8	18	27	139	Over 139	63	120
6	13	107	63	59	98	59	98	98	Over 100*
7	23	106	16	9	14	14	31	31	79
11	13	50	12	14	50	50	Over 50	26	Over 50*
12	37	296	67	68	92	68	92	63	296
17	17	201	16	23	30	42	Over 42	30	57
21	17	117	12	..	..	117	Over 117	40	117
26	6	61	19	19	23	61	Over 61	40	61
27	16	135	72	37	87	37	87	114	145
28	23	73	20	18	46	12	18	46	73
Average	19	From 50 to 296 138	From 8 to 72 31	From 9 to 68 27	From 14 to 98 47	From 12 to 68 60	From 18 to over 139 ..	From 12 to 114 56	From 50 to 296 119

\* Not included in the computation of averages.

sore throat and markedly enlarged lymph nodes. The spleen was moderately enlarged. The tonsils were covered with a membrane. The temperature was 102.4 F. The child looked very ill. Smears from the throat showed large numbers of Vincent's organisms. Diphtheria bacilli were absent. Examination revealed 7,200 white blood cells with 57 per cent lymphocytes and 1 per cent of so-called abnormal lymphocytes. The titer of sheep agglutinins was 1:112, which is the so-called borderline titer. The differential test was negative for infectious mononucleosis. The infection in the pharynx dominated the picture during the further course. The infection extended into the ethmoid and maxillary sinuses. The spleen continued to be enlarged. Repeated blood counts showed normal numbers of white blood cells and from 50 to 61 mononuclear cells, with from 1 to 3 per cent of so-called abnormal lymphocytes. The child improved gradually and left the hospital three weeks after admission.

A girl, aged 3 years, took ill with a sore throat and fever. The lymph nodes, particularly those of the neck, were enlarged and tender, the spleen and liver were enlarged. The differential smear showed 21 per cent neutrophilic leukocytes, 72 per cent lymphocytes, 5 per cent abnormal lymphocytes and 2 per cent monocytes. The test for heterophilic antibodies was 1:56+. The differential test was negative for infectious mononucleosis.

In both preceding cases the absorption with ox cells removed completely the agglutinins for sheep cells. To class them on that basis as infectious mononucleosis

nodes, fever and general malaise. A blood count early in March showed 17,000 white cells with 80 per cent lymphocytes. A diagnosis of infectious mononucleosis was considered but was not made with certainty. The patient improved and returned to his home, where it was considered advisable to establish the nature of his illness in Florida. On March 31 he had 7,000 white cells with 49 per cent mononuclear cells. The titer of the heterophilic antibodies was 1:56+. That alone was not sufficient to diagnose mononucleosis. However, the differential test (as shown in table 3) permitted a definite diagnosis of infectious mononucleosis. Its result was a complete absorption of the sheep agglutinins with beef cells and only partial absorption with the guinea-pig kidney.

The service that was rendered by the differential test in the last case is supported by another absorption shown in table 3. In a typical case of infectious mononucleosis (case 7) the titer of heterophilic antibodies was at its height, 1:896+. Thirty-eight days later the titer was below the diagnostic level for mononucleosis, 1:56+. However, the differential test showed the same result that is characteristic for infectious mononucleosis as at the height of the titer.

Another case (34) was seen recently in a physician with a marked leukopenia. His condition was first diagnosed as agranulocytosis and only later did the test permit the diagnosis of infectious mononucleosis. The

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SATURDAY, JANUARY 23, 1937

## OPIUM TRAFFIC IN THE UNITED STATES

As part of the international policy of controlling traffic in opium and other dangerous drugs, each nation signatory to the International Drug Conventions is supposed to prepare an annual report. The report of the United States of America for the year ended Dec. 31, 1935, has been prepared and published by the Bureau of Narcotics of the Treasury Department.<sup>1</sup> The number of nonmedical drug addicts in the United States is difficult to determine accurately, but, while formerly believed to approximate one person in every thousand of the population, recent surveys indicate that this figure no longer obtains in many sections of the country. In the nature of a further inquiry into the problem of addiction, the Bureau of Narcotics examined the records of 1,397 of the persons investigated in connection with violation of the narcotic laws as to their personal use of drugs. Of these, 946 were found to be addicted to some form of opium or coca derivative, the other 451 giving no evidence of addiction. Of the addicts, 757 were male and 159 female. The average age of the men was 41 and of the women 35. Seven hundred and seventy-five were white, eighty-eight oriental, seventy-eight colored and three American Indian, while in two instances the race was not reported. A striking feature was the educational background of these addicted violators. Five hundred and twenty had attended only grade school, 211 had reached high school but not college, and 153 had received some college or university training. These figures indicate a considerably higher percentage of moderately educated people than that existing among the general public.

The reasons given for drug addiction were of interest. In 486 instances "associations" were blamed; in 337, illness or injury was named as the responsible factor; other causes mentioned less frequently were indulgence or drink in fifty, mental strain or nerves in fourteen,

curiosity or experiment in ten, physical strain or overwork in six and deliberate addiction in one. The previous criminal records of the 946 addicts included 545 charges of felony, 468 misdemeanors and 1,887 violations of either federal or state narcotic laws. This is an extremely high criminal record; higher, in fact, than that found in any other group of lawbreakers.

The heaviest arrivals of raw opium in 1935 were in the Atlantic Coast area. There were fourteen seizures, three of which concerned fairly large quantities: 23, 19 and 17 Kg. The largest seizures of prepared opium were effected in the Pacific Coast area, almost all of which came from China and appeared to be mostly a blend of Chinese and Persian opium. More than twice as much smoking opium was seized in the United States in 1935 as in 1934, amounting in 1935 to 779 pounds. Morphine was seized in every area reviewed except Hawaii. The total quantity seized during the calendar year 1935 showed an increase of 27.5 per cent over that seized the previous year. The amount of heroin seized showed an increase of about 19 per cent over the previous year. The amount of cocaine taken, however, showed a decrease of 63 per cent as compared with that seized in 1934. The records as a whole contain substantial evidence in the form of labels, packages and detailed reports to show the existence of an extensively organized narcotic traffic in the Far East. The Opium Advisory Committee of the League of Nations has previously called attention to the extreme dangers resulting from this situation.

Closely allied with the opium traffic is the present situation with regard to Indian hemp, or marihuana. There is as yet no federal legislation penalizing traffic in this drug, and federal efforts are at present largely confined to restriction of imports and cooperation with those states or local bodies which have effective regulations.

The effectiveness of federal efforts to control the drug traffic, in cooperation with the League of Nations, is manifest by the amounts of drugs seized, the relatively smaller quantities in which they are transported and the high percentage of convictions obtained for violation of the laws. In this connection it is noteworthy that for every agent in the federal field service there are ten convicted narcotic violators in the federal penitentiaries. Only about 511 Kg. of narcotic drugs was seized in 1935, as compared with 3½ tons during the fiscal year 1931, when smuggling was rampant. Much smaller shipments are now found, combined with higher adulteration and increased retail price. The number of criminal violations detected rose from 4,742 in 1934 to 5,200 in 1935, while the convictions increased from 1,816 in 1934 to 2,065 in 1935. The two problems of greatest menace at the present time seem to be the rise in use of Indian hemp with inadequate control laws and the oversupply of narcotic drugs available in the Far East, which threatens to inundate the Western world.

1. Anslinger, H. J.: Traffic in Opium and Other Dangerous Drugs for the Year Ended December 31, 1935, U. S. Treasury Department, Bureau of Narcotics, U. S. Government Printing Office, Washington, 1936.

cytes and I don't think any differential diagnostic difficulties exist between the blood picture of infectious mononucleosis and acute leukemia. The character of the nucleus of the large lymphatic cells is that of the mature lymphocyte with a trabeculated chromatin structure. It is definitely different from the leptochromatic nucleus of the immature lymphocyte. The basophilic cytoplasm of the cells which gradually leads to plasma cells is much more characteristic than the structure of the nucleus. I have seen a few cases of infectious mononucleosis in which the outstanding hematologic finding was an increase of the monocytes, not of the lymphatic cells, and in which there were also atypical monocyctic cells of the so-called Rieder type. With the aid of the demonstration of the heterophilic antibodies, it is now possible to show that all these cases belong in the same group. Since there now exists such a reliable test as Dr. Davidsohn has pointed out, the next step will be to look for the infective agent, which I think will be found to be a virus.

DR. A. S. GIORDANO, South Bend, Ind.: Dr. Davidsohn should be congratulated on this work, which began in 1927 when he was primarily interested in the determination of type of heterophile antibodies. The differential test that he has presented is of great aid to the clinical pathologist, who is frequently confronted with atypical cases which he cannot hematologically classify definitely in any particular group. The aid of the heterophile antibody and the other differential tests suggested by Dr. Davidsohn definitely establish the diagnosis. I wish to mention two cases from my experience that illustrate the value of these tests. The first patient was a girl, aged 18, sent home from college with a diagnosis of agranulocytic angina. Her white blood cell count was 1,200 per cubic millimeter. The lymphocytes ranged from 70 to 78 per cent. Some of the cells appeared immature and it was possible that the condition might be either leukemia or infectious mononucleosis, since there were only 8 per cent polymorphonuclear cells and the rest were monocytes. The heterophile antibody agglutination revealed an agglutination above 1:140. This quickly established a diagnosis, and a good prognosis was given to the father, who was a physician. The second patient was a child, aged 8 years. The pediatrician in the case found fever, an enlarged spleen, enlarged nodes and a white cell count of 20,000, with 82 per cent lymphocytes. The clinical diagnosis of acute lymphatic leukemia was made. In this case, too, the heterophile antibody quickly established the correct diagnosis of acute infectious mononucleosis. I can agree with everything that Dr. Davidsohn has said, but for the present it cannot be said definitely that infectious mononucleosis is really a clinical entity, since it can be mistaken for many other different clinical pictures. These cases can be classified serologically into one group and for the others one must wait until the etiology of the disease has been established. If anything has been learned from experience in other infectious diseases, it is known that in undulant fever the blood may have no agglutinins at all and some have low titers. The low titers in infectious mononucleosis are easily disposed of with the kidney absorption test, illustrating the point that low titers may be of great diagnostic significance.

DR. ISRAEL DAVIDSOHN, Chicago: My experience has been similar to Dr. Jaffé's. In none of my cases did I have any serious difficulty in differentiating the condition from acute leukemia. However, I was told only a few days ago by Dr. Hal Downey, an authority on the blood in infectious mononucleosis, that in his experience in about 5 per cent of the cases it is difficult to diagnose infectious mononucleosis from the blood examination alone. The differentiation from chronic leukemia is sometimes quite difficult, just as Dr. Jaffé mentioned. Furthermore, why not use a test that makes it possible to make the diagnosis so much easier than it is with the fine hematologic differentiation? I fully agree with Dr. Giordano and I want to state it once more that the serologic examination establishes merely a serologic group of infectious mononucleosis but does not permit any further conclusions. I stated last year while discussing the papers of Dr. McKinlay and Drs. Downey and Stasney at the meeting of the American Medical Association that there is reason to assume that there exist two types of infectious mononucleosis: the seropositive and the seronegative type.

## Clinical Notes, Suggestions and New Instruments

### THE FREQUENCY OF AIR UNDER THE DIAPHRAGM IN PERFORATED GASTRIC AND DUODENAL ULCER

REPORT OF FORTY-TWO CONSECUTIVE CASES

SYDNEY E. JOHNSON, M.D., LOUISVILLE, KY.

Roentgenographic demonstration of air under the diaphragm in cases of perforated peptic ulcer has been reported by many authors and is mentioned briefly in all modern textbooks on roentgen interpretation. All authors agree that demonstration of spontaneous pneumoperitoneum is pathognomonic of perforation, but the reader is left in considerable doubt as to the frequency with which air can be demonstrated in such cases. Since the finding of air is pathognomonic, the value of this sign depends on the percentage of cases in which the sign can be elicited. With the idea of getting more definite information on this question, I have examined the charts of all patients admitted to the Louisville City Hospital during the past five years who have had an admission diagnosis of perforated peptic ulcer, seventy-six cases in all. Thirty cases must be eliminated because there was no x-ray examination. The remaining forty-six cases were examined roentgenologically; thirty-five gave the positive finding of air under the diaphragm and eleven were negative.

Of the eleven negative cases one must be eliminated because it was found at operation that the ulcer had not perforated. Three others are excluded because there is no operative or necropsy confirmation of the clinical diagnosis. The remaining seven patients in the negative (x-ray) group were proved by operation to have perforated ulcers.

All the thirty-five patients in the positive group were proved by operation or necropsy to have perforated ulcers.

In considering the available data in both the negative and the positive cases the following facts would appear to be of greatest importance: (1) the time elapsed between the perforation and the x-ray examination, (2) the size of the opening, and (3) the amount of scarring at the site of the ulcer. The site of the ulcer, the age of the patient and the sex may have some effect, but this is not indicated in our small group of cases.

The time elapsing between perforation and the roentgen examination is undoubtedly determinable with a high degree of accuracy, assuming that perforation coincides with the sudden attack of severe pain. Practically all the patients in our group gave the exact hour of the attack. The time between the attack and the roentgen examination in the thirty-five patients who showed air under the diaphragm ranged from one to thirty-six hours and averaged eight and one-half hours. The time in the seven patients who had perforated ulcers but no air averaged thirty-six hours and ranged from one hour to five days. In the roentgen-positive group the time was under ten hours in twenty-two patients and under twenty hours in all but four. In two patients of this group the time was thirty-six hours. Both of these patients had large perforations, the opening in one admitting the index finger of the operator.

With regard to the size of the perforations, the records are incomplete. The size is recorded in twelve of the thirty-five patients in the roentgen-positive group, with a range from 2 to 15 mm. and an average of 6.5 mm. In two of the roentgen-negative group the size is recorded as one-fourth inch and 4 mm., respectively.

There is no record as to the amount of scarring at the site of perforation, but this may bear some relation to the chronicity of ulcer symptoms. The duration of ulcer symptoms in the roentgen-negative group averages one and one-half months, with extreme limits of from three days to five years. In the roentgen-positive group the histories average three and one-half years, with extremes of from one month to thirty years. All the patients with very long histories gave positive roentgen signs. This may have a definite relationship to the amount of induration at the site of the ulcer.

From the University of Louisville School of Medicine.



being who died following a cholecystectomy with the typical syndrome of hyperpyrexia of Heyd's group 1. Pytel<sup>5</sup> stated that he was able to reproduce the hepatorenal syndrome in rabbits by ligation of the hepatic artery, by subcapsular traumatization of the liver, by intraperitoneal and intravenous injection of liver extracts prepared from livers of animals in which the syndrome was produced, and by the injection of blood from such animals into normal animals.

A number of theories have been advanced to explain the liver death. Helwig, Orr and Schutz believe that an unknown powerful toxic substance is generated in the necrotic liver tissue and that this toxin exerts a specific effect on the renal tissue, causing degeneration and necrosis of the epithelium of the convoluted tubules. Boyce and McFetridge, as well as Pytel, do not believe in a specific toxic effect on the kidney but regard the alterations in the renal epithelium as the result of an overtaxed normal physiologic process, the excretion of foreign proteins by the convoluted tubules. The significance of the hepatorenal syndrome lies in the fact that every case of disease of the biliary passages is associated, as established by Reimann and by Graham, with more or less hepatic involvement. Unfortunately, exact tests of the liver function have not been evolved. Wilensky suggested that the renal function might be regarded as the reflection of the hepatic function. Among measures that may render an operative intervention on the liver or the bile tracts safer, the following are recommended: careful tests of the hepatic and renal functions, administration of dextrose and fluids in large amounts, administration of calcium, lessening the amount of trauma and exposure of the liver in the course of the operation, abstaining from suturing the fossa of the gallbladder, and the proper selection of an anesthetic.

## Current Comment

### WILLIAM ALLEN PUSEY HONORED

The January 1937 issue of the *Archives of Dermatology and Syphilology* is a special number dedicated to Dr. William Allen Pusey. The honorary volume was authorized by the Board of Trustees of the American Medical Association in recognition of the founding of the publication by Dr. William Allen Pusey and of his devoted service to it since that time. All the contributors have been associated with Dr. Pusey in various activities. In addition to tributes to Dr. Pusey as a leader in organized medicine by Dr. Olin West, as editor by Dr. Morris Fishbein, as educator by Dr. D. J. Davis and as a historian and litterateur by Dr. James B. Herrick, there is a statement on Dr. Pusey as a citizen by Rufus C. Dawes. Next come articles on Dr. Pusey's contributions to cutaneous medicine and syphilis by Dr. C. Guy Lane, and a biographic study by his assistant, Dr. Herbert Rattner. The remainder

of the volume is devoted to articles by associates and colleagues of Dr. Pusey. These articles concern various scientific dermatologic subjects. Especially important is an extensive contribution by Dr. Leonard F. Weber on external causes of dermatitis, which constitutes a complete listing of chemical substances, plant substances and other materials which have from time to time been reported as irritant causes of dermatitis. Dr. Pusey retires as editor of the *Archives of Dermatology and Syphilology* with the current issue. The new editor, Dr. Howard Fox, concludes the special issue with an editorial rendering tribute to the manner in which the *Archives* has been brought by Dr. Pusey to the leading place which it occupies in the dermatologic literature of the world.

### STAINS FOR TISSUE OF THE NERVOUS SYSTEM

The methylene blue staining method introduced by Ehrlich in 1885 contributed more than any other staining method (Weigert's hematoxylin, silver nitrate) to our knowledge of the anatomy of the peripheral and sympathetic nervous system. During the last two decades Russian investigators have perfected this method to such an extent that it has become possible to follow up by mere dissection the distribution of the sympathetic nerve fibers over large areas in an animal's organ without previous fixation, embedding and sectioning. It has become possible to stain areas termed by Worobiew macromicroscopic, that is, intermediary areas as it were, bordering on gross and microscopic fields.<sup>1</sup> After careful and critical analysis of the factors that constitute the rationale of the methylene blue staining method, Schabadasch<sup>2</sup> has succeeded in perfecting the method and has made it possible to follow up not only the macromicroscopic areas but also microscopic fields under magnifications as high as 1,200. He calls his method spatial microscopy (raummikroskopie). Basing his investigations on more than 1,600 staining experiments and a critical study of the literature, he concludes that successful staining with methylene blue is due not to the excess or presence of oxygen or to alkalosis but to a prevalence of hydrogen and acidity; that the carbohydrates are the chief source of hydrogen, without which the staining with methylene blue cannot succeed. This dye causes a chain of chemical phenomena in the tissues—transformation of aldehydes into acids, splitting of the carbohydrates and combustion of organic acids. By adding to the solutions of methylene blue chemicals such as dextrose, phenol, hedonal, magnesium chloride and magnesium bromide, Schabadasch has succeeded in obtaining excellent results in cases in which staining with the classic method ordinarily fails. The brilliant success of the modifications of Ehrlich's method and the correctness of the premises on which Schabadasch has based them he demonstrates in twenty-

1. A brief description of the macromicroscopic method appeared in a review of Worobiew's Methodik der Untersuchungen von Nerven-elementen des makro- und makro-mikroskopischen Gebietes, J. A. M. A. 56: 1647 (May 22) 1926.

2. Schabadasch, Arnold: Aeta morphologica: Arbeiten aus dem physiologischen Laboratorium der Filiale des Instituts für experimentelle Medizin (Wien) und dem staatlichen anatomischen Institut in Göttingen (G. S. S. R.); Theoretische und experimentelle Studien zur Methylenblaufärbung des Nervengewebes, State ed., Gorkij, 1935.

5. Pytel, Anton: Zur Frage des Hepatorenal Syndromes, Arch. f. klin. Chir. 187: 1. 1936.

rapidly rose to 106.2 F. The pulse rate was 140 and the respiratory rate 44 per minute. Two hours after the transfusion the recipient's blood serum was found to be tinged with hemoglobin, and the van den Bergh reaction was 2.0 (biphasic). There was no hemoglobinuria or oliguria. The symptoms persisted only a few hours and by the next day she felt well. The postpartum fever had disappeared and the van den Bergh reaction on the blood plasma was 0.5 (indirect). Recovery from hemolytic reaction and from postpartum fever was complete and prompt.

#### STUDY OF DONOR'S SERUM

The donor, a healthy man, aged 27, had never received blood in a transfusion and had had no severe illnesses, either recent or remote. His blood was retyped and belonged to group O. The recipient's blood was checked and established as group AB.

Tests for hemolysis and agglutination were set up in 8 mm. test tubes. Five-tenths cubic centimeter of a 0.25 per cent suspension of corpuscles in physiologic solution of sodium chloride was added to each tube containing 0.5 cc. of various dilutions of the donor's serum in physiologic solution of sodium chloride. The mixtures were well shaken and read after one hour at 37 C. The results are included in the accompanying table. (Agglutination was observed but not recorded with the cells of Henry and Randall.) It can be concluded from this that the  $\alpha$  agglutinin of the donor was potent in a dilution of 1:80 and the corresponding hemolysin in a dilution of 1:12 to 1:20. The  $\beta$  agglutinin was active only in a dilution of 1:12.

#### COMMENT

It is one thing to state that a certain serum contains an agglutinin which causes agglutination of a 0.25 per cent suspension of A corpuscles in a test tube, well shaken, at 37 C. in the course of one hour. However, it is almost unpredictable how much agglutination and hemolysis that same serum will cause when injected at the rate of 10 cc. per minute into the median basilic vein of a group AB recipient. It is obvious that near the site of injection the antibodies will be more concentrated. The blood corpuscles and, perhaps, the fixed tissues of the recipient will absorb a certain amount of agglutinins. The amount of free hemoglobin in the blood stream and the amount of agglutination required to produce a serious clinical reaction in man is unknown.

Nevertheless, it may be of interest to use the physical constants that are known in this case to calculate what would take place if the injected agglutinins and hemolysins were not absorbed. The recipient weighed 68 Kg. If one assumes that 8.8 per cent of her body weight was blood,<sup>10</sup> the blood weight was 5,456 Gm. The hemoglobin was approximately 80 per cent. No hematocrit determination was made, but it may be assumed that 68 per cent, or 3,710 Gm., of the blood was serum. If the donor's blood was normal, 75 cc. of serum was injected. If an average value of 1.050 is taken for the specific gravity, the weight of serum injected was 78.75 Gm. If one ignores the possible effects of dilution of serum with corpuscles, the donor's serum should have attained a dilution in the recipient's serum of 1:47. According to the tests in vitro, the 75 cc. of donor's serum should have agglutinated all the recipient's corpuscles in an hour. This obviously did not take place, so absorption must have immobilized most of the hemolysins and agglutinins injected.

The only safe statement to make from these data is that the injection of 125 cc. of blood from this group O donor into an individual of group AB is dangerous. The same also applies to a group A recipient. A group B recipient could probably safely receive this donor's blood.

#### SUMMARY

The injection of 125 cc. of blood from a certain group O donor into a group AB recipient, who was only slightly anemic, produced a severe reaction with evidence of hemolysis in vivo. The donor's blood was found to contain an  $\alpha$  agglutinin active in a dilution of 1:80 and a corresponding hemolysin active in a dilution of from 1:12 to 1:20. The  $\beta$  agglutinin was potent only in a dilution of 1:12.

### TIDAL IRRIGATION OF EMPYEMA CAVITIES WITH SIMPLIFIED APPARATUS

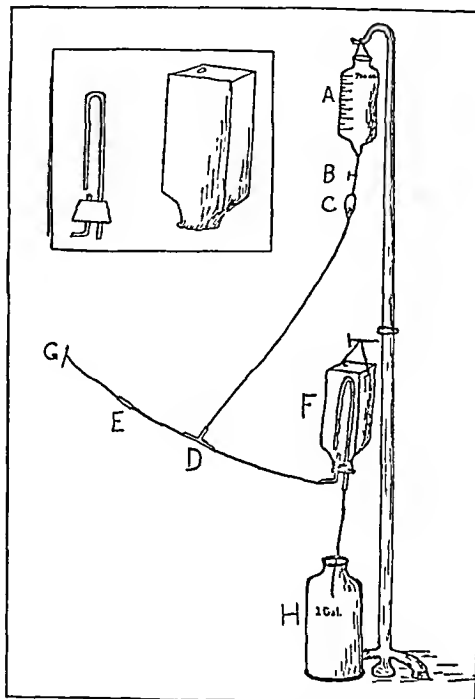
H. B. MORTON, M.D., LINCOLN, NEB.

There appeared in the December 1935 issue of *International Clinics*<sup>1</sup> an excellent article on the treatment of acute empyema in which attention was directed to the value of "tidal irrigation" in promoting early complete closure of an empyema cavity.

The procedure was accomplished by a series of two or more bottles so arranged as to hydrostatics that alternate irrigation and mild suction would be applied to the pleural cavity. The principle seemed excellent, but the recommended apparatus seemed quite intricate.

The apparatus here described is offered as a simplified method of carrying out tidal irrigations and has been found to function in an excellent manner.

Irrigating fluid is supplied from a reservoir through a drip, the flow of which is regulated by a screw clamp. As the fluid drips into the irrigating system, it flows into the pleural cavity and into the bottle as illustrated. This bottle carries an open end inverted U tube, which acts as a siphon when the bottle is



Simplified apparatus for tidal irrigation of empyema cavities: A, 700 cc. flask; B, Hoffman clamp; C, drip; D, T tube; E, visible connector; F, bottle and siphon (shown also in inset); G, catheter into pleural cavity; H, gallon receptor.

full. The height of the bottle is such that the upper fluid level will be about 3 or 4 cm. above the level of the empyema cavity while the lower fluid level will be about the same distance below the cavity. A minute vent in the top of the bottle prevents the siphon from acting until the fluid reaches the higher level in the bottle. By this arrangement the pleural cavity is alternately irrigated at a slight positive pressure and aspirated at a slight negative pressure. During both of these processes there is a "tidal" to and fro motion of the fluid in and out of the chest cavity synchronous with respiration. The latter action tends to keep the irrigating system open and break up fibrin particles. With this apparatus in operation one is able to see pus and fibrin propelled along the tubing toward the bottle with each respiratory excursion. When the fluid nears the upper level of the bottle the solution in the tubing clears, showing that irrigation is taking place. When the fluid is at a low level the solution becomes quite turbid, as evidence that suction is emptying the pleural cavity.

An adjustment between the relative amounts of suction and irrigation or the pressure in the system can be regulated by

10. Wiggers, C. J.: *Circulation in Health and Disease*, ed. 2, Philadelphia, Lea & Febiger, 1923, p. 614.

1. Hart, Deryl: *Treatment of Acute Empyema*, *Internat. Clin.* 4: 184 (Dec.) 1935.

the speakers. Of sixty-two years in the practice of medicine, Dr. MacLaren has spent forty-nine in Port Huron. He is 87 years of age. According to the announcement, he served the community as police commissioner in 1900 and later as health commissioner. He graduated from the Long Island College of Medicine in 1876.

**State Society Night.**—The Monroe County Medical Society observed a "state society night" at its meeting at the Monroe Country Club, December 17. The following program was presented:

Dr. Louis Fernald Foster, Bay City, secretary of the Michigan State Medical Society, Greater County Society Activity and Organization.

Dr. Paul R. Urmston, Bay City, chairman of the council of the state society.

Mr. William J. Burns, Lansing, executive secretary of the state society, What Your State Society Is Doing for You.

In a discussion of "What the Next Legislature Means to the Practitioner of Medicine," Dr. Howard H. Cummings, Ann Arbor, counselor of the fourteenth district, considered the basic science bill; Dr. Philip A. Riley, Jackson, vice speaker of the house of delegates of the state society, the physician's responsibility, and Dr. Leo G. Christian, Lansing, chairman of the state legislative committee, other legislative issues of importance to the physician.

### MINNESOTA

**Society News.**—The Red River Valley Medical Society devoted its meeting, December 8, to a discussion of medical economics; the speakers were Drs. William W. Will, Bertha, president of the state medical association; Willard L. Burnap, Fergus Falls, counselor of the eighth district, and Mr. R. R. Rosell, St. Paul, assistant to the secretary of the state association, Dr. Edward A. Meyerding. —Dr. William D. Beadic, medical director and superintendent of Mineral Springs Sanatorium, Cannon Falls, was the guest speaker before the Rice County Medical Society in Faribault, December 9.

**Fifty Years of Service.**—Dr. Jacob C. Rothenburg, Springfield, was guest of honor at a banquet, December 15, given by the Springfield Booster Club in recognition of his completion of fifty years in the practice of medicine. Speakers included Drs. Walter G. Nuessle, Springfield, and George B. Weiser, New Ulm. Mr. Fred W. Johnson, president and founder of the Brown County Historical Association, presented an account of the early physicians of the county. Dr. Rothenburg is 76 years of age and a graduate of the University of Michigan Department of Medicine and Surgery, Ann Arbor, class of 1885.

**Director of Student Health Service Appointed.**—Dr. Ruth E. Boynton, associate professor of preventive medicine and public health, University of Minnesota Medical School, Minneapolis, has been appointed director of the student health service of the university. Dr. Boynton succeeds Dr. Harold S. Diehl, who was appointed dean. She graduated from Minnesota in 1921 and became director of the division of child hygiene, state board of health, in 1923. This position she held until 1927, when she went to the University of Chicago Medical School as assistant clinical professor of medicine; she was also connected with the student health service there. In 1928 she was appointed to the associate professorship at Minnesota.

### MISSOURI

**Medicolegal Committee.**—The St. Louis Medical Society has appointed a medicolegal committee with the following members: Drs. Max J. Bierman, chairman, and Paul R. Nemours and Edward J. Helbing. The committee is appealing not only to members of the state association in St. Louis but to physicians throughout the state for funds to finance its activities.

**Lectures on Cancer.**—At a meeting of the Buchanan County Medical Society in St. Joseph, January 6, Drs. Ferdinand C. Helwig and Charles Edgar Virden, Kansas City, discussed "Diagnosis and Treatment of Cancer of the Rectum" and "Roentgen-Ray Diagnosis of Diseases of the Colon" respectively. —The St. Charles County Medical Society will be addressed February 2 by Drs. Edwin C. Ernst and Warren R. Rainey, St. Louis, on "Roentgen-Ray Aid in the Diagnosis and Treatment of Diseases of the Colon" and "Cancer of the Rectum" respectively. These lectures are presented under the auspices of the cancer committee of the state medical association.

**Society News.**—Dr. Harry J. Corper, Denver, addressed the Kansas City Academy of Medicine, December 18, on "Recent Advances in the Pathology of Tuberculosis." —At a meeting of the Adair-Knox-Schuyler-Sullivan Counties Medical Society in Kirksville, December 4, Dr. Edward S. Smith, Kirksville, discussed dysentery. —The Dallas-Hickory-Polk Counties Medi-

cal Society was addressed in Buffalo December 1 by Drs. Francis T. H'Doubler, Springfield, on "Diagnosis, Differential Diagnosis and Treatment of Gallbladder Disease and Its Associated Biliary System"; Elmer E. Glenn, Springfield, "The Heart Patient a Surgical Risk," and Horace G. Savage, Warsaw, "True Bronchial Asthma." —Jacques J. Bronfenbrenner, Dr. P.H., professor of bacteriology and immunology, Washington University School of Medicine, addressed the Trudeau Club of St. Louis, January 7, on "Immunology in Tuberculosis."

### NEBRASKA

**Practitioners Honored for Fifty Years of Practice.**—Dr. John W. King, Hartington, was the guest of honor at a dinner given by the Cedar-Dakota-Dixon-Thurston-Wayne Counties Medical Society at Wayne, December 10, in celebration of his completion of fifty years of medical practice. Dr. Charles T. Ingham, Wayne, was toastmaster and Dr. Lucien Stark, Norfolk, was the principal speaker. The society presented a clock to Dr. and Mrs. King. Dr. King graduated from the Detroit College of Medicine in 1886. He has practiced in Hartington for forty-five years. —Dr. Allen H. Hostetter, Douglas, received a service award at a joint banquet of the Nebraska City Rotary Club and the Otoe County Medical Society, November 18. Dr. Benjamin F. Bailey, Lincoln, was the principal speaker. Dr. Hostetter is a native of Indiana and a graduate of Rush Medical College, Chicago, class of 1886.

### NEW HAMPSHIRE

**New State Health Officer.**—Dr. Travis P. Burroughs, health officer of Concord, has been appointed secretary of the state board of health to succeed the late Dr. Charles Duncan. Dr. Burroughs is a native of Missouri and 41 years old. He graduated from the University of Missouri in 1917 and from Harvard University Medical School in 1925. He served an internship at Albany Hospital, Albany, N. Y., and lived in several New York towns before coming to Concord.

### NEW YORK

**Hundredth Anniversary of County Society.**—The Chemung County Medical Society recently celebrated the one hundredth anniversary of its founding with a dinner meeting at the Hotel Mark Twain, Elmira. Dr. Floyd Winslow, Rochester, president of the Medical Society of the State of New York, was a guest, discussing social problems confronting the medical profession. Dr. Arthur W. Booth, Elmira, a trustee of the American Medical Association, reviewed the history of the society; Dr. Ross G. Loop described methods and treatments used by physicians during the past hundred years, and Dr. Anna M. Stuart told of women physicians in the society's history. Dr. Reeve B. Howland displayed an exhibit of instruments and pictures of former physicians of the county. The program closed with a playlet written by Dr. Booth, "The Doctor's Dream," and played by Drs. Deborah M. H. Wytenbach, Charles L. Stevens, Joseph S. Lewis, LaRue Colegrove, Lawrence L. Hobler and Reeve Scott Howland.

### New York City

**Laboratory for Diagnosis of Tropical Diseases.**—The department of hospitals has established at Bellevue Hospital a laboratory for tropical and subtropical diseases, which have been found to be common especially among the foreign population of New York. Dr. Douglas Symmers, general director of laboratories of the department of hospitals, will have supervision of the laboratory and in immediate charge will be Drs. Harry Most and Amanda Hoff. The laboratory is prepared to study peculiar forms of malaria, hookworm and other intestinal parasites, leprosy, yaws, sprue, Delhi boil, Maduro foot, Bilharzia and related fluke diseases, beriberi, Peruvian wart disease, amebic and bacillary dysentery and trachoma.

**Symposium on Care of the Mentally Ill.**—The division of psychiatry of the department of hospitals held a symposium on care of the mentally ill in the psychiatry building at Bellevue Hospital, December 16. Representatives of social, legal and medical agencies of the state and city attended the symposium, the purpose of which was to promote cooperation between the agencies and the city's hospital service. On the program were Drs. Sigismund S. Goldwater, commissioner of hospitals; Samuel W. Hamilton, White Plains, N. Y., who discussed "Psychiatric Care in New York City"; Karl M. Bowman, director of the division of psychiatry at Bellevue; activities of the division, and Mr. Stanley P. Davies, general director of the Charity Organization Society. "Psychiatry from the Standpoint of Social Agencies."

9.5 inches in diameter. The foregoing citations may account for some of the differences in the temperatures between the two investigations.

However, the Council's results indicate that the unit meets the minimum requirements; that is, what can be expected from the application of conventional diathermy—with a metal electrode on the medial aspect of the thigh and another metal electrode on the lateral aspect of the thigh—the method of application that has been adopted as a minimum standard of acceptance.<sup>2</sup>

The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is much less than with conventional diathermy.

The machine was installed in a clinic acceptable to the Council and operated under actual clinical conditions for three months. It was reported as giving satisfactory service. In view of the favorable report based on the data obtained by the Council's investigator, using "spaced plates," applied laterally, the Council on Physical Therapy voted to include the SW-500 DeLuxe Model Short Wave Generator in its list of accepted devices.

## Council on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

#### RED STAR FRESH COMPRESSED YEAST

**Manufacturer.**—Red Star Yeast and Products Company, Milwaukee.

**Description.**—Fresh compressed yeast with added starch and vegetable oil.

**Manufacture.**—A mash of small grains, composed principally of cooked corn, barley malt and barley malt sprouts, is maintained at an optimum peptonization temperature and later saccharification temperature until the starch has been converted to soluble carbohydrates. Lactobacilli are introduced and allowed to grow until a desired acidity is reached. The mash is held at pasteurization temperature for several hours and filtered. The filtrate is treated with seed yeast prepared from pure culture yeast. The fermentation proceeds under forced aeration with filtered air and temperature control. The yeast growth is separated by centrifugation, cooled, mixed with starch, collected on filter cloths in filter presses, packed in 75 pound wax-paper lined boxes, and refrigerated. The bulk yeast is shipped under refrigeration to branch warehouses located in the important market centers, where the yeast is mixed with a small amount of water and refined vegetable oil, cut down to desired commercial sizes and wrapped for distribution. Stock not to exceed two days' requirements is maintained at the branches and sub-branches to assure freshness. Unsold yeast in retail stores is regularly replaced with fresh stock without charge.

**Analysis** (submitted by manufacturer).—Moisture 68.0%, total solids 32.0%, ash 1.8%, fat (ether extract) 0.3%, protein (N  $\times$  6.25) 12.0%, unsaponifiable matter (largely vegetable oil) 0.1%, starch (foil wrapped package) 9.0% and total carbohydrates (by difference) 17.9%.

**Calories.**—1.2 per gram; 34 per ounce.

**Vitamins.**—One cake (19 Gm.) contains approximately 19 International Units of vitamin B<sub>1</sub> and 38 Sherman Units of vitamin G.

**Claims of Manufacturer.**—A rich source of vitamins B and G. It is mildly laxative to many persons.

<sup>2</sup> Mortimer, Bernard, and Osborne, S. L.: Tissue Heating by Short Wave Diathermy, J. A. M. A. 104:1413 (April 30) 1935.

- (1) SEXTON BRAND STRAWBERRIES, JUICE PACKED
- (2) SEXTON BRAND RED RASPBERRIES, JUICE PACKED
- (3) SEXTON BRAND LOGANBERRIES, JUICE PACKED
- (4) SEXTON BRAND BLACKBERRIES, JUICE PACKED

**Manufacturer.**—John Sexton & Company, Chicago.

**Description.**—(1) Canned strawberries, packed in juice. (2) Canned red raspberries, packed in juice. (3) Canned loganberries, packed in juice. (4) Canned blackberries, packed in juice.

**Manufacture.**—Berries picked at the proper stage of ripeness are inspected (strawberries hulled), graded for quality and size, automatically filled into cans and weighed. Cans filled with juice (extracted from ripe fruit prepared similarly, heated, pressed and filtered) are exhausted, sealed and processed.

**Analyses** (submitted by manufacturer).—(Analyses of entire contents including liquid):

	(1)	(2)	(3)	(4)
Moisture .....	87.5%	84.9%	86.7%	88.0%
Total solids .....	12.5	15.1	13.3	12.0
Ash .....	0.5	0.4	4.4	0.5
Fat (ether extract) .....	trace	0.1	0.1	0.1
Protein (N $\times$ 6.25) .....	0.6	0.7	0.8	0.8
Crude fiber .....	0.7	2.5	2.1	3.5
Carbohydrates other than crude fiber (by difference) .....	10.7	11.4	9.9	7.1

**Calories.**—(1) 0.45 per gram, 13 per ounce; (2) 0.49 per gram, 14 per ounce; (3) 0.43 per gram, 12 per ounce; (4) 0.32 per gram, 9 per ounce.

**Claims of Manufacturer.**—For diets in which sweetened fruit is proscribed.

#### (1) CONGRESS BRAND CRYSTAL WHITE SYRUP

#### (2) K. C. BRAND GOLDEN SYRUP

**Distributor.**—Kansas City Wholesale Grocery, Kansas City, Mo.

**Packer.**—Union Starch and Refining Company, Granite City, Ill.

**Description.**—(1) A table syrup; corn syrup sweetened with sucrose; flavored with vanilla extract. The same as Pennant Crystal White Syrup (THE JOURNAL, Jan. 30, 1932, p. 402).

(2) A table syrup; corn syrup flavored with refiners' syrup. The same as Pennant Golden Table Syrup (THE JOURNAL, Jan. 30, 1932, p. 403).

#### JACOB MUSHROOMS "FILLETS"

**Manufacturer.**—Grocery Products Manufacturing Corp., West Chester, Pa.

**Description.**—Hothouse mushrooms cut in "fillet" like slices.

**Manufacture, Analysis and Calories.**—Essentially the same as Jacob Mushrooms Broth, Fancy Buttons, Sliced, Sliced Stems and Pieces (THE JOURNAL, Sept. 15, 1934, p. 838).

#### BADGER BRAND EVAPORATED MILK SUNCREST BRAND EVAPORATED MILK

**Manufacturer.**—Consolidated Badger Cooperative, Shawano, Wis., subsidiary of Land O'Lakes Creameries, Inc., Minneapolis.

**Description.**—Unsweetened evaporated milk.

**Manufacture.**—The procedure of evaporation and canning, and the analysis are essentially the same as for Land O'Lakes Unsweetened Evaporated Milk (THE JOURNAL, July 28, 1934, p. 260).

#### KEYCO BRAND PINEAPPLE JUICE

**Distributor.**—Keystone Wholesale Grocery Company, Reading, Pa.

**Packer.**—Hawaiian Pineapple Company, Ltd., San Francisco.

**Description.**—Canned Hawaiian pineapple juice retaining in high degree the natural vitamin content; the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p. 1769).

## TEXAS

**Hospital News.**—Dr. Barton W. Dorbandt, assistant superintendent of the San Antonio State Hospital, has been appointed superintendent of the Wichita Falls State Hospital. He succeeds Dr. Charles W. Castner, who has been made head of all state eleemosynary institutions, according to newspaper reports. —The Thompson Sanatorium, Kerrville, has been sold to the state to be used as a state hospital for Negroes with tuberculosis.

**Society News.**—Drs. Milford O. Rouse and Curtice Rosser, Dallas, addressed the Brown-Mills County Medical Society, December 14, on "Diagnosis and Treatment of Constipation, Irritable Colon, Fermentative Diarrhea and Nervous Indigestion" and "Management of Minor Anorectal Conditions" respectively. —The North Texas Medical Association held its semiannual meeting in Dallas December 8-9. Among the speakers were Drs. Leroy D. Long, Oklahoma City, on diseases of the thyroid gland, and Oliver C. Melson, Little Rock, Ark., on diagnosis of blood dyscrasias. —Dr. John T. Moore, Houston, addressed the Liberty-Chambers Counties Medical Society, December 10, on "Carcinoma of the Cervix."

**Graduate Assembly in San Antonio.**—The fifth annual clinical meeting of the International Postgraduate Medical Assembly of Southwest Texas will be held in San Antonio, January 26-28, with headquarters at the St. Anthony Hotel. The activities will include general meetings morning and afternoon, section luncheon meetings and evening assemblies the first two days. The guest speakers will be Drs. Albert M. Snell, Rochester, Minn., medicine; Frederick J. Taussig, St. Louis, obstetrics and gynecology; Samuel W. Becker, Chicago, dermatology; Manuel Martinez Baez, Mexico City, medicine; John M. T. Finney, Baltimore, surgery; Fremont A. Chandler, Chicago, orthopedic surgery; Albert C. Furstenberg, Ann Arbor, Mich., otolaryngology; Julius H. Hess, Chicago, pediatrics; Cecil S. O'Brien, Iowa City; William C. Quinby, Boston, urology; Alfonso Ortiz Tircedo, Mexico City, orthopedic surgery, and Ignacio Gonzales Guzman, Mexico City.

## UTAH

**State Mental Hygiene Meeting.**—Dr. Alfred A. Robinson, Ogden, was elected president of the Utah State Society for Mental Hygiene at a meeting in Salt Lake City December 18. The guest speaker at the meeting was Dr. Charles A. Rymer, assistant director of the Colorado Psychopathic Hospital and assistant professor of psychiatry, University of Colorado School of Medicine, Denver.

## VIRGINIA

**Society News.**—Dr. Edwin C. Hamblen, Durham, N. C., addressed the Halifax County Medical Society, December 11, on "Treatment of Functional Uterine Bleeding." —Dr. Nelson B. Sackett, New York, addressed the Norfolk County Medical Society, November 30, on carcinoma of the uterus.

**Special Committees on Pneumonia and Syphilis.**—The president of the Medical Society of Virginia, Dr. James Morrison Hutcheson, Richmond, has announced the appointment of two new committees, among others. A pneumonia commission to investigate the incidence and types of the disease in Virginia and the kind of management in vogue includes Drs. Wyndham B. Blanton, Richmond, chairman; Walter B. Martin, Norfolk; Henry B. Mulholland, Charlottesville; Philip S. Smith, Abingdon, and Harry Walker, Richmond. Pursuant to a request from the surgeon general of the U. S. Public Health Service, a committee to deal with the problem of syphilis control has been appointed, consisting of Drs. Ennion S. Williams, Richmond, chairman; Raymond DeV. Kimbrough, Norfolk; Edwin E. Barksdale, Danville, and Dudley C. Smith, Charlottesville.

## WEST VIRGINIA

**Conference of Secretaries.**—The annual conference of secretaries of county medical societies was held at the headquarters of the West Virginia Medical Association in Charleston, January 12. Among those who were to lead discussions were Drs. William S. Fulton, Wheeling, president of the state association; Benjamin H. Swint, Charleston, chairman of the association's advisory committee on social security; Berlin B. Nicholson, secretary of the Academy of Medicine of Parkersburg, and Thomas H. Blake, Charleston, of the state health department.

**Society News.**—Dr. Louis G. Herrmann, Cincinnati, addressed the Cabell County Medical Society in Huntington, December 10, on "Peripheral Vascular Diseases." —Dr.

Charles H. Gay, Martinsburg, and Mr. Joe W. Savage, executive secretary of the West Virginia Medical Association, addressed the Eastern Panhandle Medical Society in Martinsburg, on "Diseases of the Kidney in Infants and Children" and economic problems peculiar to West Virginia. —Dr. Benjamin P. Potter, Secaucus, N. J., addressed the Kanawha Medical Society, Charleston, December 8, on "Tuberculosis from a General Practitioner's Point of View." —Dr. Willis C. Campbell, Memphis, Tenn., addressed the Ohio County Medical Society, Wheeling, January 7, on "Physiologic Principles Applied to the Treatment of Fractures." —At a meeting of the Raleigh County Medical Society, Beckley, December 17, Dr. Archer A. Wilson, Charleston, spoke on injuries to the head.

## PUERTO RICO

**Personal.**—Lucy G. Taliaferro, Sc.D., and William H. Taliaferro, Ph.D., Chicago, will be at the School of Tropical Medicine of the University of Puerto Rico, for the coming three months conducting research on the mechanism of immunity to trichiniasis, a joint project of the University of Chicago and the School of Tropical Medicine. Dr. William H. Taliaferro is dean of the Division of Biological Sciences at Chicago. —Dr. Honorio F. Carrasquillo, Utuado, has been appointed a member of the board of medical examiners.

## GENERAL

**Annual Social Hygiene Meeting.**—The annual meeting of the American Social Hygiene Association will be held at the Hotel Pennsylvania, New York, February 3. The subject of discussion will be "Controversial and Unsettled Questions of Procedure and Public Policy Relating to Programs for the Control of Syphilis and Gonorrhea," and the speakers announced are Drs. Charles Walter Clarke, New York; John F. Mahoney of the U. S. Public Health Service; Henry P. Talbot, Hartford, Conn., and Charles V. Craster, Newark, N. J., and Mr. Alan Johnstone, formerly regional director for law enforcement and protective measures, Army and Navy Training Camp Commissions. Dr. Ray Lyman Wilbur, Stanford University, Calif., and Dr. Thomas Parran, surgeon general, U. S. Public Health Service, will make the introductory addresses and Dr. William F. Snow, general director of the association, will preside.

**Society News.**—Officers of the section on medical sciences (N) of the American Association for the Advancement of Science, elected at the recent meeting in Atlantic City, are Dr. Esmond R. Long, Philadelphia, chairman and a vice president of the association, and Malcolm H. Soule, LL.D., Ann Arbor, Mich., secretary. Forest R. Moulton, Ph.D., formerly professor of astronomy at the University of Chicago, was elected permanent secretary of the association to succeed Henry B. Ward, LL.D., emeritus professor of zoology at the University of Illinois, Urbana. —The American Orthopedic Association will hold its annual meeting in Lincoln and Omaha, Neb., June 2-4. —The annual meeting of the American Heart Association will be held February 1 at its headquarters at 50 West Fiftieth Street, New York. —The American College of Physicians will hold its annual meeting in St. Louis, April 19-23.

**Influenza and Pneumonia.**—Eighty-six major cities of the United States reported to the U. S. Department of Commerce 11,401 deaths during the week ended January 9. This figure is a decided increase over the average number for the corresponding week of the past three years, 9,628, and over the numbers reported for the five preceding weeks, as shown in the following table:

January 9 .....	11,401	December 19.....	9,247
January 2 .....	10,419	December 12.....	8,790
December 26.....	8,548	December 5.....	8,743

The Department of Commerce attributes the excessive mortality to the prevailing epidemic of influenza and pneumonia. The report points out that certain considerations must not be overlooked in the interpretation of these reports. Weekly figures fluctuate widely; some cities are hospital centers for large areas outside the city limits, and the sex, age and racial composition of the cities is not always comparable.

**Certificates for Veteran Public Health Members.**—Eight members who have been affiliated with the American Public Health Association forty years or more were presented with certificates at the recent annual meeting of the association in New Orleans. Dr. John Harvey Kellogg, head of the Battle Creek Sanitarium, Battle Creek, Mich., and Daniel W. Mead, Madison, Wis., received their certificates in person, but the others were unable to attend. Dr. Mazyck P. Ravenel, Columbia, Mo., received the certificate for Dr. William C. Woodward, Chicago, Director, Bureau of Legal Medicine and



## LIVER DEATH A HEPATORENAL SYNDROME

The close association of the liver and the kidneys in the performance of certain metabolic processes dealing with detoxification of various substances by the former and their excretion by the latter suggests a definite interdependence. Disease states of the liver may cause pathologic alterations in the kidneys. Bartlett<sup>1</sup> has described renal complications in infectious diseases of the bile passages. Clairmont, von Haberer, Staeheli, Kehr and others have described cases in which anuria followed cholecystectomy or an operation for the relief of obstructive jaundice. They believe that the anuria is caused by a reflex spasm of the renal vessels and that the origin of the reflex is the damaged liver. This is supported by the histologic determination of contracted capillaries of the glomeruli and of the afferent renal vessels.

Among the hepatic diseases that lead to secondary renal involvement, so-called liver death has come to occupy a prominent position. This refers to death taking place after an operation on the bile tracts or following a traumatic injury to the liver. Heyd<sup>2</sup> was the first to advance the concept of liver death as a postoperative complication. He divided this unusual but distinct postoperative complication into three clinical groups. Patients in group 1 present, as a rule, a history of long-standing disease of the biliary tract but are otherwise apparently good surgical risks. The blood and the urine are normal and there are no signs of organic disease. Following a cholecystectomy, the patient passes into a semicomatose state with rapidly mounting elevation of temperature, and death supervenes in from twenty-four to forty-eight hours. Group 2 is represented by a patient who is jaundiced and who is not as good a risk as the patient in group 1. He is properly prepared for the operation and is not necessarily a bad risk. He makes, as a matter of fact, a satisfactory recovery from one of the routine operations on the gallbladder or the bile tract. After two or three normal days, however, the aspect of the patient changes, with somnolence, irritability, nervousness, rise of temperature, oliguria, coma and death in the next twenty-four or forty-eight hours. In group 3 the patient presents symptoms of calculous cholangitis, perhaps with some involvement of the pancreas. After five or six days of satisfactory progress following an operative procedure, oliguria develops, which may pass on to be total anuria and death with symptoms of uremia. Heyd's observations were soon followed by those of Cave, Stanton, Graham, Helwig, Schutz and Kuhn, Petré, Ravdin and others, so that in 1934 Heuer was able to collect from the literature ninety-five instances of liver death.

A new factor was introduced into the concept of liver death when Furtwaengler in 1927 reported from Clairmont's clinic a case in which a young woman, after an automobile injury, experienced a fatal course precisely like that of the patients in Heyd's group 3. Helwig and Orr reported a case of liver death following traumatic rupture of the liver. Postmortem examination of the two cases revealed, in addition to the traumatic necrosis of the liver tissue, high grade necrosis of the renal cortex. In 1932 Schutz, Helwig and Kuhn<sup>3</sup> reported six cases of liver death. These authors believed that the death was not due to cessation of liver function, since there was no impairment in glycogenesis, nor was there any evidence of failure to deamidize the amino acids, since urea formation was unhampered and a progressive increase in the nitrogenous products in the blood was found in every case. The stools contained bile, and no evidence of any lack of hepatic function was found. The clinical picture of their cases was that of from five to eight normal postoperative days, followed by abdominal distention, vomiting, rise in temperature, oliguria, appearance of albumin, casts and red cells in the urine, increase in the residual blood nitrogen, bleeding into the mucous surfaces, much blood in the vomitus and the stool, coma and death. Postmortem examination revealed pronounced fatty degeneration of the liver, cloudy swelling, leukocytic infiltration, focal hemorrhages and parenchymatous cell necrosis. The most striking histologic observation in the kidneys was degeneration of the epithelium lining the convoluted tubules. Submucous hemorrhages were found with especial frequency in the gastro-intestinal tract and next in the interstitial pulmonary tissue, the skin and the gums. Jaundice was absent, as a rule. Boyce and McFetridge<sup>4</sup> showed that the so-called hepatorenal syndrome may develop in diseases other than those of the liver and the bile tracts; namely, in burns, intestinal obstruction and hyperthyroidism. Weller found in forty-four necropsies on patients dying of hyperthyroidism that the liver was normal in only six.

A number of investigators attempted to reproduce the hepatorenal syndrome in animal experiments. Gundermann in 1913 tied the left portal vein in rabbits and caused atrophy of two thirds of the liver. Oliguria develops, with albumin, casts and red cells in the urine. Boyce and McFetridge were able to reproduce the clinical and pathologic picture of the hepatorenal syndrome in rabbits by first causing an obstruction of the biliary tree and later releasing the obstruction. The most interesting feature of their report was the reproduction of the syndrome by injection into animals of a saline or a watery extract of the liver of a human

1. Bartlett, Willard, Jr.: Renal Complications of Biliary Tract Infections, *Surg., Gynec. & Obst.* 56: 1080 (June) 1933.

2. Heyd, C. G.: Liver and Its Relation to Chronic Abdominal Infections, *Ann. Surg.* 79: 55 (Jan.) 1924.

3. Schutz, C. B.; Helwig, F. C., and Kuhn, H. P.: A Contribution to the Study of So-Called Liver Death, *J. A. M. A.* 99: 633 (Aug. 20) 1932.

4. Boyce, F. F., and McFetridge, Elizabeth, M.: So-Called Liver Death: A Clinical and Experimental Study, *Arch. Surg.* 31: 105 (June) 1935.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Dec. 19, 1936.

#### Social Service and the Weaklings

In the long letter to the *Times*, Lord Dawson has gone to the root of the problem of national health in its politico-medical aspects. He points out that years ago nature's method of selecting the fit was a high birth rate and high infant and adult death rates. Formerly weaklings in body and mind sank to a low economic level, lived precariously and were prone to elimination by diseases such as tuberculosis. Today, through our social services, they receive maintenance and increasing protection from the ravages of disease. The mortality from tuberculosis has been halved in the last twenty-five years. Further, these weaklings often propagate to the disadvantage of the race. This nugatory rendering of nature's rough method of elimination necessitates an alternative policy, which we have not thought out. It should comprise (1) plans to promote fitness during the period of rearing and development, (2) plans to secure that the most fit among youth, from wherever they derive, have every opportunity to get to the forefront, and (3) plans of special and kindly measures for dealing with the inherently unfit. Under the first policy much has already been done. As to the second policy, if the best in body and mind get to the front there will arise a group of leaders of youth who will determine standards and values, to the advantage of the nation economically and racially. From these standards and values and the deriving tastes will result a process of unconscious selective mating which will make for fit progeny. Social and educational services ought to be more selective, pushing forward the better and best while at the same time securing for simpler folk training suitable for their simpler spheres of usefulness. At the other end of the scale the fundamentally unfit youth should be given kindly though economical shepherding and elemental training.

Let us beware lest in our desire to be kind to the weaker brethren of today we are not more than unkind to all the brethren of tomorrow. It is relevant to consider the birth rate. During the fifty years 1880-1930 there was a decline in the crude birth rate of 54 per cent in England. The dominant cause is contraception, which is widely and increasingly practiced in all European countries. Its practice is more prominent among the more educated classes, but it has already reached the artisan class and is rapidly penetrating the classes that live by unskilled labor. One potent cause is the fall of the infant death rate from 172 to 57 per thousand births during the last ninety years. Formerly the death rate was the safety valve. But contraception can be misused and in some cases families are too small for the health of the mother. Fit citizens should more than replenish their own places. There is need for motherhood clinics where instruction should be available for all women from the age of 18 onward on sex relations, hygiene and pregnancy and how contraception should be practiced. The burden of our taxation is a deterrent to parenthood. The cost of the social services has increased enormously. This rose from \$515,000,000 in 1925 to \$1,050,000,000 in 1936. In 1941 it will be \$1,500,000,000. Finally, the inherently unfit should be actively discouraged from reproduction. There are some 250,000 mental defectives in this country who are free to marry. Good nurture cannot be a makeweight against bad breeding.

#### Articles by Physicians in the Lay Press

It is held in the profession that physicians should not contribute to the lay press articles which advertise them as practitioners. On the other hand, under certain circumstances it

may be proper that physicians should write for the instruction of the public. Thus to define what may or may not be written is not an easy problem. Advice on the point has been asked of the head office of the British Medical Association, which devotes a section in the *British Medical Journal* to "Problems in Practice," matters of general interest on which individual members seek advice. The official pronouncement is as follows: Topics which have a relation both to medical science and to the health and welfare of the public are discussed from time to time in the lay press. It may be legitimate and even advisable that physicians who can speak with authority on the question at issue should contribute to the discussion. But they ought to make it a condition of publication that landatory editorial comments or headlines relating to the contributor's professional status or experience shall not be permitted, that his address or photograph shall not be published, and that there shall be no unnecessary display of his medical qualifications and appointments. It is pointed out that there is a special claim that practitioners of established position and authority shall observe these conditions, for their example must necessarily influence the actions of their less well recognized colleagues. Discussions on disputed points of treatment should be avoided. These find their appropriate medium in the professional societies and medical journals.

#### Raw Vegetable Diet in Chronic Rheumatic Conditions

Von Noorden has used a raw vegetable diet in the treatment of chronic rheumatism and has attributed its value chiefly to salt restriction. This treatment has not been adopted in England to any extent. However, in her presidential address to the Section of Therapeutics of the Royal Society of Medicine Dr. Dorothy C. Hare reported a group of twelve cases treated by diet alone, so as to get clear-cut results. They comprised the main types of muscular rheumatism, osteo-arthritis and rheumatoid arthritis. The patients were admitted to the Royal Free Hospital (the London School of Medicine for Women). They were first placed for a week on the ordinary diet. If able, they were up and about for several hours daily and did voluntary exercises in the physical therapy department, where cinematograph records of their movements were made. The diet regimen was in two periods. The first lasted two weeks and in it the food was entirely uncooked. It averaged 2,000 calories daily and consisted of vegetables 14 ounces (salads, tomatoes, roots), citrus fruit 8 ounces (orange, lemon, grapefruit), apple 6 ounces, dried fruit 4 ounces (apricot, prunes, raisins), nuts 2 ounces, crushed oats three-fourths ounce (served after soaking), sugar one lump, salad oil or mayonnaise 2 ounces, 20 per cent cream 3 ounces, milk 12 ounces, no salt, and fluids (tea, water) unrestricted. These gave approximately the food values carbohydrate 145 Gm., protein 35 Gm., fat 143 Gm. After the two weeks the following cooked daily additions were made: vegetable soup, one egg, meat 2 ounces, bread 2 ounces and as uncooked additions butter 1 ounce, cheese 1 ounce and milk 20 ounces. No salt was added to that present in the food. Oil and cream were reduced as necessary. The approximate food values were carbohydrate 146 Gm., protein 66 Gm., fat 142 Gm., calories 2,200. This second diet was given for weeks or months.

Of the twelve patients eight felt definitely better within one to four weeks. Of the other four, two improved up to five or six weeks and then relapsed, and two found no relief at all. The improvement consisted of decrease of pain, stiffness and swelling (symptoms that arise in the soft tissues). Pain arising in joints with active disease of bone and toxic symptoms were not relieved. The cases of muscular rheumatism uncomplicated by definite arthritis gave the best response. Some improvement was seen on the fourth day, and after a fortnight the changes were sometimes striking. The effect was pre-

three excellent photomicrographs illustrating such networks as Auerbach's plexus myentericus, Meissner's plexus subserosus, and the intramural nerve network in the dog's uterine wall and the urinary bladder. The monograph by Schabadasch is unquestionably an important scientific contribution and a credit to the scientists of the Soviet Union.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### CALIFORNIA

**Bill Introduced.**—A. 51 authorizes the board of supervisors of a county maintaining a county hospital to admit pay patients to the county hospital and to charge such patients for the entire value of the services rendered to them, as ascertained pursuant to rules and regulations promulgated by the board. Payment is to be adjusted to the patient's ability to pay. Such patients are to receive medical, surgical or other treatment from qualified physicians of their own choice.

**Society News.**—Dr. Clarence M. Hyland, Los Angeles, addressed the San Diego County Medical Society, January 12, on "Use of Convalescent Serum in Contagious Diseases."—Dr. Rosco G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, addressed the Los Angeles County Medical Association, January 21, on medical economics. Several changes in the society's bulletin, effective with the January 7 issue, include an increase in size and an improved cover page.—The Alameda County Medical Association was addressed, January 18, by Drs. Harry J. Templeton on "The Evolution of Cutaneous Epitheliomas"; Olin H. Garrison, "Use of Protamine Insulin," and Albert H. Rowe, "Clinical and Experimental Allergy." All are from Oakland.

### GEORGIA

**Health Departments Merge.**—The health department of Americus and the Sumter County Health Department merged, January 1. Dr. William Franklin Castellow, Montgomery, Ala., is the new health officer. He succeeds Dr. Abram J. Davis, resigned. Dr. Davis held the titles of city and county health officer.

### ILLINOIS

**Outbreak of Smallpox.**—Fifteen cases of smallpox were reported in an outbreak at Beardstown and five at Meredosia, according to the state department of health, January 16. The first case at Beardstown was thought to be chickenpox and this error in diagnosis is believed responsible for the spread of the outbreak. All unvaccinated children have been prohibited from attending schools in Beardstown, and similar recommendations have been made to Meredosia. Vigorous vaccination campaigns are being urged by the department.

### Chicago

**Medical School Shares in Rockefeller Gift.**—The General Education Board of the Rockefeller Foundation has given to the University of Chicago \$3,000,000 for the development of the medical school and the improvement of the university generally. Of \$360,000 to be devoted to medicine, \$250,000 continues present grants. The remainder will finance thirty-six beds in Billings Hospital which have already been converted to free beds and ten additional free beds added in the Bobs Roberts Hospital for children through immediate use of the funds. With the increase in beds, 218 of the 519 beds in the various hospitals in the University Clinics will be entirely free. This figure of 218 beds does not include part pay beds or those used as free beds because of special circumstances, although designated as being for paying patients. According to the university, 47.69 per cent of the work done in the clinics in November was free, and this percentage represents the usual average of unpaid service provided. The establishment of the University of Chicago Clinics and medical laboratories, which were formally opened in 1927, was made possible largely through the assistance of the General Education Board.

**Society News.**—The German Medical Society of Chicago was addressed December 8 by Drs. William C. Beck on "The Recognition and Management of Peripheral Arterial Disease" and Samuel Perlstein, "The Electrocardiogram as an Aid in Clinical Medicine."—The Chicago Gynecological Society was addressed, January 15, by Drs. Henry Close Hesselstine on "Experimental and Clinical Therapy of Vulvovaginal Mycosis"; Herbert E. Schmitz, "Mortality and Complications of 3,129 Supracervical Hysteromyomectomies," and Edwin J. DeCosta and Ralph A. Reis, "The Oral Administration of Paraldehyde for Relief of Pain During Labor."—The Chicago Medical Society was addressed, January 20, by Drs. Clarence A. Earle on "Scarlet Fever Prevention"; Louis Rudolph, "Constriction Ring Dystocia," and Edward H. Ochsner, "Treatment of Simple Sprains."—Dr. Theodore Cornbleet, among others, addressed the Chicago Pathological Society, January 11, on "The Role of Calcium in Scleroderma."—The Chicago Council of Medical Women held a joint meeting with the Medical Women's Club, January 13; the speakers included William S. Peterson, Ph.D., on "The Patient and the Weather"; Marian Hood, "Amebiasis with Demonstration of Living Parasites," and Dr. Marie L. Connelly, "Changes Occurring in Hodgkin's Disease."

### INDIANA

**Bill Introduced.**—H. 2, to amend the workmen's compensation act, proposes to extend to sixty days from thirty days the period following an industrial accident during which an employer must pay for medical, hospital and nursing care rendered an injured workman. The bill also proposes to authorize the industrial board to require an employer to furnish such treatment for an additional period not exceeding sixty days, if by reason of the nature of the injury or the process of recovery treatment is necessary for such period.

### MASSACHUSETTS

**New Medical Editor.**—Dr. Robert N. Nye, Boston, has been appointed editor of the *New England Journal of Medicine* to succeed Dr. Walter P. Bowers, who has been managing editor since April 1921. Dr. Nye is 44 years of age and a graduate of Harvard University Medical School, class of 1918. For several years he has been assistant pathologist in charge of bacteriology in the pathologic laboratory of the Boston City Hospital.

**University News.**—Frederick C. Waite, Ph.D., professor of histology and embryology, Western Reserve University School of Medicine, Cleveland, addressed the George A. Bates Society, composed of faculty and students of Tufts College, January 8, on "The Background of Dentistry." He also addressed the Association for the Promotion of University Education in Dentistry in Boston, January 9-10, on "Development of Dentistry in the United States in the Nineteenth Century."

**Students' Health at Harvard.**—A total of 1,463 students, or 20 per cent of the student body, were admitted to Stillman Infirmary of Harvard University, Boston, during the year 1935-1936, according to the first annual report of the recently reorganized department of hygiene. This number spent an average of 3.9 days in the infirmary, while 211 men who were admitted to hospitals spent an average of 12.6 days. There were 28,843 visits made to the various branches of the department of hygiene, but medical excuses from classes were given to only 2,709, representing, it was stated, a considerable reduction from the numbers in former years. The majority of infirmary patients were treated for "acute respiratory infections" under the designation of colds, while sixty-six hospital patients, or 41 per cent, had operations for appendicitis. An additional 15 per cent of the students were sent home to bed. Skiing was responsible for more serious accidents than any other sport, there being recorded a fracture of the femur, two fractures of both bones of the lower leg and one fracture of two vertebrae. Two fractures of the lower leg incurred in hockey and baseball were the only other two serious athletic accidents. Football was responsible for one serious injury, a fractured clavicle.

### MICHIGAN

**Personal.**—Drs. John W. Hawkey, Santa Ana, Calif., and Alois Thuner, Point Loma, Calif., have been elected members emeritus of the Michigan State Medical Society.

**Physician Honored.**—Dr. Archibald D. MacLaren, Port Huron, was guest of honor at a dinner given by the St. Clair County Medical Society January 5. Dr. Howard O. Brush, president of the society, was toastmaster, and Dr. Henry Cook, Flint, president-elect of the state medical society, was among

It is therefore recommended that no probationer under the age of 18 should be employed in wards occupied by phthisical patients. But it is pointed out that the age limit is probably of less importance than the care given to the conditions under which young nurses work. In reply to a questionnaire it was ascertained that the hours of nurses in institutions vary from forty-eight to seventy-seven a week, the average for probationers being about sixty. This is somewhat longer than the period recommended by the College of Nursing.

## PARIS

(From Our Regular Correspondent)

Dec. 22, 1936.

### Meeting of French Orthopedic Society

The eighteenth annual meeting of the French Orthopedic Society took place October 9 at Paris. Professor Etienne Sorrel presided in place of Professor Le Fort of Lille, who was unable to attend. The two subjects discussed this year were spondylolisthesis and the treatment of faulty union following fractures of the ankle. The reporter of the first of these was Dr. Maurice Guillemet of Lyons, who said that spondylolisthesis was until recently regarded as an anatomic curiosity but that it is now in the domain of orthopedic surgery. The condition can be defined as a sliding of one vertebra on that directly below, involving most frequently the fifth lumbar on the sacrum. If the last lumbar vertebra simply projects over the edge of the sacrum the condition is termed spondylosis, whereas if the last lumbar vertebra forms an angle with or falls in front of the sacrum, as rarely occurs, the term spondyloptosis is used. The results of this change in the normal relation of the last lumbar vertebra and the sacrum are modifications in the form and position of the spine, sacrum and pelvis. The entire lumbar spine is displaced posteriorly in a position of lordosis, forming an angle and not a curve. A scoliosis and change in axis of the sacrum may be found as an associated sequela. Spondylolisthesis is not only found in women, as formerly taught, but according to some authors occurs as frequently in men. It has been observed as early as the age of 15 years and even less, and as late as the age of 50. At times it follows an injury such as a fall from a height on the buttocks or knees. In other cases the only apparent cause is fatigue in certain occupations. In general, the congenital etiology is more common than the traumatic. The pain syndrome is the principal clinical feature. The pains vary in intensity, with indefinite localization in the lumbosacral or anal regions and the thighs. Rarely they are referred to the abdomen, leading to erroneous diagnoses of intra-abdominal disorders. In still other cases the clinical picture is that of a femoral or sciatic neuritis. The pains are worse in the upright position and are not relieved by sitting down or even by lying down. The attitude of the patient is characteristic; the trunk seems to be falling forward as though the thorax were trying to enter the pelvis, resulting in a shortening of the entire body length.

There is a sacrolumbar hollow which is not a lordosis but an angle. Latent or masked forms are at times observed in which the lumbar deformity is absent, the pain being the only symptom that attracts attention, and the lumbosacral vertebral displacement is confirmed by the x-ray examination. On the other hand, one sees occasionally cases in which there is no pain or functional disturbances but with outspoken deformity of the spine. In the majority of cases the diagnosis is based on the x-ray appearance, permitting one to exclude a simple painful lordosis, a sacralization of the last lumbar vertebra or a twisted sacrum.

The profile view is the most important, followed by three-quarter and anteroposterior views, the last named to discover associated lesions. The treatment is either orthopedic or operative. The former includes rest in bed with the knees flexed

and trunk raised, radiotherapy, diathermy, and the wearing of a corset for five or six months, at first of plaster and then of leather, molded to the form of the trunk. As surgical measures, bone grafts so as to form a lumbosacral osteosynthesis deserve special mention. The chief indications for operative intervention are inability of the patient to work, intolerable pain and failure of orthopedic treatment.

The discussion was opened by Froehlich of Nancy, who has operated on three of seven women patients by the Albee sacrolumbar graft method. In one of the three the result was very good and in one it was satisfactory, but the third case was a failure. Of four cases treated by orthopedic apparatus, the end result was good in three but poor in the fourth. Gaffin of Paris reported five cases (two of spondylosis and three of spondylolisthesis) by the Huc method with satisfactory results. He insisted on roentgenography in the upright position, which revealed a marked displacement in one case, not evident in a film made with the patient lying down. Roederer of Paris divided proposed operations into three groups: (1) those which aim to unite the posterior fixed to the anterior mobile segment, (2) those which fix the anterior segment to the adjacent bones, and (3) those which involve only the posterior segment, solidifying the posterior arcs and the sacrum. Operations in the first of these cannot be carried out because of anatomic and physiologic considerations. Those in the second group have been realized by fixation of the body of the vertebra by the anterior approach. In the third group can be placed the Albee and the Hibbs methods, which have been more successful than any others. Huc of Paris believes that errors have been frequently made in the diagnosis of tilting of the sacrum. Interpretation of films is easy in younger persons but increasingly difficult after the age of 40.

### TREATMENT OF FAULTY UNION FOLLOWING FRACTURES INVOLVING THE ANKLE

The report on the second subject had been prepared by Dr. Paul Padovani of Paris. He divided the displacements of the foot into (a) outward, (b) backward, (c) inward (rare) and (d) forward. The functional disturbances are of as great importance as the deformity. The films of the injured ankle must always be compared with those of the uninjured side. Faulty union is the result either of incomplete reduction of the primary displacement or the recurrence of the latter in the cast or other apparatus or too early use of the limb. Following reduction under fluoroscopic control, the patient should not be allowed to use the limb for at least seven weeks. In some cases a primary open operation is the only means available for reduction of displaced fragments. Secondary operations include osteotomy directly at the seat of fracture or supramalleolar-tibiofibular orthopedic resection and astragalectomy. The last named has been somewhat unjustly discarded because of the difficult technique. The chief reasons for the present unpopularity of astragalectomy are the persistence of pain and the necessity of an additional osteotomy, especially of the outer malleolus. Tibiotarsal resection and arthrodesis have been employed by Kimberley, who reports some good results. The indications for this operation are the same as for astragalectomy. The best type of operation for malunion following fractures of the ankle is osteotomy. Astragalectomy should be done only in old fractures with marked osteophyte formation and changes in the joint cartilages. Arthrodesis or tibiotarsal resection will be reserved for very severe joint deformity and for cases in which an anterior astragalectomy has been followed by persistence of pain.

In the discussion, Boppe of Paris emphasized the difficulty of reduction after osteotomy of the malleoli. He employs the Kirschner method. He has followed up a number of osteotomized patients and found that a painful form of arthritis still existed several years after operation. Massart of Paris

**Position Open for Director of Social Hygiene Bureau.**—The Municipal Civil Service Commission of New York announces an examination to be held for the position of director of the bureau of social hygiene in the New York City Department of Health. The preliminary requirements are graduation from an accredited medical school, five years' administrative work of which two must have been in venereal disease control, and a license to practice in New York before certification for the appointment. The appointee will carry out the department's program for control of syphilis and gonococcal infection, maintain working relations with hospitals and social agencies, direct record keeping, develop plans for control of venereal disease and direct popular health work in prevention. Applications will be received until February 15 at Room 1400, Municipal Building, Manhattan.

#### NORTH DAKOTA

**Society News.**—At a meeting of the sixth district of the North Dakota State Medical Association in Bismarck, December 1, a symposium on respiratory diseases was presented by Drs. Willis B. Shepard, Linton, Florian E. Schmidt, Chicago, and Charles W. Schoregge, Bismarck. Dr. George M. Constans, Bismarck, was elected president of the district society.

#### OHIO

**University News.**—Dr. Louis N. Katz, Chicago, gave a lecture at an open meeting of the Western Reserve University chapter of Sigma Xi, November 24, on "The Genesis of the Electrocardiogram."

**Dr. Corlett Endows Room for Dermatologists.**—Dr. William T. Corlett, professor emeritus of dermatology, Western Reserve University School of Medicine, Cleveland, has furnished and endowed a room in the Cleveland Medical Library dedicated to research in dermatology and syphilology. Dr. Corlett has given his library, which is said to contain many rare items in several languages, and has placed in the room the mahogany furniture used in his office before his retirement. There are also portraits and busts of famous figures in the history of dermatology. Dr. Corlett, now 82 years old, retired from the faculty of Western Reserve in 1924.

**Public Health Lectures in Cincinnati.**—Dr. William W. Bauer, director of the Bureau of Health and Public Instruction, American Medical Association, Chicago, will give the first lecture in the annual series for the public sponsored by the Academy of Medicine of Cincinnati and the University of Cincinnati College of Medicine. Dr. Bauer will speak January 24 on "What You Should Know About Your Health." Later lectures will be presented by Drs. Dennis E. Jackson, professor of pharmacology and Edward Wendland, professor of materia medica and therapeutics at the university, on "Drugs—Good and Bad"; Robert A. Kehoe, associate professor of physiology, "Industrial Poisons," and Marion A. Blankenhorn, professor of medicine, "The Importance of an Adequate Diet."

#### PENNSYLVANIA

**Bill Passed.**—S. 15, to amend the state constitution so as to prohibit the legislature from making appropriations for charitable, educational or benevolent purposes to any person or community or to any denominational or sectarian institution, has passed the Senate. Such an amendment would affect many private hospitals.

**Personal.**—Dr. James Evans Scheehle, Llanerch, has been appointed coroner of Delaware County. Dr. Scheehle resigned several months ago as state secretary of welfare after serving since January 1935.—Dr. George W. Kehl, chief in surgery on the staff of Reading Hospital for ten years, was honored at a testimonial dinner recently given by his co-workers at the hospital on his retirement. Dr. Pascal Brooke Bland, Philadelphia, was the principal speaker. Dr. Kehl was graduated from the University of Pennsylvania Department of Medicine in 1893 and has been associated with the hospital since 1913. He has been made consulting surgeon.

**Graduate Assembly at Danville.**—A graduate assembly was presented at Geisinger Memorial Hospital, Danville, December 11, under the auspices of the Montour County Medical Society. An operative clinic opened the program, followed by papers given by staff members and by the following guest speakers:

Dr. William O'N. Sherman, Pittsburgh, Treatment of Acute Traumatism.  
Dr. Charles Bagley Jr., Baltimore, Injuries to the Head and Brain.  
Dr. William J. Merle Scott, Rochester, N. Y., Practical Surgical Applications of Our Knowledge Concerning the Sympathetic Nervous System.  
Dr. Sumner L. S. Koch, Chicago, Infections of the Hand.

**Bills Introduced.**—S. 7, to supplement the workmen's compensation act, proposes to make disabilities resulting from a number of stated occupational diseases compensable, among which are poisoning by lead, mercury, phosphorus, arsenic, methanol, carbon bisulfide, naphtha, volatile halogenate hydrocarbons, manganese dioxide, brass, zinc, benzol (benzene) and nitro- and amido-derivatives of benzol; compressed air illness; destruction of tissue by radium or x-rays; chrome ulceration; epitheliomatous cancer or ulceration of the skin or of the corneal surface of the eye resulting from the handling or use of tar pitch, bitumen, mineral oil or paraffin; infection or inflammation of the skin resulting from the handling or contact with oils, cutting compounds, lubricants, dusts, liquid fumes, gases or vapors; anthrax; silicosis, and chronic incapacitating miners' asthma. H. 26 proposes an amendment to the state constitution which would authorize the legislature to classify charitable, educational, benevolent, denominational or sectarian institutions and to appropriate money to such of them as render aid to indigent, diseased, infirm or disabled persons. H. 40, to amend the workmen's compensation act, proposes (1) to extend to one year, from thirty days, the period following an industrial accident during which an employer must pay for medical and hospital care rendered his injured worker, (2) to eliminate the provision in the present law which limits the employer's liability for such services to \$100 and (3) to authorize the injured worker to select his own physician to treat him at the employer's expense.

#### Philadelphia

**University News.**—Temple University will confer the honorary degree of doctor of science on Dr. José Arce, dean of the faculty of medicine, University of Buenos Aires, Argentina, at its Founders' Day exercises February 15.

**Personal.**—Dr. Alexander E. Burke has been appointed a member of the State Board of Medical Education and Licensure to succeed Dr. Arthur C. Morgan, whose term expired.—Dr. Frederick S. Baldi was elected president of the Medical Club of Philadelphia at its annual meeting January 15, at the Bellevue-Stratford.

**Scholarships at College of Pharmacy.**—The alumni association of the Philadelphia College of Pharmacy and Science sponsors seven scholarships annually to defray expenses of the freshman year in courses at the college leading to the baccalaureate degree in biology, chemistry, pharmacy and bacteriology. An entrance examination will be held at the college February 13 in mathematics, science and English and will include an aptitude test. Application blanks may be obtained from the registrar of the college.

#### Pittsburgh

**Society News.**—Dr. Ralph R. Mellon addressed the Allegheny County Medical Society, January 19, on "Recent Chemotherapeutic and Serological Advances in the Treatment of Hemolytic Streptococcal Infections."—Dr. Abraham Levinson, Chicago, addressed the annual scientific meeting of the Pittsburgh Medical Forum, January 16, on "Cerebrospinal Fluid."

#### SOUTH CAROLINA

**Society News.**—Dr. William B. Lyles, Spartanburg, was elected president of the South Carolina Urological Association at the annual meeting December 8. The guest speakers were Drs. Leon Herman, Philadelphia, and William Baird Stuart, Carlisle, Pa.—Dr. William Weston Sr., Columbia, was elected president of the South Carolina Pediatric Society at its annual meeting in Columbia, December 1. The guest speaker was Dr. Charles Armstrong of the U. S. Public Health Service, Washington, D. C., on prevention of anterior poliomyelitis.

**State Health Officer for Twenty-Five Years.**—Members of the staff of the state department of health presented to Dr. James A. Hayne, Columbia, state health officer, a gold watch at Christmas in recognition of his completion of twenty-five years in that position. Dr. Hayne was graduated from the Medical College of the State of South Carolina, Charleston, in 1895 and practiced for several years before becoming health officer. He has been president of the South Carolina Medical Association and of the Conference of State and Provincial Health Authorities of North America and chairman of the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association and of the public health section of the Southern Medical Association. Three sons of Dr. Hayne have become physicians: Drs. James A. Hayne Jr., Isaac Hayne, Congaree, and Theodore B. Hayne, who died of yellow fever while engaged in research in Africa.



stimulation of the normal tissue cells by which the purification of the focus of disease and the process of scarification are substantially aided.

According to Memmesheimer of Essen, the defense mechanism of the skin is set in action in two places, in the epithelium and in the cutis. In the epithelium vitamin D and histamine-like hormones are found. These substances pass through and exert an influence on the entire organism. In the cutis the histiocytes of the tissues, the vascular endothelium and the blood itself all achieve a special capability of defense under the influence of light.

Lomholt of Copenhagen discussed the use of light in the treatment of nontuberculous diseases of the skin. In lupus erythematosus cases that present chronic keratotic plaques of long standing an excellent symptomatic effect is often obtained by irradiation with fractionated doses (applied for from five to thirty minutes).

Cure or amelioration is also many times effected by use of the Finsen-Lomholt lamp in persisting severely itching neurodermatitis localis and in hyperkeratotic chronic eczema. In naevus flammeus the lamp produces a thoroughgoing blanching. It is also used in the treatment of rhinophyma.

Radnai of Budapest called attention to his experimental use of ultraviolet irradiation in syphilis. He has been able to demonstrate that this type of irradiation or a combination with autohemotherapy serves to increase both the reactive capability and the formation of the antisyphilitic immune bodies and the antibodies in the skin. He found that after from thirty to fifty ultraviolet irradiations or after thirty ultraviolet irradiations and twenty autohemetic treatments the Wassermann reaction was negative in 60 per cent of the cases. The proper clinical sphere of indication for this combined treatment is late syphilis, especially in the lancinating pains, myalgias, arthralgias and neuralgias that accompany the crises of fully developed tabes. Favorable influence was noted in 142 such cases. For paralyses that show themselves refractive to malariotherapy, Radnai advocates photochemical treatment.

Other papers dealt with the use of radiotherapy in the various forms of tuberculosis. The topic "Light and Public Health" also was discussed but only in its more general aspects.

#### Marriage and Divorce Statistics

As previously mentioned, there were around 650,000 marriages during 1935. From August 1933 to July 1, 1936, marriage subsidy loans were advanced to 602,149 couples (*THE JOURNAL*, Sept. 2, 1933, p. 791). The law stipulates that for each child born in wedlock the amount of indebtedness to the government shall be reduced by 25 per cent. Before the end of June 1936 so many children had been born to the couples in question that 390,445 such reductions had to be made.

Divorce statistics of the past few years are noteworthy. In 1933, 42,000 marriages were dissolved (figures for earlier years may be found in *THE JOURNAL*, May 26, 1934, p. 1774). The divorced couples represented by the foregoing figure were the parents of 36,500 minor children. If to this number is added the number of minor children of couples divorced prior to 1933, an estimated grand total of 300,000 such "divorced orphans" is arrived at. In 1934 a record number of divorcees (54,402) was reached; this represented an increase of 28 per cent over 1933 and of 12 per cent over the previous high (in 1921). In 1935 the number of divorcees decreased by about 8.5 per cent, 47,784 marriages being dissolved. Per 10,000 existing marriages in 1935 there were only about thirty-three divorcees, compared to a corresponding figure of thirty-seven divorcees in 1934. It is significant that the decline in the number of divorcees in 1935 was effective for every age group with the exception of those couples who had been married as recently as 1934 and 1935. With regard to culpability for the failure of the marriage, the statistics for 1935 virtually coincided with the 1934 figures:

in about 46 per cent of the cases the husband alone was pronounced guilty, in about 20 per cent the wife alone was held responsible and in the remaining cases blame rested on both spouses. Of the couples divorced in 1935, 22,703 (45.6 per cent of the total) had no children whatever, 15,028 couples had one child, 7,199 couples had two children and 4,853 couples had three or more children.

#### Telephonic Apparatus and Tuberculous Infection

Extensive observations by Prof. Ludwig Lange at the National Health Bureau Laboratory for Experimental Research on Tuberculosis have just been made public. The possibilities of a transmission of infection from droplets coughed into the mouthpieces of telephones are theoretically well known. The question is What becomes of the bacilli? Do they perish? Can they again become detached if lodged on the mouthpiece of a telephone? Is there real danger of infection? Any theory of such transmission must be based on the complete desiccation of the droplets on the one hand and a strong current of air from the mouth of the subsequent user of the instrument on the other. The danger of transmission of infection by telephone apparatus is far less from a theoretical standpoint than the danger of crowds or from such a commonly used article as paper currency.

As early as 1889 the National Health Bureau examined three telephones that were equipped with the typical wooden accouterments of the time. The presence of pathogenic organisms and of tubercle bacilli in particular could not be demonstrated. In the years 1913 and 1914 similar examinations of telephones, including instruments used by openly tuberculous persons in sanatoriums, were again carried on, and in no instance was the presence of tubercle bacilli demonstrable. Again in the autumn of 1934 another series of examinations was initiated, largely in response to an ever increasing popular clamor with regard to the suspected transmission of disease and of tuberculosis in particular by telephonic apparatus. These examinations were of peculiar interest, as similar investigations had been undertaken with negative results in England (in 1912) and also in America.

In the more recent investigation in Germany, thirty-four telephones were examined. This material included telephones that had seen service in private residences, public booths, telephone exchanges and, in addition, instruments that had been used by openly tuberculous patients in sanatoriums. A complete examination of each telephone was made. Cultures in various nutrient mediums were tried as well as repeated inoculations of guinea-pigs with the dusts from the various appliances. Of the thirty-four telephones, twenty were allowed to remain uncleaned prior to the examination and fourteen were cleaned according to the daily routine employed by the Deutsche Reichspost for all its public telephones. No tubercle bacilli could be detected on any of the fourteen disinfected instruments. In only two instances could virulent tubercle bacilli be demonstrated in guinea-pigs inoculated with dusts from the twenty uncleaned telephones, although four of these instruments had been intentionally chosen because of the repeated usage to which they had been subjected by tuberculous patients in sanatoriums. In one of these cases only the bovine type bacillus could be cultured out. This case can scarcely be adduced as incontestable proof of the presence of virulent tubercle bacilli on the telephone apparatus. In the second case the dust used in inoculation had been removed from an instrument that had been used repeatedly and frequently by a patient with severe open tuberculosis. Only one of the four guinea-pigs used in the experiment actually became ill and in this case it was possible to culture the human type tubercle bacillus. When the apparatus used by the severely tuberculous patient was cleaned, tubercle bacilli could no longer be detected in dust specimen. This is actually the first time that the presence of virulent tubercle bacilli on a telephonic apparatus has been demonstrated.

Legislation, American Medical Association; Dr. Henry D. Chadwick, Boston, for Mr. Robert Spurr Weston, Boston; Henry F. Vaughan, Dr.P.H., Detroit, for George A. Soper, Ph.D., Great Neck, N. Y.; Dr. Angel de la Garza Brito for Dr. Jesús E. Monjaras, Mexico City; Dr. Clarence L. Scamman, New York, for Dr. Charles V. Chapin, Providence, R. I., and Carl E. Buck, Dr.P.H., New York, for Marion Talbot, Chicago.

**Scholarship Available for Boys' Preparatory School.**—The trustees of St. Mark's School, Southborough, Mass., wish to bring to the attention of the medical profession three scholarships to be awarded for boys to enter school next September. Applications for the scholarships will be received at once and should be made by March 1. The examinations will be for the most part of the objective type, for which no special preparation is necessary or desirable, according to the announcement. The school record of the candidate, personal testimony of teachers and others and, wherever possible, personal interviews with a representative of the school will be important factors in the selection. The successful candidates will be expected to meet the usual entrance requirements, taking the entrance examinations in June as follows: for the first form (seventh grade): English and arithmetic; for the second form (eighth grade), English, arithmetic and algebra; for the third form (ninth grade), English, algebra, Latin and French. Further details may be obtained from the Headmaster, St. Mark's School, Southborough, Mass.

**Survey of Research in Mental Hospitals.**—Dr. Winfred Overholser, formerly commissioner of the Massachusetts State Department of Mental Diseases, Boston, has been appointed director of the division of mental hospital research of the National Committee for Mental Hygiene, New York. Dr. Overholser will direct a national survey, it is reported, to ascertain the extent of research being made in institutions for the care of the mentally ill and to find new research clues worthy of development. An advisory committee will be appointed for the survey. Dr. Overholser, a native of Massachusetts, graduated from Boston University School of Medicine in 1916. Until 1924 he served at the Evans Memorial Hospital, and the Westborough, Gardner and Medfield state hospitals. From 1925 to 1930 he was director of the division for the examination of prisoners and was assistant commissioner from 1930 until 1934, when he became commissioner. He taught psychiatry at Boston University School of Medicine for several years and has been lecturer at the Boston University School of Law since 1929. He served as consultant to the National Crime Commission and as chairman of the committee on delinquents and prisons of the First International Congress of Mental Hygiene. He has been a member of the Committee on Psychiatric Jurisprudence of the American Medical Association since 1929. He is a past president of the Massachusetts Psychiatric Association and, in 1936, was president of the New England Society of Psychiatry.

**Medical Bills in Congress.**—*Changes in Status:* H. Res. 60 has passed the House, providing for the appointment of a Select Committee on Government Organization to which will be referred all bills and resolutions introduced in the House concerning reorganization, coordination, consolidation or abolition of organizations or units in the government. H. J. Res. 81 has passed the House, proposing to create a joint congressional committee on government organization to investigate the organization and activities of the several units of the government with the view to determining whether any such units should be coordinated, consolidated, reorganized or abolished. *Bills Introduced:* S. 59, introduced by Senator Bulkley, Ohio, proposes to establish a Bureau of Veterans' Affairs in the Department of the Treasury with the Commissioner of Veterans' Affairs at the head of it, to abolish the Veterans' Administration and transfer its functions to such bureau, and to revise generally the laws relating to veterans. S. 85, introduced by Senator White, Maine, proposes to grant pensions to male nurses who served under contract between April 21, 1898, and Feb. 2, 1901. S. 115, introduced by Senator Lewis, Illinois, and S. 655, introduced by Senator Sheppard, Texas, propose, respectively, to add the name of Gustaf E. Lambert and the name of Roger P. Ames to those honored by the act recognizing the service rendered by Major Walter Reed in the discovery of the cause and means of transmission of yellow fever. S. 383, introduced by Senator Steiwer, Oregon, proposes that any veteran who is a citizen or resident of a state whose laws require a certificate of disability for tax exemption purposes to be signed by an officer of the Veterans' Administration shall, on application, be entitled to receive without cost an annual physical examination by a duly qualified physician designated or approved by the Administrator of Veterans' Affairs.

S. 702, introduced by Senator Barkley and H. R. 2711, introduced by Representative Vinson, both of Kentucky, propose to create a Division of Water Pollution Control in the United States Public Health Service. H. Res. 7, introduced by Representative Daly, Pennsylvania, proposes to request the Administrator of Veterans' Affairs to submit to the House of Representatives a report respecting the naval hospital at Philadelphia, setting forth the facilities of the hospital, the extent of its use by veterans, the need for additional facilities for veterans at such hospital, and certain other facts. H. J. Res. 87, introduced by Representative Randolph, West Virginia, proposes to erect a memorial to Dr. Samuel Alexander Mudd, "in recognition of his unselfish services to his fellow men while being held a prisoner for a crime which he did not commit." H. R. 96, introduced by Representative Smith, Washington, proposes to provide a uniform rate of pension for unmarried Spanish-American War veterans without dependents while hospitalized, and to extend hospitalization to persons recognized as veterans of the Spanish-American War under laws in effect prior to March 20, 1933. H. R. 249, introduced by Representative Colden, California, proposes to construct a marine hospital at Los Angeles Harbor, Los Angeles. H. R. 1532, introduced by Representative Robson, Kentucky, proposes to reestablish the presumptive service connection for disease or disabilities severed by the act of March 20, 1933. H. R. 1538, introduced by Representative Rankin, Mississippi, proposes to provide that in no event shall any person by reason of wilful misconduct be denied any of the service connected benefits under the laws providing relief for veterans of the World War if such misconduct did not interfere during service with the full performance of military or naval duty. H. R. 1622, introduced by Representative Celler, New York, proposes, among other things, to reestablish service connection for a disease, injury or death of a veteran that was severed by the act of March 20, 1933. H. R. 1949, introduced by Representative Lesinski, Michigan, proposes to adjust and equalize benefits for veterans and widows and dependents of veterans. H. R. 1959, introduced by Representative Rankin, Mississippi, proposes to provide increased pensions for veterans of the World War. H. R. 1967, introduced by Representative Taylor, Tennessee, proposes to reenact all laws granting pensions to veterans that were repealed by the act of March 20, 1933. H. R. 2308, introduced by Representative Cannon, Missouri, proposes to reenact all public laws granting medical and hospital treatment, domiciliary care, compensation and other benefits to veterans of the World War that were repealed by the act of March 20, 1933. H. R. 2528, introduced by Representative Welch, California, proposes to confer the benefits of hospitalization and the privileges of the Soldiers' Homes on persons who served in the quartermaster's corps or under the jurisdiction of the Quartermaster General during the war with Spain, the Philippine insurrection or the China relief expedition. H. R. 2530, introduced by Representative Kennedy, Maryland, proposes to provide hospitalization for certain employees in the Bureau of Navigation and Steamboat Inspection of the Department of Commerce and for licensed local pilots of the United States. H. R. 2720, introduced by Representative Fulmer, South Carolina, proposes to authorize the Reconstruction Finance Corporation to make loans to certain hospitals. H. R. 2879, introduced by Representative McGroarty, California, proposes to erect an addition to the existing Veterans' Administration facility, San Fernando, Calif., such addition to consist of 200 beds for the treatment of tuberculous patients. S. 855, introduced by Senator Capper, Kansas, proposes to aid in alleviating the loss caused by sickness.

## Government Services

### Physicians Wanted for CCC Duty

The government is in need of a number of physicians to assist in the medical work of the Civilian Conservation Corps camps throughout the eighth corps area, which comprises Texas, Colorado, Oklahoma, Arizona and New Mexico. Applicants for these positions must be graduates of class A medical schools. If accepted, they will be given preference of assignments in any one of these five states. Physicians without dependents will receive for this work \$200 a month and those having dependents will receive \$265 a month. All inquiries in connection with application for a position in the Civilian Conservation Corps work in the eighth corps area should be addressed to the Surgeon, Headquarters Eighth Corps Area, Fort Sam Houston, Texas.

## JAPAN

(From Our Regular Correspondent)

Nov. 15, 1936.

## A Study of Intermarriage

On the coast of western Japan called Oita there is a small fishing village known as Usuki, where the inhabitants have strictly kept the custom of intermarriage for hundreds of years and are said never to have married the people of other villages in the neighborhood. Dr. Takeshi Ikemi, who has been investigating the biologic influence of intermarriage in the village since 1933, reports that, according to tradition, this village was settled in 1605. The villagers still believe that they are the descendants of a noble family which was obliged to flee in the civil war of the sixteenth century. There are 135 families having 1,786 members in all (904 men and 882 women). They have never mingled with other villagers or townsmen except in business transactions; consequently their habits and customs are quite different from other Japanese. The ceremonies of coming of age, marriage, burial, ancestral worship, and bringing up children are all held in their own way within their own village, and they strictly refuse to be assimilated. They are somewhat ferocious and sly, but sometimes are quite candid. The men engage in fishing and a little farming, while the women deal in the fish which the men collect and dry. They have no religious faith in its true sense, and they think little of schooling, partly because they are too poor to send their children to school. Although the children are not regular attendants at school, an investigation of the school records shows that they generally do well at school. Thus intermarriage never affected their intellectual faculties. Crime is rare. During the last ten years seven violated the fishing law, four injured others, four did some stealing, four broke the law of weights and measures, eight were charged with gambling, one cheated others, two were robbers, five interfered with

birth rate, in comparison to that of the two neighboring villages, is given in table 1. This table shows that intermarriage does not affect the birth rate. Stillbirths are uncommon. The death rate is given in table 2.

There are now twenty-seven couples who married cousins. Through various inquiries, the following facts have been obtained: When the parents are both excellent mentally and physically, 80 per cent of the children are as excellent as their parents, 20 per cent are good, and none are worse than the parents. If the parents are good though not excellent, 15 per cent of the children are excellent, 75 per cent are as good as

TABLE 2.—Death Rate \*

Village Name	Population	Deaths				
		1928	1929	1930	1931	1932
Usuki.....	1,786					
Boy.....		22 (1.23)	27 (1.51)	26 (1.40)	23 (1.56)	20 (1.11)
Girl.....		16 (0.89)	20 (1.11)	23 (1.28)	18 (1.0)	24 (1.34)
Next village..	1,383					
Boy.....		13 (0.94)	13 (0.94)	20 (1.45)	20 (1.45)	16 (1.15)
Girl.....		9 (0.65)	16 (1.15)	15 (1.08)	19 (1.37)	9 (0.65)
Next but one	1,072					
Boy.....		9 (0.83)	17 (1.59)	11 (1.02)	9 (0.83)	11 (1.02)
Girl.....		12 (1.11)	14 (1.305)	7 (0.65)	13 (1.21)	7 (0.65)

\* Figures in parentheses indicate percentages.

their parents and 10 per cent are not as good as the parents. On the contrary, if neither of the parents is good, the children are all inferior to the children of other families at large. If the parents are both good physically but not mentally, the children are all good physically, 10 per cent of them are excellent mentally, 70 per cent are mentally good and 20 per cent are inferior. To sum up, when the excellent are married, no bad results are to be found.

## Institutional Celebrations

The golden jubilee of the Military Medical College was celebrated November 7 before the four imperial princes and 1,200 other attendants. This school was established in 1886, and since then 5,165 graduates have been turned over to the military. The Japan Military Medical Association joined in the celebration. As a memorial, the school history was compiled and published. A memorial tower will be erected by next April and the memorial lecture room will be completed by next fall.

Another jubilee was held by the Japan Red Cross Society Hospital in Tokyo, and at the same time the completion of an outpatient building was celebrated. The building cost more than a million yen, has 365 beds, and the equipment of the roentgenotherapy department is said to be the greatest in the Orient. The hospital was established Nov. 17, 1886.

TABLE 1.—Birth Rate \*

Village Name	Population	Births				
		1928	1929	1930	1931	1932
Usuki.....	1,786					
Boy.....		36 (2.02)	39 (2.18)	41 (2.20)	39 (2.18)	39 (2.18)
Girl.....		31 (1.70)	37 (2.06)	26 (1.40)	23 (1.29)	33 (1.84)
Next village..	1,383					
Boy.....		21 (1.51)	22 (1.59)	30 (2.16)	29 (2.09)	20 (1.45)
Girl.....		22 (1.59)	36 (2.60)	22 (1.59)	19 (1.37)	23 (2.02)
Next but one	1,072					
Boy.....		17 (1.58)	18 (1.67)	20 (1.86)	20 (1.86)	19 (1.77)
Girl.....		20 (1.86)	11 (1.26)	12 (1.11)	16 (1.49)	14 (1.30)

\* Figures in parentheses indicate percentages.

government officials in the execution of their duty, and three other derelictions brought the total instances of malfeasance to thirty-eight. Judging from this, it may be affirmed that intermarriage does not bring about the degeneration of mental control. This number of violations is small when compared with that of the neighboring villages or towns.

The sanitary knowledge of the people is meager; they have epidemic diseases, such as dysentery and cholera, but there is never any serious hereditary disease. Leprosy, syphilis and elephantiasis at present are not seen among them. Neither color blindness nor insanity occurs. The constitution of the people is strong and they are good wrestlers in spite of their taking very simple food. In the physical examination for conscription, these villagers have always ranked first, in that prefecture, with respect to health and constitution. In their daily life the men are quiet and amiable, while the women are talkative. When a quarrel does occur the women are usually the leaders. However, they are usually kind and good to one another, especially to those in distress. Divorce is rare. The

## Marriages

MAURICE ALEXANDER KUGEL, New York, to Miss Annie Laurie Harrison of Liberty, S. C., in Fort Myers, Fla., Oct. 4, 1936.

JOSEPH J. REICHMAN, Mount Pleasant, Pa., to Miss Bessie Irene Comins of Mount Pleasant, Mich., Oct. 1, 1936.

WILLIAM DEWEY HALL, Raleigh, N. C., to Miss Sue Ruth Hutto of Gaston, S. C., in Raleigh, Oct. 17, 1936.

CLYDE G. O'BRIEN, Appomattox, Va., to Miss Ellen Elizabeth Sweizer, of Elm Grove, W. Va., Oct. 11, 1936.

RALPH GIBSON FLEMING, North Side, N. C., to Miss Sue Fleming Thompson of Creedmor, Oct. 15, 1936.

SOUTHGATE LEIGH JR. to Miss Maud Paine Winborne, both of Norfolk, Va., in Richmond, Nov. 3, 1936.

FRANKLIN SMITH CROCKETT, Lafayette, Ind., to Miss Henrietta Coleman of Rushville, January 2.

sive up to discharge and afterward. One patient, a saleswoman aged 49, had been unable to work for two years in spite of continuous physical treatments. After six weeks on the diet she resumed work and has continued without interruption for five months. The cinematograph records showed the stiff awkward movements before treatment and almost normal movements three or four weeks later.

Patients with rheumatoid arthritis obtained some relief of pain and stiffness at first, but the toxic symptoms remained apparently uninfluenced for many weeks. The only patient given continuous diet treatment for several months made a remarkable improvement. In a woman of 53 the disease had begun two years previously and was of the severe progressive type. All the joints were involved, the hips and knees most severely, and she had been unable to sit or move for six weeks before admission and cried with pain when moved in bed. X-ray examination showed only slight changes in the bones. There were toxic symptoms with wasting, sweating, occasional low fever and anemia. Under the diet she made slow progress, relief of pain preceding improvement in toxic symptoms. She gradually gained weight, and the fever and anemia improved. After the third month massage was given in addition to the diet. After six months she could shuffle a few steps on sticks and was free from acute pain.

Dr. Hare attributed the rapid effect to the low sodium intake. The sodium content of the vegetable foods being extremely small and no added salt being allowed, there was a rapid loss of tissue fluid. This caused a rapid fall of weight in the first week, though weight was gained on exactly the same diet in the following week. The fluid intake was not limited at any period. She referred to the recent work of R. A. McCance on sodium restriction, which appears to explain her results. The factor of abnormal retention of tissue fluids in chronic rheumatism has been emphasized by Ralph Pemberton. Under-nutrition was not a factor in producing the results. She insisted on the importance of the addition of adequate protein and fat to the vegetable diet and thought the abundant supply of vitamin B and C of undoubted value.

#### A British System of Physical Exercises

Great attention is now being given in this country to the problems of public health and physical efficiency. A team of boys from the Betteshanger School, Eastry, Kent, which has given demonstrations at a number of public schools, gave in London, before members of the Parents' Association, a display of a British system known as "basic physical training" because its movements are designed to provide a basis of physical development necessary to give balance, poise and fitness as a preliminary to the playing of games or further forms of physical culture. At Betteshanger School remedial exercises are first given to the boys who need them. Subsequently the course of training of each boy is divided into three sets of movements. The first consists of breathing exercises to secure full expansion and development of the lungs; the second, to teach correct posture and to remedy defects such as flat feet, weak abdominal muscles, spinal curvature and round shoulders; and the third, to give the fullest possible muscle control. Mr. Evans, the headmaster, explained that after examining physical training systems in the United States and Scandinavia he was induced to try a purely British system and found the results much superior to anything he had seen abroad. That system had been tried at Betteshanger and half a dozen other schools. If adopted on a national scale, it would put British boys and girls in the front rank for physique and fitness. In view of the national movement now taking shape to provide the nation with the best facilities for physical training, he was anxious that every system, including "basic physical training," should be examined before any attempt was made to standardize training in this country.

#### The Nutrition of the People

The question of malnutrition continues to be a matter of political controversy. Sir Kingsley Wood, minister of health, received a deputation on the question from the Standing Joint Committee of Industrial Women's Organizations. He said that malnutrition was a word much used and much abused. The word was not, of course, solely concerned with lack of food, although it was an important factor. Sir John Orr (dietitian) and other experts who advised the ministry were agreed that there was need for further investigation. The Ministry of Health's nutrition advisory committee was actively pursuing its work, and he had just arranged for a number of detailed dietary surveys to ascertain the consumption of various kinds of food by different households. Some investigations of this sort had already been made in industrial areas in the north of England. The milk in schools scheme was probably the largest experiment in child nutrition in the world. It was now in operation in schools containing over 90 per cent of the elementary school population, but rather less than half the children were taking advantage of it. Examination was now proceeding as to the best means of increasing consumption, but it was already clear that poverty was not the prime difficulty. It was needful to get a greater appreciation of the value of milk among both children and parents.

#### The Public Health

The annual report of the chief medical officer of the Ministry of Health for 1935 shows that the population of England and Wales is just over 40 million. The number of births was 598,756, a slight increase on the previous year. The infant mortality was the lowest on record, 57 per thousand births, only half that of thirty years ago. The fall in the birth rate and the increased longevity are producing a gradual aging of the population. At the beginning of the century 520 out of every thousand persons were under the age of 25 years; now the number is only 388. At the former period forty-seven out of a thousand were over 65; now the number is eighty-one. Up to the present the fall in the death rate has compensated for the falling birth rate, but we have now reached a point at which not much further improvement in the death rate can be expected. By the middle of the century the population may attain its maximum and thereafter decline. The most prevalent infectious diseases were scarlet fever (120,456 cases) and diphtheria (65,084 cases).

#### Smallpox Infection from Raw Cotton

This country has been free for a long time from smallpox in the form of variola major, but four cases have occurred at Oldham which can be traced only to the handling of raw cotton at a mill. The first case occurred in a vaccinated married woman who worked in the cardroom. The three other cases occurred in her husband, who was vaccinated in 1916, in her son, aged 15, who had never been vaccinated, and in an unvaccinated woman who had been in contact with the original patient. The diagnosis of smallpox was not established early enough in the first case to ensure the successful vaccination of contacts, of whom there were at least ninety-eight in the woman's place of work and twelve at her home. Cotton as a vehicle of smallpox infection has frequently been suspected in the past. In 1913 cases were reported at Oldham as probably due to such infection.

#### Tuberculous Infection of Nurses

A subcommittee of the Joint Tuberculosis Council has submitted an important report on tuberculous infection of nurses. Particular attention was given to the age of entry to the profession, which is usually 18 years, but shortage of candidates has reduced the age to 17 in some areas. In view of the special susceptibility of adolescent females to pulmonary tuberculosis, it is considered undesirable that young girls should be employed.

Walter Herman Miller ☉ Portland, Ore.; University of Oregon Medical School, Portland, 1922; formerly Clackamas County physician and health officer; aged 39; died, Nov. 15, 1936, of multiple sclerosis.

Henry Clay Lloyd ☉ Hobart, Okla.; Medical College of Ohio, Cincinnati, 1901; past president of the Kiowa County Medical Society; on the staff of the General Hospital; aged 59; died, Nov. 17, 1936.

Daniel E. Keys, Spokane, Wash.; St. Louis College of Physicians and Surgeons, 1893; for many years a druggist; formerly coroner of Mullan, Idaho; aged 66; died, Nov. 19, 1936, of heart disease.

Benjamin Lowen Hume ☉ Mallory, W. Va.; Medical College of Virginia, Richmond, 1900; formerly coroner of Cabell County; aged 62; died, Nov. 26, 1936, in the Mercy Hospital, Logan, of pneumonia.

William Gabriel Kiebler, Enid, Okla.; University of Louisville (Ky.) Medical Department, 1905; member of the Oklahoma State Medical Association; aged 53; died, Nov. 29, 1936, of pneumonia.

Hardman Nathan Kinnear, Oberlin, Ohio; Western Reserve University Medical Department, Cleveland, 1882; for many years a missionary in China; aged 76; died recently in Baton Rouge, La.

Frank Creighton Shute, Opelousas, La.; Tulane University of Louisiana Medical Department, New Orleans, 1904; member of the Louisiana State Medical Society; aged 57; died in November 1936.

William Washington Liles, Gainesville, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; member of the Medical Association of Georgia; aged 61; died, Nov. 6, 1936.

John A. Voorhees, Brooklyn; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; aged 68; died, Nov. 29, 1936, in Bay Ridge Hospital, of pneumonia.

Francis Edward Park, Washington, D. C.; Howard University College of Medicine, Washington, 1886; aged 82; died, Nov. 12, 1936, in the Garfield Hospital, of injuries received in a fall.

John T. Wray, New Albany, Ind.; University of Louisville (Ky.) Medical Department, 1898; member of the Indiana State Medical Association; aged 65; died, Nov. 6, 1936, of arteriosclerosis.

Percy Albert Sloane, Houston, Texas; Baylor University College of Medicine, Dallas, 1914; member of the State Medical Association of Texas; aged 45; died, Nov. 24, 1936, of angina pectoris.

Albert C. Speers, Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1889; aged 71; died, Nov. 16, 1936, in the Montefiore Hospital, of cerebral hemorrhage.

Everett Carlisle Major, Latta, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1905; served during the World War; aged 56; died, Nov. 26, 1936, of coronary occlusion.

Herman Elof Almquist, Los Angeles; Loyola University School of Medicine, Chicago, 1919; formerly a practitioner in Minneapolis; aged 52; died, Nov. 18, 1936, of portal cirrhosis.

Tilman Ramsey, Pineville, Ky.; University of Tennessee Medical Department, Nashville, 1899; member of the Kentucky State Medical Association; aged 61; died, Nov. 19, 1936.

Simon Baer ☉ Galveston, Texas; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1924; aged 37; died, Nov. 17, 1936, of carcinoma of the stomach.

Edward J. Ver Wayne, Evansville, Ind.; Starling Medical College, Columbus, 1897; aged 62; died, Nov. 22, 1936, in St. Mary's Hospital, of chronic nephritis and myocarditis.

John M. Taylor, Mena, Ark.; University Medical College of Kansas City, Mo., 1898; member of the Arkansas Medical Society; aged 68; died, Nov. 15, 1936, of angina pectoris.

Moses Aronson ☉ New York; Universität Zürich Medizinische Fakultät, Switzerland, 1883; on the staff of the Bronx Hospital; aged 82; died, Dec. 3, 1936, of heart disease.

Dexter Alvin Buck, La Porte, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; served during the World War; aged 66; died, Nov. 9, 1936.

Mary Fussell Voeglein, Baltimore; Woman's Medical College of Baltimore, 1901; aged 69; was found dead in bed, Nov. 9, 1936, of myocarditis and diabetes mellitus.

James Haslett Thompson, Enterprise, Ore.; Western Pennsylvania Medical College, Pittsburgh, 1896; served during the World War; aged 68; died, Nov. 20, 1936.

Ellis L. Gibson, Alicia, Ark. (licensed in Arkansas in 1903); member of the Arkansas Medical Society; aged 64; died, Nov. 23, 1936, of dilatation of the heart.

Alexander Gillespie, Edmonton, Alta., Canada; Trinity Medical College, Toronto, Ont., 1884; L.R.C.P., Edinburgh, Scotland, 1884; aged 82; died, Nov. 12, 1936.

Frank Sandfos, Ballwin, Mo.; St. Louis College of Physicians and Surgeons, 1894; aged 64; died, Nov. 26, 1936, in the Deaconess Hospital, St. Louis, of pneumonia.

Norma Mabel Baldwin Kinney, Austin, Texas; Hahnemann Medical College and Hospital, Chicago, 1905; aged 66; died, Nov. 27, 1936, of cerebral hemorrhage.

Samuel James Morrow, Knoxville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1878; aged 83; died, Nov. 7, 1936, in the Fort Sanders Hospital.

Edward Charles Machle, Tacoma, Wash.; Jefferson Medical College of Philadelphia, 1889; formerly a medical missionary in China; aged 77; died, Nov. 30, 1936.

Frank Calvin Atchison, Norwich, Conn. (licensed in Connecticut in 1893); aged 64; died, Nov. 10, 1936, of hypertrophy of the prostate, pyelonephritis and uremia.

Samuel Percival Terry, Alameda, Calif.; Central College of Physicians and Surgeons, Indianapolis, 1896; aged 75; died, Nov. 6, 1936, of cerebral hemorrhage.

Andrew Harry Clarke, Jackson, Tenn. (licensed in Tennessee in 1889); aged 84; died, Nov. 30, 1936, in the Webb-Williamson Hospital-Clinic, of hiccups.

Jacob Smith Petersen, Oakland, Calif.; Niagara University Medical Department, Buffalo, 1891; aged 84; died, Nov. 18, 1936, of arteriosclerosis.

James Alexander La Rue, Pulaski, Tenn.; College of Physicians and Surgeons, Baltimore, 1876; aged 86; died, Nov. 24, 1936, of cerebral embolism.

George W. Charlton, Antioch, Tenn.; University of Nashville Medical Department, 1875; aged 85; died, Nov. 21, 1936, of pulmonary tuberculosis.

William Irvine Hamer, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1919; aged 42; died suddenly, Nov. 17, 1936.

David Richie Shepler, West Newton, Pa.; Baltimore University School of Medicine, 1903; aged 59; died, Nov. 30, 1936, of coronary thrombosis.

William Thomas Shelburne, Indianapolis; Medical College of Indiana, Indianapolis, 1889; aged 79; died, Nov. 17, 1936, of coronary thrombosis.

Samuel Herbert Neal ☉ Philadelphia; Medico-Chirurgical College of Philadelphia, 1895; aged 65; died suddenly, Nov. 7, 1936, of heart disease.

Clement Howard Hallowell, Billerica, Mass.; Boston University School of Medicine, 1879; aged 82; died, Nov. 13, 1936, of arteriosclerosis.

W. R. Tennison, Ponta, Texas; Missouri Medical College, St. Louis, 1878; aged 83; died, Nov. 12, 1936, in Summerfield, of heart disease.

Ralph W. Van Horn, Findlay, Ohio; Eclectic Medical Institute, Cincinnati, 1889; aged 69; died, Nov. 20, 1936, of arteriosclerosis.

James Luther Shilt, Dayton, Ohio; Eclectic Medical Institute, Cincinnati, 1886; aged 76; died, Nov. 7, 1936, of cerebral hemorrhage.

Thomas T. Bays, Hitehins, Ky.; Kentucky University Medical Department, Louisville, 1903; aged 61; died, Oct. 30, 1936.

Harry Hewitt Hooven, Harford, Pa.; University of Maryland School of Medicine, Baltimore, 1892; aged 67; died, Oct. 30, 1936.

John Willis Archerd, Crookston, Neb.; Omaha Medical College, 1891; aged 79; died, Nov. 5, 1936, of cerebral hemorrhage.

Valentine Buechel Jr., Louisville, Ky.; Kentucky School of Medicine, Louisville, 1894; aged 70; died in November 1936.

Tobias Sigel ☉ Detroit; Detroit College of Medicine, 1899; aged 74; died, Nov. 23, 1936, of cerebral hemorrhage.

William James Milne, Blyth, Ont., Canada; Trinity Medical College, Toronto, 1889; died, Nov. 4, 1936.



prefers astragalectomy in older cases in which one encounters, in addition to joint changes, a retraction of tendons and an abundant amount of scar tissue. Tavernier of Lyons also believed that, when reduction is not possible by other means, astragalectomy is the final resort, in spite of the lack of uniformity of the results and the fact that a certain number of patients continue to have pain in walking.

#### Attending Staffs of Public Hospitals to Be Compensated by Pay Patients

There is a sharp line of demarcation here between public hospitals supported by the local governing bodies and private (pay) institutions (*maisons de santé*). There are comparatively few public institutions in France in which patients who are unable to pay are housed in separate portions of the same buildings from those who can do so. This is especially true of smaller communities; hence the paying and the free patients are treated in the same wards. The injustice of asking the medical staffs of such mixed free and pay institutions to treat the pay patients without any remuneration has been the source of many complaints by the organized profession. A recent decree (Feb. 21, 1936) of the government states that the physicians and surgeons of public hospitals have the right to receive special remuneration for services rendered to pay patients. However, such fees shall be collected by the hospital and then divided among the members of the staff in a manner to be agreed on between the hospital administrator and the staff.

#### One Thousand Personal Observations on Pulmonary Tuberculosis in Children

At the October 13 meeting of the Académie de médecine a paper on the different forms of pulmonary tuberculosis in children based on 1,000 cases was read by Armand-Delille, Lestocquoy, Bayle and Lebreton. The incidence of the disease decreases after the first few years of life (forty-one cases between the ages of 9 and 10 years, as compared to ninety-two between 1 and 2 years). The incidence, however, increases rapidly after the age of 12 years, to reach the high figure of 156 between the ages of 14 and 15 years. During the first four years of life, only primary infection is encountered. After the fifth year a division is more difficult because the splenopneumonias and acute tuberculous pneumonias are not necessarily manifestations, as some pediatricians wrongly maintain, of a primary infection. Before the age of 4 years, three types of gangliopulmonary tuberculosis are to be seen; the first is characterized by extensive fatal caseous pneumonia lesions, the second by widespread pneumonic foci but regressive and associated with adenopathy. The third type is characterized by a rapid fatal military tuberculosis. The primary infection form of tuberculosis in younger children, like the reinfection form of older children, involves the right apex in the majority of cases.

#### Necessity of Routine Radiography in Accident Cases

Two recent medicolegal cases are of interest in showing that it is advisable in every accident case in which there is a suspicion of a fracture or dislocation that the physician or surgeon in charge should refuse to assume all responsibility unless the patient consents to have an x-ray examination made as soon as possible after the accident.

In the first suit for damages, a physician was called to take care of a backward dislocation of the shoulder, which was difficult to diagnose by palpation. As a result of nonreduction there was marked permanent functional disability. The husband of the plaintiff claimed that an x-ray examination should have been made. The defendant maintained that he had asked for the application of this method of diagnosis but that the plaintiff had refused to have this done. The jury decided in favor of the defendant. Dr. J. Noir, who reported the case in the November 22 *Concours médical*, states that whenever an

injured person refuses to have an x-ray examination for a suspected fracture or dislocation such a refusal should be in writing and signed in the presence of two witnesses.

In the second damage suit, a diagnosis of a simple comminuted fracture of the head of the humerus was made by palpation by the attending surgeon. The patient requested that an x-ray examination be made but was told that this would be superfluous. Seventeen days later, during the absence of the attending surgeon, his assistant had an x-ray examination made. This revealed a subcoracoid dislocation of the humerus without an accompanying fracture. Following reduction, a paralysis of the injured right arm was noted. The patient was an artist and hence unable to earn a living because of inability to use the arm. Experts appointed by the court estimated the incapacity to be 75 per cent but were unable to state whether or not the paralysis was the result of the unrecognized dislocation. A verdict of 160,000 francs (about \$8,000) was given in favor of the plaintiff. This verdict was to a great extent due to the refusal of the first attending surgeon to have an x-ray examination made.

#### Medal Presented to Laryngologist

Prof. Fernand Lemaître, ear, nose and throat specialist, was recently named Commander of the Legion of Honor. To commemorate this recognition of his distinguished services and also the twenty-fifth anniversary of his occupancy of the position of ear, nose and throat physician to the public hospitals of Paris, his former pupils and friends presented Professor Lemaître with a special medal December 10 at the Lariboisière Hospital. His clinic at the latter has been visited by many foreign specialists.

#### The French Surgical Congress

At the 1936 session (held at Paris October 9) Inspector General Rouvillois of the French army was elected president and Dr. Leon Imbert of Marseilles vice president for the 1937 meeting. The subjects selected for discussion for next year's congress are (1) physiologic pathology of burns, (2) treatment of fractures of the leg, and (3) surgical treatment of embolism of the extremities.

#### BERLIN

(From Our Regular Correspondent)

Dec. 7, 1936.

#### The Congress for Research on Light

The third international congress for research on light was held at Wiesbaden in September. Professor Moede of Berlin has investigated the problem of eye fatigue and has sought to establish an equivalent for the power of the eye and beyond that for the individual constitution itself, which would insure an amount of work that would not fatigue. Practical examination of the capability of an eye to carry on continued close work in industrial occupations demonstrates the extraordinary powers of resistance possessed by the organ even in the presence of severe defects. Nevertheless optimal working conditions for the eye must be created. If the eye becomes fatigued, there appear manifestations of irritation and of decrease in function; basal functions also are altered, wholly apart from the influence on the organism as a whole.

Professor Birch-Hirschfeld, Koenigsberg ophthalmologist, discussed the favorable therapeutic results from the use of ultraviolet rays in disorders of the eye. Ultraviolet rays have proved their worth in the course of the last eighteen years from their use in a vast amount of clinical material. They have for example reduced the proportion of losses in *ulcus serpens* from 30 per cent to 6 per cent. The rays have likewise been productive of favorable results in other diseases of the cornea, conjunctiva and sclera. The curative effect of ultraviolet rays often depends not on their bactericidal capability but on a

Then the index finger is given a half turn forward. This results in a spiral twist and the formation of a cone. The twisted cone is then cut free from the tape. In twisting the cone there should be ample overlapping so that the cone can be made wider if necessary. The overlapping edge is smoothed down until the joining disappears and a smooth surface results. When the cone is placed in the radical cavity to make the mold, the overlapping edge is placed posteriorly so that it lies in the bowl. The tip of the cone is filled with melted paraffin for about a quarter of an inch. It is easy to scrape enough paraffin for this from the waste ends of gauze. The object of the solid tip is to make an accurate mold of the middle ear and the region of the aditus. If the meshes of the gauze show on the surface of the cone, the cone should be dipped in melted paraffin. The longer the operator intends to leave the mold in place, the more care he should take to have a thick coating; because if the gauze becomes exposed, as it did in one case in which the mold was left in three weeks, the mold changes into a gauze plug, starts up granulations and defeats the purpose of the whole procedure. The cone made, the epinephrine gauze is removed from the radical cavity and the paraffin cone placed in it. The handle of the ordinary searcher is used to tampon the cone into place and to make it fit all parts of the cavity, especial care being taken to get an accurate fit in the middle ear. If the meatal flap has not been cut, this is now done. Dr. H. P. Mosher, after much experimenting, has returned to the old Koerner flap. In one case after this flap was made it was cut off and the result was just as good as in the cases in which the meatal flap was left. The mold made, it is left in place for hemostatic purposes while the graft is being cut. The mold is so easy to make that it is worth while to make a second one, perhaps not so carefully as the first, and to leave this in place while the graft is being cut. It takes a minute at least to arrange the skin graft nicely on the mold and, while this is being done, the radical cavity more or less fills with blood and has to be wiped out again. By using two molds, this can be prevented. Experience has shown that it is important to have the mold trimmed flush with the surface of the mastoid and not project. If it does, it interferes with the obtaining of primary healing. If a meatal flap is used, it is tucked in place back of the mold and the cavity of the mold is filled with ordinary gauze. The mastoid wound is closed for its whole length. If the operator prefers, the lower half of the incision can be left open and a drain inserted. If this is done after the drain and the mold have been removed the unsutured part of the incision falls together and heals promptly. It is well to leave the mold in place from five to ten days. As long as the incision does not become puffy or red, in other words, when primary healing goes on smoothly, it is a sign that the mold is being well tolerated. If much discharge appears at the meatus, this is a sign that the mold should be removed. As was pointed out before, if the mold is left in long enough for the wax to be melted away sufficiently to expose the gauze, the purpose of the mold is defeated.

When it is decided to remove the mold, the gauze that is packed into the cavity of the mold is taken out and then the sides of the mold are collapsed on each other and the mold is taken out. Usually the skin graft is left behind and adherent to the sides of the radical cavity. It is a great satisfaction to see the graft left behind and fitting snugly in place. It is a great contrast to what happens when the gauze plug for carrying the graft is used.

When the mold was first used, Dr. Mosher left the incision open and drained for its full length, closing the incision secondarily. Next he closed the upper half of the incision and drained the lower half. It was found that the lower half of the incision would close of itself. Dr. Frederic L. Bogan proved that, if the edges of the mastoid mold are trimmed flush or a little below the surface of the mastoid cavity, primary union can be secured in most cases. In the early days of experimenting with the mold it was made of solid paraffin and was removed through the postauricular incision. The basket mold can be easily removed through the meatus.

#### PREGNANCY AND PERNICIOUS ANEMIA

To the Editor:—Please advise as to the treatment and prognosis of a patient with a moderate degree of pernicious anemia who is six months pregnant. De Lee says "Pregnancy should be terminated as soon as the diagnosis is made."  
HARRY F. WATT, M.D., Ocala, Fla.

ANSWER.—True pernicious anemia is rare during pregnancy but a "pseudo pernicious anemia" in its milder forms is observed occasionally. The mildest or hypochromic anemia is rather common. Esch reports six cases of pseudo pernicious anemia which he thought were toxicemic in origin. If there

are heart murmurs, leukocytosis and fever, one should think of endocarditis. After a positive diagnosis of true pernicious anemia has been settled, the treatment is as usual. Increased doses of liver extract should be given intramuscularly, enough to keep the blood count well above normal, and 7 Gm. of iron as ferrous carbonate or ferric ammonium citrate daily added if necessary. One might add vitamins A and C to the diet.

If the blood examinations of this patient show no improvement or a deterioration, the pregnancy should be terminated.

In this case it might be possible to tide the patient along at least to viability of the child and, if improvement is evident, even to term.

#### MALIGNANT HYPERTENSION

To the Editor:—A white man, aged 46, has been suffering from what is said to be "kidney trouble and high blood pressure" for the past six or eight weeks. His past history is negative. His father, aged 69, has been suffering from hypertension for a long time, probably of arteriosclerotic origin. At the time he consulted a physician he noticed that he became tired easily and felt weak in his legs after climbing the subway stairs. Later on he complained of headache and pain in the suboccipital region (having slept well he awoke with severe headache and pain behind the eyes, for which Bromo-Seltzer had been the only remedy). He had had probably all kinds of medicine and a strict diet, mostly vegetarian and salt free. April 3, the urine examination revealed a small amount of albumin, no sugar, no acetone, from 1 to 2 leukocytes per high power field, and 12 hyaline, 3 moderate granulated and 4 epithelial casts. About five days ago I was called, because the patient had become very ill, had vomited everything he had taken, suffered from constipation and had a terrible headache. I found him in bed, apparently ill; his face was pale with a tinge of gray and there was some degree of apathy but no cyanosis or dyspnea. His temperature was normal. The tongue was slightly coated. There was no specific fetor. The lungs were normal. The heart was enlarged to the left one fingerbreadth. The apex beat was markedly accentuated. There were no murmurs. The pulse rate was 80; the pulse was regular and equal. The blood pressure was 215 systolic, 155 diastolic, 260/155 and higher than 260, although the patient did not move. The abdomen was normal; there was no ascites. The extremities were normal. There was no edema. The reflexes and pupils were normal. Except for an enema, I did not suggest any medication or food intake. On the following day he felt somewhat better. I took about 60 cc. of blood. The blood and the urine were tested. Nonprotein nitrogen was 25.2 mg., urea nitrogen 12 mg. The urine contained a heavy deposit of albumin; its color was light amber; it was acid in reaction and the specific gravity was 1.019. There were no traces of sugar or acetone. Hyaline, finely, coarsely granular and pus casts numbered 40 to 50 per field (one-fourth inch objective), red blood cells 60 to 75 per field, white cells 100 to 125, and there were a few flat and renal epithelial cells, a large amount of mucus, and amorphous urates. The Wassermann and Kahn tests were negative. To be on the safe side, I gave the patient a vegetarian, salt-free diet with plenty of potatoes, as though to combat "acidosis." His condition improved. He is no more in a stage of apathy. His appetite is improving. He has not vomited since. Two days ago I took blood again (about 100 cc., as for some reason I could not take from 200 to 250 cc., as intended). The patient stated on this occasion again that he felt some relief soon after that, especially in the head. As he cannot stand the sight of blood, he almost faints. The blood pressure is then lower, about 170/120, but naturally goes up again as soon as the patient regains full consciousness. At the last phlebotomy the diastolic pressure dropped for the first time to 130 and remained as low. There seems to be no renal insufficiency, as the intake of fluid (restricted to one quart) equals almost the output. There is no nocturia. The symptoms pointed to uremia. What puzzled me and still is puzzling me is that uremic symptoms should occur while the nonprotein nitrogen and urea nitrogen were normal the day after. I was thinking of nephrosclerosis, although the high amount of albumin is mostly not found in this disease. On the other hand, malignant nephrosis does not fit into the picture either. Would you kindly advise me as to the diagnosis and outline a treatment; namely, whether it is advisable to add salt to the diet and by what means I should try to lower the blood pressure and what to do to make the albumin disappear gradually? Please omit name.  
M.D., New York.

ANSWER.—The clinical picture described of marked arterial hypertension, cardiac hypertrophy and severe headaches in a man of 46 suggests inclusion in the group designated "malignant hypertension," because of its grave prognosis. Examination of the eyegrounds might furnish information of value. Whereas the condition may have originated as an essential hypertension, it has evidently progressed to an arteriosclerosis. The kidneys are evidently involved to some extent, but the absence of nitrogen retention speaks against uremia as the cause of the recent accident. There remains to rule out a cardiac or cerebral accident. Coronary sclerosis with occlusion of a small branch has not been entirely ruled out although the pulse rate was normal, dyspnea absent and the blood pressure high. An electrocardiogram would be of value. A cerebral accident seems most likely in view of the preceding headaches and relief when the high blood pressure was lowered. As regards treatment, prolonged bed rest and adequate venesection seem clearly indicated. A balanced diet with sufficient protein to meet his

This single finding ought not to be considered of any general significance, for it by no means proves that the user of public telephones runs the risk of becoming infected. It should also be kept in mind that for the purpose of these examinations the layers of dirt underwent a much more thorough process of removal and collection together than would ever take place under ordinary circumstances. Professor Lange concludes from his investigations that there exists no real danger of infection from the use of a telephone.

### ITALY

(From Our Regular Correspondent)

Nov. 15, 1936.

#### National Congress of Surgery

The forty-third National Congress of Surgery, which was organized by the Società Italiana di Chirurgia with the collaboration of all the directors of the surgical clinics of the Italian universities, the general directors of health and sanitation of the army and the navy and many foreign surgeons, took place recently in Rome. Professor Grant of Philadelphia was also present.

The first official topic was trauma of the spinal column. Professors Donati and Lapidari of Milan spoke on fractures of the spine and osteo-articular lesions from trauma. The frequency of spinal fractures depends on the improvement of the diagnosis rather than in an actual increase of fractures. The conditions of the spine should be verified by means of x-ray examination of the structure (at least in the anteroposterior and lateral views) in all cases of spinal trauma, because of the fact that by ignoring the nature of the vertebral lesion and giving the patient erroneous or insufficient treatment there may develop secondary functional or anatomic alterations of the spine. Total fractures, as a rule, are caused by an indirect mechanism, especially by compression in hyperflexion of the spine. Compression in hyperextension of the spine, crushing, squashing and torsion are also causes of total fractures. Partial fractures involving the spinous and transverse apophyses and sometimes the vertebral arches may be caused by an indirect mechanism. The lesions of the vertebral bodies caused by muscular contracture in tetanus induce structural changes in the spongy tissues of the vertebra. Complete anterior luxation of the atlas is rare. It causes death by compressing the spinal cord within the posterior vertebral arch and the odontoid vertebra. The fracture of the odontoid process of the second cervical vertebra is grave if it complicates anterior luxation of the atlas. The odontoid process has a tendency not to consolidate to the vertebra after a fracture. For this reason it is necessary to verify the consolidation of the process to the vertebra, by means of x-ray examination of the latter before immobilization is discontinued. The fifth cervical vertebra also is frequently fractured. The fracture is caused by an indirect mechanism. It is frequent in persons who dive into shallow water. The treatment of selection is reduction of the fracture by continuous traction with the patient in bed. Laminectomy fails in giving satisfactory results. If the symptoms given by the spinal cord are due to hematomyelia or to edema of the spinal cord they are resolved by themselves, regardless of performing or not doing a laminectomy. In cases of lesions already established in the neuro-axis, the conditions of the patient are aggravated by a laminectomy. Fractures of the dorsolumbar segment involve frequently the twelfth dorsal and the first lumbar vertebra. They are induced by an indirect mechanism and by compression. The lesions of the intervertebral disks are characteristic. The treatment of preference is immediate reduction of the lesion and immobilization. In order to give the patient general anesthesia, he is placed on a suspension hammock which determines hyperextension of the spine with the patient in the supine position. Orthopedic surgery is indicated in fractures of the vertebral arches, laminae and pedunculi.

Professor Antonucci of Milan spoke on the lesions of the spinal cord and of the roots of the spinal nerves from trauma of the spinal column. According to the speaker, orthopedic surgery in association with systematic lumbar and cisternal punctures (for preventing blockage of the cerebrospinal fluid) is indicated in cases of medullary lesions from trauma. In open lesions of the spinal cord the treatment should preferably be surgical, consisting in cleansing the wound and performing a laminectomy. Suturing the spinal cord should be avoided. The attempts of treating complete transverse section of the lumbosacral spinal cord by interradicular or intercostoradicular anastomoses, according to Antonucci's technic, should be studied by experiments and be used in cases of this nature.

The second official topic was "Surgery of Cranial Nerve Tumors." Professors Fasiani and Belloni of the University of Padua spoke on surgery of the intracerebral optic tract. They discussed the diseases of the optic segment which is included within the optic canal and the primary optic nerves, for the surgical approach to which the cranium has to be opened. Tumors of the optic nerve and of the optic chiasm are rare. More frequent than the latter are tumors of the sella turcica and of the parasellar region with visual symptoms. The speakers gave a classification of these tumors. They described also a technic for examination of the optic chiasm area as well as for the opening of the optic canal by the intracranial and orbital routes of approach.

Professor Dogliotti of Modena University spoke on surgery of the facial and trigeminal nerves. In treating trigeminal neuralgia the peripheral operations (alcoholization and section of the external branches) was followed by central operation first on the gasserian ganglion and then on the retroganglionic roots, and on the temporal and pontile-petrous tracts. Operations on the gasserian ganglion are alcoholization, electrocoagulation and gasserectomy. The operations on the retroganglionic routes may be made by the temporal route (Frazier's technic), the cerebellar route (Dandy's technic) or the supratentorial occipital route (Dogliotto's technic). In the latter the route of approach is a supratentorial retro-auricular craniotomy. Sectioning the root of the trigeminal nerve (which is easily identified when the occipital lobe is raised and the cerebellum is slightly displaced) the motor root is easily left untouched. The speaker advises partial neurotomy with removal of two thirds or three fourths of the root in order to preserve a part of the sensitivity of the face and especially of the cornea and the conjunctiva. Professor Dogliotti discussed surgery of peripheral paralysis and essential spasms of the facial nerve. In traumatic paralysis by total section of the nerve it is advisable to perform an early or immediate operation. In all the other forms of peripheral paralysis it is advisable to give the patient several of the direct and indirect causal treatments for some months and then resort to operation. Resection of the nerve with freshening of the stumps and implantation of a nerve graft in the stumps of the resected nerve (Ballace and Duel operation) is indicated. In essential spasms of the facial nerve, blockage of the nerve with alcohol or by electrocoagulation, partial neurotomy, nervous grafts and plastic operations are indicated. Up to now none of the technics have given permanent satisfactory results, unless the functions of the nerve are sacrificed. The speaker reported satisfactory results from a technic which consists in sectioning the nerve, removal of about half of the central stump and neurotization of the peripheral branches by means of the residual portion of the central stump.

The next congress will meet at Turin. The following will be the official topics: (1) tumors of the sella turcica and parasellar area, (2) indications and late results of removal of calculi of urinary tract, and (3) late results of operation of gastroduodenal and jejunal ulcers.

should be increased 1 F. weekly, provided no undue trauma has been produced by the preceding instrumentation.

If a 26 F. cannot pass the meatus, a urethral meatotomy should be performed and the dilatation increased to from 28 to 32 F.

No more vaccines should be given.

For treatment at home the patient should inject the anterior urethra with 5 cc. of a 5 per cent neosilvol solution twice daily. When the smears and shreds have become negative, the treatment should be tapered off and the condition provoked with silver nitrate beginning with 0.125 per cent increasing to 0.25 per cent. If smears remain negative for from six to twelve months with checks at intervals of from three to six weeks, cure probably has occurred.

#### HYPERPERISTALSIS WITH BORBORYGMUS

To the Editor:—I have had under observation for the past several years an intelligent young business executive whose chief complaint is indigestion and flatulence. After thorough physical examination, together with laboratory work and a gastro-intestinal series, revealed nothing abnormal, a diagnosis of nervous indigestion was made. The underlying condition was explained to him and he was given appropriate matter on the subject to read. With an excellent insight into the subject he adjusted himself well, performing his work efficiently despite his handicap. Recently, ignoring my advice, he accepted a better position with another firm entailing many more responsibilities than he formerly had and after a period of about six months, when he felt he was becoming well adjusted to his new work, hyperperistalsis of the small intestine set in with resultant loud rumbling and gurgling sounds emanating from the abdomen. After a meal this condition would begin and continue almost until the time for the next meal, when the process would be repeated. He learned to control it somewhat by eating small meals, but there was a resultant loss of weight. He is now back at his original position, but after a year the syndrome of hyperperistalsis is still dominant, although diminished somewhat in intensity. Reexamination, together with basal metabolic rate determinations, laboratory work and a gastro-intestinal series, shows nothing of significance. His home life is ideal and he has no financial worries. He is clamoring for relief not from any subjective symptoms, to which he has become inured, but from the embarrassing sounds induced by the hyperperistalsis, which greatly hinder his efficiency and usefulness and prevent him from making the contacts he would like. Sedatives are of no avail, for enough to cause drowsiness must be taken before the abdominal condition is controlled. I have tried atropine and the newer synthetic preparations said to be useful in relaxing smooth muscle, but all have proved of little value. Various types of diet have been resorted to without much success. His appetite is good, as is his general condition. Consultants agree as to the cause but have not been able to offer suggestions of any great value. What is the possibility of this condition clearing up as far as the hyperperistalsis syndrome is concerned? Am I justified in recommending splanchnic resection in a case of this type, in which the exaggerated gastro-intestinal behavior dominates the picture to the exclusion of all else? I would appreciate any suggestions as to prognosis and treatment. Please omit name.

M.D., Louisiana.

ANSWER.—There can be little question about the functional nature of the trouble, especially when the symptoms run on for a year or more. One can then exclude an obstructing lesion in the small intestine, because persons with such lesions are generally forced to operation within six months. As the correspondent says, the difficulty comes when one tries to cure the condition. Theoretically the prescription most likely to give results would be one for a long vacation. With these cases, drugs and diets are of little avail. Even fasting cannot help much, because in both animals and men the activity of the empty bowel is sometimes even more boisterous than that of the digesting bowel, much as the gastric hunger activity is often more striking than that seen when the stomach is full.

Section of the splanchnic nerves is contraindicated because in both animals and man it is likely to be followed at least for a time by increased activity of the bowel. After double splanchnicotomy the rabbit usually dies of diarrhea and inanition, but cats, dogs and men are better able to stand the release of inhibition which comes with degeneration of the sympathetic nerves.

One can hardly hope to quiet the gurgling bowel by removing nervous influences because of the experiences of men like Simeonoff who, in the case of a young woman who had swallowed lye, transplanted a piece of jejunum out under the skin of the chest so that it could be used as an esophagus. Two years later the rhythmic contractions of this denervated segment were even more powerful than they were to begin with. Actually, what seems to be needed by the persons with an overactive bowel is more nervous control rather than less.

In one case, intestinal gurgling became so distressing and painful during the course of several years that the patient was disabled. Two explorations of the abdomen revealed no cause for the trouble. Because the trouble was limited to the right side of the abdomen and because it had resulted in such disablement, the attending physicians in desperation had the three

right splanchnic nerves sectioned and the first and second lumbar sympathetic ganglions removed. The patient is somewhat worse, and the probability is now that section of the nerves on the other side would make her worse yet. In this patient there are several signs of Cushing's basophilic syndrome but it is hard to say what this has to do with the rumbling. At the time of exploration the right adrenal gland was found to be normal. It is probable that the severe disturbance in the glands of internal secretion is responsible for the nervous condition of the patient, which again may well be responsible for the overactive and oversensitive bowel; but the gurgling disease is so rare that no one can yet say what belongs in the syndrome and what doesn't.

The prognosis is not hopeful, because some of these people tend to get worse as years pass, especially if they cannot afford to take the long rest which alone will tone up the nervous system.

To make certain that there is no causative element in the diet, it might be well to keep the patient for two or three days on nothing but maple sugar, or perhaps lamb and rice, to see if here is any improvement. In one case the patient, a physician, discovered that blackberry cordial would give relief. In some cases the patient is helped if, before going out to dinner or to some function where he wishes to be on his good behavior, he takes 0.03 Gm. (one-half grain) of codeine sulfate. Another drug that might perhaps be tried is the supposed sympathetic sedative ergotamine tartrate (to be used only occasionally). According to recent papers by Cannon and Rosenbluth, yohimbine and piperidinomethyl benzodioxane (see a series of papers published in 1936 by Bovet and others from the Pasteur Institute) are the best two drugs with which to block the effects of stimulating sympathetic nerves. Theoretically, however, to quiet the bowel one should give a sympathetic stimulant or mimetic, the most powerful being epinephrine; but the action of this drug is transient and is likely to be followed by excess activity of the bowel. A more prolonged stimulation might perhaps be obtained with benzedrine.

In some of these cases of gurgling the physician must wonder whether the borborygmus is any worse or more noisy than that present in many uncomplaining persons. In such cases the trouble is probably due to the same type of hypersensitiveness or abnormal awareness of normal bodily functions that causes persons to complain of the heart beat or of floating specks before the eyes. Obviously, in such cases the treatment must consist of reassurance and very tactful argument.

#### SWELLING OF THE LEGS

To the Editor:—I have a patient who first consulted me a few days ago with bilateral swelling of the legs, particularly from the knees to the ankles. The condition has been present for twelve years. She is now 32 years of age. She was recently married and has had only one pregnancy, which was uneventful. The child is nearly 2 years old. The legs are slim and natural in the mornings but are much worse at night; they were better during her pregnancy, however. The patient suffers from constipation but complains of no other symptom except a heavy weighted feeling in the lower part of the legs. The blood pressure is 125 systolic, 80 diastolic. The heart is normal. Can you give me any suggestions as to the cause and treatment of such a case? I have been treating the constipation for just a few days so far; and have advised Ace bandages as a temporary support. These, however, make deep impressions in the leg by bedtime. Thank you for your help; if this should be put in THE JOURNAL, please omit name.

M.D., District of Columbia.

ANSWER.—In general there are four kinds of diffuse swellings of the lower extremities: (1) that resulting from disturbed function of distant organs, such as diseases of the heart and kidneys; (2) that due to impaired lymphatic circulation; (3) that due to impaired venous circulation, and (4) that associated with excessive adiposity. The early history of the swelling is important in arriving at the diagnosis. One needs to know whether or not the swelling began simultaneously in the two legs, whether or not it came on suddenly, and whether or not it was associated with pain or fever. It is important likewise to know whether or not there is excess adipose tissue in the lower extremities and whether or not varicose veins are present. A good deal of help from a diagnostic standpoint can be obtained by observing the texture of the skin. In lymphedema it ordinarily loses its smooth texture. In the case under consideration it is probable that the swelling came on simultaneously in the two extremities and was not associated with pain or fever. If disease of the heart and kidneys and hypoproteinemia have been excluded, the swelling is probably associated with excessive adiposity of the lower extremities or due to impaired lymphatic circulation. If the edema can be demar-

## Deaths

**Roy Hayman McKay** ☉ Miami, Fla.; Medical College of Ohio, Cincinnati, 1906; formerly a practitioner in Akron, Ohio; past president of the Summit County (Ohio) Medical Society; fellow of the American College of Surgeons; at various times on the staffs of the People's Hospital, Children's Hospital and City Hospital, Akron, and the Citizens Hospital, Barberton; served during the World War; co-author of "Let's Operate"; aged 53; died, Nov. 28, 1936, in a local hospital, of injuries received in a fall.

**Harry Feld Mather**, Kansas City, Mo.; University Medical College of Kansas City, 1895; member of the Missouri State Medical Association; at one time assistant professor of anatomy and assistant to the chair of surgery at his alma mater; formerly on the staffs of St. Luke's, St. Joseph, Menorah and Research hospitals; medical director of the Midland Life Insurance Company; aged 64; died, Nov. 23, 1936, of cerebral hemorrhage.

**Thomas DeWitt Gordon** ☉ Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; member of the American Academy of Pediatrics; fellow of the American College of Physicians; past president of the Kent County Medical Society; served during the World War; on the staff of the Blodgett Memorial Hospital; aged 56; died, Nov. 20, 1936, of coronary thrombosis.

**Frank Paul Pettey**, Decatur, Ala.; University of Nashville (Tenn.) Medical Department, 1892; member of the Medical Association of the State of Alabama; past president of the Morgan County Medical Society; was president of the county board of health; served during the World War; aged 69; died, Nov. 26, 1936, in the Wallace Sanitarium, Memphis, Tenn.

**Malcolm Newlon**, Lincoln, Kan.; University Medical College of Kansas City, 1910; member of the Kansas Medical Society; secretary of the Lincoln County Medical Society; served during the World War; formerly member of the city council and health officer; chairman of the school board; aged 50; died, Nov. 18, 1936, in St. John's Hospital, Salina.

**Alva J. Weedn** ☉ Duncan, Okla.; Central University of Medicine and Science, Jersey City, N. J., 1901; past president of the Stephens County Medical Society; formerly secretary of the Oklahoma Hospital Association; president emeritus of the Southern Oklahoma Medical Association; owner of a hospital bearing his name; aged 61; died, Nov. 15, 1936.

**Charles Dickinson Phelps**, West Haven, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; member of the Connecticut State Medical Society; at one time instructor in physical diagnosis at Yale University School of Medicine, New Haven; aged 68; died, Nov. 24, 1936, of chronic myocarditis.

**John George O'Meara** ☉ Providence, R. I.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; formerly member of the state legislature; aged 68; member of the staffs of the Homeopathic Hospital and St. Joseph's Hospital, where he died, Nov. 22, 1936, of carcinoma of the head of the pancreas with metastasis to the liver.

**Benjamin Thomas Sharp** ☉ Kansas City, Mo.; St. Louis College of Physicians and Surgeons, 1897; aged 62; member of the staffs of the Research Hospital, Menorah Hospital and St. Mary's Hospital, where he died, Nov. 30, 1936, of pneumonia, following a hip fracture received in a fall.

**George Everett Tucker**, Salem, Mass.; Medical School of Maine, Portland, 1908; member of the Massachusetts Medical Society; physician for the city schools; aged 53; on the staff of the Salem Hospital, where he died, Nov. 30, 1936, of arteriosclerosis and cerebral hemorrhage.

**Noe Franklin Chostner**, Cape Girardeau, Mo.; St. Louis College of Physicians and Surgeons, 1905; member of the Missouri State Medical Association; on the staffs of the Southeast Missouri Hospital and St. Francis Hospital; aged 56; died, Nov. 13, 1936, of heart disease.

**William J. Kellow**, Watertown, N. Y.; Victoria University Medical Department, Coburg, Ont., Canada, 1882; for many years on the staffs of the House of the Good Samaritan and the Mercy Hospital; aged 77; died, Nov. 23, 1936, in St. Petersburg, Fla., of uremia.

**Albert Schloemilch**, Portage, Wis.; Hahnemann Medical College and Hospital, Chicago, 1875; member of the State Medical Society of Wisconsin; aged 82; on the staff of St. Saviors General Hospital, where he died, Nov. 15, 1936, of acute enteritis.

**George Clarkson Worth**, Kiangyin, Kiangsu, China; University of Virginia Department of Medicine, Charlottesville, 1892; medical missionary of the Presbyterian Church in China; stationed at the Kiangyin Christian Hospital; aged 69; died recently.

**Milton Jefferson Moore** ☉ Vernon, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1914; formerly member of the school board; part owner of a hospital bearing his name; aged 47; died, Nov. 17, 1936, of angina pectoris.

**John Frederick Shaw**, Fairfield, Maine; University of Toronto (Ont.) Faculty of Medicine, 1914; member of the Maine Medical Association; superintendent of the Central Maine Sanitarium; aged 47; died, Nov. 22, 1936, of cardiac asthma.

**Thompson R. Terwilliger**, Lima, Ohio; Medical College of Ohio, Cincinnati, 1887; member of the Ohio State Medical Association; member of the staffs of St. Rita's and Memorial hospitals; aged 75; died, Nov. 26, 1936, in a hospital at Cincinnati.

**James Elmer Wright** ☉ Rochester, N. Y.; University of Buffalo School of Medicine, 1913; served during the World War; aged 48; on the staff of the Rochester General Hospital, where he died, Nov. 24, 1936, of dissecting aneurysm of the aorta.

**Peter John Christofferson** ☉ Waupaca, Wis.; Marion-Sims College of Medicine, St. Louis, 1897; past president of the Waupaca County Medical Society; aged 67; part owner of the Waupaca Hospital and Clinic, where he died, Nov. 27, 1936.

**Charles Atwell Kearney**, Des Moines, Iowa; State University of Iowa College of Medicine, Iowa City, 1898; served during the World War; member of the staff of the Veterans Administration Facility; aged 68; died, Nov. 19, 1936, in Iowa City.

**Luther Asbury De Loach** ☉ Savannah, Ga.; Atlanta College of Physicians and Surgeons, 1905; formerly mayor of Glennville; on the staff of the Warren A. Candler Hospital; aged 53; died, Nov. 22, 1936, of angina pectoris.

**Herschel Charlton Ezell** ☉ Nashville, Tenn.; University of Tennessee Medical Department, Nashville, 1911; member of the American Academy of Ophthalmology and Otolaryngology; aged 48; died, Nov. 26, 1936.

**Edwin Parker Pitman**, New Haven, Conn.; Dartmouth Medical School, Hanover, N. H., 1891; member of the Connecticut State Medical Society; aged 73; died, Nov. 25, 1936, of prostatic hypertrophy and hydronephrosis.

**William Buckman Holcombe**, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1895; aged 62; died, Nov. 24, 1936, in the Hahnemann Hospital, of adenocarcinoma of the cecum and ascending colon.

**Elmer E. Kirk**, Newcastle, Ind.; Cincinnati College of Medicine and Surgery, 1888; member of the Indiana State Medical Association; aged 74; on the staff of the Henry County Hospital, where he died, Nov. 13, 1936.

**Sarah Mann Wilbur**, Springfield, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1885; member of the Massachusetts and Rhode Island medical societies; aged 83; died, Nov. 20, 1936, of chronic nephritis.

**Monte A. Stern** ☉ Sioux Falls, S. D.; John A. Creighton Medical College, Omaha, 1908; fellow of the American College of Surgeons; on the staffs of the Sioux Valley and McKennan hospitals; aged 51; died, Nov. 8, 1936.

**Charles Himes Metzel**, Sidney, Ill.; University of Illinois College of Medicine, Chicago, 1931; member of the Illinois State Medical Society; on the staff of the Mercy Hospital, Urbana; aged 31; died, Nov. 20, 1936.

**Jeptha Jonson Thibault**, Atlanta, Ga.; University of Arkansas School of Medicine, Little Rock, 1936; aged 24; intern at the Piedmont Hospital, where he died, Nov. 19, 1936, of a Streptococcus viridans infection.

**Frank Cornwall McTavish**, Vancouver, B. C., Canada; University of Toronto Faculty of Medicine, 1899; L.S.A., London, 1901; L.R.C.P., London, and M.R.C.S., England, 1903; aged 64; died, Nov. 8, 1936.

**Robert Haldane Mitchell**, Bowie, Texas; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; aged 75; died, Nov. 17, 1936, in the Bowie Clinic Hospital, of gallbladder disease.



the prostatic infection persists in spite of thorough treatment, intraprostatic injection of antiseptic solutions such as mercurochrome might be considered.

#### HEMOLYTIC JAUNDICE IN PREGNANCY

*To the Editor:*—A woman, aged 22, height 66 inches (167 cm.), weight 130 pounds (59 Kg.), with no history of previous illnesses and of excellent physical type, has had a normal pregnancy for eight months. Pain over the gallbladder began Jan. 1, 1936, and has increased in intensity with no relief except narcotics. Albumin in the urine was detected January 15, with hypertension. She was taken to a hospital for observation. Jaundice developed. There were no convulsions. January 20 a normal delivery occurred. Six hours later there were all the symptoms of a severe hemorrhage. The patient was almost moribund, with no bleeding and a firm uterus. Blood count revealed 1,500,000 red cells, 11,000 white cells and hemoglobin 30 per cent. The jaundice had cleared, but the diagnosis in retrospect specified the hemolytic form. Two full sisters, who are living and well, have never been pregnant; one half sister on the paternal side with two children and one half sister on the paternal side died with eclampsia and jaundice; one aunt on the paternal side died with eclampsia, the jaundice condition unknown. There is no other pertinent family history. The patient is now again pregnant with March 13 as the date of the last period. She asks for the best advice. She is anxious for a child if it is best to carry on. I have never before had hemolytic jaundice with pregnancy and request information as to the likelihood of recurrence in successive pregnancies from the history of similar cases. Her condition now is excellent. The former infant died February 2 from apparent toxemia. Please advise me what is best to do. M.D., Iowa.

**ANSWER.**—Hemolytic jaundice is extremely rare in pregnant women, and when it occurs it is usually linked up with the toxemias of pregnancy, although the exact etiology is unknown. The family history in the present case points to a tendency for the relatives on the paternal side to develop toxemia during pregnancy. Nearly all attacks of hemolytic jaundice are serious, some critical and a few fatal. It is difficult to prognosticate what will happen in the present case. Attacks of hemolytic jaundice frequently recur. An important factor to consider is that the disease may be transmitted to the baby. Perhaps the first child died of the disease a few days after birth. In view of these facts, it may properly be suggested to the patient and her husband that the present pregnancy be interrupted, provided the diagnosis of hemolytic jaundice is correct in the present case.

#### DIFFERENTIAL DIAGNOSIS OF GASTRO-INTESTINAL CONDITION

*To the Editor:*—A single woman, aged 22, complains of the following symptoms extending over a period of two years. The condition is much more pronounced in the summer and she goes three or four months in the winter free from trouble. In the early morning she usually wakes with a gnawing in her stomach. Immediately after breakfast she has pain in the abdomen followed by from one to four yellowish watery stools. Her description is that she gets no relief until her breakfast passes from the body. Sometimes these stools are not associated with pain. The stools are watery, sometimes lumpy, with no marked odor. Diet does not affect the condition. She has been on diluted hydrochloric acid, camphorated tincture of opium and emetine hydrochloride, hypodermically at different intervals with no relief. Thank you for any suggestions you have to offer. M.D., North Carolina.

**ANSWER.**—It is difficult to make much of a guess as to the nature of this woman's difficulty, and the diagnosis might be just as obscure after one had made the most careful study possible of the digestive tract and the stools. Years ago, with such a story, one would think first of an achlorhydria, but it is known now that achlorhydric diarrheas are rather rare, and this patient has not responded to the giving of acid.

It would be well to have the stools searched for parasites by an expert. It is possible that she has a chronic infection with one of the several organisms that can produce a recurrent dysentery.

Both the small intestine and the colon should be examined with x-rays and the patient should have a sigmoidoscopic examination to make sure that there are no signs of ulceration in the lower bowel. It would be interesting to see if there is free acid in the stomach. If there is some, that will also help to rule out a beginning pernicious anemia.

We assume that the patient has not at any time submitted to gastro-enterostomy or to any abdominal operation supposed to be a gastro-enterostomy.

It would be well to see whether the patient is sensitive to certain foods. The fact that the trouble comes in summer suggests that she is sensitive to one or more fruits. She might stay for a while on the type of diet which she follows in the winter. If that should bring relief, the offending foods could easily be discovered by testing one at a time.

The supper incidence suggests also that she is sensitive to bacteria that multiply in milk, ice cream, meat (especially hamburger steak) and other foods in hot weather.

Emotional causes for diarrhea must never be forgotten, nor must it be forgotten that the milk given by way of treatment may be a cause. An elimination diet of lamb and rice might be tried for a few days to see if it brings relief. One might try the giving of calcium gluconate, also a low-fat diet.

#### PRIAPISM

*To the Editor:*—I have a patient 60 years of age, in good health, who complains of uncomfortable penile erections, which appear each night at about 3 a. m. They always wake him and he can obtain relief only by assuming certain postures. He states that he loses from one to two hours sleep and feels exhausted afterward. These symptoms appeared gradually about four years ago. He thinks that their origin may be in some way connected with an extramarital liaison which existed at about this time with a woman who was almost pathologically libidinous. This relation existed for several months. About two years ago he had an endoscopic resection of his prostate at a large clinic for the relief of mild prostatism, which had existed for several months. This operation relieved retention but in no way affected the erections. He states that he had gonorrhea in his youth and has been told that he had a stricture. When he came to me he stated that he feared that in some way his trouble might lead to insanity. He exhibits no other neurotic traits. His libido is normal. Physical examination is negative. When first seen he had a mild posterior urethritis, a rather small meatus and a posterior urethral stricture of large caliber. Treatment has consisted of topical applications of silver nitrate through the endoscope, sounds, meatotomy and instillations of silver nitrate to the posterior urethra. Although the urethritis has practically cleared up, there has been no change in his symptoms. He states that he is no longer worried about himself, thanks to my reassurance as to his mental state, but he is otherwise no better. What to do? All available literature deals at length with frank priapism but gives little light on this particular condition. He says he would not at present consent to any measure that would incapacitate him sexually. Please omit name. M.D., Oklahoma.

**ANSWER.**—Cases similar to the one presented will be found in an article published in the *Medical Journal and Record*, Dec. 3, 1930, page 521, by Max Huhner under the title of "Some Unusual Cases of Priapism." The condition is not serious unless of course due to cerebral or spinal disturbance or to leukemia or some similar condition. It may be that the extramarital liaison, especially if accompanied by ungratified sexual excitement, might have been the starting point of the condition. In the absence of any pathologic condition he should be treated by gentle massage of the prostate and instillations of weak (1:3,000-1:500) silver nitrate solutions into the prostatic urethra. If after two months of this treatment no result is obtained, epidural injections of either plain sterile saline solution or procaine hydrochloride combined with saline solution (procaine 10 cc., saline solution 80 cc.) may be given at intervals of a week, and generally after three such injections relief is obtained. Neither of these procedures interferes with sexual capacity.

#### TREATMENT OF ENLARGED PROSTATE AND NONMOTILE SPERM

*To the Editor:*—A man, aged 32, married ten years, without children, whose general health is good, has had a satisfactory sexual life, with normal intercourse and normal discharge. He had gonorrhea when 19, which he says was mild and from which he recovered in a short time. He had an acute attack of "bladder trouble" about a year ago and had to be catheterized for about a week. On rectal examination I find a markedly enlarged prostate, which I would consider 3 plus. The seminal vesicles are very much enlarged and very sensitive. I have been massaging the prostate biweekly for about a month and it is not improving very fast, although he says he has a marked feeling of relief and that he urinates with greater ease and much more freely. The real reason for his coming to me was to see why his wife did not become pregnant. I have made three microscopic examinations of fresh sperm and find no motile sperm in any of them. What I should like to know is what can be done with the prostate as far as the enlargement is concerned and also if there is any chance for his sperm to become normal if the prostate improves. Please answer fully. M.D., Iowa.

**ANSWER.**—In the description of this case nothing stated is as to the type of material obtained by massage: whether pus is present or not. If the enormous enlargement of the prostate gland as described is due to infection, pus should be obtained at each stripping. Again, the determination of the motility of the sperm depends much on the method used at examination. If the enlargement is due to infection and this is cleared up by massage, it is possible that active sperm may be found; however, the pathologic nature of the enlargement should be determined in this case by a urologic study.

## Bureau of Investigation

LINDEN RAY EMERICK, M.D.

### The Postmaster General Closes the Mails to a Diabetes Fraud

On Dec. 7, 1936, the Postmaster General closed the mails to L. R. Emerick, M.D., of Eaton, Ohio, operating a mail-order "cure" for diabetes under the following trade names: Dr. L. Emerick, Dr. Emerick, L. Emerick, L. R. Emerick, M.D., and L. R. Emerick.

Years ago L. R. Emerick was selling a booklet entitled "Dr. Emerick's Tried and Proven Formulas." The booklet was a hodge-podge of formulas for various ailments, beginning with asthma and ending with a mixture "For White Diarrhoea for Chieken," with "A Dandy Ice Cream Recipe" and "The Best for Roop" thrown in for good measure.

The Emerick treatment for "Diabetes," as given in the "Tried and Proven Formulas" (1922), consisted of tablets containing "Syzingium Jamb., 2 Gr.; Phosphoric Acid, 1-100 Gr.; Ferrum Arsen., 1-100 Gr." The instructions were: "Give one or two, 3 or 4 times a day, with avoidance by patient of foods containing starch and sugar, will certainly give wonderful results. I have cleared up every case, but one, who was too far gone when seen. This is worth \$10 to any Dr." Just what Emerick thought his nostrum worth to the patient, he neglected to say.

Emerick secured his clientele by means of advertisements, and written and printed matter sent through the mails. One of the advertisements used by Emerick reads as follows:

#### "I HAD DIABETES MYSELF

Now enjoy the best of health, eat everything. I have successfully treated it for fifteen years. Readers of this magazine are invited to write for FREE particulars, to

DR. L. EMERICK

224 N. Barron Street

Eaton, Ohio

MENTION MAIL ORDER TABLOID WHEN WRITING"

If the unfortunate victim of diabetes had his curiosity sufficiently aroused to respond to the advertising "bait," he received a mimeographed form-letter reading in part as follows:

"I am glad of the opportunity to write you, for since I had Diabetes myself I can fully sympathize with one so afflicted. I am surely glad to have gotten rid of it, also glad I can help others back to the health I enjoy. For I enjoy the best of health, and have for over sixteen years. And eat everything.

"I wish to be honest with you, and will say that if you have used Insulin for several months, especially in heavy doses, you just as well go on using it. As it has been my experience that it is almost impossible to get off it. However if you have never used it, or using light doses; my treatment should prove a great blessing to you. As it has to myself, and many others some of whose testimony I am enclosing. . . .

"I am sure I can assure you help. I treat by the month, charging ten dollars a month, and I include any extra medicines needed. Most cases need something for the nerves, liver, weakness, and pain somewhere, until they get started . . ."

Dr. Emerick was not to be denied, once given a nibble. If the diabetic hesitated in parting with his cash, he received form-letter number two:

"Recently you wrote me asking about my Diabetic treatment. I sent you information of same, with some evidence of its effectiveness, and I do not understand why I have not heard from you. Surely you want to get rid of the malady . . .

"So fill out the pink slip I sent you, and let us get you started back to health. I have never had any who have regretted having taken the treatment, and I do not believe you would.

"Your health is at stake . . ."

Emerick further supplemented his follow-up letters with a partial biography of his life:

"A few words about myself—a practicing physician in Ohio for over thirty years—a graduate in 1902 from Hospital College of Medicine, Louisville, Ky.

"I, myself broke down with Diabetes and in May, 1916, had to discontinue my work and was not able to get back to my practice until August, 1918. . . .

"I appealed for help to a number of prominent physicians throughout the country without receiving any benefit or much encouragement . . .

"From the literature I gathered and by many experiments upon myself, I evolved THE REMEDY that has completely relieved me as evidenced by my coming back into practice in October, 1918, and going thru that great EPIDEMIC OF FLU . . .

"In searching medical literature I found where an old German doctor [Ye Gods! The old German doctor again!] who had been experimenting on Diabetes stated a short time before his death that he believed that if a certain preparation was given in large enough doses, that it would prove a specific in relieving Diabetes. . . ."

The treatment, according to the formula furnished by Emerick to the United States post office authorities, consisted of several packages of tablets, one marked for diabetes, the others varying according to the symptoms furnished by the patient on the "pink slip."

The alleged diabetic tablets were composed of jambul seed, 10 grains, phosphoric acid,  $\frac{1}{100}$  grain, and iron arsenate,  $\frac{1}{100}$  grain. Directions provided for the taking of two of these tablets before meals. The tablets "for weakness," according to the analysis of the Food and Drug Administration of the United States Department of Agriculture, contained strychnine sulfate,  $\frac{1}{60}$  grain per tablet, with sugar, starch and carbonate present. The tablets "for aching" contained 4.9 grains of sodium salicylate per tablet, mixed with a small amount of starch and talc. The tablets "for liver" contained  $\frac{1}{600}$  grain strychnine sulfate and  $\frac{1}{2}$  grain phenolphthalein per tablet, with podophyllum and aloes present, and the tablets "for nerves" contained the fetish asafetida with magnesia and sugar present. In addition to the auxiliary tablets, Emerick furnished a so-called "Diabetic Diet."

Medical experts introduced by the government declared the Emerick "treatment" to be a haphazard collection of sedatives, stimulants and laxatives. They further pointed out that the drugs making up the "treatment" have long been known to the medical profession and have been thoroughly tested, discredited and discarded as worthless in the treatment of diabetes.

Emerick, in answer to the charges filed by Solicitor Karl A. Crowley, related a series of instances in which he alleged cures had been obtained by the use of his "treatment." In his report the Solicitor stated: "The expert evidence shows, and I do so find, that these alleged cures cannot actually have occurred."

Although Emerick advocated "To base my expectations of reward on a solid foundation of service rendered. To be willing to pay the price of success in honest effort," Post Office Solicitor Crowley recommended that a fraud order be issued against Emerick and the various names under which he sold his diabetes "cure." It was so issued.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### MOSHER PARAFFIN BASKET FOR SKIN GRAFT AFTER MASTOIDECTOMY

To the Editor:—In several articles on skin grafting radical mastoid cavities in recent issues of the *Archives of Otolaryngology*, mention is made of the "Moshier paraffin basket." If there is an article on the technic of this procedure, I should like to obtain it and would be pleased to hear from you in this regard.

NORMAN C. COOK, M.D., Victoria, B. C.

ANSWER.—The paraffin basket mold for applying a skin graft to the radical mastoid cavity was described in the *Transactions of the American Otological Society* in 1925. The method of making the paraffin gauze basket and the present method of using it are as follows:

A strip of ordinary surgical gauze 6 inches wide and 12 inches long is folded on its long axis toward the center twice, making a four ply tape an inch and a half wide. The gauze tape is dipped into melted household paraffin or parowax. The coating should be thick enough to obliterate the meshes of the gauze. The impregnated tape is rolled up and placed in a sterile container. Ten or a dozen such pieces of tape will last the usual operator a considerable time. These rolls become solid when the paraffin cools. It is generally easy to unwind the roll when it is wanted for use. If it does not unwind readily, immersion in warm sterile water will start it.

Suppose that the radical cavity is finished and that the operator is ready to cut his graft. The cavity is cleaned and plugged with gauze soaked with epinephrine. This is left in while the paraffin basket is being made. There is a bit of a trick in making the cone. A strip of tape is cut 6 inches long. This is made to loop over the right index finger of the surgeon tent fashion, the ends of the tape diverging and making a V.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 29-July 1. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, March 2. Sec., Dr. W. W. Council, Juneau.  
ARKANSAS: *Medical (Regular)*. Little Rock, May 11-12. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic)*. Little Rock, May 11. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Los Angeles, Feb. 8-11. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science*. New Haven, Feb. 13. *Prerequisite to license examination*. Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Homoeopathic)*. Derby, Feb. 13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regular)*. Hartford, March 9-10. *Endorsement*. Hartford, March 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

IDAHO: Boise, April 6. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, Jan. 26-28. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration, Dr. William R. Davidson, 301 State House.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular)*. Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homoeopathic)*. Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEVADA: *Reciprocity*. Carson City, Feb. 1. Sec., Dr. John E. Worden, Carson City.

NEW HAMPSHIRE: Concord, March 11-12. Address, Board of Registration in Medicine, State House, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Basic Science*. Portland, March 20. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

Puerto Rico: San Juan, March 2. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Undethill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WEST VIRGINIA: Charleston, March 1. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science*. Madison, April 3. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

WYOMING: Cheyenne, Feb. 1. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

#### NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, January 16, page 230.

### Ohio June Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports the oral, written and practical examination held in Columbus, June 16-19, 1936. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Two hundred and eighty-three candidates were examined, 281 of whom passed and 2 failed. Fifty-eight physicians were licensed by reciprocity and 4 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
Georgetown University School of Medicine.....	(1935)	78.9	75
Hahnemann Medical College and Hospital, Chicago.....	(1899)	80.5	83.4, 84.5*
Loyola University School of Medicine.....	(1936)	81.6	83.6, 85.4
Northwestern University Medical School.....	(1936)		

Rush Medical College.....	(1935)	81.5	
84.3, (1936) 75, 78.9†			
Boston University School of Medicine.....	(1936)	83.3	
Harvard University Medical School.....	(1935)	82.4	
(1936) 83.6			
University of Minnesota Medical School.....	(1930)	83.5	
St. Louis University School of Medicine.....	(1935)	84	
Washington University School of Medicine.....	(1936)	85.1	
Creighton University School of Medicine.....	(1936)	79.9	
University of Nebraska College of Medicine.....	(1929) 75, (1933)	83.3	
Cornell University Medical College.....	(1935)	82.4	
University of Buffalo School of Medicine.....	(1935) 83, (1936)	81.5	
University of Rochester School of Medicine.....	(1935)	82	
Eclectic Medical College, Cincinnati.....	(1936)	76.9	
78.2, 79.1, 79.2, 79.7, 79.7, 79.8, 80.2, 80.4, 80.5, 80.5, 80.9, 81.3, 81.3, 81.3, 82, 82.4, 82.4, 82.4, 82.7, 82.7, 83.3, 83.7, 84, 84.2, 84.3, 85.3, 85.5, 85.7, 88, 88.8			
Ohio State University College of Medicine.....	(1936) 75, 75.1, 77.6, 77.7, 77.8, 77.9, 78, 78.5, 78.8, 78.9, 79.1, 79.2, 79.2, 80.1, 80.1, 80.2, 80.6, 80.6, 80.7, 80.8, 81, 81.2, 81.2, 81.2, 81.3, 81.4, 81.5, 81.5, 81.5, 81.5, 81.5, 81.7, 81.9, 82, 82.2, 82.2, 82.2, 82.2, 82.3, 82.4, 82.4, 82.5, 82.5, 82.5, 82.6, 82.7, 82.7, 82.7, 82.8, 82.8, 82.9, 83, 83, 83.1, 83.2, 83.2, 83.3, 83.6, 83.6, 83.6, 83.7, 83.7, 83.8, 83.9, 83.9, 84, 84.1, 84.1, 84.1, 84.2, 84.2, 84.3, 84.5, 84.7, 84.7, 84.8, 85.3, 85.6, 85.7, 85.7, 85.9, 86.2, 86.4, 86.6, 87.5, 88.1, 88.2, 88.7		
University of Cincinnati College of Medicine.....	(1936)†	76.2	
76.8, 77.1, 77.3, 77.7, 78.2, 78.5, 78.7, 78.7, 78.8, 79.1, 79.2, 79.4, 79.6, 79.7, 79.8, 80.2, 80.2, 80.7, 80.8, 80.9, 81.3, 81.7, 81.7, 81.8, 82, 82, 82.2, 82.4, 82.6, 82.6, 82.6, 82.8, 82.8, 82.9, 82.9, 83.1, 83.3, 83.3, 83.5, 83.6, 83.7, 84, 84.1, 84.1, 84.2, 84.2, 84.3, 84.4, 84.5, 84.6, 85.1, 85.3, 85.4, 85.4, 85.6, 85.6, 85.8, 86, 86.4, 86.4, 86.6, 86.8, 87.2			
Western Reserve University School of Medicine.....	(1936)	76.1	
78.6, 79.1, 79.3, 80, 80.3, 80.4, 80.5, 80.6, 80.9, 80.9, 81.4, 81.6, 81.7, 81.9, 82, 82, 82.2, 82.3, 82.4, 82.4, 82.4, 82.4, 82.5, 82.6, 82.7, 82.7, 82.8, 82.8, 83, 83.1, 83.4, 83.4, 83.5, 83.6, 83.6, 83.8, 84.1, 84.4, 84.5, 84.6, 84.7, 84.8, 84.9, 85, 85.1, 85.5, 85.7, 85.7, 85.8, 85.8, 85.9, 86.1, 86.7			
Jefferson Medical College of Philadelphia.....	(1935)	86.2	
(1936) 84.2			
University of Pennsylvania School of Medicine.....	(1935)	81.2	
(1936) 83.4, 87.8			
University of Pittsburgh School of Medicine.....	(1936)	81.9, 82.9	
Marquette University School of Medicine.....	(1936)	76.7, 79.3	
University of Wisconsin Medical School.....	(1935)	83.8	
Dalhousie University Faculty of Medicine.....	(1933)	86.5	
Queen's University Faculty of Medicine.....	(1930)	85.4	
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg.....	(1914)	76.2	
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....	(1934)	80.1	
Universität Köln Medizinische Fakultät.....	(1934)	81.1	
Universität Leipzig Medizinische Fakultät.....	(1922)	80.1	
University of Edinburgh Faculty of Medicine.....	(1935)	80.6	
Universität Basel Medizinische Fakultät.....	(1935)	79.4	
School	FAILED	Year Grad.	Per Cent.
Medizinische Fakultät der Universität Wien.....	(1932)		66.1
Albertus-Universität Medizinische Fakultät, Königsberg.....	(1920)		70.1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine.....	(1934)		Arkansas
Emory University School of Medicine.....	(1935)		Georgia
University of Georgia School of Medicine.....	(1935)		Georgia
Howard University College of Medicine.....	(1935)		Maryland, N. Carolina
Northwestern University.....	(1933)		Illinois
University of Illinois College of Medicine.....	(1933)		Illinois
Indiana University School of Medicine.....	(1934)		Indiana
State University of Iowa.....	(1935)		Kentucky
University of Louisville.....	(1935, 2)		Louisiana
Tulane University of Louisiana School of Medicine.....	(1927), (1935)		Maryland
Johns Hopkins University School of Medicine.....	(1931), (1932)		Michigan
University of Michigan Department of Medicine and Surgery.....	(1913)		Michigan
University of Michigan Medical School.....	(1922), (1931, 2), (1934), (1935, 2)		Michigan
University of Michigan College of Medicine.....	(1936, 3)		Michigan
University of Michigan Medical School.....	(1929)		Michigan
University of Missouri School of Medicine.....	(1929), (35, 10)		Missouri
University of Missouri School of Medicine.....	(1931), (1931)		New York
University of Missouri School of Medicine.....	(1931) Pa., (1933)		Tennessee
University of Missouri School of Medicine.....	(1917), (1933)		Tennessee
University of Missouri School of Medicine.....	(1932)		Tennessee
(1934) Mississippi			Vermont
University of Vermont College of Medicine.....	(1935)		Virginia
University of Virginia Department of Medicine.....	(1930, 2)		Louisiana
University of Toronto Faculty of Medicine.....	(1931)		
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....	(1932)		Maryland

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School.....	(1930), (1931)		N. B. M. Ex.
Western Reserve University School of Medicine.....	(1930), (1931)		N. B. M. Ex.
University of Oklahoma School of Medicine.....	(1935)		N. B. M. Ex.
* This applicant has completed the medical course and will receive the M.D. degree on completion of internship. License has not been issued.			
† License has not been issued.			
‡ These applicants have received the M.D. degree and will receive the M.D. degree on completion of internship.			
§ Verification of graduation in process.			

requirements is suggested. Restriction of fluids does not appear necessary, but elimination of table salt seems desirable. As for drugs that might have an effect in lowering the blood pressure, one hesitates to suggest sedatives in the absence of knowledge as to the patient's nervous state, or such preparations as nitrites or potassium iodide.

#### PREGNANCY AND HYPERTHYROIDISM

*To the Editor:*—Kindly suggest the management of a primipara, aged 25, six months pregnant, who has asymptomatic signs of hyperthyroidism; i. e., an enlarged goiter, tachycardia (a rate of 120), increased blood pressure (160 systolic, 70 diastolic), tremor, underweight, normal urine and a negative blood Wassermann reaction. Administration of aqueous solution of iodine produced no change. What treatment should be given during pregnancy? What anesthetic and/or analgesic should be chosen during labor? Is chloroform harmful here? What is the postpartal treatment for the hyperthyroid condition, medical if possible? Is a basal metabolism test absolutely necessary in view of the conditions found. Please omit name.

M.D., New York.

*ANSWER:*—Before an attempt is made to offer suggestions for the management of this particular case, it might be well to refer to some data that appeared in an article published in 1931: Twenty-nine cases of exophthalmic goiter, and twelve cases of adenomatous goiter with hyperthyroidism associated with pregnancy were reported; these cases had been observed during the period beginning in January 1923 and ending in January 1930. The symptoms in five (17 per cent) of the cases of exophthalmic goiter and in six (50 per cent) of the cases of adenomatous goiter with hyperthyroidism were aggravated during pregnancy prior to the inception of treatment. In twenty-two of the twenty-nine cases of exophthalmic goiter, partial thyroidectomy was performed during pregnancy. In the remaining seven cases of exophthalmic goiter the patients were carried through pregnancy on aqueous solution of iodine. In those cases in which thyroidectomy was performed, aqueous solution of iodine was administered for some time prior to thyroidectomy, but iodine did not sufficiently control the symptoms to warrant deferring operation until after labor. In nine of the twelve cases of adenomatous goiter with hyperthyroidism, thyroidectomy was performed during pregnancy. There were no deaths from thyroidectomy in the whole series, and all the patients reported relief or improvement of symptoms. Miscarriages were not reported in either group.

In conclusion, the authors made the following summary: "Evidence indicates that hyperthyroidism resulting from adenomatous goiter is not satisfactorily controlled by iodine and that it is safer to remove the adenomatous tissue if this condition is present. The use of aqueous solution of iodine in doses of 10 drops three times a day, in cases of exophthalmic goiter, should be followed by distinct improvement and a definitely lowered basal metabolic rate within two weeks. In the occasional case of exophthalmic goiter, within two weeks after the use of iodine, a remission may follow which is complete or nearly complete, with the basal metabolic rate approximating normal or within normal limits. In certain cases of such rapid and marked remission of the disease, the patient may be carried successfully through pregnancy by the administration of iodine, without resort to thyroidectomy. Patients must be observed carefully, however, and determinations of the basal metabolic rate must be made occasionally, as recrudescence of the disease often occurs in spite of the continued use of iodine. In the medical treatment of exophthalmic goiter in which there is marked response to iodine, the attending physician may acquire a false sense of security, which results in operation being deferred to a less favorable period in pregnancy or to a time when iodine may fail to give as complete protection against postoperative reaction. Except in certain cases in the later months of pregnancy, partial thyroidectomy should be performed without delay if the exophthalmic goiter does not show complete or nearly complete remission within two weeks after the institution of treatment with iodine; delay may be followed by irreparable injury to vital organs. There may be exceptions to this rule in cases in which complicating conditions other than normal pregnancy exist. In cases of exophthalmic goiter and of adenomatous goiter with hyperthyroidism in which operation is or is not performed, aside from the judicious use of iodine the treatment is the same as that usually given to women during pregnancy and confinement. When the strength of the patient is diminished or the heart is injured as a result of the severity of the hyperthyroidism, it may be necessary to shorten labor by forceps or version or, rarely, by cesarean section."

The data presented in the article referred to and the authors' summary will serve as a guide in the management of the case under consideration. Determinations of the basal metabolic rate

should be made from time to time as an aid in diagnosis and in determining the advisability of thyroidectomy. It should be remembered, however, that even in the absence of hyperthyroidism an increase in the basal metabolic rate begins about the fourth month of pregnancy and rapidly increases, particularly during the last three months. At the end of pregnancy the rate may be from 20 to 25 per cent above the Du-Bois standard if calculated in the ordinary manner without allowing for the development of the fetus. Therefore, a basal metabolic rate of +25 or even +30 is not necessarily an indication of hyperthyroidism in the latter months of pregnancy.

In cases in which hyperthyroidism is associated with pregnancy, pentobarbital sodium, 3 grains (0.2 Gm.) orally, may be administered as an analgesic in the early part of the first stage of labor, but it is usually inadvisable to give more than a total of 6 grains (0.4 Gm.) during this period of labor. Morphine,  $\frac{1}{8}$  grain (0.01 Gm.), may be given hypodermically if it is not given within four hours of actual labor. Chloroform should not be used in this type of case during labor; nitrous oxide and oxygen is the anesthetic of choice.

#### TREATMENT OF GONORRHEA

*To the Editor:*—I have a patient who came to me with the usual symptoms of gonorrheal infection although the story was that the condition was due to a "strain from horseback riding." The smear taken at the first visit was reported "positive" for specific organisms and treatment was immediately started with the filtrate of Corbus-Ferry. Subsequent treatment consisted of daily irrigations with neosilvol solution and weekly injections of the filtrate. Twenty filtrate injections were given in all, the dose varying from 0.05 to 0.1 cc. intradermally. Smears taken at these weekly intervals were negative for gonococci until the eighth week, when it came back positive. Treatments were continued as before with prostate massages begun at this time, a few drops of a milky secretion being obtained at each of these visits. For the next eight weeks the smears remained negative but the eighth was again positive. Treatment continued as before, but after the twentieth filtrate injection these injections were discontinued. The prostatic smears came back negative but always had "a few leukocytes," and the morning drop also continued. After eleven more weeks the patient contracted a prostatitis, caused perhaps by sitting on cold and damp ground. The gland became hard, swollen and tender. Hot sitz baths relieved the pain and pressure in the perineum but the discharge started up profusely and was again positive for gonococci. The patient has had twenty-six weeks of treatment, twenty of which consisted of filtrate injections with the neosilvol washes and the use of methenamine and copaiba-methylene blue combinations alternating orally. On the twentieth week he complained of splitting of the stream and frequency. Feeling that there must be a stricture, I dilated the urethra on two successive weeks with No. 11 and 13 English sounds. Adequate sterilizing precautions were taken and this condition has improved. Treatment has certainly been adequate, perhaps too adequate, for this to be cleared up by now and I should like to know what measures I might take to cure the condition. He wishes to get married as soon as possible but not before he is perfectly "healthy," and I want to be able to reassure him that he has recovered. He has followed treatment very well and has avoided all sexual exercise and other deleterious practices and I feel that something is amiss although I cannot put my finger on it. I feel that the filtrate in this instance has proved bacteriostatic but not bacteriocidal and that it merely held up the discharge as long as he was receiving the injections. I am now giving irrigations with neosilvol and also using four irrigations daily of zinc sulfate 10 grains (0.65 Gm.), diluted solution of lead subacetate 4 ounces (120 cc.) and water to make 8 ounces (235 cc.) following urination in an attempt to dry up this discharge. Please omit name.

M.D., Massachusetts.

*ANSWER:*—This patient most probably has his gonorrhea from a persistent focus in the prostate and vesicles and from overzealous therapy. If the patient has two cloudy urines he should be treated twice a week with gentle massage of the vesicles and prostate. The force of the massage may be gradually increased but should never produce real pain, only the discomfort usually associated with this procedure. After each massage a 5 per cent solution of mild protein silver should be instilled through a catheter into the posterior urethra. The anterior urethra can be medicated as the catheter is being withdrawn. Should the cloudy urines contain considerable flakes of exudate, it is usually beneficial to substitute a through and through irrigation of 1:5,000 potassium permanganate solution for one of the instillations. The irrigator containing the permanganate solution should not be more than 3 or 4 feet above the patient. This procedure should produce no pain, otherwise more harm than good will result. After the prostatic and vesicular secretions improve and the urine gets fairly clear and contains only shreds, the treatment is again altered. In place of two massages the patient is treated with a sound at one visit and is massaged the next. Following these procedures the urethra should receive a through and through injection of mild or strong protein silver in the strengths mentioned. The dilation should be begun at 23 or 25 F., depending on the size of the meatus. The size

**Handbuch der biologischen Arbeitsmethoden.** Herausgegeben von Geh. Med.-Rat Prof. Dr. Emil Abderhalden, Direktor des Physiologischen Institutes der Universität Halle a. d. Saale. Abt. V, Methoden zum Studium der Funktionen der einzelnen Organe des tierischen Organismus, Teil 3B, Heft 6. Lieferung 451. Auxine. Von A. N. J. Heyn. Darstellung des Melanophorenhormons. Von F. Dietel. Darstellung und Wirkungsprüfung des Feltstoffwechselhormons und des Kohlehydratstoffwechselhormons des Hypophysenvorderlappens. Von Karl Julius Anselmino und Friedrich Hoffmann. Hypophysektomie. Von A. Geesink. Darstellung und Eigenschaften des kristallisierten Insulins. Von Oskar Winkler und Hans Jensen. Untersuchungen der hormonalen Funktion des Thymus. Von Leon Asher. Paper. Price, 6 marks. Pp. 823-936, with illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1936.

This volume contains reviews on the isolation and properties of the plant and animal hormones. The comprehensive treatment of the growth hormone "Auxine" by A. N. J. Heyn gives a discussion of the various practical preparations of the hormone and gives an excellent proof of its chemical structure. Biologic tests are described in detail and are accompanied by helpful illustrations of apparatus used in assaying the preparations.

The literature regarding the preparation of the melanophore hormone from the posterior lobe of the pituitary gland is briefly reviewed by F. Dietel. The research on this interesting substance is still in its early stages. Unfortunately, the author has not endeavored to bring the bibliography down to date.

K. J. Anselmino and F. Hoffmann describe the preparation and tests for the ketogenic and blood sugar raising hormone of the anterior lobe of the pituitary gland. It is a short treatise but covers the literature to date.

A. Geesink describes the technic of hypophysectomy. The clear, concise exposition should enable any biologic worker to follow his method. The necessary instruments and their uses are mentioned, and detailed illustrations of the various phases of the operation are given. The paper includes a valuable bibliography of the surgical anatomy of the pituitary gland.

O. Wintersteiner and H. Jensen review the preparation and properties of crystalline insulin. In view of the fact that the practical preparation of insulin is mostly a commercial trade secret, the authors describe only the classic works of Abel and of Harington and Scott. The physical and chemical properties of insulin are briefly mentioned. It is regretted that the bibliography is reviewed only to 1933, making this otherwise valuable presentation somewhat obsolete.

A short review of the hormonal function of the thymus is contributed by Leon Asher. Nutrition of the animals, extirpation of the thymus, preparation, and tests for identification of the active principle, which he calls "thymoesцин," are briefly discussed. Comparisons with extracts of other organs are given. References to the original literature are scanty.

It would be desirable for the publisher in the future to ask the authors to complete the bibliographies in a short supplement, should the presentations have been written long before the printing was finished.

**The Practice of Medicine.** By Jonathan Campbell Meakins, M.D., LL.D., Professor of Medicine and Director of the Department of Medicine, McGill University, Montreal. Cloth. Price, \$10. Pp. 1,343, with 505 illustrations. St. Louis: C. V. Mosby Company, 1936.

Perhaps a dozen different textbooks of the practice of medicine now appeal for the favor of students and practitioners. Dr. Meakins does not attempt here a treatise for specialists or an encyclopedia but rather a book of usefulness to students and practitioners as a reference. Unlike many other authors of textbooks of the practice of medicine he has relied largely on illustration to aid in advancement of knowledge and the book is supplemented by more than 500 halftones and other illustrations, including many plates in colors. He has been aided in his development of the book by his colleagues on the faculty of McGill University.

In his approach to the subject he begins with the diseases of the nose and throat and then takes up system by system, concluding with the infections, allergy, environment and drugs. Each of the chapters in the book is supplemented by a brief bibliography and the author refers frequently in the course of his writing to his source of information. There is little or no ornamentation of style and the volume is but slightly personal in its approach to any of the subjects that are discussed. It seems rather to be a straightforward, concentrated statement of the available established knowledge, planned to give funda-

mental facts to the user as quickly as possible. An occasional footnote in small type is found devoted to a personal reference by the author to individual cases that he has seen. The striking feature of this textbook is unquestionably the illustrative material.

**Entomological Studies: Studies on Insects of Medical Importance in South Africa—Part III.** By Bolha De Meillon, D.Sc., F.R.E.S., from the Malaria Research Station of the South African Institute for Medical Research, at Eshowe, Zululand. Publications of the South African Institute for Medical Research—No. XXXVIII. (Vol. VII). Paper. Pp. 125-215, with 32 illustrations. Johannesburg: The Institute, 1936.

The first three parts consist of short articles on *Anopheles* mosquitoes. Studies on the egg, larval, pupal and imaginal stages of *Anopheles listeri* place it in the turkhudi group. Eggs of *A. coustani* and *A. coustani* var. *tenebrosus* are figured and described. Actual distribution of *A. gambiae* and *A. funestus* in Natal does not coincide with the distribution that would be determined by climatic factors. Breeding of *A. gambiae* is restricted by dense growths of vegetation, usually cane. It is thought, therefore, that the droughts of 1928, 1930 and 1931 paved the way for the serious epidemic of malaria in 1931-1932 by reducing the amount of such vegetation. Physical features such as mountains do not favor the breeding of *A. funestus*, for in such localities the streams are being continually flushed. Part 4 is a list of South African *Ceratopogonidae* previously reported, and part 5 deals with new and unrecorded species of these insects. Twenty-four new species belonging to twelve genera are described and illustrated, and there is one new record of a previously described species. In part 6 three new species of *Simulium* are described.

**A Laboratory Manual of Qualitative Chemical Analysis for Students of Pharmacy.** By Theodore J. Bradley, Ph.D., A.M., B.S., Dean and Professor of Chemistry in the Massachusetts College of Pharmacy. Fifth edition. Cloth. Price, \$2.25. Pp. 170. Philadelphia: Lea & Febiger, 1936.

The purpose of this manual is to acquaint the student with general laboratory methods of qualitative analysis and to aid him to make such tests for identity and purity as come within the purview of a pharmacist. The course, for which the book is a guide, is arranged to occupy from four to five hours a week during one school year. The metals are classified in the customary seven groups for identification. No new methods are described in the procedure. Each group is treated as a separate chapter, at the end of which is a cumulative chart for the identification of all the elements in the preceding groups. The acids are divided into three groups for identification: (a) acids precipitated by silver nitrate, (b) acids precipitated by barium chloride and (c) acids not precipitated by either of the foregoing methods. Directions are also given for the analysis of metals and acids in the same solution. For each metal and acid identified in the procedures are given its important compounds. Short chapters are included on topics such as the qualitative analysis of a solid, qualitative examination of official inorganic chemicals, destruction of organic matter, qualitative tests of the United States Pharmacopeia, and reagents and test solutions. As a laboratory guide the manual covers the essentials of inorganic qualitative analysis for those who wish a fairly superficial course but is in no sense a reference book. Conspicuously absent is the consideration of the theoretical aspects of qualitative analysis. Throughout the book the author refers to the anions and cations as acids and metals.

**A Text Book of Pharmacognosy.** By Heber W. Youngken, A.M., Ph.D., Professor of Pharmacognosy and Materia Medica in the Massachusetts College of Pharmacy, Boston. Fourth edition. Cloth. Price, \$7. Pp. 924, with 469 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

This textbook, primarily intended for students of pharmacy, has undergone a thorough revision and contains much new material and illustrations. The book is divided into two parts. Part I deals with morphologic considerations of drugs and includes the sections dealing with fundamental considerations, such as collection, curing, valuation, sampling and preservation. Part II contains a taxonomic consideration of drugs and additional information concerning their description, history and constituents. The chapter on animal drugs has been expanded to include new monographs on endocrine gland



strated to arise from local causes only, it is important that it be controlled. It is apparent that the Ace bandages are inadequate for this purpose. It is well to try next good grade elastic stockings, for which measurements are taken when the extremities are free of edema. If these do not control the swelling, it is advisable to use a pure rubber bandage which is 3 inches wide and 15 feet long. These bandages can be secured in three weights, and it is probable that the lightest one would be satisfactory. Discussion of the differential diagnosis of swelling of the extremities, and instructions for the use of bandages is available (*Ann. Int. Med.* 9:516 [Nov.] 1935).

#### CARE OF DISCHARGE IN OTITIS MEDIA

*To the Editor:*—Some nose and throat men say that a discharging ear should not be irrigated because it might produce a mastoiditis, while other nose and throat men say that the canal should be irrigated or washed out. What is the right or proper thing to do? Is it proper to put anything into the discharging ear, or not, and if so what is the best remedy? Would the instillation of five drops of alcohol three times a day be indicated and would it be as good as almost anything else one might instill into the ear? I am a general practitioner and I was taught to use heat in all cases of mastoiditis, especially moist heat, such as hot epsom salt compresses. I was instructed never to irrigate a discharging ear but to leave it alone and let it discharge. Please omit name.

M.D., New Jersey.

**ANSWER.**—In the presence of an acute otitis media the discharge in the external auditory canal may be treated either by the dry method—mopping it up with absorbent cotton—or by the wet method—flushing the canal with some mild antiseptic fluid such as a saturated boric acid solution.

In acute suppurative otitis media the pathologic condition is such that it is not likely that any of the irrigating solution will enter the middle ear; hence the fallacy of using highly recommended expensive antiseptics. The irrigation is merely a mechanical method for obtaining the result desired. The situation is entirely different when one deals with a chronic suppurative otitis. In chronic suppurative otitis, cholesteatoma is frequently present. Watery solutions in the external auditory canal may enter the middle ear and cause the cholesteatoma to swell, and occasionally under such circumstances serious if not fatal complications may result. Hence aqueous solutions are forbidden according to the best teachings.

If the discharge in the presence of chronic otitis media is such that irrigations are deemed necessary, one should use alcohol solutions. Alcohol is a dehydrating agent and will not cause the cholesteatoma to swell, provided the concentrations used vary from 60 per cent upward. It is perfectly proper, however, to use alcohol drops in the presence of chronic suppurative otitis media, and they may also be used in the last stages of acute otitic suppuration. It seems clear that the statement that a discharging ear should never be irrigated is not altogether true. Within the limitation given, it is perfectly proper to wash out the external auditory canal.

#### REGROWTH OF PROSTATE AFTER ENUCLEATION

*To the Editor:*—A man, aged 70, has occasional painless hematuria. He says that he had an enucleation of the prostate fourteen years ago. The surgeon is now dead but his son, who is carrying on the practice, reports two other cases that his father had treated with enucleation, in men younger than the average prostatic patient, who have returned to him with benign hypertrophies after ten and eighteen years respectively. On physical examination of this one patient I find a smooth, hypertrophied left lobe and a smaller and somewhat roughened right lobe, with slightly increased density. A 15 ounce residual urine was found, a soft rubber catheter having been introduced without difficulty. I have attended this patient for the past eight months, during which time he has had a bronchopneumonia with apparent complete recovery, followed by hemorrhage from a peptic ulcer. The latter condition has progressed satisfactorily to date. Can you give me any information regarding regrowth of the prostate? Do you advise enucleation at this time? Your comments on this subject would be greatly appreciated. Please omit name.

M.D., New Hampshire.

**ANSWER.**—Regrowth of the prostate gland following its surgical removal is not at all uncommon. It is usually impossible to remove all the prostatic tissue at operation, and hyperplasia of the remaining tissue occurs to a varying degree in a large number of cases. As a rule the regrowth is slight and causes no symptoms, but evidence of postoperative urinary obstruction is noted in possibly 5 per cent of cases. Usually such obstruction does not take place until ten or fifteen years following enucleation, and it occurs more frequently in patients who were under 60 years of age at the time of operation.

Removal of the prostatic obstruction is undoubtedly indicated. With perfection of the methods of transurethral resection there is no reason why another enucleation should be performed in this patient. A transurethral resection, if done by a man who has had considerable experience in this field, should be accompanied by comparatively little risk to the patient, and the function of his bladder should be restored to normal. Curiously enough, transurethral resection has been inadequately developed in some sections of the country. However, the excellent results which usually follow this operation make it the method of choice.

Before anything is done, an examination should be made to determine the cause of the patient's painless hematuria. Although hematuria is often of prostatic origin, the possibility of a neoplasm or possibly a nonopaque calculus in the bladder cannot be excluded without cystoscopy. If there are clinical data which would suggest that the hematuria might be of renal origin, an excretory urogram or, better, a retrograde pyelogram will usually exclude this possibility.

#### CHRONIC PROSTATITIS

*To the Editor:*—A white man, aged 24, became infected with gonorrhea seven years ago. He received treatment at that time, consisting of "pills" orally and self hand injections once daily for four months until the discharge ceased. For the next three months he received prostatic massage. No sounds were used. The patient was told that he was cured. Three years later he married. About one year after marriage, or after four years of being symptom free, he had a recurrence of the white penile discharge. He went to another physician and was treated for one month by means of intra-urethral self hand injections. At the end of one month the discharge stopped and his physician said that the discharge "would dry up." A smear at this time showed few pus cells and no organisms. The patient was symptom free for the next two years, when he again developed a urethral discharge. He went to another physician, whose treatment was the same as that described but in addition he passed sounds about three times. During this treatment a left cervical abscess developed. While the patient went to the hospital for treatment of this condition the urethral discharge persisted for the next two months. After leaving the hospital he resumed his gonorrheal treatment, which lasted several months until October 1935, when the discharge from the urethra ceased. A smear at that time showed nothing. The patient was then symptom free until February 1936, when he consulted me. At that time a urethral discharge developed. A smear showed only a few pus cells and no organisms. During my treatment, which consisted of prostatic massage and the passage of sounds with instillations of 1 cc. of 0.5 per cent silver nitrate into the posterior urethra through an Ultzman tube, the discharge has stopped. The discharge is present only after prostatic massage. The prostate is normal in size and is not tender. He has refrained from the use of alcohol but continues his sexual relationship. I would greatly appreciate it if you will criticize this case from beginning to end and offer your opinion as to any further procedure to be taken. The patient's wife has not developed any symptoms referable to gonorrhea. Please omit name if printed.

M.D., New York.

**ANSWER.**—A recurring urethral discharge of this type usually has its origin in a chronic infection of the prostate gland. The possibility of recent reinfection, of course, is not excluded. Bacterial study of a discharge persisting many years after an initial gonorrheal infection seldom reveals the presence of *Neisseria gonorrhoeae*. In order to make certain, however, it would be well to take cultures of the discharge for *Neisseria gonorrhoeae*, since recent technical advance in its culture has made this method remarkably accurate.

Chronic, recurring infection of the prostate gland may be difficult to eradicate. A thorough and repeated study should be made of the prostatic secretion, note being made of the cellular contents as well as gram stains and cultures. Although only a few pus cells may be found on preliminary massage, subsequent massage may disclose evidence of considerable prostatic infection. A course of vigorous prostatic massage over a period of two or three months would then be indicated. Dilating the urethra with sounds and deep urethral injections may also be employed. Although chronic prostatic infection is probably favored by a previous gonorrheal infection, it occurs fully as often without such involvement. Chronic prostatitis may be secondary to infection elsewhere, as in the teeth and tonsils. It would be advisable to search for such foci and remove them if found.

If the discharge persists in spite of the treatment suggested, it would be advisable to make a cysto-urethroscopic examination in order to exclude first the possibility of infection in the upper urinary tract and also to localize the condition of the prostatic urethra. If dilated ducts exuding purulent secretion are seen in the prostatic urethra, this would indicate active prostatic infection and the possibility of a duct abscess. If evidence of a localized abscess is found, transurethral incision of the ducts would be indicated. If no surgical condition is found and

A Dissertation on the Sensible and Irritable Parts of Animals. By Albrecht von Haller. [London, J. Nourse, 1755]. Introduction by Owsei Temkin. Boards. Price, \$1. Pp. 49, with one illustration. Baltimore: Johns Hopkins Press, 1936.

Following a brief introduction to the topic by Owsei Temkin in which is told a little of the life of the famous von Haller, this book provides a reprint of one of von Haller's most famous essays. It indicates how great a part he played in the development of experimental physiology.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Malpractice: Roentgen Burn.**—The defendant, a physician, utilized roentgen therapy in treating the plaintiff for a condition of the skin described as "eczema or some kindred ailment." Alleging that by reason of the defendant's negligence she sustained burns on her scalp, face, arm and breast, the plaintiff brought suit. The trial court gave judgment for the plaintiff, which the court of civil appeals, Texas, affirmed after requiring a remittitur (62 S. W. (2d) 600; abstr. *THE JOURNAL*, March 24, 1934, p. 960). The defendant then appealed to the Supreme Court of Texas.

It was undisputed, said the Supreme Court, that, at the time the plaintiff called on the defendant for medical treatment, she was suffering from eczema or some kindred ailment. The plaintiff's evidence tended to show that as the result of the roentgen treatment she sustained roentgen burns, that she had lost her hair, which at the time of the trial had been partially restored, that the skin on her face, arms and breast had "peeled off," leaving the surface sensitive and irritable, and that she had suffered physical and mental pain as a consequence of her injuries. The defendant, on the other hand, offered evidence tending to show that the plaintiff's condition at the time of the trial was due to "eczema or some disease of that type." On appeal, the defendant contended that the trial court had erred in refusing to present the following special issues to the jury:

Is Mrs. Rachel La Grone's condition the result of a disease known as eczema?

Is Mrs. Rachel La Grone's condition the result of some disease other than the application of the x-ray?

It is obvious, said the Supreme Court, that these requested charges were not correct, and, if answered in the affirmative, would not have constituted a complete defense to the plaintiff's case. Even if the plaintiff's condition at the time of the trial was due to eczema, nevertheless she could have suffered various injuries as a result of the burns, as claimed by her, and her condition could have been materially different at the time of the trial from what it was, as shown by her testimony, immediately after the treatment. The question really resolved itself into an inquiry as to what extent, if any, the eczema contributed to the injuries suffered by the plaintiff, and this question was not raised in the special issues which the defendant requested be given to the jury. The Supreme Court could find no reversible error in the record and affirmed the judgment of the court of civil appeals.—*Kenny v. La Grone (Texas)*, 93 S. W. (2d) 397.

**Malpractice: Criteria of Standard of Skill and Care Required of Physicians.**—The Columbia Health Foundation sold "health and medical services and hospitalization" for a stipulated sum per month. The Angelus Hospital Association, also referred to in the record as R. B. Jenkins, Inc., operated a hospital wherein it "took care of the customers" of the Health Foundation for a stipulated sum. Dr. R. B. Jenkins was the president of the corporation hospital, the principal owner of its stock, and its general surgeon. The plaintiff was apparently a "customer" of the Health Foundation and his wife was admitted to the hospital for her confinement. The baby developed impetigo and subsequently died, whereupon the plaintiff sued the Health Foundation, the hospital corporation, and certain physicians employed by the hospital, alleging negli-

gence in permitting the baby to contract impetigo, in treating it thereafter, and in discharging the plaintiff's wife and her baby at a time when the baby was still suffering from "an acute attack of impetigo." The plaintiff obtained judgment against all the defendants, who, with the exception of those connected with the Health Foundation, appealed to the district court of appeal, second district, division 1, California.

The principal issue raised on appeal had relation to the form in which a certain hypothetical question was put to an expert witness for the plaintiff. The vice attributed to the question was that it sought from the witness an opinion as to whether the particular physician whose alleged negligence was at issue had exercised that degree of skill, care and learning ordinarily possessed and exercised by physicians and surgeons practicing in Los Angeles in the treatment of similar conditions. Technically, said the court, the appellants' objection was correct. When a hypothetical question is put to an expert witness the evidence sought is not what the witness personally thinks of what was or was not done, not whether he would do or omit to do the particular act or omission charged as negligence, not whether the actual physician in the case was negligent in the commission or omission charged, but whether, in the opinion of the witness, a physician of ordinary attainments practicing in the same locality and using ordinary skill and care would have done or failed to do the thing charged. An expert witness, continued the court, gives his opinion with respect to whether the doing or not doing of a certain thing conforms to what a hypothetical physician, endowed with ordinary skill and learning and exercising ordinary care and prudence, practicing in the locality in question, would or would not do. Such an opinion, in legal supposition, is different from saying that the actual physician in a given case is skilled or unskilled, careless or careful. The expert's opinion sets up for the use of the jury or the court a hypothetical physician, by which the jury or court may test the skill of and the care used by the physician actually involved. While the hypothetical question propounded in this case did seek to elicit from the expert witness an opinion as to whether or not the particular physician exercised the required degree of care, the court was of the opinion that the objectionable form of the question did not constitute prejudicial error because, in answering the question, the witness stated: "The treatment differs from the usual treatment of these conditions." This answer, the court said, gave the jury exactly the information that the question should have called for if it had been framed correctly. While the question was incorrectly framed, the answer itself did not constitute an invasion of the province of the jury.

The appellants contended also that the plaintiff's contract called only for obstetric services to the plaintiff's wife and did not require any care for the baby. Such a distinction, the court said, is too strained to be substantial. When an obstetrician undertakes to deliver a woman of a baby, he may not devote his entire attention at the time and during the hospital confinement to the mother alone. It should be said, pointed out the court, in justice to the physicians involved in this case that they undoubtedly felt under obligation to care for the baby, since they did proceed to look after it.

The record in this case, concluded the court, substantially supported the jury's verdict for the plaintiff. The judgment of the trial court was therefore affirmed.—*Criss v. Angelus Hospital Assn. of Los Angeles (Calif.)*, 56 P. (2d) 1274.

## Society Proceedings

### COMING MEETINGS

- American Orthopsychiatric Association, New York, Feb. 18-20. Dr. George S. Stevenson, 50 West 50th St., New York, Secretary.
- Annual Congress on Medical Education, Medical Licensure and Hospital Administration, Chicago, Feb. 15-16. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.
- Pacific Coast Surgical Association, Seattle, Wash., and Victoria, B. C., Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.
- Southeastern Surgical Congress, Louisville, Ky., March 8-10. Dr. Benjamin T. Beasley, 478 Peachtree St. N.E., Atlanta, Ga., Secretary.
- Western Section, American Laryngological, Rhinological and Otolaryngological Society, San Diego, Calif., Jan. 30-31. Dr. David R. Hixson, 2105 Fourth Ave., San Diego, Calif., Chairman.

PAIN IN COSTOCHONDRAL JUNCTION AFTER  
A FALL

To the Editor:—A white man, aged 40, fell a distance of about 4 feet while carrying two heavy pails of gasoline, about eleven months ago; he landed hard on his heels and immediately fell down, although retaining consciousness. As a direct result of the fall, landing on his heels, and continuing his hold on the pails, he felt a sharp stabbing pain in the region of the sixth or seventh costochondral junction on the right side. He was strapped for several weeks but continued to have this recurrent pain, which appears to shoot upward along the right sternal margin, across to the precordium, and is aggravated by any movement of the right arm which involves abduction. Roentgenograms taken at the time of the injury and repeatedly since reveal no demonstrable injury. Shortly after the accident he "vomited" up several pieces of tissue that looked like liver and has had no more attacks of vomiting. At the present time there is still pain and "clicking" in this region on abduction of the right arm, and any attempt at work (ordinary labor and truck driving) causes rapidly increasing pain in the area and some vertigo. The patient has been told at several clinics that he is suffering from hypoglycemia, bronchitis and nerves. But how can one explain the present disability, the persistent soreness over the sixth costochondral junction, the recurring click in the region? My diagnosis is "chronic subluxation of the right sixth costochondral junction with traumatic neurosis." Kindly omit my name.

M.D., Michigan.

ANSWER.—If this is a compensation case, the patient's progress will be delayed.

If the location of the click can be accurately determined or demonstrated by the stethoscope, exploration is advisable. Rupture of the diaphragm may enter into the discussion. There may be a vertebral injury. Are there any other evidences of neurosis? Roentgenograms made from various angular projections or stereoscopically may be helpful. The arm should be adducted and abducted during successive exposures. The measures of treatment that may be considered are physical therapy, a compression band, a brace, living suture with fascia lata and a fusion operation.

## PAPILLOMA OF BREAST

To the Editor:—A woman, aged 28, about 5 feet 8 inches (173 cm.) in height, weight 220 pounds (98 Kg.), began to menstruate at the age of 13; the menses were regular and normal. At 14 she had an appendectomy, at 19 a tonsillectomy and at 21 a double salpingectomy because of pus in the tubes, apparently due to a mixed infection of gonococcus and staphylococcus. About three years ago, when 25 years of age, she had a hysterectomy because of severe dysmenorrhea and menorrhagia. A few months later there started a bloody, serous discharge from the right nipple, which lasted off and on for a few months. No tumor mass was found and the condition cleared up and has not bothered her since until last week. Now it has begun again. No tumor mass is found at the present time. She has a tired feeling in her arms and shoulders and a feeling of numbness of the skin over both breasts and up through to the clavicle. Her breasts are large and pendulous from excessive fat. She carries them well supported, but not much compressed, by a supporting type of brassière. What treatment would you advise? Is there any great probability of this becoming carcinomatous or malignant? Please omit name and address.

M.D., Minnesota.

ANSWER.—The trouble is probably an intercanalicular papilloma of the breast. This is ordinarily a benign growth, commonly so small that it is not palpable. Surgical intervention is preferable to palliation, because there is a rather high incidence of malignancy in such cases.

It is true that there is a close interrelationship between diseases of the ovary and disturbances of the mammary glands. But vicarious menstruation, such as might be thought of in this connection, probably does not occur; at least it is not accepted as a clinical entity by leading gynecologists. Other disturbances of the breasts ascribable to genital stimulation would scarcely be sufficient to produce a bloody discharge from the nipples.

## RAREFYING CONDITIONS OF BONE

To the Editor:—An atrophic condition of the bones of the elbow is present. I am concerned chiefly with the possible causes that may be responsible. I am especially interested in what is known as Leriche's disease of bone. The irregularity of the condyle is due to perforation of the osteoporotic areas through the cortex and not to an old fracture. Any further information and references to Leriche's disease of bone will be appreciated. Please omit name.

M.D., New York.

ANSWER.—Leriche's or Sudeck's disease is discussed by King in his book "Rarefying Conditions of Bone," pages 293-307. It may be caused by trauma to nerves or to the vascular system, by disuse or by infection. It also may be reflex ("trophic").

"Leriche has very clearly stated a view which is a modification of the trophic theory. He showed that resorption of bone was often associated with an increased blood supply, and he maintained that bone resorption always occurred as the direct

result of augmentation of the blood flow. He also states that diminution of the blood supply results in sclerosis.

"This increase in the blood supply he regards as being the result of a vasomotor reflex—'des reflexes d'axone traumatique.' Although all of Leriche's statements cannot be accepted in their entirety, his contribution is one of the most valuable of recent times."

Further information on this subject may be obtained from Leriche's original articles, which are as follows:

1. Leriche, R.: Sur quelques maladies osseuses et articulaires d'origine vasomotrice et sur leur traitement, *Bull. et mém. Soc. nat. de chir.* 53: 1022 (July 16) 1927.
2. Leriche, R.: Osteoporose bi-épiphysaire du genou, prise pour une tuberculose: Guérison par injections d'extrait ovarien; Résultat datant de vingt-sept mois, *ibid.* 58: 434 (March 12) 1932.
3. Leriche, R., and Policard, A.: Les Problèmes de la physiologie normale et pathologique de l'os, Paris, Masson et Cie, 1926.

## TREATMENT OF SYPHILIS

To the Editor:—A man, aged 52, whose weight was about 190 pounds (86 Kg.), complained of severe tinnitus that had existed more than twenty-five years. I found positive Argyll Robertson pupils and the blood Wassermann reaction 4 plus. It is remarkable that nothing of that kind had been found in former examinations by known and experienced physicians. The patient didn't show other signs. The knee jerks were normal. There was no Rosenberg sign. After a course of ten intramuscular injections of iodobismutol twice a week, he felt much improved. May I after a pause of four weeks continue with a combined bismuth-nearsphenamine course—the latter first in doses of 0.15 Gm? Tryp-arsamide is contraindicated because an ophthalmologist has stated that especially one eye shows a considerable contraction of the visual field and enlargement of the blind spot. If possible, spinal puncture should be omitted. May I have your suggestions? Please omit name and address.

M.D., New York.

ANSWER.—It would be advisable to continue treatment with bismuth or mercury compounds and iodides. Because of the potential danger of optic atrophy in this case, the arsphenamines should be withheld, at least until several courses of the metals have been given. It may then be used with great care, provided the defects in the visual fields become stationary or improve. A mild treatment over a long period will be found to be more advantageous than a shorter intensive treatment. The possibility of the future use of fever should be kept in mind.

## TREATMENT OF WRIST DROP

To the Editor:—Please outline the correct treatment for wrist drop in a middle-aged woman. There is complete loss of the power of extension. The etiology seems quite certainly to be alcoholic neuritis. What is the prognosis? Will the wearing of a splint and removal of alcohol be sufficient to bring about recovery? If published, please omit name and place.

M.D., Connecticut.

ANSWER.—Many patients with drop wrist due to alcoholic neuritis make a satisfactory recovery. The internal use of alcohol should be prohibited. A cock-up splint should be applied along the flexor surface of the forearm, to the ends of the fingers, with the wrist bent backward (extended) at an angle of 35 degrees. This splint should be removed twice daily for massage and muscle training.

In case the paralysis of the extensor muscles should prove to be permanent, a satisfactory functional result can be attained by transplanting the flexor carpi radialis into the extensor tendons of the thumb, and the flexor carpi ulnaris into the extensors of the fingers. Some operators also transplant the pronator radii teres into the extensor carpi radialis longus and brevis.

This form of operative treatment is highly successful in cases in which the musculospiral (radial) nerve has been cut or destroyed but is not often required in cases of alcoholic neuritis.

## TOXICITY OF SNAKE ROOT

To the Editor:—I have a patient who from time to time takes Canadian snake root, which he chews for the purpose of eliminating the odor of alcohol on his breath. I am anxious to know whether or not there is any possibility of toxicity arising from this habit. If you have any information, I would appreciate receiving a reference covering this question. Kindly omit name.

M.D., Massachusetts.

ANSWER.—Canada snake root, or wild ginger, is official in the National Formulary as *Asarum*. It contains aromatic oil and resin, and it is no more toxic than Jamaica ginger. A brief description of the drug and its properties is to be found in "Pharmacotherapeutics" by Solomon Solis-Cohen and T. S. Githens, New York and London, D. Appleton & Co., 1928, page 821.

sensitiveness looked for in some cases of migraine. It seems probable that in some cases constipation is due to the irritation of the colon by certain foods, and in some the symptoms of cholecystitis, ulcer or appendicitis can be imitated with great fidelity. It does not seem logical to assume that most of the annoyances that follow the eating of particular foods are allergic in origin and due to protein. There must be druglike substances in certain foods which can upset the digestive tract in much the same way as a small dose of emetic or purgative. Whether or not one accepts the view that food sensitiveness is usually due to the protein in the food, the author cannot see why one should make strenuous efforts to purify the allergens used for skin testing. He believes that the best results should be expected with antigens obtained by the simplest treatment of the foods. It is neither logical nor necessary to keep a patient on a narrow elimination diet for weeks or months, as such diets are for diagnostic and not for therapeutic purposes. Sometimes positive skin tests can actually be a nuisance to both the patient and the physician as such blind and unswerving faith is put in them. The digestibility of a food may at times be much more important to a patient than is its content of vitamins or calcium or iron.

### American Journal of Hygiene, Baltimore

24: 447-604 (Nov.) 1936

- \*Antitoxin Content of Serum Two Years After Antidiphtheria Inoculations. F. Faragó, Budapest, Hungary.—p. 447.
- Tuberculin Survey of Upper Aucaner Bush Negroes in Dutch Guiana. M. C. Kahn, New York.—p. 456.
- Epidemiology of Human Ascariasis in Metropolitan Area of New Orleans, Louisiana. W. H. Headlee, New Orleans.—p. 479.
- Study of an Outbreak of Type II Pneumococcus Pneumonia in the Veterans' Administration Hospital at Bedford, Mass. W. G. Smillie, Boston.—p. 522.
- Tuberculosis Incidence Among White Persons and Negroes Following Exposure to Disease. Persis Putnam, Philadelphia.—p. 536.
- Study of Diarrhea and Dysentery in Henrico County, Virginia. G. F. McGinnes, A. L. McLean, F. Spindle and K. F. Maxcy, Richmond, Va.—p. 552.
- Diphtheria in Baltimore: Comparative Study of Morbidity, Carrier Prevalence and Antitoxic Immunity in 1921-1924 and 1933-1936. W. H. Frost, M. Frobisher Jr., V. A. Van Volkenburgh and M. L. Levin, Baltimore.—p. 568.
- Is There Dermatitis in Egyptian Schistosomiasis? C. H. Barlow, Cairo, Egypt.—p. 587.

#### Antitoxin in Serum After Antidiphtheria Inoculations.

—In terms of antitoxin units per cubic centimeter of serum, Faragó observed that the average antitoxin serum content of blood, tested two years after immunizing inoculation with Ramon toxoid and toxoid precipitate, of individuals from four different districts of Hungary, was 0.68 for a group of forty-nine individuals, 0.257 for fifty, 0.562 for forty-seven and 0.567 for fifty-five. In the four groups subjected to tests the serum antitoxin content corresponded to the results of Schick reactions, although in one group the correspondence was not close. The level at which both Schick positive and negative reactions were obtained in three groups was 0.009 antitoxin unit per cubic centimeter of serum. Owing to probable technical errors it was impossible to define a level in the other group. Two years following immunization, immunity in three groups averaged, according to Schick reactions, 91.4 per cent, and according to antitoxin determination, 90.73 per cent. In one group the corresponding percentages were 86 and 76 per cent.

### American Journal of Ophthalmology, St. Louis

19: 951-1052 (Nov.) 1936

- New Operation for Chronic Glaucoma: Restoration of Physiologic Function by Opening Schlemm's Canal Under Direct Magnified Vision. O. Barkan, San Francisco.—p. 951.
- Investigation of Angular Relation of Visual (Visierlinie) and Optic (Corneal) Axes of the Eye. G. E. Park, Chicago.—p. 967.
- Observations on Reducing Substances (Glucose) of Aqueous and Vitreous Humors of the Eye. W. M. James and A. J. Siefker, St. Louis.—p. 975.
- Keratoconjunctivitis with Adenitis in Calcutta. S. Sanyal, Calcutta, India.—p. 982.
- Orthoptic Treatment of Strabismus. J. L. Bressler, Houston, Texas.—p. 989.
- Visual Tasks in Sight-Saving Classes. M. Luckiesh and F. K. Moss, Cleveland.—p. 992.
- Failures and Successes in Operative Treatment of Detachment of Retina. T. D. Allen, Chicago.—p. 1000.

### American Journal of Physiology, Baltimore

117: 381-576 (Nov.) 1936. Partial Index

- Ovarian Hormone Threshold for Experimental Menstruation in Monkeys. E. Allen, A. W. Diddle, T. H. Burford and W. U. Gardner, New Haven, Conn.—p. 381.
- Tetany of Estrus in Parathyroidectomized Dog. E. I. Evans, S. Szurek and R. Kern, Chicago.—p. 405.
- Cardiovascular Reactions Induced by Electrical Stimulation of Cerebral Cortex. E. C. Hoff and H. D. Green, New Haven, Conn.—p. 411.
- Effect of Intravenous Administration of Protamine Insulin. B. B. Longwell and A. Ravin, Denver.—p. 453.
- Measurement of Serum Volume. F. W. Sunderman and J. H. Austin, Philadelphia.—p. 474.
- Effect of Lactation and Exercise on Rate of Involution of Uterus in Rat. Elizabeth Abbott and A. C. Ivy, Chicago.—p. 487.
- Crossed Respiratory Impulses to Phrenic. A. Rosenbluth and T. Ortli, Boston.—p. 495.
- Thyrotropic Effect of Pituitaries from Cretin Rats. I. T. Zekwer, Philadelphia.—p. 518.
- Origin of Fecal Fat in Absence of Bile, Studied with Deuterium as an Indicator. A. Shapiro, H. Koster, D. Rittenberg and R. Schoenheimer, New York.—p. 525.
- Comparison of Chemical Composition of Stimulated and Resting Saliva of Caries-Free and Caries-Susceptible Children. J. White and R. W. Bunting, Ann Arbor, Mich.—p. 529.
- Gastric Acidity Following Partial Gastrectomy and Vagotomy. C. M. Wilhelmj, H. H. McCarthy and F. C. Hill, Omaha.—p. 533.
- Further Study of Relation of Adrenal Cortex to Vitamin C. Julia E. Lockwood, Buffalo; D. R. Swan, Columbus, Ohio, and F. A. Hartman, Buffalo.—p. 553.

### Archives of Ophthalmology, Chicago

16: 733-918 (Nov.) 1936

- \*Treatment of Retinal Gliomas by Fractionated or Divided Dose Principle of Roentgen Radiation: Preliminary Report. H. E. Martin and A. B. Reese, New York.—p. 733.
- Biochemistry of Lens: IX. Influence of Vitamin C and Sulfhydryl on Production of Galactose Cataract. J. G. Bellows, Chicago.—p. 762.
- Complications of Forceps Intracapsular Operation for Cataract: Based on Analysis of 500 Successive Cases. A. Knapp, New York.—p. 770.
- Dermoid Cysts of Orbit. B. Samuels, New York.—p. 776.
- Comparative Anatomy of Eye. A. Hagedoorn, Amsterdam, Netherlands.—p. 783.
- Bilateral Metastatic Carcinoma of Choroid: Successful Roentgen Treatment of One Eye. A. N. Lemoine and J. McLeod, Kansas City, Mo.—p. 804.
- Method for Correction of Entropion in Trachomatous Patients, with Particular Attention to Esthetic Results. A. Busacca, São Paulo, Brazil, South America.—p. 822.
- Anomalous Ophthalmic Artery with Ocular Symptoms. A. O. Pfingst, Louisville, Ky.—p. 829.
- Neosynephrin Hydrochloride: Some Uses and Effects in Ophthalmology. P. Heath, Detroit.—p. 839.
- \*Early Ocular Complications of Epidemic Meningitis. N. K. Lazzar, Chicago.—p. 847.

#### Treatment of Retinal Gliomas by Roentgen Radiation.

—Since a few small or massive doses of radiation had not given reasonable success in the treatment of retinal gliomas in the past, Martin and Reese employed a highly fractionated large total dose. To spare the eye from the undesirable and even serious effects of a large dose of radiation, they used small circular portals, accurately directed so as to confine the beam of roentgen radiation as much as possible to the region of the growth itself. The radiation was given as frequently and in as large doses as was compatible with the maintenance of the integrity of the local normal structures and with the health and comfort of the child. Up to this time, in a series of six consecutive cases, they have had no failures. In two patients the disease has been controlled for three years with satisfactory vision in the treated eye. The final proof in the permanent control of retinal glioma must await the time when several cases have passed the five year period.

**Ocular Complications of Epidemic Meningitis.**—Lazzar encountered thirty-three cases of ocular complications of major importance in a total of 266 cases of meningitis occurring in 1933. During the early part of this year it had been customary to inject the antimeningococcus serum only intraspinally. This may have accounted for the large number of ocular complications seen during this period. About the middle of March the patients received the serum intravenously in much larger quantities. From then on during 1933 the number of ocular complications was reduced considerably. Most of the patients with the complication of paresis of the external rectus muscle still had the paresis on discharge from the hospital. Some of these

## Book Notices

**Diseases of the Air and Food Passages of Foreign-Body Origin.** By Chevalier Jackson, M.D., Sc.D., F.A.C.S., Professor of Bronchoscopy and Esophagoscopy, Temple University, and Chevalier L. Jackson, A.B., M.D., Sc., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University. Cloth. Price, \$12.50. Pp. 994, with 2,000 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

The Jacksons have added another stone to the monumental edifice they have erected in a long and brilliant career begun by the elder and collaborated in by the younger. It is a volume that should be read by every internist, pediatrician and laryngologist because it deals with problems of vital interest to all. That the spreading of this knowledge, the result of pioneering in a previously obscure field and the fruit of painstaking investigation with an enormous mass of material, is sorely needed can be justified by the startling statement of the authors that they had treated more than 400 cases of foreign bodies in the air and food passages in which the diagnosis had been overlooked prior to admission to their care. After reading this book physicians must of necessity become propagandists in the cause of prevention, since the authors in discussing etiology have shown that 87 per cent of foreign bodies gain access to the trachea and air tracts through carelessness. This applies particularly to the aspiration or swallowing of various objects by young children, who instinctively put everything into their mouths that their hands can grasp. This is certainly a field for the education of parents. On the subject of diagnosis the authors stress the tremendous value of proper x-ray examination in all doubtful cases of pulmonary or esophageal disease in which there is even the remotest possibility of a foreign body being present despite a negative history. Every type of foreign body that has ever been aspirated or swallowed is described with reference not only to the mode of entrance but also to the mechanism of its lodgment and the reasons for the presence or absence of symptoms as well as the pathologic changes induced. Objects of the same type in the same location produce different symptoms according to the length of their sojourn, and such cases are reviewed side by side with such clarity that the parallel once seen and studied yields a lesson that can never be forgotten. Beautiful color drawings executed by the elder Jackson illustrate these points beyond all words of description. The problems attendant on the removal of foreign bodies are thoroughly discussed from every angle and the authors furnish the most minute details pertaining to each type and location of foreign body. Even the experienced bronchoscopist as well as the occasional operator will find this section of the book a welcome refuge in time of trouble.

Finally, the listing of 3,000 cases arranged in groups according to the nature of the foreign body with reproductions of photographs of the latter and the practical details associated with each case constitutes more than half of the volume and is a veritable storehouse of concrete knowledge which should instruct and guide the laryngologist through many a difficult situation.

**An Introduction to Psychological Medicine.** By R. G. Gordon, M.D., D.Sc., F.R.C.P., Physician to Royal United Hospital, Bath, N. G. Harris, M.D., B.S., D.P.M., Physician in Charge to Woodside Hospital, London, and J. R. Rees, M.A., M.D., D.P.H., Medical Director, Institute of Medical Psychology, London. Cloth. Price, \$4. Pp. 386. New York & London: Oxford University Press, 1936.

The term psychological medicine is used in England by several examining bodies who grant a diploma in psychological medicine (D.P.M.). This diploma is taken by medical graduates specializing in psychiatry and is elsewhere named Diploma in Psychiatry. This is therefore a textbook in psychiatry and is intended for the use of medical students. The five sections comprise psychology in relation to psychologic medicine, psychopathology, psychoneuroses, psychoses, and mental deficiency. The presentation is on conventional lines and is both clear and simple. The sections on treatment have been written in a practical way. The authors take the view that the treatment of mental illness is a subject for postgraduate study and hence they do not attempt to give details of psychotherapeutic treatment. This point of view is open to question and is somewhat surprising when one considers the emphasis being placed

by modern educators on the importance of psychiatry in the field of general medicine. With such considerations in mind, one might also have hoped that the section on psychoneuroses would have been lengthened at the expense of that on the psychoses. However, the book is in keeping with the modest number of lectures the authors suggest the students should have; that is, four or five lectures in psychology, three or four lectures in psychopathology, five lectures on the psychoneuroses, eight lectures on the psychoses, and two on mental deficiency. One must note that the two chapters covering the laws relating to mental disorders and to the legal, educational and social implications of mental deficiency apply to practices and facilities as they exist in England. As an elementary book for the medical student, the volume has many merits and can be recommended.

**The Clinical Use of Digitalis.** By Drew Luten, A.B., M.D., Associate Professor of Clinical Medicine in the Washington University School of Medicine, Saint Louis. Cloth. Price, \$3.50. Pp. 226. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1936.

President Andrew Jackson once wrote that he had sworn to uphold the constitution "as he understood it, and not as it was understood by others." Similarly, in this book Dr. Luten has presented the case for the clinical use of digitalis as he sees it. This statement must not be looked on as adverse criticism. The case is well presented; but when any one deals with so controversial a subject as this, any presentation will receive criticism in some quarters and the subject will remain controversial until the experimentalist and the clinician find some way to meet on common ground.

The book first considers the pharmacologic effect of digitalis on the heart muscle, the auriculoventricular tissues and the pacemaker. The diuretic effect, or, rather, the lack of it, blood vessel and blood pressure phenomena, and alterations in the electrocardiogram are briefly discussed. Toxic manifestations are listed. The remainder of the book, well over half of it, deals with the indications for the use of digitalis, its use in special situations, and its dosage and method of administration. Dr. Luten states that the one essential indication for the use of digitalis is congestive heart failure. In any other instance its efficacy may be questioned but never in this one. He believes that the beneficent action comes about almost wholly because of the effect on the ventricular muscle. Even in auricular fibrillation this effect plays a more important part than does the effect on the conducting tissues. He predicates this statement largely on his observation that it is almost impossible to slow the ventricular rate in auricular fibrillation when congestive failure is not present. This statement will not go unchallenged. In view of his insistence on the direct muscle action as the agent which produces the favorable result, it seems inconsistent to point out that a better result is to be expected from the use of the drug in one type of heart failure when compared with another type. He states that the response in coronary hypertensive disease failure is better than that in rheumatic disease failure. If this statement is true and his original thesis is correct, such a response would indicate only a greater destruction of muscle in rheumatic disease. The drug still affects the heart muscle and not the disease that produces the heart muscle damage.

Dr. Luten states that all evidence points to the fact that digitalis brings about an unchanged or a diminished volume output except in cases of heart failure. This observation does not fit in with his willingness to use digitalis in instances in which no failure is present but its onset may be suspected. In no place does he mention the irritant action of digitalis except as a toxic phenomenon. It has been suggested that digitalis should be used with caution in those instances in which the heart muscle is inclined toward excessive irritability. Dr. Luten apparently does not subscribe to this view. All these differences of opinion are at once forgotten when the chapters on dosage and administration are read. If one decides to give digitalis, one needs only to read the advice given here and the treatment will be correctly carried out. The book may be read with profit by all students and practitioners and will be especially valuable to those who have not had the opportunity to follow the recent voluminous literature dealing with the subject.



normal value was approximated. These observations indicate that the products of tissue protein catabolism can be utilized in the formation of new serum protein. The experimental production of what seems to be an inhibition of the serum protein regenerating mechanism suggests that the most profitable line of approach to solution of the problem of hypoproteinemia lies not so much in the evaluation of dietary factors as in finding a way for stimulating internally the serum protein regenerating mechanism, which seems to involve in some manner the capacity of the tissue to furnish protein for the needs of the plasma.

### Journal of General Physiology, New York

20: 145-310 (Nov. 20) 1936. Partial Index

- Studies on Cell Metabolism and Cell Division: I. Relation Between Molecular Structures, Chemical Properties and Biologic Activities of Nitrophenols. G. H. A. Clowes and M. E. Krah, Woods Hole, Mass.—p. 145.
- Id.: II. Stimulation of Cellular Oxidation and Reversible Inhibition of Cell Division by Dihalo and Trihalophenols. M. E. Krah and G. H. A. Clowes, Woods Hole, Mass.—p. 173.
- Intensity Discrimination in Human Eye: I. Relation of  $\Delta I/I$  to Intensity. J. Steinhardt, New York.—p. 185.
- Effect of Hemolytic Substances on White Cell Respiration. E. Ponder and J. Macleod, Cold Spring Harbor, Long Island, N. Y.—p. 267.

### Journal of Immunology, Baltimore

31: 347-420 (Nov.) 1936

- Study of Blood Grouping Factors in Horses. V. A. Herman, Kharkov, U. S. S. R.—p. 347.
- Alum-Precipitation of Diphtheria Toxoid (Improvement of Diphtheria Alum-Toxoid). K. Ando, T. Komiya and K. Manako, Dairen, Manchuria.—p. 355.
- Active Immunization Against Tetanus Infection with Refined Tetanus Toxoid. D. H. Bergey and S. Etris, Philadelphia.—p. 363.
- Active Immunization to Scarlet Fever by Intracutaneous Method. J. H. Robinson, Huntington, W. Va.—p. 373.
- Blood Grouping of 336 Upper Aucaner Bush Negroes and Seventy Alukuyana Indians in Dutch Guiana. M. C. Kahn, New York.—p. 377.
- \*Observations on Interpretation of Schick Tests: Comparison of Schick Test Interpretations Using Different Products on the Same Individual Simultaneously. K. F. Brandon and D. T. Fraser, Toronto.—p. 387.
- Observations on Dissociation of Meningitic Strains of Haemophilus Influenzae. L. D. Fothergill and Caroline A. Chandler, with technical assistance of Margaret Spencer, Boston.—p. 401.
- Further Studies on Relation of Heterophile Immunity to Incidence of Colds. G. E. Rockwell and H. C. Van Kirk, Cincinnati.—p. 417.

**Interpretation of Schick Tests.**—Brandon and Fraser determined whether there was consistent agreement between the reactions to different Schick products of licensees of the Treasury Department of the United States. Of the eighty-seven individuals Schick tested each with six different products, thirty (34 per cent) showed inconsistencies and twenty-three (26 per cent) showed frank disagreement in the readings. Reactions to the toxins of the Schick outfits were remarkably consistent with the exception of one product. Errors in interpreting the "Schick immunity" were usually due to the inconsistent reactions ensuing on the Schick control. False interpretations of the Schick test are made most frequently in the group of persons skin sensitive to diphtheria protein. Products containing dilute toxoid as a Schick control were the only ones that resulted in no errors of interpretation of the Schick immunity of the persons tested. All products using heated toxin as a control gave some false results. The observations substantiate the fact that the antitoxin level of Schick immunity lies between 1/500 and 1/250 of a unit of antitoxin, when the Schick test material conforms to the standard recommended by the League of Nations.

### Journal Industrial Hygiene and Toxicology, Baltimore

18: 583-688 (Nov.) 1936

- Electroretor Dust and Smoke Meter. S. C. Blackin, Roundhay, Leeds, England.—p. 583.
- Design of Exhaust Hoods for Dust-Control Systems. T. Hatch, Boston.—p. 595.
- Toxic Organic Vapors and Gases. J. H. Foulger, Wilmington, Del.—p. 604.
- Laboratory of Industrial Toxicology. W. F. von Oettingen, Wilmington, Del.—p. 609.
- Industrial Hygiene Laboratory. W. A. Cook, Hartford, Conn.—p. 623.
- Carbon Monoxide Poisoning. C. K. Drinker, Boston.—p. 637.
- \*Heat Disease: Clinical and Laboratory Study. M. W. Heilman and E. S. Montgomery, Tarentum, Pa.—p. 631.
- Toxic Dusts and Fumes. L. T. Fairhall, Boston.—p. 668.

**Study of Heat Disease.**—Heilman and Montgomery present thirteen cases of heat disease (six of heat cramps, three of heat exhaustion, three of heat retention and one of mixed cramp

and exhaustion) selected as the most severe clinical forms of heat disease from a total of 184 cases. Heat regulation must be considered from the mechanism of heat production and of the factors involved in the control of heat production and from the mechanism of heat dissipation and of the factors involved in this process. Sensitiveness to external heat varies greatly in different individuals and may be increased by fatigue, alcohol, rich protein diet, gastro-intestinal disorders and particularly circulatory disease. Continued exposure to heat frequently appears to increase tolerance, but this may be explained for the most part by conservation of energy, increased muscular efficiency and more intelligent food intake. But there also are individuals in whom exposure to excessive heat of the sheet floor breaks down tolerance to heat, and symptoms of heat disease result. The heat retention cases were pathologic in that they did not react to the environment of the sheet floor in a physiologic manner. This failure of normal perspiration and heat regulation resulted in heat retention. The heat cramps and heat exhaustion cases differed from the control group of steel workers only in the severity of dehydration and chemical changes in the blood. It is rational that the failure of the thermolytic center causes an underactivity of heat dissipation and the excess heat is retained and accumulates to the point of producing clinical signs and symptoms. When the temperature exceeds 98.3 F., loss of heat by radiation and conduction ceases and external regulation of the body temperature depends solely on convection and evaporation of perspiration. The men who suffered with heat retention came to work, perspired profusely for a short time, usually only a few hours, and then ceased to sweat, while others came to work and could not perspire on the day they were admitted to the hospital suffering with heat retention.

### Journal of Pharmacology & Exper. Therap., Baltimore

58: 199-360 (Nov.) 1936

- Studies on Barbiturates: XIX. Analysis of Barbiturate-Picrotoxin Antagonism. T. Koppányi, C. R. Linegar and J. M. Dille, Washington, D. C.—p. 199.
- Pharmacologic Contributions to the Problem of Autonomic Control of Skeletal Muscle Tonus. S. Loewe, New York.—p. 229.
- Toxicity of Strychnine for Male and Female Rats of Different Ages. C. F. Poe, J. F. Suchy and N. F. Witt, Boulder, Colo.—p. 239.
- \*Studies of Cyclopropane: I. Quantitative Determination of Cyclopropane in Air, Water and Blood by Means of Iodine Pentoxide. B. H. Robbins, Nashville, Tenn.—p. 243.
- Id.: II. Concentrations of Cyclopropane Required in Air and Blood for Anesthesia, Loss of Reflexes and Respiratory Arrest. B. H. Robbins, Nashville, Tenn.—p. 251.
- Effect of Zinc and Aluminum on Hypoglycemic Action of Insulin. J. F. Fazekas and H. E. Himwich, Albany, N. Y.—p. 260.
- Temporary Paralysis of Vagus Mechanism in Turtle Heart by Sodium Citrate and Sodium Oxalate. G. D. Shafer, Stanford University, Calif.—p. 264.
- Paralyzing Effects of Sodium Citrate on Cardiac Vagus and on Heart Muscle of Cat. G. D. Shafer and J. M. Crismon, Stanford University, Calif.—p. 274.
- Quantitative Studies with Thyrotropic Hormone. W. K. Cuyler, B. F. Stimmel and D. R. McCullagh, Cleveland.—p. 286.
- Effect of Coffee and Decaffeinated Coffee on Oxygen Consumption, Pulse Rate and Blood Pressure. Kathryn Horst, R. J. Willson and R. G. Smith, Ann Arbor, Mich.—p. 294.
- Bile Acids in Icterus Produced by Toluidinamine. J. M. McGowan, J. L. Bollman and F. C. Mann, Rochester, Minn.—p. 305.
- Effect of Adrenalin on Duration of Ventricular Fibrillation in Cat After Administration of Ergotamine. D. C. Smith, Memphis, Tenn.—p. 312.
- Propylene Impurities: Hexenes and Hexanes. V. E. Henderson and A. H. R. Smith, Toronto.—p. 319.
- Note on Methylcholines. R. Hunt, Boston.—p. 328.
- Pharmacologic Action of Alkaloids of Funnaraceous Plants: III. Dicitriline Methine Hydrochloride. R. A. Waud, London, Ont.—p. 332.
- Comparative Study of Effects of Five Choline Compounds Used in Therapeutics: Acetylcholine Chloride, Acetyl Beta-Methylcholine Chloride, Carbaminoyl Choline, Ethyl Ether Beta-Methylcholine Chloride, Carbaminoyl Beta-Methylcholine Chloride. H. Maltby, Rahway, N. J.—p. 337.

**Quantitative Determination of Cyclopropane in Blood.**—Robbins studied the concentrations of cyclopropane in the blood necessary for anesthesia or for death. The method used was a slight modification of that used by Haggard and Greenberg for ethyl alcohol. The distribution ratio of cyclopropane between water and air over a temperature range of from 20 to 45 C. and that between blood and air over a temperature range of from 20 to 40 C. has been determined. The solubility of cyclopropane in the blood of the human being and the dog is

products and bacterial biologic products. The author has recognized the various changes that have taken place in pharmacognosy as well as those which have been incorporated in the latest editions of the United States Pharmacopeia and the National Formulary. The volume is of value to drug analysts and collectors of crude drugs and is an excellent work of reference for the physician who may desire information concerning the characteristics and constituents of crude drugs.

**Medicine and Mankind. Lectures to the Laity Delivered at the New York Academy of Medicine.** Edited by Jago Galdston, M.D. Introduction by Eugene H. Pool, M.D., President, New York Academy of Medicine. Cloth. Price, \$2. Pp. 217, with 6 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

A listener has frequently come away from a meeting enthusiastic about the principal speaker. In his enthusiasm he has expressed a wish that if he could but have a copy of the lecture he has just heard it would serve as an inspiration as well as excellent reading during leisure moments. In this book the listener's wish has been granted. A series of lectures that have been given at the New York Academy of Medicine has been brought together. The names of the various speaker-authors are well known and command respect. Their abilities are recognized and well established and require no comment. The reviewer was left with a feeling, on completing the book, that there was something lacking, something gone from each lecture, so that the reader, unlike the listener, had no exceptionally great desire for a copy of the "speech" nor had he any particular wish to hear the speech itself. The "something lacking" is the author. It is the author, or rather speaker, that puts across a talk. When that talk is transferred to the page it all too often produces little inspiration and falls into the class of just another bit of history.

**Oxidation-Reduction Potentials in Bacteriology and Biochemistry.** By L. F. Hewitt, Ph.D., B.Sc., F.I.C., Biochemist at the Belmont Laboratories, Sutton, Surrey. With a foreword by the Medical Officer of Health. London County Council, No. 3200. Fourth edition. Paper. Price, 2s. Pp. 101, with 27 illustrations. London: P. S. King & Son, Limited, 1936.

The theoretical considerations of oxidation-reduction potentials are identical with those given in previous editions. Apparatus and methods described are essentially the same as in former editions. A thermionic valve electrometer circuit for the measurement of biologic potentials is described briefly. The charts of dye indicators for potential measurements are increased in size and are evaluated to  $pH$  7. Studies on tumors, tissue cultures and yeast preparations have been added to the section on systems of special biologic interest. The section on bacteriologic applications has been brought down to date. Note is made of vitamin-like growth accessory substances and oxidation-reduction potentials in the making of cheddar cheese. New data are given on the potentials produced by members of the *Salmonella* and nonsporulating anaerobe groups. The monograph furnishes an excellent source of references for more detailed reading.

**How We Came by Our Bodies.** By Charles B. Davenport. Cloth. Price, \$3.75. Pp. 401, with 236 illustrations. New York: Henry Holt & Co., 1936.

The title is intriguing and would make the average reader-parent pick up the book. But he would put it down soon as being a little too difficult, a little too technical for his "average intelligence." As a textbook for college students it can be recommended. Even the average reader-parent will need a guide or instructor to help him. The author presents his subject in three parts. The first is the development of the single cell into the adult human being. The second part discusses in detail the structure of the cell, how the cells become differentiated, and the part played by heredity, genes, tramp cells and their migration. A chapter entitled "Meeting Stresses and Accidents" discusses twins, as well as making embryos develop abnormally. The third part deals with the origin of the various parts of the machinery of development. It deals with the genes and the mechanism by which they have been handed to us. Then the author discusses bacteriophages, mutations, cephalic index and albinism, as well as mutations in metabolism and hair length, blood groups and eye color. The physician today is concerning himself with sex education to a greater degree than formerly. He is constantly seeking aids

for this purpose. This book is not one that he can take from his shelf and hand to a harassed parent who is seeking an answer to the question just how do you have a baby? Cross sections of the Haversian system of a macerated human hip bone won't help him any more than tangential section of ramie fibers showing dextrose units.

**At the Point of a Lancet: One Hundred Years of the Canton Hospital, 1835-1935.** By William Warder Cadbury, A.M., M.D., F.A.C.P., Superintendent of the Canton Hospital, and Mary Hoxie Jones, B.A. Cloth. Price, \$2; 10s. Pp. 304, with 13 illustrations. Shanghai: Kelly & Walsh, Limited, 1935.

The figurative title of this work does not indicate its actual purport. The subtitle is, however, a statement of the real nature of the book. The volume is a record of one hundred years of the work of the Canton Hospital, an institution which has had a notable career in China, contributing not only to the actual care of the sick but also to the advancement of medical science. Among the graduates of the school at Canton was Dr. Sun Yat-sen, famous statesman of China, who died of cancer on March 12, 1935. Particularly interesting are the biographies of some of the famous persons associated with the school and the hospital. Dr. Cadbury in his concluding chapter indicates his belief that there will always be a future for the foreign doctor in China, particularly as the expert who opens up fields in a way in which only the missionary doctor can function.

**Diseases of the Eye.** By Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S., Consulting Ophthalmic Surgeon, University College Hospital, London. Eighth edition. Cloth. Price, \$5.50. Pp. 705, with 381 illustrations. New York: Macmillan Company, 1936.

The first edition of this justly popular textbook of ophthalmology was published in 1907 and public demand has forced the author to this, the eighth, edition, not including reprinting of the fourth and sixth editions. The difference between this and the previous edition can be best given in the words of the author which form the preface:

Though no very radical changes have been made in this edition and the same care has been taken to retain the relative importance of details so that the student and medical practitioner may view them in their proper perspective, it has been thought advisable to refer briefly to some modern advancements in treatment, such as the detached retina. Further, although the time is not yet ripe for estimating the future practical value of physiological and biochemical researches, some of them have been of such outstanding significance that it was deemed wise to draw attention to them. Among these one may mention the rôle of chemical substances, e. g., histamine and acetylcholine, in nerve stimulation, axon reflexes, vitamins, and viruses. Very encouraging advance has been made in our knowledge of the biochemistry of the lens, though it would be premature to assess its value for the etiology of cataract.

For the medical student and for the general practitioner, this book is of inestimable value, which is enhanced by the excellent illustrations. It is written by a master of ophthalmology and is based on his long practical experience.

**Psychiatrische Vorlesungen für Ärzte.** Von Prof. Dr. Kurt Schneider, Direktor des Klinischen Instituts der Deutschen Forschungsanstalt für Psychiatrie (Kaiser Wilhelm-Institut) in München. Second edition. Boards. Price, 6.20 marks. Pp. 196. Leipzig: Georg Thieme, 1936.

This compend discusses schizophrenia, cyclothymic psychosis, psychopathic personality, neurasthenia, hysteria, abnormal life reactions, mental abnormalities of children and young adults, suicide, psychosis due to internal diseases, brain diseases and epilepsy, psychiatric symptomatology and diagnosis, and psychiatric management. In an appendix Schneider discusses psychiatric system and structure of the psychosis as well as the diagnosis of schizophrenia and manic depressive insanity. The style is difficult because of the long and rather difficult structure of its sentences. There is an abundance of superfluous discussion. The bibliography is small.

**Das Ärztebüchlein: Eine Sammlung besinnlicher Worte für die Felerstunde des Arztes, zugleich ein Ratgeber für die tägliche Praxis. Unter Mitbenutzung hinterlassener Aufzeichnungen Erwin Klebs. Von Walther Klusmann. Mit einem Geleitwort von Prof. Dr. Klare.** Cloth. Price, 4.80 marks. Pp. 199. Leipzig: Georg Thieme, 1937.

In this volume the author has collected quotations from a great mass of literature, largely German but also classical, dealing with the physician. It is classified according to the philosophical contributions, the art of medicine, the fee and similar topics.

scopically, have already shown special new aspects which will be of great importance in histologic examinations. The method enlarges the domain of medical histology. It introduces new elements in the physical and chemical nature of cellular constituents. Absorption zones correspond to regions of small atomic weight, and vice versa. This new process will make possible information on the density of cellular constituents. With the aid of a new chemical agent it will be easy to render opaque a particular cellular region and to study it better, as color does not play a part here; the range of useful agents being greater and at the same time the technic being much more simple, the field of histochemistry will be enlarged.

### Southern Surgeon, Atlanta, Ga.

5: 407-490 (Dec.) 1936

- Acute Metastatic Brain Abscess. J. E. J. King, New York.—p. 407.  
Retrodysplacements of Uterus. W. T. Black, Memphis, Tenn.—p. 438.  
Relationship of Calcified Mesenteric Glands to Abdominal Pain. A. W. Allen and H. F. Howe, Boston.—p. 447.  
Deep Cervical Abscess Simulating Ludwig's Angina. H. A. Goldberger, New York.—p. 463.  
Mayo Vaginal Hysterectomy for Uterine Prolapse and Cystocele: Indications and Technic. V. S. Counseller, Rochester, Minn.—p. 467.

### Surgery, Gynecology and Obstetrics, Chicago

63: 689-806 (Dec.) 1936

- Pathologic Yardstick: Its Accuracy as an Instrument for Measuring Errors in Clinical, Roentgenologic and Surgical Diagnosis of Gastric Lesions. L. G. Cole, New York.—p. 689.  
Prevention of Postoperative Jejunal Ulcers by Diet and Fundusotomy: Experimental Study in Dogs. G. B. Fauley and A. C. Ivy, Chicago.—p. 717.  
Endometrial Histology and Pathology as Revealed by Biopsy Method. R. E. Campbell, F. C. Lendrum and E. L. Sevringhaus, Madison, Wis.—p. 724.  
"Acute" Subdural Hematoma and Acute Epidural Hemorrhage: Study of Seventy-Two Cases of Hematoma and Seventeen Cases of Hemorrhage. F. Kennedy and H. Wortis, New York.—p. 732.  
\*Effect of Drugs on Different Segments of Intestine of Man. J. S. Guthrie and J. A. Barger, Rochester, Minn.—p. 743.  
Gastro-Enterostomy: Detailed Description of One Surgical Procedure. F. Glenn, New York.—p. 751.  
Care of Ruptured Appendix: Reduction of Mortality to Four Per Cent in Series of Fifty Cases. J. L. DeCourcy, Cincinnati.—p. 756.  
Treatment of Fractures: Further Observations on Use of Splenic Extract. T. Wheelton, Richmond, Va.—p. 761.  
Elongation of Partially Cleft Palate. J. B. Brown, St. Louis.—p. 768.  
\*Localization and Extraction of Foreign Bodies with Aid of Colored Roentgen Opaque Oil. J. D. Ellis, Chicago.—p. 772.  
\*Transfer of Tumor Cells by Surgical Knife. O. Saphir, Chicago.—p. 775.  
Arthroplastic Operation for Congenital Dislocation of Hip: Two Stage Procedure. P. C. Colonna, New York.—p. 777.  
Fractures of Os Calcis. M. S. Henderson, Rochester, Minn.—p. 782.  
Bladder Complications of Carcinoma of Cervix. R. C. Graves, C. J. E. Kickham and I. T. Nathanson, Boston.—p. 785.  
Roentgen Treatment of Tumors of the Brain or Spinal Cord in Operating Room by Direct Radiation Through Open Wound. C. A. Elsberg, L. M. Davidoff and C. G. Dyke, New York.—p. 794.

#### Effect of Drugs on Different Segments of the Intestine.

—Of double strength solution of posterior pituitary, physostigmine, peristaltin and acetylcholine as stimulants of the tone and motility of the human intestine, Guthrie and Barger found solution of posterior pituitary alone to be a marked stimulant of the human intestine. It is the only drug of the group that is likely to prove effective regularly as a therapeutic agent in augmenting the peristalsis of an atonic or paralyzed intestine. The effect on the intestine that was observed to follow every administration of solution of posterior pituitary was so constant that the authors feel justified in concluding that the drug (1) is a powerful stimulant of intestinal peristalsis, (2) is consistent and regular in its action, (3) acts with apparently equal strength on both the colon and the ileum, (4) increases the motility of the intestine without apparently exerting any effect on the tonus and (5) is rapid in its action. Following its administration, it acts within three to five minutes and its action extends, with gradually diminishing effect, for from three-fourths to one and one-half hours. Physostigmine and peristaltin were found to be inconstant and uncertain in their action. The peristaltic contractions which each of these drugs produced were relatively mild, less regular in their occurrence and totally lacking in propulsive force as compared with those that followed each injection of solution of posterior pituitary. Acetylcholine possesses little worth as a stimulant of the human intestine.

On seven of the nine occasions on which the drug was employed in doses ranging from 100 to 400 mg., no evidence of any effect on the intestine was apparent. On the two occasions on which some increase in either the tone or the peristaltic activity of the colon and the ileum was observed to occur, the stimulative effect of the drug was relatively slight and insignificant, as well as transient in character.

**Localization and Extraction of Foreign Bodies.**—Ellis proposes a method of localization of foreign bodies that can be carried out in any hospital provided with x-ray equipment and an operating room. Suitable right angle wire screens can be made in a hardware store. The patient is placed on the operating table and fastened to prevent movement. The skin is sterilized and the sterile right angle screen is fastened to the part by a half hitch with tape or cord. A roentgenogram is taken of each side of the wire screen with the tube centered and the "normal ray" at right angles to the flat surface of the screen. The distance of the tube should be a meter or more, if this is practical. From these roentgenograms the surface localization can be determined accurately by counting off the interstices of the metal screen on the x-ray image and on the skin. The foreign body is outlined on the skin with a dye or metal points, which are left in place until the operative incision is made. The depth can be measured on the roentgenogram of the other surface of the screen. A fine needle of appropriate length, as measured on the metal screen, is introduced through the surface projection of the foreign body on one plane of the screen and at right angles to it. Thus the approach to the foreign body is easily made. A few drops of colored opaque oil are introduced at the site at which the foreign body is expected to be located. As the needle is withdrawn a fine trace of colored oil is left along the path by gentle pressure on the syringe. This may serve as a guide in the surgical approach to the deeply injected oil. Another set of roentgenograms is taken and the relation of the colored radiopaque oil to the foreign body can be determined. If the first attempt is not successful and the deposition of oil is not in close proximity to the foreign body, the operation can be postponed for a few days until the oil is dispersed and another attempt to obtain internal localization by means of the oil can be made. General anesthesia is preferred, as local anesthesia often distorts the topography of the part. Before the skin incision is made and as each fascial plane is approached, points on each side of the contemplated line of incision are seized with Allis forceps and lifted so that the pressure of the knife will not displace a movable body beneath. Wide exposure and a minimum of sponging is desirable. A single foreign body can be found in the colored oil. A collection of minute fragments or an encapsulated body can be removed by dissecting the colored mass entirely.

**Transfer of Tumor Cells by the Surgical Knife.**—Saphir examined the material that adheres to the blades of knives used for obtaining biopsies of tumors, particularly breast tumors. The knives with which various types of malignant tumors were incised were examined shortly after they had been used. Either direct smears were made from the respective blades or the blades were washed with a small quantity of saline solution and smears were made from this suspension. Invariably, smears made from the material on the knives used to cut through the tumors showed tumor cells. In some instances the tumor cells were so abundant that at low magnification their numbers were comparable to that of erythrocytes on a blood smear of average thickness. Also, smears that were made from material on the knives used for removal of the primary tumor for biopsy before the radical breast operation was performed showed tumor cells. It appears that every biopsy carries with it the danger of transferring, and possibly transplanting, tumor cells into healthy tissue.

### Tennessee State Medical Assn. Journal, Nashville

29: 417-456 (Nov.) 1936

- Symptoms of Perforated Peptic Ulcer. E. D. Mitchell Jr., Memphis.—p. 417.  
Cesarean Section. L. E. Burch, Nashville.—p. 421.  
Pneumonia, with Especial Reference to Typing and Specific Therapy. W. R. Cate, Nashville.—p. 426.  
Postgraduate Education in Tennessee: Plans for the Future. O. S. Warr, Memphis.—p. 432.  
Urinary Antiseptics. G. R. Livermore, Memphis.—p. 437.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Heart Journal, St. Louis

12: 511-640 (Nov.) 1936

- New Method for Determining Circulation Time Throughout Vascular System. L. C. Spier, I. S. Wright, New York, and L. Saylor, Topeka, Kan.—p. 511.
- Thrombo-Angiitis Obliterans of Coronary Arteries and Its Relation to Arteriosclerosis. O. Saphir, Chicago.—p. 521.
- Cardiac Psychoses and Neuroses. J. C. Yaskin, Philadelphia.—p. 536.
- Treatment and Immediate Prognosis of Coronary Artery Thrombosis (267 Attacks). A. M. Master, H. L. Jaffe and S. Dack, New York.—p. 549.
- Study of Cardiac Outline. B. S. Epstein, Brooklyn.—p. 563.
- Study of QRS Complex of Lead III in Left Axis Deviation. W. A. Sodeman, New Orleans.—p. 573.
- Ectopic Tachycardia, Auricular in Origin, of Unusual Duration. H. B. Weiss and J. McGuire, Cincinnati.—p. 585.
- \*Cardiodynamic and Electrocardiographic Changes in Normal Pregnancy. H. Landt and J. E. Benjamin, Cincinnati.—p. 592.

**Electrocardiographic Changes in Pregnancy.**—Landt and Benjamin observed nineteen normal pregnant women throughout the course of their pregnancy and puerperium. The study included the correlation of clinical, cardiodynamic and electrocardiographic changes. The final examination (control) was taken approximately two months after delivery. The study indicates that pregnancy definitely places a burden on the cardiocirculatory system. In the normal woman this burden can be compensated by calling on the reserve capacity of this system. The method of compensation is both mechanical and physiologic in nature. The electrocardiographic changes observed during the course of pregnancy may be interpreted definitely on the basis of mechanical shifting of the heart. This shifting of the heart produced a left axis deviation in the electrocardiogram of the majority of the patients studied. The normal woman who does not develop any untoward signs or symptoms during the course of pregnancy shows a normal clinical, cardiodynamic and electrocardiographic picture from six to eight weeks after delivery.

#### American Journal of Clinical Pathology, Baltimore

6: 521-622 (Nov.) 1936

- Rôle of Clinical Pathology in Medicine. Horder, London, England.—p. 521.
- \*Diagnostic Value of Frei Reaction in Lymphogranuloma Inguinale. R. D'Aunoy and E. von Haam, New Orleans.—p. 529.
- Simple Slide and Tube Tests for Infectious Mononucleosis. R. Straus, Cleveland.—p. 546.
- Occurrence of Heterophile Antibody (Hemagglutinin) in Serum of Rabbits Showing "Serum Sickness" Reaction. H. A. Kemp and B. O. Baker, Dallas, Texas.—p. 557.
- Behavior of Heterophile Antibody (Hemagglutinin) of Serum Sickness and Acute Infectious Mononucleosis to Absorption with Raw and Autoclaved Ox Erythrocytes. H. A. Kemp and B. O. Baker, Dallas, Texas.—p. 560.
- Osteoblastic Sarcoma of Uterus. R. F. E. Stier, Spokane, Wash., and J. C. Lyman, Walla Walla, Wash.—p. 562.
- Error of Determination of Erythrocyte Count. T. B. Magath, J. Berkson and Margaret Hurn, Rochester, Minn.—p. 568.
- Hemologic Observations on Sick Cell Anemia. E. A. Sharp and E. M. Schleicher, Detroit.—p. 580.

**Diagnostic Value of the Frei Reaction.**—The confidence of D'Aunoy and von Haam in the reliability of the Frei test has been justified by numerous cases in which animal inoculation confirmed the results of the Frei test while the clinical and biopsy diagnoses failed to reveal the true nature of the condition. During the last two years they have performed more than 1,697 Frei tests on patients with or without inguinal lymphogranuloma. Diagnosis based on the test proved correct in 90.9 per cent of 547 cases; 7.2 per cent doubtful reactions were obtained, and in 1.9 per cent apparently faulty reactions

occurred. Syphilis as indicated by positive blood Wassermann reactions was present in 19.5 per cent of Frei positive cases and in 22 per cent of Frei negative cases. Acute gonorrheal and chancroidal infections were present in about 10 per cent of the Frei positive cases. Comparison of the various antigens used for the Frei test showed that antigen prepared from human gland and brain emulsions of experimentally infected marmosets give fewer doubtful reactions than do antigens prepared from diluted pus of human lesions and brain emulsions of infected mice. These results demonstrate the marked degree of specificity and the high diagnostic value of this cutaneous reaction in the recognition of inguinal lymphogranuloma in its various manifestations. The fact that 17.4 per cent of Negro patients applying because of various conditions to the Charity Hospital of Louisiana gave a positive reaction demonstrates the wide distribution of the disease among the Negro race in that locality.

#### American J. Digest. Dis. & Nutrition, Fort Wayne, Ind.

3: 617-730 (Nov.) 1936

- Cholesterol Metabolism in Jaundice. S. A. Wilkinson, Boston.—p. 618.
- Biliary Stasis. C. H. Greene, J. R. Twiss and R. F. Carter, New York.—p. 622.
- Treatment of Acute Hepatic Insufficiency and Its Relation to Prognosis. C. M. Jones, Boston.—p. 624.
- Chronic Hepatitis with Jaundice (Biliary Cirrhosis). J. F. Weir and A. M. Snell, Rochester, Minn.—p. 629.
- Macrocytic Anemia in Diseases of Liver: General Considerations. D. H. Rosenberg, Chicago.—p. 639.
- Anemia and Gastro-Intestinal Tract: Synopsis. G. R. Minot, Boston.—p. 643.
- Intubation Studies of Human Small Intestine: VIII. Miscellaneous Observations. T. G. Miller, W. O. Abbott and W. G. Karr, Philadelphia.—p. 647.
- Components of Gastric Secretion. F. Hollander, New York.—p. 651.
- Gastric Secretory Behavior in Chronic Gastritis. J. F. Monaghan, H. L. Bockus, K. Kornblum, Philadelphia, and G. R. Moffitt, Harrisburg, Pa.—p. 655.
- Intracutaneous Responses, Comparable to Positive Frei Reactions, with Colonic Exudate from Chronic Ulcerative Colitis Cases with Positive Frei Tests. M. Paulson, with technical assistance of Betty Kravetz, Baltimore.—p. 667.
- \*Diagnostic Significance of Antidysentery Bacteriophage. T. T. Mackie, New York.—p. 673.
- Certain Aspects of Applied Physiology of External Pancreatic Secretion. A. C. Ivy, Chicago.—p. 677.
- Diseases of Pancreas: Clinical Aspect. T. R. Brown, Baltimore.—p. 682.
- Surgical Aspects of Diseases of Pancreas. D. F. Jones, Boston.—p. 686.
- Thoracic Stomach with Short Esophagus and Diaphragmatic Hernia. L. Bloch, A. M. Serby and S. Salinger, Chicago.—p. 689.
- \*Specific Food Sensitiveness. W. C. Alvarez, Rochester, Minn.—p. 693.
- Certain Newer Methods of Treating Peptic Ulcer. A. B. Rivers, Rochester, Minn.—p. 698.
- Cystadenomas of Pancreas: Surgical Report. B. F. Carter and L. Slattery, New York.—p. 705.

**Diagnostic Significance of Antidysentery Bacteriophage.**—Mackie is not impressed by the incidence of specific bacteriophage in association with chronic bacillary dysentery. Only 29 per cent of the cases with acceptable evidence of infection by *Shigella dysenteriae* exhibited a lytic principle action against these organisms. An antidysentery bacteriophage was found accompanying positive culture in only 34.7 per cent of eighty-four cases. Moreover, his experience leads him to question seriously the specificity of such a lytic principle. A bacteriophage active against his laboratory strains was obtained in 12.8 per cent of eighty-six control cases. None of these could be suspected of infection by *Shigella dysenteriae* on cultural or serologic grounds, and, with the possible exception of the cases of chronic ulcerative colitis, none could be suspected on clinical grounds. Antidysentery bacteriophage has been found in the control cases in association with such diverse conditions as achlorhydria, acute appendicitis, arsphenamine hepatitis, foreign body in the liver, intestinal protozoal infection and chronic ulcerative colitis. The clinical and bacteriologic significance of antidysentery bacteriophage in chronic intestinal infections is not as yet sufficiently well defined to justify the term "diagnostic bacteriophage."

**Specific Food Sensitiveness.**—Alvarez believes that food sensitiveness should be looked for carefully whenever the symptoms of abdominal distress point to the presence of an oversensitive colon, when they are vague or unusual or whenever careful examination fails to reveal any sign of disease in the duodenum, stomach, gallbladder or appendix. The diet must be studied in every case of true flatulence or bloating, and food

true tuberculous arthritis. They cannot categorically deny the possible influence of associated visceral tuberculosis on the production and course of the joint disease, but they do not use the term "tuberculous rheumatism" because every case pursued a course consistent with nonspecific arthritis and immobilization treatment, adopted because the condition was suggestively tuberculous, proved to be a totally unsuitable procedure in each case. The cases have been utilized to illustrate the difficulties in the early diagnosis of tuberculous arthritis and to warn against the too ready acceptance of a tuberculous etiology in multiple arthritis occurring in presumably tuberculous subjects. The many factors that contribute to the confusion in diagnosis in the case of a multiple arthritis are (1) the insidious monarticular onset of some case of multiple nonspecific arthritis, (2) the coexistence in the patient of some visceral tuberculous lesion, which may or may not influence the course of a non-tuberculous polyarthritis, (3) the possible occurrence of a single tuberculous joint superimposed on a nontuberculous multiple arthritis, (4) the occasional incidence of true tuberculous arthritis in two or more joints, (5) the comparative infrequency of nonspecific arthritis of the hip in patients under middle age and the tendency to suppose such a condition to be tuberculous, (6) modification of the course of nonspecific arthritis due to early immobilization and (7) the possibility that there exists an atypical tuberculous form of polyarthritis—tuberculous rheumatism. Expectant treatment should be adopted in all such cases. This should consist of maintenance of general hygiene and rest in bed without immobilization until unequivocal evidence of the tuberculous or nontuberculous nature of the joint disease appears or is obtained by examination of aspiration or biopsy material.

### British Medical Journal, London

2: 903-956 (Nov. 7) 1936

- Vitamin B Complex. R. A. Peters.—p. 903.  
Flatulence and Epigastric Discomfort. J. A. Ryle.—p. 906.  
Tubercle Bacillus as Cause of Obscure Disease of the Eye. F. A. Williamson-Noble.—p. 907.  
Agranulocytosis and Amidopyrine. S. C. Dyke.—p. 911.  
\*Alkali Poisoning: Danger in Treatment of Gastric Ulcer. C. L. Cope.—p. 914.  
The Eynesbury Quadruplets: First Nine Months of Life. E. H. Harrison.—p. 917.

**Alkali Poisoning.**—Cope calls attention to the occasional toxic effects of alkaline powders which, in various mixtures, are prescribed and sold as "stomach powders" for the relief of gastric ulcer and similar complaints. Some persons are abnormally sensitive to some constituent of the alkaline powders and chronic alkali poisoning may persist for several weeks without the nature of the condition being appreciated unless its possibility is borne in mind. The condition develops typically in sufferers from gastric ulcer or similar gastric disorders. During the early stages of the development of symptoms a marked deterioration in appetite is frequent, especially an antipathy to the taking of milk, associated with attacks of vomiting of moderate severity. The most typical symptoms are concerned essentially with a change in the character of the patient, including thoughtlessness, irritability, unreasonableness, melancholy and depression. These symptoms continue, as a rule, to increase in intensity until definite drowsiness appears. There may be complaint of vague headaches and of general muscle pains. Somnolence and drowsiness become an increasingly prominent feature, until finally the patient may even pass into coma. In acute cases the transition from apparent normality to definite drowsiness may take only a few days; in chronic cases the patient may remain for weeks in a state of depression and mental inefficiency without the appearance of any drowsiness. Soreness of the eyes is complained of, owing to a red and inflamed conjunctiva. The physical signs of alkali poisoning are scanty. The most important changes are to be found in the blood. There may be (1) a severe degree of nitrogen retention, (2) a definite uncompensated alkalosis and (3) hypercalcemia and hypermagnesemia. Since the characteristic symptoms of alkali poisoning are referable to change in the mental state, a previous knowledge of the patient and his character is of the greatest help in early diagnosis. Although alkali poisoning does not itself cause a rise of blood pressure, the presence of this or of other signs associated with

chronic nephritis does not eliminate the diagnosis. The essential and often the only necessary point in treatment is to stop the administration of all alkalis. Citrate is to be classed as an alkali and should not be given in ulcer patients. Recovery involves the elimination of retained bicarbonate, the restoration of a normal blood reaction and the restoration of normal renal function with resultant elimination of retained products of nitrogen metabolism. It is possible that the hydrated magnesium silicate introduced recently will solve the problem of the treatment of gastric ulcer in persons who are sensitive to alkalis.

### East African Medical Journal, Nairobi

13: 197-228 (Oct.) 1936

- Carotenemia in Europeans in the Tropics. J. H. Sequeira.—p. 193.  
Place of Logic in Medical Education. L. J. A. Loewenthal.—p. 204.  
Hematologic Observations on Natives of Uganda. R. S. F. Hennessey.—p. 210.  
Notes on Two Years' Maternity Work Among South Kavirondo (Kenya) Natives (215 Cases). P. G. Preston.—p. 215.

### Irish Journal of Medical Science, Dublin

No. 130: 613-660 (Oct.) 1936

- \*Simplified Method of Roentgen Examination of Gastro-Intestinal Tract. T. C. J. O'Connell.—p. 613.  
Opium Addiction and Its Treatment. M. G. Kelly.—p. 627.  
Dublin University Biological Association, 1801-1900. S. B. Sachs.—p. 637.  
"Recessus Retromediastinalis": Case. S. Shea.—p. 647.  
Intraduodenal Fold with Intraduodenal Diverticulum. S. Shea.—p. 649.  
Influence of Carotid Sinus on Respiration. D. H. Smyth.—p. 652.

**Roentgen Examination of Gastro-Intestinal Tract.**—O'Connell suggests using a narrow diaphragm with the patient in the right anterior-oblique position; the patient is asked to swallow one mouthful of barium sulfate with tragacanth, the passage of the barium through the esophagus is observed, the tube and screen are shifted and the entrance of the barium into the stomach is observed. Its method of entry and its passage along the lesser curvature are watched closely. If the barium is slow in proceeding down the stomach, the patient is asked to take one or two deep breaths. He is then rotated to face the operator directly. The cardiac end of the stomach is observed closely, and attention is then directed to the pyloric end. General observations as to the presence of a large quantity of secretion, filling defect or ulcer niche are made. The patient is then advised to relax somewhat and to slacken his abdominal muscles, and with the gloved hand the whole mucous membrane of the stomach—except that of the cardiac end—is displayed on the screen. If a suspicious area is seen, the diaphragm is narrowed and a whole plate or 10 by 8 film is exposed. If the gastric mucous membrane relief is normal, the examination is continued without delay. For the examination of the duodenum, some of the original mouthful of barium is forced into the duodenal bulb. With the tips of the fingers the barium is massaged over the lining of the bulb, the patient being rotated into different positions to achieve this. These observations having been made under the screen, a 10 by 8 film of the stomach and duodenal region is exposed. The patient is then given four or five further mouthfuls of barium sulfate and instructed to swallow these immediately. The stomach is observed again to detect the presence or absence of peristalsis. One or two waves are watched until they reach the pylorus, and anomalies are observed. Barium is already filling the bulb or it may have to be forced into the latter under the pressure of the hand. If this method fails to fill the bulb, the patient finishes the half pint of barium. The bulb is again watched in its filling and emptying and any persistent change of shape is seen. Observation is taken in both oblique directions and two whole-plate films are exposed. The second and third stages can be seen easily during this examination of the bulb. Finally, the actual shape and position of the stomach are observed. The level of the lower pole is ascertained. The patient, still fasting except for the half pint of barium, returns in two hours and further screening is carried out to ascertain whether the stomach is empty or how much barium remains in it. The patient is then allowed to return to bed or go home and have a meal. He is asked to return next day, having had his breakfast. Under the screen the position and mobility of the cecum, which always contains barium, are noted. One notes



patients were later observed in the clinic for patients with diseases of the eye. The paresis cleared up completely. During 1934, among ninety-eight patients with epidemic meningitis six ocular complications were observed. Every third patient received meningococcus antitoxin by vein. Aside from the fact that the epidemic was mild as compared to that of 1933, none of the patients who received the antitoxin showed intra-ocular complications. Those receiving the serum did. During 1935 only five ocular complications were observed in 211 cases of epidemic meningitis. Most of the patients were then receiving the antitoxin intravenously, and a few spectacular recoveries from intra-ocular complications were observed. From the observations made there appears to be no doubt that ocular complications of epidemic meningitis are due to an infection of the blood stream, reaching the posterior segment through the retinal or choroidal vessels, or both. The two major ocular complications are endophthalmitis and paresis of the external rectus muscles. Treatment of the disease with an antitoxin has reduced greatly the number of ocular complications. Local treatment is without avail, once the posterior segment has become involved. This is especially true when the serum is employed. Microscopic examination in cases of endophthalmitis complicating epidemic meningitis shows nothing that distinguishes the condition from endophthalmitis due to other blood-borne infections.

### Arch. of Physical Therapy, X-Ray, Radium, Chicago

17: 673-736 (Nov.) 1936

- \*Short Wave Diathermy in Heating of Human Tissues. J. S. Coulter and S. L. Osborne, Chicago.—p. 679.
- Ultrashort Wave Diathermy in Pyogenic Infections. W. J. Egan, Milwaukee.—p. 688.
- \*Vitamin D and Fever Therapy in Chronic Arthritis. S. K. Livingston, Hines, Ill.—p. 704.
- Medical Diathermy in Rectal Stricture. R. V. Gorsch, New York.—p. 706.
- Physical Therapy Procedures in Otolaryngology. E. G. Linn, Des Moines, Iowa.—p. 708.
- Some Physical and Clinical Aspects of Ultrashort Waves. C. K. Gale, New York.—p. 712.

**Short Wave Diathermy in Heating Tissues.**—Coulter and Osborne emphasize that experiments on phantom model and on dead animal tissues cannot be used to prove the effects of short wave diathermy on living human tissues. Experiments on twelve medical students confirmed previous studies that there were no significant differences of one wavelength over another within the range of 6 to 25 meters in the heating of live human muscle and fat tissues. Under aseptic precautions a nonmagnetic nonconducting sheath was inserted subcutaneously and into the quadriceps extensor muscle. The intensity of the current was governed by the patient's comfort. There were no significant differences in the use of 6, 12, 15, 18 and 24 meter wavelengths when using the cuff technic of the electric field method, and no significant differences in the use of 12, 18, 24 and 25 meter wavelengths when using the coil technic of the electromagnetic field. In the studies of tissue heating with air-spaced electrodes with the electric field the efficiency of heating is dependent on the size of the electrodes, the energy available from the apparatus, the method of application, the distance of the electrodes from the skin and the patient's tolerance (comfort).

**Vitamin D and Fever Therapy in Chronic Arthritis.**—Livingston treated twenty-two patients having severe arthritis of various types with from 200,000 to 600,000 international units daily of vitamin D only or with vitamin D and weekly fever therapy. Nineteen patients showed clinical improvement, one discontinued the treatment and two showed no improvement. Former observations revealed that fever therapy alone was not effective. Fever therapy when employed in conjunction with vitamin D caused more rapid clinical improvement than vitamin D alone. When toxic symptoms appear, the drug should be discontinued at once for two weeks. So far as could be observed, there is no contraindication to this form of therapy. The blood chemistry and blood picture remain within normal limits with the exception of a decreased sedimentation rate and a shift in the Schilling test toward the right. Arthritis is probably associated in part with a vitamin D deficiency. The mechanism of this therapy is not understood.

### Arkansas Medical Society Journal, Fort Smith

33: 117-134 (Dec.) 1936

- \*X-Ray Therapy in Infections. D. A. Rhinehart, Little Rock.—p. 117.
- Present Status of Vaccine and Serum Therapy in Acute Contagious Diseases. A. G. Cazort and J. N. Compton, Little Rock.—p. 119.

**Roentgen Therapy in Infections.**—Rhinehart mentions a case of carbuncle, thyroiditis and unresolved pneumonia in which roentgen irradiation proved efficacious. To these three cases he could add any number showing the beneficial effects of radiation therapy in the treatment of acute and chronic infections. Furuncles and boils in any region usually respond promptly to a single short roentgen treatment. Unless the patient is diabetic, roentgen treatment of a carbuncle in any locality usually gives a spectacular result. Acute infections in the lymph nodes of the neck following an acute tonsillitis or an acute infection of the upper part of the respiratory tract in children respond to one or two treatments. In spite of the benefits following this form of therapy, the exact action is yet empirical. In the radiation treatment of acute infections, the doses are always small. In acute conditions often a single application is sufficient. If not, the treatment may be repeated two or three times at intervals of two days. In chronic infections the period of treatment must be more prolonged; usually weekly treatments are given until beneficial results have been obtained. Because of the small amounts of radiation that are used, there is no danger of damage to any of the normal tissues, and permanent skin damage does not occur.

### Journal of Experimental Medicine, New York

64: 831-994 (Dec.) 1936

- Studies on Soluble Precipitable Substances of Vaccinia: III. Precipitin Responses of Rabbits to LS Antigen of Vaccinia. F. O. Wishart and J. Craigie, Toronto.—p. 831.
- Immunologic Studies on New Preparation of Type Specific Polysaccharide from Pneumococcus Type I. B. F. Chow, Peiping, China.—p. 843.
- Lipids and Immunologic Reactions: IV. Lipid Patterns of Specific Precipitates from Type I Antipneumococcus Serums. F. L. Horsfall Jr. and K. Goodner, New York.—p. 855.
- Quantitative Technic for Performing Plasmapheresis. D. Melnick and G. R. Cowgill, with cooperation of Ethel Burack, New Haven, Conn.—p. 865.
- \*Influence of Diet on Regeneration of Serum Protein: I. Standardization of Experimental Technic. D. Melnick, G. R. Cowgill and Ethel Burack, New Haven, Conn.—p. 877.
- Id.: II. Potency Ratios of Serum Protein, Lactalbumin and Casein, and Effect of Tissue Protein Catabolism on Formation of Serum Protein. D. Melnick, G. R. Cowgill and Ethel Burack, New Haven, Conn.—p. 897.
- Experimental Nephritis in Rats Induced by Injection of Anti-Kidney Serum: I. Preparation and Immunologic Studies of Nephrotoxin. J. E. Smadel, New York.—p. 921.
- Tissue Culture Studies on Bacterial Hypersensitivity: III. Persistence in Vitro of Inherent Sensitivity to Tuberculin of Cells from Tuberculous Animals. J. K. Moen, New York.—p. 943.
- Effect of Pneumococcus Autolysate Antitoxin on Pneumococcus Pneumonia in Guinea-Pigs. Julia T. Weld and Helena Gilder, New York.—p. 953.
- Effect of Experimental Reduction of Kidney Substance on Parathyroid Glands and Skeletal Tissue. A. M. Pappenheimer, with assistance of Anna Hart, New York.—p. 965.

**Influence of Diet on Regeneration of Serum Protein.**—By quantitative plasmapheresis, Melnick and his associates investigated the effects of single proteins in artificial synthetic diets with respect to their value in promoting the regeneration of serum protein. The ratio of the amount of serum protein per week removed by bleeding above that regenerated by the dog, when eating the protein-free diet, to the dietary protein increment (i. e., above that required for nitrogen equilibrium) was termed the potency ratio. The results indicated that serum protein was slightly superior to casein and lactalbumin in promoting the regeneration of serum protein. However, the respective potency ratios, varying from approximately 0.51 to 0.36, were comparable and not widely divergent to those reported by others. Whereas in some individuals dietary proteins may be able to produce a significant increase in the serum protein concentration, the potency ratios are not sufficiently different to warrant the administration of any one protein in preference to another. The inhibitory effect of the basal protein-free diet with respect to serum protein regeneration in the dog was demonstrated also by the inability of the protein concentration to attain the normal level in spite of discontinued plasmapheresis. However, a subsequent fasting period resulted in a progressive rise in the serum protein concentration until the

## Nature, London

138: 815-856 (Nov. 14) 1936

\*Sodium and Water Metabolism in Relation to Disturbances of Carbohydrate Metabolism After Adrenalectomy. F. Verzar and L. Laszt.—p. 844.

Biosynthesis of Ascorbic Acid. G. C. Guha and B. Ghosh.—p. 844.

**Disturbances of Carbohydrate Metabolism After Adrenalectomy.**—Verzar and Laszt have found that, in the absence of the adrenal cortex, acriflavine hydrochloride is not transformed to acriflavine phosphoric acid but that adrenalectomized animals can be kept alive with large quantities of the latter substance (vitamin B<sub>2</sub>). Lack of adrenal cortex causes serious disturbances in intermediate metabolism of carbohydrates and fats, particularly in the absorption of these substances. The selective absorption of dextrose is inhibited after adrenalectomy, and this is due to the absence of the cortex, since it can be restored by administering adrenal cortex extract. In adrenalectomized rats, the ingestion of dextrose causes great losses (into the intestine) of sodium by diffusion and of water by osmosis. Therefore the adrenalectomized animals, in contrast to normal rats, develop intensive diarrhea after dextrose administration. This is also seen in normal animals after the administration of xylose, which is absorbed slowly, or after dextrose with iodoacetic acid poisoning, when the dextrose is also absorbed slowly. The inhibition of the selective absorption of dextrose in adrenalectomized animals leads secondarily to losses of sodium salts and water. Similar disturbances are possible in the intermediate metabolism of carbohydrates and fats. These secondary disturbances of loss of sodium and water may be the cause of death of adrenalectomized animals, which can be prevented by giving sodium salts. In several cases, rats adrenalectomized from eight to fifteen days before died in from three to five hours when 5 cc. of a 50 per cent solution of dextrose was fed by stomach tube. A second group of such rats survived when sodium chloride and carbonate were given simultaneously.

## Quarterly Journal of Medicine, Oxford

5: 445-538 (Oct.) 1936

Lung Volume and Respiratory Exchange After Pneumothorax. R. V. Christie and C. A. McIntosh.—p. 445.

Thyroid Disease and Blood Lipids. E. M. Boyd and W. F. Connell.—p. 455.

\*Subarachnoid Hemorrhage Based on Observations of Eighty-One Cases. A. B. Taylor and A. G. W. Whitfield.—p. 461.

Congenital Porphyrinuria: Postscript. A. Garrod.—p. 473.

Gee-Thaysen Disease: Idiopathic Steatorrhea of Adults and Adolescents in Nontropical Countries. H. Moore, W. R. O'Farrell, J. A. Geraghty, J. M. Hayden and M. A. Moriarty.—p. 481.

Gaucher's Disease. T. F. Bloem, J. Groen and C. Postma.—p. 517.

**Subarachnoid Hemorrhage.**—Taylor and Whitfield base their study on eighty-one cases found by investigating the records of two general hospitals. Although subarachnoid hemorrhage is generally recognized as the commonest cerebral vascular accident of young persons, half of their cases occurred in patients more than 40 years of age. Fifty-one of the patients are dead and twenty-one were known to be alive in 1934, while nine could not be traced. Age did not appear to be a decisive factor in deciding the issue of death or recovery. The onset of symptoms ranges from sudden unconsciousness to mild headaches, while occasionally isolated neurologic signs without any generalized effects are the first indication of the condition. The classic onset with sudden unconsciousness was elicited in two thirds of the cases. On reaching the hospital forty-three of the patients were still unconscious, thirty-seven were conscious and one was dead. The mental state was abnormal, apart from unconsciousness, in eighteen patients, ranging from actual delirium to lesser degrees, such as incoherence, disorientation, irritability and confusion. Fits occurred in sixteen patients, usually either at the onset and did not recur, or associated with a terminal relapse as though there had been a further leakage of blood, which soon proved fatal. Signs of meningeal irritation are probably constant in subarachnoid hemorrhage when the leak is appreciable and sufficiently recent. Generalized rigidity with extension of the limbs was a characteristic feature in a number of cases. In many cases more particular neurologic signs were noted, which were sometimes of value in localizing the position of the aneurysm. Ocular palsies were frequent

but of no localizing value. In cases in which a raised blood pressure was found, it was obviously due to a sudden increase in intracranial pressure, but in some patients, especially those in middle and later life, high blood pressure may have existed before the onset of subarachnoid hemorrhage and may, in association with arterial degeneration, have been a cause and not an effect of their ruptured blood vessel. The temperature was subnormal immediately following the hemorrhage in all cases (often 95 F.). If the patient lived as long as twenty-four hours after the onset of hemorrhage, some degree of pyrexia always occurred. Lumbar puncture is the most valuable diagnostic aid. The cerebrospinal fluid is intimately mixed with blood and, when the corpuscles are allowed to settle, the supernatant fluid remains yellow. The explanation of the rare cases of subarachnoid hemorrhage with clear fluid at lumbar puncture is that the puncture is done before the blood has had time to get down to the lumbar theca or that the sudden rush of blood from a ruptured aneurysm causes such a sudden increase of intracranial pressure that a pressure cone forms and prevents the blood from traveling down to the spinal theca. Apart from the increase in protein due to the presence of blood, the chemistry of the cerebrospinal fluid is usually unaltered, though sometimes the chlorides vary. Necropsies were performed on forty-three patients and a ruptured aneurysm was found in thirty-three on or close to the circle of Willis; in eight cases the source of the hemorrhage could not be localized and in two cases a vessel had ruptured but no evidence was found of an aneurysm. The prognosis is always serious—an immediate mortality of 63.4 per cent was found—and because of the antagonistic forces that result from the ruptured cerebral vessel treatment is necessarily restricted in its usefulness, but the judicious and cautious use of lumbar puncture is of the utmost value, and the partial replacement of the cerebrospinal fluid by air has been tried in these cases and is suggested as a helpful adjunct.

## Tubercle, London

18: 49-96 (Nov.) 1936

Climate and Its Relationship to Tuberculosis. L. Rogers.—p. 49.

Climate as an Auxiliary Factor in Treatment of Pulmonary Tuberculosis. G. B. Price and A. Sandison.—p. 59.

Use of Leica Camera in Making Records of Radiographs. F. Heaf.—p. 65.

Study of Hydrogen Ion Concentration of New Type of Acidoresistant Bacillus Parasitic to Guinea-Pig. R. K. Goyal.—p. 66.

Postmortem Bronchography: Anatomic and Clinical Studies. D. Salkin, A. V. Cadden and R. B. McIndoe.—p. 71.

## Journal of Oriental Med., Dairen, South Manchuria

25: 61-78 (Oct.) 1936

On Agricultural Products, Especially Alimentary Foodstuffs in Jehol. A. Abe.—p. 61.

Experimental Examination on Secretory Relations of Operated Stomach. T. Yoshitoshi.—p. 62.

Examination on Passage of Potassium Rhodanate in the Eye. Y. Kodama.—p. 64.

Influence of Various Incretory Glands on Rhodan Formation in the Organism: I. Influence of Thyroid. M. Hashimoto.—p. 65.

Experimental and Histologic Study of Influence of Sympathicectomy in Uppermost Thoracic Region on Lung: Second Report. S. Hayashi.—p. 66.

Influence of Experimental Nose-Dyspnea on Formation of Inducant. Report Two. T. Hirai.—p. 67.

Supplement to Statistics of Tuberculosis of Japanese in Manchoukuo. S. Kawahito.—p. 68.

Sacrocoelocyst Tumors in Chinese Children. M. Yuba.—p. 69.

Technologic Notes on Thermo-Esthesiometry. K. Ogata.—p. 70.

Relation Between Preservation of Diluted Tuberculin and Its Duration. T. Hashimoto.—p. 71.

Disinfection of Drinking Water at Low Temperature: I. Germicidal Efficiency of Halogen Disinfectants and Preamoniation in Water Disinfection. W. T. Kuo.—p. 72.

Investigations of Biologic Character of Leishmania Donovanii: II. Report: Resistance of Leishmania Donovanii to Chemical and Physical Environment. Y. Saito.—p. 73.

Investigations into Amebic Dysentery: V. Cultivation of Endamoeba Histolytica: Part II. Determination of Bacteria Contained in Culture Mediums (Tamabe-Chiba's) and Examination of Influences of Bacteria on Growth and Some Pathogenic Intestinal Bacteria on Growth of Amebas. Y. Yamamoto.—p. 75.

Clinical Examination of Kaschin-Beck's Disease. K. Sanemitsu, M. Osaki, K. Kubo, T. Matsura, Y. Miki, M. Teranishi, T. Yamazaki, M. Tsuzawa, T. Togawa, F. Chang and Y. Wei.—p. 76.

Investigations into Amebic Dysentery: Observations of Biologic Character of Endamoeba Histolytica: Part II. Oxidation and Reduction of Endamoeba Histolytica. M. Yacazato.—p. 78.

about two and one-half times as great as its solubility in water (20.8 cc. of gas per hundred cubic centimeters of water at 35 C.) at corresponding temperatures and pressure.

### Missouri State Medical Assn. Journal, St. Louis

33: 439-480 (Dec.) 1936

- The Management of Injuries to Spine and Pelvis. E. P. Heller, Kansas City.—p. 439.  
Breech Delivery. S. D. Soule, St. Louis.—p. 449.  
Modern Trend in Treatment of Staphylococcal Infections. C. R. Ferris, Kansas City.—p. 453.  
Traumatic Rupture of Normal Spleen—Splenorrhaphy—Recovery. G. A. Aiken, Marshall.—p. 456.

### Nebraska State Medical Journal, Lincoln

21: 441-476 (Dec.) 1936

- Treatment of Brain Edema. R. H. Young, Omaha.—p. 441.  
Hypertensive Heart Disease. O. V. Calhoun, Lincoln.—p. 446.  
Present Status of Gastric Surgery. E. A. Connolly, Omaha.—p. 449.  
Derangements of Cecum. H. F. Johnson, Omaha.—p. 451.  
Treatment of Chronic Infectious Arthritis: Practical Working Conception. M. J. Breuer, Lincoln.—p. 457.  
\*Degenerative Myositis from Melitensis Infection: Report of One Case. A. F. O'Donoghue and W. Scott, Sioux City, Iowa.—p. 462.

**Degenerative Myositis from Melitensis Infection.**—O'Donoghue and Scott report a case of degenerative myositis in a farmer, aged 25, who, when first seen, complained of pain in the back which he stated began a week before, following a mild angina. The pain, he stated, was of a deep burning type and practically constant. The oral temperature reached 102 F. on several occasions, but there had been no chills. Other symptoms complained of were anorexia, lassitude and periodic mental confusion. Examination showed that the deep muscles of the back were in spasm, and there was tenderness along the entire dorsal and lumbar regions with restricted motions in all directions. Agglutinations for Malta fever were positive in dilutions of 1:320. The intradermal reaction to Malta fever likewise was strongly positive. A diagnosis of Malta fever spondylitis was made, the patient was hospitalized and 50 cc. of convalescent goat serum was given intravenously. Brucellin injections were begun four days later and continued every three days for ten doses. The patient began having severe pain in both shoulders, which radiated downward to the deltoid tubercles. This continued for one week and then disappeared. About five weeks later the patient noticed that the scapulae were becoming more prominent and that the shoulder motions were becoming weak. Reexamination showed a marked atrophy of the supraspinatus and infraspinatus muscles and of the deltoids to a moderate extent. Abduction and external rotation were diminished, but there were no actual paralyses present. The forearms were strong and showed no signs of wasting or of sensory impairment. A biopsy from the right infraspinatus muscle showed a very marked degeneration of the muscle fibers with interstitial round cell infiltration. Cultures from the muscle remained sterile after ten days. Physical therapy was instituted, but improvement could not be noted. The patient was again hospitalized and placed in the inductotherm, and good thermal reactions up to 105 F. for eight hours were obtained on three occasions. A checkup three months later revealed that all pain and tenderness had disappeared, all motions of the shoulder were powerful, the spine was limber and the muscles over the scapulae had filled out remarkably.

### Ohio State Medical Journal, Columbus

32: 1169-1276 (Dec.) 1936

- Etiology and Therapy of Biliary Tract Disease from Point of View of Applied Physiology. A. C. Ivy, Chicago.—p. 1185.  
Recent Advances in Bacteriology Pertaining to Pediatrics. M. L. Cooper, Cincinnati.—p. 1190.  
Study of Our Present Methods to Combat Diphtheria. H. H. Pansing, Dayton.—p. 1194.  
The Care of Lacerated Wounds. R. B. Tucker, Toledo.—p. 1198.  
Cephalic Attitude During Forceps Extraction. W. P. Gillespie, Cincinnati.—p. 1202.  
Chronic Endemic Dental Fluorosis in Ohio. A. L. Van Horn, Columbus.—p. 1207.  
Diagnosis of Spontaneous Subarachnoid Hemorrhage. S. Baumol, Cleveland.—p. 1211.  
Neurorhinitis. G. W. Mackenzie, Philadelphia.—p. 1214.  
Extramural Hemangioblastoma of Cauda Equina: Report of Case with Notes on Histologic Appearance of Tumor. O. A. Turner and R. R. Renner, Cleveland.—p. 1219.  
Therapeutic Use of Oxygen. K. C. McCarthy, Toledo.—p. 1223.  
Allergy in Practice. D. L. Engelder, New York.—p. 1229.  
Garlic Breath Odor. C. T. Silverstine, Cincinnati.—p. 1233.

### Pennsylvania Medical Journal, Harrisburg

40: 63-166 (Nov.) 1936

- Hernia. F. W. Bancroft, New York.—p. 63.  
\*Bromide Delirium. M. Levin, Harrisburg.—p. 70.  
Measures for Control of Syphilis. E. S. Everhart, Harrisburg.—p. 75.  
Medical Inspection versus Medical Examination in Public Schools. W. J. Larkin, Scranton.—p. 77.  
Pediatric Education and the Practice of Medicine. J. Stokes Jr., Philadelphia.—p. 78.

**Bromide Delirium.**—Levin bases his discussion on thirty-four cases of bromide delirium that occurred in 1,399 first admissions to the Harrisburg State Hospital during a period of five years. All but four patients were more than 40 years of age. A distinction is made between bromide intoxication and delirium. Intoxication is said to exist when the concentration of bromide in the serum is 150 or more mg. of sodium bromide per hundred cubic centimeters. The most convenient method of determination is the Walter-Hauptmann test. With a given degree of intoxication, the occurrence of delirium is assumed to depend on the resistance of the patient. Resistance here means the stability of the highest cerebral centers—their ability to function normally in spite of the paralytic or depressant action of the poison. In the thirty-four cases, bromide delirium was about two and one-half times as common in women as in men. Delirium is a condition marked by dulness, drowsiness, restlessness, thinking difficulty, disorientation, mood disturbances (usually fear), delusions, hallucinations and illusions. Disorientation is essential to the picture; the others may or may not be present—at least, they may or may not be demonstrable. Subjective visual disturbances occurred in many cases and disturbances in equilibrium sense were frequent. After bromides are discontinued, the length of time required for the delirium to disappear varies in most cases from two to six weeks. In a diagnosis of bromide delirium the patient must have a bromide intoxication, the delirium must have begun after the intoxication was already under way and the delirium must disappear within a short time—usually a few weeks, rarely more than two months—after the discontinuance of the drug. Even though a patient has both delirium and bromide intoxication, the latter is not always the sole cause of the former, since there may be additional causes, such as intoxication with other drugs, chronic alcoholism, and metabolic and febrile diseases. In the treatment of bromide delirium the patient should be put to bed immediately and kept there till the delirium is over. If the patient is unduly restless he should be given continuous baths, if available. If sleep is poor, hypnotics should be given, but with great caution. Fluids should be forced moderately. The diet should be soft. Bromides should be discontinued at once. Sodium chloride should be given, provided there is no nephritis. Spinal drainage may be performed to relieve a possible increased intracranial pressure. As in any psychosis, the patient should be watched and the possibility of suicide guarded against.

### Radiology, Syracuse, N. Y.

27: 521-650 (Nov.) 1936

- Heart Measurements. Elizabeth Newcomer and N. B. Newcomer, Denver.—p. 521.  
Pneumoradiography of Knee: Newer Technic Demonstrating Its Value in Diagnosis of Semilunar Cartilage Injury. H. T. Simon, A. S. Hamilton and C. L. Farrington, New Orleans.—p. 533.  
Roentgenographic Demonstration of True Articular Space. B. P. Widmann and W. R. Stecher, Philadelphia.—p. 541.  
Concurrence of Osteogenic Sarcoma in Two Sisters. E. A. Pohle, W. D. Stovall and H. N. Boyer, Madison, Wis.—p. 545.  
Colospasm: Its Roentgen Demonstration and Differentiation. A. Galambos and W. Mittelmann, New York.—p. 549.  
\*Historiography: A New Application of X-Rays. P. Lamarque, Montpellier, France.—p. 563.  
Biologic Measurement of Gamma Rays in "Equivalent Roentgens." P. S. Henshaw and D. S. Francis, New York.—p. 569.  
Pneumothorax in the New-Born: Review of Literature and Report of Seven Cases. E. J. Bertin, Philadelphia.—p. 584.  
Madelung's Deformity of Wrist: Report of Case. E. M. Claiborne, New York, and F. G. Kautz, San Francisco.—p. 594.  
Some Lawsuits I Have Met and Some of the Lessons to be Learned from Them (Eleventh Instalment). I. S. Trostler, Chicago.—p. 600.

**Historiography.**—Lamarque outlines a new method to obtain roentgenograms of microscopic sections by the use of very soft x-rays. It is carried out in a vacuum. Special photographic emulsions are utilized which allow greater enlargements. The images obtained, which are examined micro-

an interval of three years. In another patient, whose history is reported, the author administered the prehypophyseal extract subcutaneously as well as by mouth. Moreover, thyroid was given intermittently. The patient gained rapidly in weight, the menstrual flow returned and within a few weeks her general condition had changed completely. The author ascribes the more rapid improvement in this patient to the more intensive treatment. The administration of other than prehypophyseal extracts in hypophyseal insufficiency is indicated only in the extremely severe and prolonged cases of prehypophyseal insufficiency, in which thyroid, adrenals and gonads have become severely involved. Endocrine treatment by means of implantation of animal prehypophyses is indicated only if an activating effect is desired and if the oral or parenteral administration of an extract of the entire prehypophysis does not produce the desired effect.

**Artificial Pneumothorax in Pneumonia.**—Daniels observed a case of pneumonia in a boy, aged 16. An artificial pneumothorax was induced on the third day on account of severe pain. The author discusses pneumonia in general, emphasizing that the pneumothorax therapy exerts its influence only on the pains. He points out that under certain conditions this therapy might be harmful; for instance, in case of severe impairment of the myocardium or in case the other side becomes involved later. Moreover, the displacement of the mediastinum has to be watched for. The author thinks that in pneumonia artificial pneumothorax is justified only if severe pleural pains have to be relieved and even then only in exceptional cases. He does not think that this intervention promises more for the future.

**Alcohol Injections in Treatment of Pulmonary Abscesses.**—After reviewing the literature on this method of treatment, Magnus-Alsleben and his associates report six cases of pulmonary abscess in which they resorted to alcohol injections. A 33 per cent solution of alcohol in distilled water was administered intravenously in quantities of from 75 to 200 cc. at intervals of from four to five days. The total number of injections varied between four and seven. Five of the patients were cured. The authors gained the impression that the alcohol injections exerted a favorable influence on the clinical course, for the temperatures as well as the quantities of sputum decreased following the alcohol injections. In several of the cases a noticeable improvement concurred with the injections after other remedies had been employed for weeks without success.

### Ginecologia, Turin

2: 1023-1150 (Nov.) 1936. Partial Index

\*Behavior of Curve of Alimentary Glycemia with Different Amounts of Sugar in Pregnancy. G. Addessi.—p. 1024.

Pathogenesis of Sudden Detachment of Normally Inserted Placenta: Role of Chronic Poisoning from Carbon Disulfide; Cases. M. Picardi.—p. 1039.

Structural Modifications of Uterine Veins in Relation to Age. E. Berutti.—p. 1087.

Structural Modifications of Ovarian Vessels in Relation to Age. E. Berutti.—p. 1109.

Value of Test of Drop of Dried Blood in Diagnosis of Syphilis in Obstetrics. G. V. Segre and R. Bolaffi.—p. 1129.

**Behavior of Curves of Alimentary Glycemia in Pregnancy.**—Addessi studied the behavior of the curve of glycemia in pregnancy after administration of different amounts of dextrose, according to Labbe, Bufano and Faber's tests. The glycemia of normal pregnant women with a fasting stomach is under normal figures or else there is hypoglycemia. The curves of induced hyperglycemia given by the different tests were in agreement. The author concludes that normal pregnancy does not modify the curves of induced hyperglycemia, which show the same characteristics that they have in conditions other than pregnancy. Only during the seventh and eighth months of pregnancy have the curves a slight and transient deviation toward a paradiabetic type, which is due to liver disturbances of fixation of dextrose and also to a lowering of the renal threshold of permeability to dextrose. The renal threshold is not so low as to result in the production of glycosuria, but the stimulation of induced hyperglycemia produces it. The author considers the seventh and eighth months of pregnancy a pathologic period during which the

balance of the mechanism which regulates glycemia in pregnancy is transiently ruptured. By the ninth month of pregnancy the functions controlling glycemia are again normal.

### Minerva Medica, Turin

2: 517-536 (Dec. 1) 1936

\*Action of Histamine on Tuberculous Foci of Lung: Roentgen Study. G. Luzzatto-Fegiz.—p. 524.

Relations Between Erythema Nodosum and Tuberculosis. E. Massobrio and U. Demichelis.—p. 529.

**Action of Histamine on Tuberculous Foci of Lung.**—Luzzatto-Fegiz reported in a previous article a harmless method for auscultation of foci of pulmonary tuberculosis which otherwise are silent. It consists in the administration of a subcutaneous injection of 1 cc. of a 1:1,000 histamine solution. The alterations of respiration, murmurs and râles that are characteristic signs heard by auscultation in pulmonary tuberculosis appear shortly after administration of the injection in four out of every five patients suffering from pulmonary tuberculosis. The injection fails to induce these signs in normal persons. The author made serial roentgenograms at intervals of a few minutes in order to study the anatomic and functional changes induced by the histamine injection in the tuberculous lung. The roentgenograms, compared with those taken in the same position immediately before administration of histamine, showed a clearer and more transparent pulmonary parenchyma around the tuberculous foci, darker tuberculous foci with more definite contours, darker images of the ulcerations of a bread crumb type, constriction of the lumen of the bronchi (except those which were rigid from a process of chronic peribronchitis) and darker and thicker shadows of the blood vessels, especially those near the hilus. If the parenchymal lesions were in an advanced stage, however, the shadows given by the tuberculous foci overshadowed those given by the vessels. According to the author the increased transparency of the lung parenchyma is due to emphysema from spasm of the bronchi. The clear parenchyma, as a field, produces by contrast a good showing of the shadows given by the pulmonary foci and blood vessels. The clear visualization of the ulcerations of the bread crumb types is due to spasm of the arterioles. The anatomic and functional changes induced by histamine in the tuberculous lung, as verified by the author, prove that the roentgen phenomena have as a common producing factor the bronchial spasm induced by histamine. His results prove also the exactness of his opinion as to the mechanism of production of the auscultatory signs by the histamine test. According to the author there is a condition of bronchial stenosis in pulmonary tuberculosis with consequent retention of air in the alveoli which results in the spontaneous production of murmurs and râles at the site of inflammation and edema at the tuberculous foci. When the bronchial spasm is latent, the murmurs and râles fail to be produced. Histamine, which cannot produce bronchial spasm in the normal respiratory tract, changes latent bronchial spasm into actual spasm with consequent development of murmurs and râles, which are audible at the tuberculous foci.

### Policlinico, Rome

43: 535-606 (Nov. 15) 1936. Surgical Section

Thyroid Toxic Adenoma and Exophthalmic Goiter: Subtotal Thyroidectomy. R. Broglio.—p. 535.

\*Influence of Local Injections of Cholesterol on Healing of Fractures. A. Grassi.—p. 544.

"Mens Agitat Molem": Surgical Treatment of Gastric Ulcer of Nervous Origin. B. Schiassi.—p. 557.

Experimental Gastric Phlegmons. P. Stefanini.—p. 590.

**Influence of Cholesterol on Healing of Fractures.**—Grassi studied the evolution of experimental fractures in rabbits treated with injections of 0.5 or 1 cc. of a 2 per cent solution of cholesterol oil. The injections were given at the site of the fracture or intramuscularly every day for from ten to thirty days. The results were compared with those obtained in two groups of control rabbits: those which were given daily injections of 0.5 cc. of a physiologic solution at the site of the fracture, for the same length of time as those treated with cholesterol, and those which were not treated at all. The author found that cholesterol in local injections accelerates

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Archives of Disease in Childhood, London

11: 233-274 (Oct.) 1936

- \*Banti's Syndrome in Childhood: Report of Four Cases. L. C. Martin.—p. 233.  
Ossification of Carpus in Rickets, Congenital Syphilis and Cretinism. P. Macarthur.—p. 243.  
\*Blood Sugar in Convulsions of Infancy and Childhood. Margaret B. Maclean.—p. 247.  
Further Observations on Acid Metabolism in Rheumatic Children. W. W. Payne.—p. 257.  
Amyoplasia Congenita Associated with Mongolism. L. C. Cook.—p. 261.

**Banti's Syndrome in Childhood.**—Martin reports four cases showing Banti's syndrome, in three of which the Wassermann reaction was negative and the fragility of red cells, bleeding time and coagulation time were normal. The fourth case exhibited the clinical features of Banti's ascitic stage. The few small palpable glands alone were atypical; the cervical ones were attributed to carious teeth. The absence of a definite leukopenia at such an apparently late stage of Banti's disease in addition to the long history of jaundice was, however, a warning that the case was not entirely typical. The Wassermann reaction was a weak positive. Banti's disease is said to be rare in children. The diagnosis of Banti's disease is seldom made before one of the major symptoms, such as hematemesis or grave anemia, has occurred, although examination of a child with a vague epigastric pain or swelling of the abdomen may reveal an enlarged spleen and a palpable liver. All conditions associated with splenomegaly in childhood must be excluded; and it must be remembered that the hematopoietic system of a child is unstable and reacts violently to stimuli which would have little or no effect on an adult. The reaction may take the form of splenomegaly, hepatomegaly, enlargement of lymphatic glands and varying degrees of anemia—such as occurs typically in von Jaksch's syndrome in response to stimuli like iron deficiency, rickets and syphilis or other infections. The two most important conditions to be excluded before diagnosing Banti's disease are syphilis and acholuric jaundice. Syphilis may exactly simulate Banti's disease, as it did in the author's fourth case, and hepatomegaly may accompany splenomegaly in acholuric jaundice; hence the Wassermann reaction and fragility of red cells are essential investigations. Small doses of iron, as a therapeutic test, may help to exclude an iron deficiency anemia, but massive doses should not be given in view of Davidson's success in the treatment of Banti's disease by such doses of iron. The term Banti's disease should be confined to those cases showing splenomegaly and secondary anemia, with or without hemorrhages and hepatic cirrhosis, but in which no known etiologic factor is present. Similarly splenic anemia should be applied to cases showing Banti's syndrome when some vascular disorder or specific infection can be recognized during life. The finding of portal or splenic thrombophlebitis at necropsy in a case of Banti's disease should not nullify the diagnosis made during life, until further work has shown whether such vascular abnormality is a cause or sequel.

**The Blood Sugar in Convulsions in Childhood.**—In view of the confusion of opinion regarding the rôle of hypoglycemia in the etiology of convulsions in childhood, Maclean performed blood sugar estimations in fifty children admitted to the hospital because of convulsions and made an attempt to follow the changes occurring in the blood sugar level from the beginning of a convulsion until some hours after it had ceased. The blood sugar was estimated at frequent intervals, often hourly. High blood sugar values occurred most frequently in the first three hours after the convulsion and often persisted into the fourth to the twelfth hour. There are as a general rule two phases, a state of hyperglycemia followed by one of hypoglycemia. A blood sugar level of more than 180 mg. was taken as indicating hyperglycemia and one of less than 60 mg. as hypoglycemia. Except in cases of true hyperinsulinism it would appear that hypoglycemia plays no part in the causation of the convulsions of childhood and that the upset in carbohydrate metabolism is the result and not the cause of the convulsions.

## British Journal of Physical Medicine, London

11: 119-138 (Nov.) 1936

- Equipment for Physical Medicine of a Medium-Sized Hospital. A. P. Cawadiaz.—p. 120.  
Ray Therapy and a Sunless Summer. W. Beaumont.—p. 123.  
Hydraulic Underwater Massage and Its Therapeutic Indications. F. Foeldes.—p. 125.

## British Journal of Surgery, Bristol

24: 205-420 (Oct.) 1936

- Three Cases of Glomangioma or Angioneuroma (Painful Subcutaneous Tubercle). W. A. Mackey and A. C. Lendrum.—p. 208.  
\*The Problem of Anuria: Review of Recent Work on Renal Physiology: Reports of Two Cases. A. W. Cubitt.—p. 215.  
Some Contributions to Causation, Pathology and Treatment of Duodenal Ulcer and Its Complications. T. H. Somervell and I. M. Orr.—p. 227.  
Congenital Disk-Shaped Lateral Meniscus with Snapping Knee. D. S. Middleton.—p. 246.  
Some Examples of Disease of Vertebral Column Found in Skeletons of Ancient Egypt: Contribution to Paleopathology. L. R. Shore.—p. 256.  
\*Multiple Arthritis in Presumably Tuberculous Subjects: Difficulties in Diagnosis and Treatment. D. H. Collins and C. Cameron.—p. 272.  
Gravity Drainage of Pelvic Abscess. A. L. McGregor.—p. 292.  
Myomas of Esophagus. J. D. Rose.—p. 297.  
Traumatic Rupture of Urethra: Eight Personal Cases, with Review of 381 Recorded Ruptures. A. Simpson-Smith.—p. 309.  
Hyperplastic Tuberculosis of Stomach Causing Hour-Glass Deformity, with Complete Squamous Metaplasia of Upper Loculus. G. W. Watson, E. R. Flint and M. J. Stewart.—p. 333.  
Hallux Valgus: Comparison of Results of Two Operations. E. I. Lloyd.—p. 341.  
Pseudotubercleoma Silicoticum. K. C. Eden and J. Herbert-Burns.—p. 346.  
Embolectomy on Vessels of Extremities. E. Key.—p. 350.  
Bilateral Lobectomy for Bronchiectasis. I. Lewis.—p. 362.

**The Problem of Anuria.**—Neither of the two cases reported by Cubitt can be certainly put in the class of reflex anuria, but they both present unusual features. In the first case the obstructed kidney showed a dense shadow in the roentgenogram, presumably because of its congestion. The contralateral kidney was probably functionless. The ureteral calculus which was subsequently passed did not show in the roentgenogram. The symptoms of anuria were early in their appearance. Restoration of the flow of urine, probably due to the passage into the bladder of the stone blocking the ureter of a solitary functional kidney, followed the administration of intravenous saline solution. In the second case complete anuria followed nephropexy; both kidneys had been proved previously to be functioning perfectly. The cause was probably partly obstructive and partly infective. The symptoms were unusually early and severe. Restoration of the flow of urine and relief of symptoms followed a combination of intravenous dextrose, spinal anesthetic and bilateral ureteral catheterization. Spinal anesthesia is worthy of trial in cases of reflex anuria. This applies whatever its etiology, since the afferent path at least must be a nervous one. The experimental work done by physiologists in the last few years dealing with the blood supply of the kidneys, its response to humoral and nervous influences and the effect on the secretion of urine of these changes in blood supply and of changes in the urine pressure has an important bearing on the problem of anuria. Winton's conception of intrarenal pressure in particular is full of possibilities and requires further work. The author's tentative explanation of reflex anuria embodies the following possible sequence of events: spasm of one ureter in response to impaction of a stone sets up afferent nervous impulses which, either by direct reflex action or by release of some endocrine substance, cause vascular changes in the other kidney, an alteration in capillary permeability and an exudation of fluid into the renal parenchyma; the raised intrarenal pressure obstructs the tubules and raises the urine pressure opposing filtration; at the same time it causes partial obstruction to the venous outflow so that the kidney is congested with blood. Contributory factors may be (1) lowering of general blood pressure and (2) abnormal leak of urine back through the tubules into the blood stream, as a result of increased urine pressure.

**Multiple Arthritis in Presumably Tuberculous Subjects.**—Collins and Cameron present twelve cases that include a variety of arthritic manifestations occurring in tuberculous subjects. Every investigation and observation that they have been able to make has led them to the conclusion that, with the exception of three, none of these patients suffered from a



detailed descriptions of two technics, the first to be used for urines that give a positive Griess reaction and the second for urines with a negative Griess reaction. In the conclusion she emphasizes that in order to obtain satisfactory results it is necessary to follow the directions exactly. With her improved technic she was able to reduce the erroneous reactions to less than 4 per cent.

15: 1745-1784 (Nov. 28) 1936. Partial Index

Significance of Examination of Eye for Understanding of Hyper-Tensive and Renal Disturbances. F. Volhard.—p. 1745.

\*Demonstration of Hormone of Posterior Lobe of Hypophysis in Blood with Aid of Ultrafiltration Methods. K. J. Anselmino and F. Hoffmann.—p. 1750.

Results of Bacterial Surface Culture Under Exclusion of Air With and Without Artificial Oxygen Consumption. W. Bachmann.—p. 1751.

\*Results of Twenty-Four Hypophyseal Transplantations. E. Kylin.—p. 1756.

Pathogenesis and Spreading of Septic Puerperal Infections. K. Sommer.—p. 1760.

Endometriosis in Musculature of Arm. E. Navratil and A. Kramer.—p. 1765.

**Demonstration of Active Principle by Ultrafiltration Methods.**—Anselmino and Hoffmann point out that in 1931 they demonstrated, with the aid of an ultrafiltration method, an antidiuretic and a vasopressor substance in the blood of patients with eclampsia or with nephropathy and proved that this antidiuretic substance is identical with the antidiuretic component of the posterior lobe of the hypophysis. Since the effects of these substances corresponded to the clinical symptoms of the pregnancy toxemias, they ascribed the latter to ancretory disturbance in which a pathologically increased formation of the active principle of the posterior hypophysis played the most important part. Their observations were reinvestigated by others, some of whom obtained contradictory results, in that they were unable to identify the antidiuretic substances in the blood of eclamptic patients with the antidiuretic component of the posterior lobe of the hypophysis. The authors show that this inability of the other investigators to identify the two substances is due to the fact that they employed a different ultrafiltration method. Instead of using the glacial acetic acid collodion membrane employed by the authors, they used an alcohol-ether-collodion membrane of several layers, which was put through a drying process. The authors state that the drying process makes the membrane impermeable for the principle of the posterior lobe of the hypophysis. They further describe their own technic and then report experiments. In one group of experiments they extracted the posterior pituitary principle that had been added to serums in vitro and in a second group they extracted posterior pituitary principle from the blood of dogs that had been given injections of the extract.

**Results of Transplantation of Hypophyseal Tissue.**—Kylin was induced to try the transplantation of hypophyseal tissues from calves to patients with hypophyseal cachexia (Simmonds' disease) by von Bergmann's report on three cases. Kylin employed the method in twenty-four patients, twenty-three of whom had Simmonds' disease. Twelve of these were completely cured and six were greatly improved, but since the elapsed time is still rather short a final evaluation is impossible as yet. Two patients died; one immediately after the operation and the other three months later. In three others the operation is of recent date. The first signs of improvement were usually observed after one or two months, but the increase in weight usually did not start until two or three months had elapsed. The hypophyseal transplantation proved valuable also in a youth, aged 19, who had adipogenital dystrophy.

### Medizinische Welt, Berlin

10: 1717-1756 (Nov. 28) 1936. Partial Index

Epidemiology and Prophylaxis of Influenza. P. Schmidt.—p. 1717.

Development of Bronchitis to Its Terminal Stages. K. Gutzeit.—p. 1719.

So-Called Chronic Tonsillitis. O. Voss.—p. 1724.

\*Observations on Mild Attacks of Influenza During Puerperium.

E. Schneider.—p. 1728.

**Mild Attacks of Influenza During Puerperium.**—Schneider states that the thirty-seven cases of influenza he observed among 1,472 puerperal women were mild and that the recovery

was more rapid than is ordinarily the case in influenza. The unusually short duration of the influenza even in patients with rather high fever, severe impairment of the general condition, reddishness and painfulness of the pharynx and conjunctivae and painful cough is ascribed by the author to the fact that treatment was begun immediately after the first signs of influenza became noticeable. The women were kept in bed. They were given large doses of salicylate and usually also aminopyrine. In a few instances cardiac remedies were given. The cough was relieved with codeine syrup, and generous amounts of fluid were given. The lactation process was not impaired and the women continued to nurse their infants. However, in order to protect the infants against infection by droplets a cloth was placed around the woman's mouth and nose during nursing. In discussing the differential diagnosis of influenza during the puerperium the author says that, if the genitalia are free from changes, if there are no signs of cystitis, pyelitis, typhoid, articular rheumatism or recurrent tuberculosis and if the pharynx is hyperemic but without signs of angina, influenza may be considered a possible cause of the febrile temperature, the dryness of the oral and pharyngeal mucous membranes, the involvement of the conjunctivae and the general indisposition.

### Strahlentherapie, Berlin

57: 393-552 (Nov. 14) 1936. Partial Index

Are Surgical Results in Carcinoma of Uterine Cervix Improved by After-Irradiation? H. R. Schinz.—p. 393.

Practical Experiences on Reliability of Indirect Dosimetry. H. Holthusen.—p. 459.

\*Wavelike Course of Radium Erythema as Well as Paradoxical Pallor Reaction to Radium on Comb and Wattles of Cock Resulting from Collagen Changes. E. Zurbelle.—p. 473.

Ray Sensitivity of Skin, Morphologic Constitution and Neurosympathetic Tonus. D. Bolsi and E. Conte.—p. 488.

\*Technic of Treatment with Borderline Rays in Naevus Flammeus. F. Kalz.—p. 510.

Ray Action on Sympathetic Nervous System. W. Knierer.—p. 516.

\*Influence of Roentgen Rays on Cholesterol Content of Blood and Serum of Women Without and With Carcinoma or Sarcoma. P. H. Schumacher and Rusch.—p. 532.

**Course of Radium Erythema.**—Zurbelle studied the reactivity of the skin to radium rays in experiments on himself. He applied the radium rays to several areas on his left arm by means of 10 mg. of radium element, which was filtered with 0.5 mm. of brass. The irradiation usually lasted about four hours. Several hours after the irradiation a follicular erythema appeared. However, this early erythema disappeared in from three to four days. Then followed a period of latency. After five weeks a rather severe erythema with swelling developed, which was preceded by a speckled reddishness. About six weeks after the radium irradiation a blister developed on the erythema, which burst about a week later. After that the inflammation subsided rapidly, forming a yellowish brown adherent crust. Later the crust came off and a slightly depressed scale-covered area remained, the depression still being noticeable after a year. The course of the reaction was the same in eight different tests, which the author made on himself. In order to be able to make histologic studies, he decided to make animal experiments. He applied radium rays to the comb and wattles of cocks. Contrary to expectation he found that these organs react to radium rays with pallor. The histologic explanation of the pallor lies in a thickening or swelling of the collagen with constriction of the vessels, and the blister formation is due to a blister-like detachment of necrotic epidermis without exudation. He emphasizes that the highly vascular comb and wattles are especially suitable for disclosing changes in the collagen, because of the loose structure of the connective tissue. It was found that the connective tissue is involved in the reaction to irradiation by way of colloidal chemistry rather than through the action of the cells. Thus the author's investigations corroborate the observations of other investigators on the radiosensitivity of the collagenic fiber and indicate that in irradiation the chemical changes in the intercellular substance are more important than cellular changes.

**Borderline Rays in Treatment of Naevus Flammeus.**—Kalz states that he employed borderline rays in the treatment of forty-nine cases of a naevus flammeus. He usually applied

whether the appendix is to be seen or not. The position of the transverse colon is marked. No further observations as to abnormalities are made on the colon except in special cases. This terminates the examination. If special observations are to be made on the colon, they are carried out by means of the barium enema. Of 752 roentgen examinations of the gastrointestinal tract carried out in St. Vincent's Hospital, the diagnosis was correct in all except four cases.

### Journal of Hygiene, London

36: 467-614 (Oct.) 1936

- Plague Conditions in Urban Area of Kenya (Nairobi Township). J. I. Roberts.—p. 467.
- Plague Conditions in Rural Endemic Area of Kenya (Kerugoya District, Kikuyu Province). J. I. Roberts.—p. 485.
- The Carriage of Plague. J. I. Roberts.—p. 504.
- Simple Method for Preservation of Serums by Desiccation in the Frozen State Without Use of Refrigerants. R. I. N. Greaves and Muriel E. Adair.—p. 507.
- Studies on Significance of Vi Antigen in Mechanism of Typhoid Infection in Mice. J. Ørskov and F. Kauffmann.—p. 514.
- Salmonella Onderstepoort: New Type of Salmonella from Sheep. M. W. Henning.—p. 525.
- Size of Virus of Rabies (Fixed Strain) by Ultrafiltration Analysis. I. A. Galloway and W. J. Elford.—p. 532.
- Size of Virus of Aujeszky's Disease (Pseudorabies, Infectious Bulbar Paralysis, Mad Itch) by Ultrafiltration Analysis. W. J. Elford and I. A. Galloway.—p. 536.
- Phthisis and Physical Measurements in Wales. W. J. Martin.—p. 540.
- Pneumoconiosis in South Wales. S. L. Cummins.—p. 547.
- Sterilization of Antityphoid Vaccine. H. Schütze.—p. 559.
- Distribution of Antibody to Crystalline Egg Albumin in Serum of Injected Rabbits. Muriel E. Adair and G. L. Taylor.—p. 564.
- \*Passive Anaphylaxis Following Immediate Injection of Antigen After Antiserum. H. R. Dean, R. Williamson and G. L. Taylor.—p. 570.
- Late Deaths Occurring in Active Anaphylaxis. R. Williamson.—p. 588.
- Experiments on Infectivity for Healthy Calves of Bovine Tubercle Bacilli Discharged in Dung on Pasture: Part I. From Tuberculous Calves Fed with Emulsions of Tubercle Bacilli 1934 to 1935. Part II. From Tuberculous Cows Passing Tubercle Bacilli in Their Dung 1935 to 1936. E. C. G. Maddock.—p. 594.
- Effects of Partial Obstruction of Airways of Lungs and Influence of Sources of Heat. L. Hill.—p. 602.

**Passive Anaphylaxis Following Immediate Injection of Antigen After Antiserum.**—The experiments of Dean and his collaborators show that an intravenous injection of antigen immediately after an intravenous injection of antiserum in the guinea-pig had the following results: 1. When acute shock and death took place within five minutes, the signs and postmortem appearances were indistinguishable from acute anaphylactic shock as typically seen in the guinea-pig. Some control animals injected only with antiserum died in a way similar to those which received both antiserum and antigen. 2. When delayed shock and death occurred some hours later, the postmortem appearances were those of gastro-intestinal congestion and hemorrhage resembling the changes seen in dogs dying of anaphylactic shock. Such changes were never seen in the control animals. 3. Practically all the animals which recovered had symptoms of respiratory embarrassment immediately following the injections of antiserum and antigen and many had later symptoms of abdominal shock. The animals that were given an injection of antiserum had symptoms only rarely and never abdominal symptoms. It is necessary to test the antisera used by control inoculation, since some antisera are toxic. Passive anaphylaxis can be produced by the intravenous injection of antigen immediately following that of antiserum, but it is easier to produce it by allowing an interval between the two injections.

### Lancet, London

2: 1021-1078 (Oct. 31) 1936

- Constructive Hygiene in Obstetrics. J. S. Fairbairn.—p. 1021.
- \*Observations on Mechanism of Rheumatic Fever. A. F. Coburn.—p. 1025.
- Mortality and Later Results of Subtotal Gastrectomy. R. J. Still.—p. 1030.
- Gastric Achlorhydria in Chronic and Subchronic Proliferative Arthritis. O. Moltke and A. S. Ohlsen.—p. 1034.

**Rheumatic Fever.**—Coburn points out that in most individuals hemolytic streptococcal pharyngitis is followed by uncomplicated recovery. However, a small minority develop rheumatic fever shortly after convalescence from this type of infection. The author attempts to interpret the relationship of the immune response to the development of the rheumatic

process. The data consist of observations on the serologic events immediately following hemolytic streptococcal pharyngitis. Variations in the clinical character of the attack show a close parallel to the types of antistreptolysin curves developed. The immune responses of the rheumatic individual differ from the normal in that they are delayed. If this should prove to be true in the light of more extensive data on normal responses, it must be assumed that the rheumatic subject who develops an attack handles the products of the hemolytic streptococcus in a peculiar way. Such a concept harmonizes well with the prolonged antigenicity of this organism during rheumatic attacks as evidenced by the persistence of high antistreptolysin titer levels for months after infection. In addition to the apparent delay in the immune response of the rheumatic subject, there may also be a delay in the final elimination of hemolytic streptococcus products from the body. These observations suggest the hypothesis that the rheumatic state is characterized by an abnormal method of disposing of hemolytic streptococcus products. The mechanism whereby such an abnormal immune response may induce disease is unknown. Further information on the nature of this abnormality may make possible an experimental approach to the mechanism.

2: 1079-1134 (Nov. 7) 1936

- Age Factor in Lobar Pneumonia. R. Coope, H. A. Osborn and F. Pygott.—p. 1079.
- Mandelic Acid in Treatment of Urinary Infections. M. L. Rosenheim.—p. 1083.
- \*Mandelic Acid in Treatment of Pyelitis in Childhood. G. H. Newns and R. Wilson.—p. 1087.
- Size of Heart in Asthma and Emphysema. E. L. Rubin.—p. 1089.
- Treatment of Postdiphtheritic Respiratory Paralysis with the Bragg-Paul Pulsator. C. J. McSweeney.—p. 1093.
- Anemia of Pernicious Type Complicated by Diabetes Mellitus and Terminating in Acute Myeloid Leukemia. C. Elman and S. Marshall.—p. 1094.

**Mandelic Acid in Treatment of Pyelitis in Childhood.**—Newns and Wilson used mandelic acid in the treatment of thirty-six cases of pyelitis in children less than 12 years of age. There were twenty-four cases of acute pyelitis, ten cases were chronic or relapsing and in two albuminuria and casts were present, owing probably to pyelonephritis. Ten of the children had been treated unsuccessfully with potassium citrate before the administration of mandelic acid. Mandelic acid with sodium bicarbonate was used in most of the cases and was given in doses of from 15 to 30 grains (1 to 2 Gm.) four times a day, according to the age of the child. In all but three patients the urine was rendered sterile, often within a week of the beginning of treatment. The unsuccessful cases included a *Bacillus mucosus-capsulatus* pyelitis and a *Bacillus proteus*-pyelitis complicating pink disease. Little difficulty was experienced in reducing the  $pH$  to the optimal level of 5.3. Side effects were noted in two cases: in one diarrhea developed, necessitating temporary cessation of treatment; the other child had some vomiting. No harmful effects on the kidneys were observed. So far, of the thirty-six patients treated, nine have had relapses; three of these have had a second course of treatment which has produced a sterile urine. Of the nine relapses three were in patients with abnormalities of the urinary tract and two in infections with an organism other than *Bacillus coli*. Such infections do not yield so readily to mandelic acid therapy. Four cases are thus left for which no reason for relapse can be given.

### Medical Journal of Australia, Sydney

2: 553-582 (Oct. 24) 1936

- Rat-Bite Fever: Some Observations. E. H. Derrick and H. E. Brown.—p. 553.
- Unusual Case of Poisoning, with Some Notes on Nonalkaloidal Organic Substances. F. W. Carter.—p. 558.
- The Law and the Coroner. H. R. Clark.—p. 565.

2: 583-614 (Oct. 31) 1936

- Observations on Hemiplegia. D. W. C. Jones.—p. 583.
- Treatment of Tuberculosis of Bones and Joints. A. R. Hamilton.—p. 590.
- Static Foot Trouble. E. B. M. Vance.—p. 593.
- Indications for Thoracoplasty in Pulmonary Tuberculosis. H. Scarby.—p. 596.
- Symptoms Preceding Suicide. S. J. Minogue.—p. 598.

2: 615-669 (Nov. 7) 1936

- Tropical Ulcer, with Especial Reference to Its Etiology. F. W. Clements.—p. 615.

persons. The onset of the disease exhibits less pronounced pain, and temperature reaction, nausea and vomiting are noted less frequently, the typical local tenderness at McBurney's point may be absent and the tenderness frequently extends beyond the right lower abdominal quadrant. Atypical complaints and historical data further obscure the picture. The leukocyte count is relatively lower than anticipated and occasionally leukopenia may exist. The pathologic alterations in the appendix are more pronounced and the percentage of perforations is high. The course of the disease is characterized by grave complications and a high mortality rate. There is a frequent lack of relationship between the clinical symptoms and the pathologic observations. Profound pathologic alterations may exist in patients with trivial complaints and apparently insignificant objective signs. The high mortality index in the old depends principally on the rapid development of pathologic alterations. On the other hand, patients operated on early give a mortality rate not much higher than that of the younger groups.

**Surgery of Cancer of the Colon.**—Turovets considers the early diagnosis of cancer and its precancerous stage the most important factor in the treatment of colonic cancer. Early diagnosis will be possible only when the practicing physician will resort to clinical, laboratory and roentgenologic methods of examination. The early diagnosis of malignant neoplasm of the large intestine is made difficult by the fact that not infrequently it may run an asymptomatic course. The so-called general abdominal complaints of the middle aged may be its first symptoms and therefore call for a careful examination, including roentgenography. In cases difficult to diagnose, exploratory laparotomy is indicated. The author includes regional chronic colitis among the inflammatory and degenerative processes that may serve as a soil for the development of cancer of the colon. Polyposis, itself the result of various inflammatory processes, merits particular attention as a precancerous condition. The author stresses early operation and the widening of indications for a one-stage resection even in the presence of acute obstruction. Early resection gives a high percentage of permanent recoveries.

### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80: 5537-5624 (Dec. 12) 1936. Partial Index

Importance of Quantitative Determination of Vitamins in Blood and Body Fluids for Estimation of State of Nutrition. L. K. Wolff.—p. 5542.

Hereditary Cleidocranial Dysostosis. J. C. J. Burkens, E. H. La Chapelle and J. Groen.—p. 5547.

\*Circumscribed Cranial Osteoporosis (Schüller) with Psychosis. C. van der Heide.—p. 5555.

### Circumscribed Cranial Osteoporosis with Psychosis.

Van der Heide relates the clinical history of a woman, aged 48, who was hospitalized on account of a paranoid-hallucinatory condition. Because it seemed probable that the psychosis developed on an organic basis, a roentgenogram of the skull was made and revealed pathologic changes in the bones finally identified as circumscribed cranial osteoporosis, which was first described by Schüller. The other portions of the skeleton were normal except for an irregular and rather coarse structure of the bone in the right ilium, which suggested Paget's disease. An exploratory excision from the temporal bone revealed almost normal bone. Following a review of the literature on circumscribed cranial osteoporosis, the author discusses the differential diagnosis with regard to Schüller-Christian's disease and to osteitis fibrosa cystica generalisata (von Recklinghausen). Finally he cites factors indicating a connection between circumscribed cranial osteoporosis and Paget's disease.

### Finska Läkarsällskapets Handlingar, Helsingfors

79: 839-931 (Oct.) 1936

Experiences with Finland's Red Cross Ambulance in Abyssinia. R. Faltin.—p. 848.

\*So-Called Myeloid Reaction. G. Tötterman.—p. 880.

\*Changes in Central Nervous System in Leukosis. R. Gordin.—p. 889.

**So-Called Myeloid Reaction.**—Tötterman's first case of so-called myeloid reaction occurred in a woman, aged 40, in connection with a subchronic polyarthritis. The highest num-

ber of white blood corpuscles was 21,200, with more than 40 per cent neutrophil myelocytes and metamyelocytes; normoblasts were abundant. The results of a sternal puncture testified definitely against leukemia. During almost two years' observation, no aggravation in the patient's condition has appeared. In the second instance, a man aged 31, with bothrioccephalus anemia, there was a large number of immature leukocytes in the blood after pneumonia, with a total of 28,400 white blood corpuscles and more than 40 per cent myelocytes and metamyelocytes. After treatment of the bothrioccephalus anemia the blood picture rapidly became normal.

### Changes in Central Nervous System in Leukosis.

Gordin says that these changes in leukosis may depend (1) on hemorrhages in connection with the hemorrhagic diathesis, (2) on leukemic changes in the blood vessels and (3) on infiltration with specific leukemic tissue. The last named changes occurred mainly in acute leukoses (including chloroleukemia) and especially in lymphadenosis. Specific leukemic changes in the meninges and the nerves of the brain or the spinal roots are not uncommon. The most frequent disturbance of the spinal cord is a compression syndrome, caused by epidural leukemic tumor masses. In a patient presenting symptoms of acute ascending myelitis, leading in the course of two months to tetraplegia, paralysis of respiration and death, the lymph nodes were slightly enlarged and there were tumor-like nodules in the skin; a hemorrhagic diathesis and specific changes in the blood picture were absent. The epidural tumor of the spinal cord revealed at necropsy was made up of lymphoid tissue with lymphoblast and lymphocyte-like cells, also fibrocytes and macrophages. Similar tissue was found in the kidneys, in the lymph nodes and cutaneous tumors as well as in the stomach, where ulcerations surrounded by lymphoid tissue had developed. In the upper dorsal region the spinal tumor had caused myelomalacia. Hydromyelocele was also seen, with fenestration and degeneration of strands and acute changes in the ganglion cells. The author concludes that the tumors in the different organs were coordinated in their origin and of benign type, and he considers the case one of atypical leukosis, most nearly resembling a lymphadenosis. In a second case described there were simultaneous leukosis and a malignant brain tumor (glioma of spongioblastoma type).

### Hospitaltidende, Copenhagen

79: 1177-1204 (Nov. 10) 1936

\*Prognostic Significance of Preoperative Electrocardiography and Roentgen Examination of Heart. J. Foged and T. Geill.—p. 1177.

79: 1205-1232 (Nov. 17) 1936

\*Prognostic Significance of Preoperative Electrocardiography and Roentgen Examination of Heart: C'en. J. Foged and T. Geill.—p. 1205.

Tuberculosis of Bronchial Lymph Nodes in Adults. A. Rottensten.—p. 1218.

Investigations on Content of Aminolipoid (Cephalin) in Plasma in Psychoses. L. Laursen.—p. 1227.

**Preoperative Electrocardiography and Roentgen Examination of Heart.**—Foged and Geill made electrocardiographic and roentgen examinations of the heart in 428 cases in which an important surgical intervention was indicated. In 253 of the 353 patients operated on in whom clinical examination failed to reveal any pathologic changes in the heart, the results of electrocardiography and roentgen examination agreed with the clinical results; the operative mortality due to heart weakness was 1.1 per cent. In the remaining 100, in whom electrocardiogram or roentgenogram, or both, disclosed abnormality in the heart, the operative mortality from impairment of the heart was 11.8 per cent. It seems to the authors justifiable to accept the outcome of these examinations as a factor in considering the operative risk, when the indication is not imperative. In certain cases the result of the examinations contraindicates the operation; in others it helps to decide the extent of the intervention. Myocardial degeneration and coronary disturbance undoubtedly constitute a grave contraindication for important surgical interventions. The operative prognosis in the various forms of cardiac disorder must be more closely determined by continued investigations in greater numbers of patients.

## Archives des Maladies de l'App. Digestif, Paris

26: 1001-1120 (Nov.) 1936

- \*Gastric Atrophy and Intermediate Malignant Anemia. R. Boulín, F. Moutier and R. Lehmann.—p. 1001.  
Constant in Acidity of Gastric Juice. Léon-Meunier.—p. 1009.  
Physiopathologic Study of Hematopoietic Place of Stomach. A. C. Guillaume.—p. 1015.  
Modifications of Blood in Acute Parenchymatous Hepatitis. I. B. Schulutko, R. G. Berger and N. E. Bagryanskaya.—p. 1030.  
Modern Treatment of Anal Fissure. E. Machline.—p. 1050.

**Gastric Atrophy and Intermediate Malignant Anemia.**  
—Boulín and his collaborators report a case of intermediate malignant anemia with gastric atrophy from the anatomopathologic point of view. The patient was a man, aged 82, who complained of continuous abdominal pain, affecting chiefly the right hypochondrium and the periumbilical region. The first date of appearance of these symptoms was almost thirty years prior to this hospital admission. For several months, however, the patient complained of generalized asthenia and loss of weight. The tongue showed the classic glossitis. There was tympany of the cecal region, but no abdominal tenderness. The achilles reflexes were abolished and the pulse was rapid but there were no other important physical signs. Test meals of the stomach revealed no free acidity. The blood showed megalocytic hyperchromic anemia, with 1,850,000 red cells and a hemoglobin of 45 per cent. In spite of the institution of liver therapy the patient died shortly from intercurrent infection. Examination of the organs of the body failed to reveal any abnormality other than that of the gastric mucosa, which was characterized by marked atrophy. The vascular network was visible because of the relative transparency of the mucosa. Microscopically the atrophy involved the submucosa and mucosa more than the muscular layer. The fundus glands were modified to resemble the pyloric glands. In places the mucosa was reduced to a band of sclerous tissue. Infiltration of lymphocytes and plasmocytes involved the muscular layers. It was almost impossible to find the nerve plexuses, since they were destroyed by sclerosis. These characteristics correspond to the description of simple atrophic gastritis, except for the vascular dilatations, which were similar to those observed in linitis. Furthermore, this anatomopathologic description accordingly reveals the endoscopic characteristics of atrophic gastritis, with a well developed atrophic process and an advanced vascular dilatation.

## Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

52: 1389-1426 (Nov. 9) 1936. Partial Index

- \*Essential Erythremia Uninfluenced by Teleoroentgen Therapy, Rapidly Improved by Phenylhydrazine Hydrochloride. L. Béthoux and J. Marcoulidès.—p. 1390.  
Humoral Factor in Measles Anergy. V. de Lavergne and H. Accoyer.—p. 1420.

**Erythremia Improved by Phenylhydrazine Hydrochloride.**—Béthoux and Marcoulidès report the case of a patient with essential erythremia, treated at first by teleoroentgen therapy, without apparent success. This was followed by treatment with phenylhydrazine, which led to rapid improvement from both the hematologic and the clinical standpoint. The dosage of phenylhydrazine hydrochloride was 0.05 Gm. for four days, 0.1 Gm. for four days and 0.15 Gm. for three days. This observation shows that, in spite of a total irradiation involving relatively strong doses, the erythrocytes remained at a relatively high level, and that from a clinical standpoint irradiation seemed even to be harmful to the patient. Headaches in particular seemed to be exaggerated. Furthermore, if the difficulty of application of teleoroentgen therapy is considered, the comparative simplicity of chemotherapy tends to lead primary choice toward the latter.

## Revue de la Tuberculose, Paris

2: 890-1024 (Oct.) 1936

- Röntgenologic Study of Pulmonary Mechanism in Latero-Inclined Position. Lowys, Marinot and Marlin.—p. 890.  
\*Mechanism of In Vitro Leukocytic Reactions in Presence of Tuberculin. R. Kirsch.—p. 910.

**In Vitro Leukocytic Reactions to Tuberculin.**—Kirsch employs the following method for studying the reaction of leukocytes to tuberculin: The blood, after centrifugation and

removal of the larger portion of the citrated plasma, is washed several times in physiologic solution of sodium chloride. The leukocytes remaining in contact with the red blood cells are placed in an incubator at 37 C. and incubated with the diluted old tuberculin of Koch and with fresh serum from the same individual. After incubation for twenty minutes or more the smears are fixed, stained and examined. The changes in the polymorphonuclear cells and large monocytes are noteworthy. Eosinophils and lymphocytes do not appear to be modified. The polymorphonuclear neutrophils usually show chromatic changes and vacuolization of the protoplasm. The large mononuclears are less affected but frequently show protoplasmic vacuolization. They agglutinate with each other and with the polymorphonuclear cells, and their borders become indistinct. When physiologic solution of sodium chloride is used instead of homologous serum, the changes in the leukocytes are minimal. In a number of other experiments the author used substances other than the serum of the individual whose blood was to be tested. Thus guinea-pig serum, calcium chloride and sodium citrate were employed in some tests. Glycerinated peptone bouillon, peptones and proteins of egg white were also used. The combined results of these experiments lead to the conclusion that tuberculin, concentrated glycerinated peptone bouillon, peptones and egg white proteins exert a rapid and intense toxic action on the washed leukocytes of allergic origin in the presence of fresh serum. These changes are observed in a distinctly modified fashion in the presence of heated serum. The polymorphonuclear neutrophils and the large monocytes fix the toxic elements of these solutions, even in the absence of serum, but they are not themselves changed except in the presence of fresh serum. Calcium chloride and sodium citrate prevent the action of fresh serum, probably by the inhibition of the complement of the serum. Finally, tuberculin and the peptones toxify fresh homologous or heterologous serum, and this toxicity does not disappear by heating at 57 C.

## Schweizerische medizinische Wochenschrift, Basel

66: 1245-1280 (Dec. 12) 1936. Partial Index

- \*Endocrine Treatment of Simmonds' Disease and of Related Asthenic Conditions. A. Schüpbach.—p. 1245.  
Rheumatic Fever. L. Lichtwitz.—p. 1248.  
Phenomena of "Refusal" of Calcium and of the Fixing Agents of Calcium in Experimental and Clinical Rickets. G. Mouriquand.—p. 1253.  
Antibodies Protectors Against Several Micro-Organisms Sensitive to Beta Bacteriolysin. A. Pettersson.—p. 1255.  
Significance of Antitoxin for Cure of Diphtheria. A. Hottinger.—p. 1256.  
\*Artificial Pneumothorax As Therapy in Genuine Pneumonia. L. P. Daniels.—p. 1260.  
\*Treatment of Pulmonary Abscesses with Alcohol Injections. E. Magnus-Alsleben, S. Durusoy and Ş. Atakam.—p. 1262.

**Hormone Treatment of Simmonds' Disease.**—Schüpbach points out that Simmonds' disease is now identified with prehypophyseal insufficiency, because the original term hypophyseal cachexia, is too restrictive. The abolishment of the prehypophyseal function may be caused by anatomic processes, such as tumors, inflammations, traumas and syphilitic lesions, but the disturbance may also be of a purely functional nature. This last group includes many of the milder forms, such as the exhaustive states in constitutional asthenia. In this connection the author mentions also the persons who are always weak and tired and who have low arterial pressure, a tendency to fainting, poor appetite, constipation and so on. The physical weakness is frequently accompanied by similar psychic reactions. In discussing the treatment of prehypophyseal insufficiency, the author gives his attention to cases in which a functional rather than an anatomic disorder of the prehypophysis is the cause. He emphasizes that, since the disorder is caused by an insufficiency of the entire prehypophysis and not merely by a deficiency of some of its numerous hormones, the treatment should employ those preparations which most nearly exert the effect of the entire prehypophysis. He reports the histories of several patients in whom he produced good results with a prehypophyseal extract. The first case concerns a woman, aged 38, who received three times daily two tablets of a prehypophyseal extract. This oral therapy was continued for a year. The patient gained 25 Kg. in weight and menstruation returned after

more ideal environment, and we feel certain that, with more adequate physical equipment, more nursing help and increased latitude as to available medicaments, both our mortality rate and the average stay of such cases in the hospital could be further diminished.

We shall not go into the pathology, actual or conjectural, of delirium tremens. In considering this disease therapeutically, however, it should be remembered that in delirium tremens one is dealing with a condition characterized by physical intoxication and by mental and physical excitement. The therapy should have as its aims the speedy elimination of whatever toxins are present and the protection of those organs and physical functions which might be damaged by the intoxication, together with an amelioration of the excitement and the protection of the patient against the possible untoward results of abnormally great activity. The treatment, then, may be discussed under five main heads:

1. The safeguarding of the patient against injury to himself or to others.
2. The prevention of exhaustion.
3. The promotion of elimination, both gastro-enteric and urinary.
4. The decrease of intracranial edema and pressure.
5. The promotion of adequate nutrition.

#### SAFEGUARDING THE PATIENT

Any one who has had the opportunity to spend some time with an active delirium tremens patient can readily understand how the patient's apprehension, hallucinations and delusions might cause him to injure himself, perhaps fatally, in an attempt to escape the creations of a delirious brain, or how he might injure others in trying to defend himself against his imagined torturers. It is practically impossible, in most instances, to provide constant observation and protection for such a patient outside of an adequately equipped and staffed hospital. The physician in charge of such a case would be wise, both for the sake of the patient and in order to protect his own interests, to insist on hospitalization. Not long ago, in one of the surgical wards of the Cincinnati General Hospital, a fortunately robust nurse managed to grasp and hold on to the ankles of a patient in whom delirium tremens had developed after admission and who had started a dive through an open third story window. Incidents of this sort are sufficiently common to justify exercising the utmost in anticipatory caution in the handling of these cases.

#### PREVENTION OF EXHAUSTION

The phase of the treatment having to do with the prevention of exhaustion may be subdivided into two lanes of approach, both of considerable importance. Of the sixteen deaths occurring in this series of cases, nine presented serious complications—one suppurative parotitis and bronchopneumonia, one severe gastric hemorrhage and lobar pneumonia, two heat stroke, three lobar pneumonia, one bronchopneumonia, one severe stab wounds of the chest and abdomen—complications which might of themselves, without the alcoholic factor, have caused the deaths. The other seven cases were characterized clinically chiefly by signs of cerebral inflammation and by heart failure. We regret that of these seven uncomplicated cases only four autopsies were obtained. In each of these four cases, however, one of the most prominent observations was that of a pronounced toxic myocarditis. It is our feel-

ing that one of the main causes of death in uncomplicated delirium tremens is heart failure, both of itself and indirectly because of the increase in toxicity and impairment of organ function generally that is incident to an inadequate circulation. It is not difficult to understand how this failure may occur when one considers the actual intoxication of cardiac musculature that is present and the additional strain that is placed on an already intoxicated heart by the patient's excessive activity. In an attempt to anticipate the occurrence of such failure we have inculcated into our routine treatment complete digitalization of the patient. It is our custom to begin digitalization of these patients as soon as the diagnosis is made, to digitalize them completely in from thirty-six to forty-eight hours, and then to administer a maintenance dose daily until recovery from the delirium tremens has been accomplished. In addition, the hypodermic caffeine and intravenous dextrose that we give has as one of its purposes the reenforcement of circulatory efficiency. Among the other drugs suggested by some clinicians for circulatory support are strychnine, camphor, strophanthus and ergot. We have had no experience with these medications in delirium tremens, so that we are not prepared to comment on their value. We feel quite strongly, however, concerning the advisability of cardiac medication, and it is our belief that this part of our treatment has played a large part in the diminution of our death rate. To give digitalis to these patients only after signs of heart failure have become manifest has proved, in our experience, of little avail. When the heart begins to fail in delirium tremens, the downhill course is usually rapid and the patient is overwhelmed to the stage of being unable to react favorably to medication of any sort.

The second item under the prevention of exhaustion is sedation. It is well known that if the delirium tremens patient can relax into sleep for six or seven hours the disease is well on its way to being overcome. To obtain this sleep, however, is no simple matter. A search through the literature for recommended sedative measures in delirium tremens elicits a list that rivals the pharmacopeia as to all-inclusiveness, from morphine to hydrotherapy, and from the injection of magnesium sulfate intraspinally to soothing reassurances. One writer recommends the use of a cluster of blue lights in an otherwise dark room. Another would have one take a bucket of tepid water, heavily impregnated with salt, and dash it over the patient. The latter two procedures go back many years. The more recent suggestions as to sedative methods are more specific medically but are so varied that one cannot but conclude that the problem of sedation in delirium tremens is still for the most part unsolved. In general, when choosing a sedative for these patients it is well to remember that one is dealing with individuals who are already intoxicated, whose circulatory efficiency needs to be stimulated rather than depressed, and whose kidney function is fairly frequently impaired to some degree so that elimination of the sedative by way of the urine is not to be relied on to too great an extent. We have found paraldehyde, administered orally or rectally, the most innocuous, the most rapidly eliminated and the most uniformly effective of the sedatives available at the hospital. Despite its unpleasant odor and taste, we have encountered little objection to its ingestion on the part of our patients. The barbiturate group—orally, hypodermically or intramuscularly—in ordi-



fixation of calcium and formation of bone callus. The roentgen examination of the fracture shows a larger and thicker callus in rabbits treated with cholesterol injections than in the controls. The histologic examination of preparations of the fracture shows that the processes of proliferation, disappearance of cartilaginous tissues, transformation of osteoid tissue into bone and internal reconstruction of the medullary canal and of the diaphyseal cylinder are accelerated by cholesterol local treatment. The acceleration of the process of consolidation is more rapid and marked from the tenth to the twentieth day of the treatment than before and after those days. The results of the author's experiments confirm the relations between the local lipid trophism and the fixation of calcium salts. The mechanism by which fixation of calcium salts and healing of the fracture take place is due to local and general modifications of the calcium metabolism by action of the local treatment, and also to local chemical combinations of calcium and phosphorus in presence of cholesterol at the site of the fracture.

### Semana Médica, Buenos Aires

43: 1465-1536 (Nov. 26) 1936. Partial Index

- Benign Tumors of Breast in Men: Cases. A. Egües.—p. 1469.  
\*Hypernephroma of Grawitz's Type with Ganglionic Metastases. R. S. Aguirre and S. Nino.—p. 1472.  
Roentgen Diagnosis of Chronic Appendicitis. E. Gambetta.—p. 1480.  
Twisted Spermatid Cord and Hydatid of Morgagni: Cases in Children. M. L. Olascoaga.—p. 1484.  
Papilloma of Female Genitalia: Treatment by Diathermocoagulation. A. A. Emanuel.—p. 1492.  
Antidiphtheritic Vaccination by Nasal Route: Technic. A. Sabelli.—p. 1493.

**Hypernephroma with Ganglionic Metastases.**—Aguirre and Nino report a case of hypernephroma with generalized metastases of the ganglions in a patient, aged 32. The histologic study of a ganglion of the neck removed for biopsy showed hypernephroma metastasis and the x-ray study of the patient showed the presence of large metastases in the spleen and lungs. The kidneys were enlarged and ptotic. Renal function was normal. The authors conclude that hypernephroma of Grawitz type is frequent. The tumor evolves for some years without any local or general symptoms. The metastases formed develop rapidly, reach a larger size than the original tumor and cause the predominant symptoms of the disease. The visceral and skeletal metastases, which are the earliest and most frequent, are formed through the blood. The malignant infiltration of the renal capsule, with consequent rupture of the structure and rapid destruction of the perirenal tissues, which takes place in the advanced stage of hypernephroma, results in spread of the tumor by contiguity into the neighboring organs, the juxtathoracic ganglions and the regional lymphatics. The development of metastases in the ganglions, especially the peripheral ones, indicates an advanced phase of hypernephroma. It coincides with cachexia. Both conditions are contraindications for any operation.

43: 1537-1608 (Dec. 3) 1936. Partial Index

- Urobilinuria in Normal and Pathologic Conditions in Children. J. R. Díaz Nielsen.—p. 1559.  
Eutrophic Action of Thyroglobulin. A. Buzzo, A. Agostini de Muñoz and G. Bayley Bustamante.—p. 1575.  
Late Complications of Heine Cyclodialysis for Glaucoma. A. J. Manes.—p. 1581.  
\*Rare Localization of Neuro-Anemic Syndrome. J. F. Tourreilles and P. C. Vázquez.—p. 1583.  
Treatment of Chancroid by Emetine Hydrochloride. C. Visconti.—p. 1595.

**Neuro-Anemic Syndrome of Unusual Localization.**—Tourreilles and Vázquez say that the neuro-anemic syndrome of pernicious anemia may involve the anterior, lateral and posterior gray columns of the spinal cord, either separately or simultaneously. When the syndrome develops in the posterior column, the lesions may involve the cervical or the lumbosacral segments of the spinal cord, causing nervous symptoms in the upper or lower extremities, or they may involve simultaneously different segments, causing symptoms in both the upper and the lower extremities. The diagnosis of the neuro-anemic syndrome is made by the coexistence of pernicious anemia and sensory and motor disturbances in persons in whom

the Argyll Robertson pupil fails to appear. A differential diagnosis of the nervous symptoms is made with those of hereditary cerebellar ataxia, tabes, amyotrophic lateral sclerosis and nerve syphilis. In making a regional diagnosis the spinal, cerebral and polyneuritic localizations of the nervous lesions have to be considered. When pyramidal symptoms do not appear, it is difficult to differentiate the spinal and polyneuritic location of the nervous lesions. The authors' patient, aged 60, reported for the first time with a syndrome of pernicious anemia, which was controlled by liver treatment. She had three recurrences at intervals of about one year; they occurred whenever the patient stopped the liver treatment. Nervous symptoms at the shoulder and scapular region with consequent muscular atrophy of the arm complicated anemia. Nerve syphilis did not exist. Pyramidal symptoms failed to appear. A diagnosis of neuro-anemic syndrome with nervous lesions of the posterior column of the cervical region was made. It was based on the unilateral character of the nervous lesion and the results of the tests of the cerebrospinal fluid. The results of liver treatment in this case indicate a favorable reaction of those patients to the treatment. The fact calls for verification of statements previously reported in the literature on harmful results of the liver treatment in the neuro-anemic syndrome. The case described by the authors is the first one reported in the literature of neuro-anemic syndrome with lesions in the posterior columns of the cervical region.

### Klinische Wochenschrift, Berlin

15: 1705-1744 (Nov. 21) 1936. Partial Index

- Correct Evaluation of Result Statistics. B. L. van der Waerden.—p. 1718.  
Chemotherapy, Fluorescence and Cancer. M. Oesterlin.—p. 1719.  
Antithyroid Action of Some Unsaturated Fatty Acids. H. Zain.—p. 1722.  
Spinal Parasympathetic Innervation of Bronchial Musculature. S. Sato.—p. 1723.  
Erythrocyte Sedimentation Speed and Allergy. W. Eickhoff.—p. 1724.  
\*Treatment of Splenomegalic Conditions. P. Riolo.—p. 1726.  
\*Improved Method of Histidine Reaction for Chemical Pregnancy Diagnosis. Regine Kapeller-Adler.—p. 1728.

**Treatment of Splenomegalic Conditions.**—Riolo followed the suggestion of Ascoli and Diliberto and treated malarial splenomegalies by means of intravenous injections of epinephrine, because the subcutaneous injections did not produce the desired results. He begins with 0.01 mg. (in 1 cc. of sterile water) and increases this dose gradually up to 0.05 or 0.1 mg., depending on the tolerance of the individual patient. The final dose is repeated twenty times until the splenic tumor disappears or is no longer influenced by further injections. Aside from reducing or counteracting the splenic tumor, the intravenous injections of epinephrine also counteract the dyspeptic disturbances that usually accompany the splenic enlargement and the splenic and perisplenic pains of patients with chronic malaria. The epinephrine treatment often results in a reactivation of the malarial infection; however, this does not impair the patient's general condition but only makes an adjuvant quinine cure advisable. Especially noteworthy is the improvement in the blood picture; namely, a considerable increase in the number of erythrocytes. Thus the epinephrine injections are also an effective treatment of the malarial anemia. The intravenous administration of epinephrine is indicated not only in malarial splenomegaly but also in the hemolytic and thrombopenic forms of splenomegaly.

**Histidine Reaction for Chemical Diagnosis of Pregnancy.**—Kapeller-Adler cites the authors who employed her histidine reaction for the diagnosis of pregnancy and shows why some of them obtained unsatisfactory results. To be sure, Stern discovered a source of error in the method. He showed that urines of patients with pregnancy pyelitis which gave a positive Griess reaction for nitrites usually had negative histidine reactions. In order to eliminate the shortcomings of the histidine reaction, Kapeller-Adler made further experiments. She found that urines containing nitrites and histidine will give a positive histidine reaction provided the urine is first treated with tenth-normal potassium permanganate in sulfuric acid solution, which oxidizes the interfering nitrites. She then gives

treated in the past three and a half years this procedure did not cause a serious reaction in a single instance. We would emphasize, however, that the fluid should never be allowed to escape too rapidly.

In addition to spinal fluid drainage, decrease in intracranial congestion is also promoted by the use of hypertonic dextrose given intravenously, by intramuscular hypertonic magnesium sulfate and by hypodermically administered caffeine, the last named having been demonstrated to have a definite diminishing effect on intracranial pressure.<sup>3</sup>

#### PROMOTION OF NUTRITION

It has been suggested in recent years that some of the so-called alcoholic psychoses are not actually due to the alcohol itself but rather to a coincidental malnutrition secondary to the alcoholism. More specifically, a lack of vitamins—principally of the B group—has been blamed, and perhaps with considerable justification. Whether or not this also applies to the acute, brief episode that is delirium tremens is more problematic. Nevertheless, it is true that most individuals suffering from delirium tremens have either neglected their food needs because of lack of appetite for from several days to several weeks or have derived little actual nutritional value from their food because of disordered gastro-enteric systems.<sup>5</sup> Our patients, consequently, have the ability to fight their disease limited by malnutrition. It is necessary, therefore, to take steps to help the patient's nutrition in every way possible. Because of the gastritis that is so often present, it is well to order a soft diet—in some instances a liquid diet. The nourishment should have a high caloric value and, when possible, a high vitamin content. In those cases presenting an especially severe gastritis, lavage is indicated. In this connection it has been our experience that it is usually unnecessary to pass a tube, as the patient will willingly drink from 1 to 2 quarts of a sodium bicarbonate solution and vomit it in order to relieve himself of his gastric distress. It is important to alleviate this distress not only to promote nutrition but to ameliorate the feeling of apprehensiveness and restlessness that is usually a concomitant of a sick stomach.

To recapitulate, and with the addition of a few more details which complete our regimen, our treatment of delirium tremens is as follows:

1. No alcohol is given the patient from the time that he comes under our direction.

2. Absolute bed rest is ordered in an attempt to avoid as far as possible physical strain on the heart and to give the patient the maximum opportunity for sleep.

3. Close observation on the part of the ward personnel is insisted on, so that the patient has a minimal chance to injure himself or others.

4. Extract of cascara, 10 grains (0.6 Gm.), is given on admission, followed by 1 ounce (30 Gm.) of magnesium sulfate by mouth two hours later.

5. Magnesium sulfate, 1 ounce, is given every morning for three days, unless there have been more than four bowel movements the previous day.

6. Alkalis in the form of imperial drink (*potus imperialis*, British Pharmaceutical Codex) are given three times daily.

7. Spinal fluid drainage is done as soon after admission as possible and may be repeated as often as is indicated.

8. Fifty cc. of 50 per cent dextrose is given intravenously from two to four times a day.

9. Ten cc. of 50 per cent magnesium sulfate is given intramuscularly one to two times a day for two days.

10. Caffeine with sodium benzoate,  $7\frac{1}{2}$  grains (0.5 Gm.) is given hypodermically every four hours for six doses. If indicated, this procedure may be repeated.

11. The patient is digitalized in from thirty-six to forty-eight hours and is then placed on a maintenance dose.

12. Paraldehyde (100 per cent), 3 or 4 drachms (from 11 to 15 cc.), is given from one to three times a day for sedation. Intravenous sodium amytal may be used, though we would hesitate to recommend that more than from 10 to 15 grains (0.6 to 1 Gm.) be given to any one patient. Hydrotherapy is indicated wherever possible.

13. A high caloric soft or liquid diet, supplemented by vitamin containing substances—especially of the B group—is ordered. If the patient has difficulty in retaining nourishment, gastric lavage with a sodium bicarbonate solution should be done.

14. Fluids are given according to the patient's desires. The factor of the patient's comfort should be the determining one in governing the amount of fluids given.

15. Should the patient be asleep, he is not awakened for any reason, medicinal or otherwise.

We consider that the delirium tremens patient has recovered sufficiently to be discharged from the hospital when his delirium has ceased, his tremor is absent or markedly diminished, his apprehensiveness has disappeared, his appetite is definitely improving, his general physical condition is such as to permit him to be ambulatory and—most significant of all the prognostically favorable signs—he is able to obtain a good night's sleep without or with a minimum of sedative aid. With these criteria for discharge, and with the regimen that we have described, the average duration of our patients' stay in the hospital has been 4.8 days.

This method of treating delirium tremens has been considered worthy of description because of the reduction in the mortality and in the duration of the disease that it has brought about in our wards at the Cincinnati General Hospital. There are a number of items in this treatment—some of them based on an etiologic approach, others symptomatic in their efficacy. We realize that in private practice it is not always a simple matter to hospitalize patients and that it is frequently impossible to obtain the patient's cooperation in a regimen as intensive as the one we have proposed. Nevertheless, we present it as the most effective treatment for delirium tremens that we have been able to find. In cases in which the entire regimen cannot be utilized, it should be approximated as closely as possible.

Concerning those cases which might be classified as impending delirium tremens, it is probable that one might compromise and use only parts of the treatment with a measure of safety. It has been our habit, however, to treat these individuals precisely as though they were active cases, and it is our belief that by so doing we have aborted a large number of attacks, some of which might have had unfavorable outcomes had we temporized.

5. Blotner, Harry: *Effect of Alcohol on Digestion by Gastric Juice, Trypsin and Pancreatin*, J. A. M. A. 106: 1970 (June 6) 1936.

single doses of from 800 to 1,100 roentgens and total doses of from 10,000 to 12,000 roentgens. He emphasizes, however, that the aforementioned doses cannot be applied schematically in all cases but must be varied according to the localization of the nevus, the ray sensitivity of the skin (estimated on the basis of the intensity of the reaction), the size of the nevus, the age of the patient and the depth or superficiality of the nevus. After discussing and illustrating the adjustments in technique and dosage that may become necessary, he cites the results obtained at his clinic. He concludes that, if properly applied, the borderline rays are at present the best therapeutic method for naevus flammeus.

**Roentgen Rays and Cholesterol Content of Blood.**—Schumacher and Rusch made tests on the blood and serum of forty women, twenty-five of whom had carcinoma or sarcoma and fifteen of whom were definitely free from carcinoma. These tests did not corroborate the results of Levy-Dorn and Burghleim. The authors failed to detect fluctuations in the cholesterol content of the blood after roentgen irradiation. Moreover, they found no connection between cholesterol content and roentgen intoxication and no difference in the behavior of the blood of patients with or without cancer.

### Zeitschrift f. Hygiene und Infektionskr., Berlin

119: 1-134 (Nov. 14) 1936. Partial Index

Quantitative Evaluation of Filtrable Types of Virus. R. Doerr and S. Seidenberg.—p. 1.

\*Nephelometric Determination of Watering of Milk. K. N. Kyriazidis.—p. 10.

Usefulness of Phenol in Producing Sterile Smallpox Vaccine. W. Lehmann.—p. 21.

Clinical Aspects and Bacteriology of Paratyphoid B. M. Tesdal.—p. 28.

Pathogenic Significance of Types of Pneumococci. H. Grossmann.—p. 38.

\*Diphase Nature of Typhoid Bacilli. F. Kauffmann.—p. 103.

**Nephelometric Determination of Watering of Milk.**—Kyriazidis shows that the fat content of milk is the essential factor in its turbidity. The various protein substances (casein, lactoglobulin and lactalbumin) are a much weaker turbidity factor and are subject to only minor changes. It has been proved that the fat content makes up about three fourths of the turbidity and the other substances only about one fourth. Because of this predominance of the influence of fat, the reduced permeability of a watered milk does not exceed that of a milk with a reduced fat content. However, if the fat is eliminated, the turbidity of the defatted milk is influenced by watering to a much greater extent. For this reason the author tested the constancy of the nephelometric values of defatted milk and determined its modification by watering. He fills a centrifuge tube of 30 cc. capacity to four fifths of its volume. Then this tube is closed with a rubber stopper, through which two hollow needles pass, one reaching approximately the lower third of the tube and the other slightly below the fat layer that is formed by centrifugation. Centrifugation is continued for fifteen minutes at 3,000 revolutions per minute. After this, from 4 to 5 cc. of milk is slowly withdrawn through the longer needle. The defatted milk thus obtained is diluted at 15 C. in a ratio of 1:10. Then it is placed into a glass cuvette (1:5:5) and its permeability is determined by means of Moll's extinc-tometer. The amount of water is determined with the aid of a curve. Finally the detected quantity of water is calculated for one liter. In this calculation the quantity of fat must of course be taken into account. The author stresses that this method of nephelometric control of the watering of milk is superior to the chemical methods that are usually employed. It is not only simple and quick but also more exact than the chemical methods.

**Diphase Nature of Typhoid Bacilli.**—Kauffmann directs attention to the fact that the serologic Salmonella types, in consideration of their flagellata antigen (H-antigen) have been divided into two groups: (1) the monophasic types, that is, the types that are present in only one phase, and (2) the diphase types, which occur in two phases and represent two different serologic manifestations of one and the same type. The typhoid bacilli have heretofore been regarded as monophasic, because only one phase with a single H-antigen could be demonstrated. The paratyphoid B bacilli, however, proved diphase. Since Japanese investigators had observed a change in phases

in typhoid bacilli, the author made additional studies. He found that there is a second phase of typhoid bacilli, which is characterized by a specific flagellata antigen. This new flagellata antigen could be demonstrated only in typhoid bacilli and not in other Salmonella types. The author emphasizes that he uses the term phase only for two different serologic manifestations of the flagellata antigens, whereas he applies to the different serologic manifestations of the body antigens the term forms.

### Wiener klinische Wochenschrift, Vienna

49: 1481-1512 (Dec. 4) 1936

\*Treatment of Hematemesis and Melena with Unrestricted Diet. E. Meulengracht.—p. 1481.

Positional Changes of Head and Upper Part of Trunk Elicited by Vestibule. R. Leidler.—p. 1485.

Relations Between Thyroid Hormone and Vitamin A. W. Fleischmann and Susanne Kann.—p. 1488.

Voluntary Apnea in Inspiration and Expiration as Individual Capacity Test. O. Eisenschimmel-Eisen.—p. 1489.

Behavior of Radiation Capacity of Blood and of Blood-Forming Tissues in Some Blood Diseases. E. Storti and P. de Filippi.—p. 1494.

Calculus Formation in Spleen After Malaria as Cause of Disorder. R. Meyer.—p. 1496.

**Treatment of Hematemesis and Melena with Diet.**—Meulengracht says that five years ago he decided to change the customary treatment of bleeding gastric ulcers from a greatly restricted to a practically unrestricted diet. The reasons which induced him to change the former treatment were that patients died of exhaustion after hemorrhages in spite of perhaps as the result of scrupulous dieting, that occasionally patients with protracted hemorrhage stopped bleeding when they were given food, and that ambulatory patients with severe melena frequently recovered without changing their diet. Moreover, it seemed to him inadvisable to let a patient starve at a time when, as the result of the shock of hemorrhage, the intake of fluids, salts, vitamins and sufficient calories seemed especially necessary. The diet recommended by the author is a so-called full purée diet. The patients are given five meals a day and are permitted to eat as much as they want. Foods are selected that will not cause irritation and are readily digestible. The noon meal includes a variety of dishes; namely, soups, meats, vegetables and fruits. The other meals consist of bread and butter, gruels, milk and so on. Milk is given also between the meals. The daily number of calories averages about 2,300. Three times daily the patients are given a teaspoonful of a mixture of 15 Gm. of sodium bicarbonate, 15 Gm. of magnesium subcarbonate and 2 Gm. of extract of hyoscyamus; a tablet of iron lactate is also given three times each day. With this method of treatment the author had only three fatalities in 273 cases of massive hemorrhages from gastric ulcers or erosions. In comparison with other statistics, which report a mortality of from 7 to 10 per cent, the mortality rate of his material is unusually low. After discussing the advantages of his treatment and the blood regeneration, he points out that, if with his method of treatment the mortality of bleeding gastric ulcers can be reduced to about 1 per cent, a surgical intervention will hardly be necessary during the hemorrhagic stage. To be sure, an operation for the gastric ulcer may become necessary at a later date.

### Sovetskaya Khirurgiya, Moscow

Pp. 171-368 (No. 8) 1936. Partial Index

Continuous Drip Blood Transfusion. P. G. Sakayan.—p. 184.

Early Treatment of Fresh Burns of Esophagus. I. V. Danilov.—p. 190.

Surgical Treatment of Acute Hemorrhage from Gastric Ulcer. I. M. Perelman.—p. 209.

Operative Treatment of Gastroduodenal Ulcer. V. N. Promptova.—p. 219.

\*Acute Appendicitis Past Middle Age. N. T. Bondarenko.—p. 267.

\*Surgery of Cancer of Colon. O. G. Turovets.—p. 289.

**Acute Appendicitis Past Middle Age.**—According to Bondarenko, 2,888 cases of acute appendicitis were admitted to the third surgical clinic of the Second Leningrad Medical Institute between 1919 and 1934. Of the patients 410, or 14.2 per cent, were past 40 years of age. An analysis of the incidence and of the clinical course of this group shows that acute appendicitis is almost as frequent in this age as in the younger

TABLE 2.—Clinical Course of Twenty-Seven Patients Who Adhered to Regimen

Patient	Previous Operations	Chemistry of Calcium If known	Status at Commence- ment of Diet	Infection	Bacteriology	Stasis or Structural Abnor- mality	Blood		Mean Bladder pH	Number of De- termi- nations	Passed Stones		Control X-Rays		Opera- tions of pa- tient on Diet
							Calcium	Calcium Ions			Before Diet	After Diet	Increase Size appeared	Decrease or Dis- appeared	
1. E. B.	None	Calcium oxalate, ammo- nium magnesium phosphate	R., 0	0	0	0	10.54	4.80	4.9	30	+	0	0	0	0
2. J. B.	Left ureterolithotomy, suprapubic cystostomy	Calcium carbonate, ammo- nium magnesium phosphate	R., 0 L., S	+	B. coli B. coli	0	.....	.....	5.0	14	+	0	0	0	0
3. J. B.	Right ureterolithotomy, right pyelonephrolith- otomy	Calcium oxalate, ammo- nium magnesium phosphate	R., M, res L., 0	+	S. albus 0	0	10.60	5.10	5.0	20	+	+	+	0	0
4. H. B.	Right nephrolithotomy	Calcium carbonate, ammo- nium magnesium phosphate	R., S, res L., 0	+	S. albus S. albus	0	10.50	4.75	6.0	24	0	+	+	0	0
5. A. D.	None	.....	R., D L., 0	+	B. pyocyaneus 0	+	10.77	4.8	5.2	26	0	0	0	0	0
6. O. E.	Left pyelolithotomy, left nephrolithotomy	Calcium carbonate, ammo- nium magnesium phosphate	R., S L., M, res	+	S. aureus 0	0	9.9	4.35	5.2	31	0	0	+	0	0
7. N. F.	Left pyelolithotomy, right neurectomy	Calcium oxalate, calcium phosphate	R., S, res L., 0	+	0	0	10.10	4.50	5.1	16	0	0	0	0	0
8. A. F.	None	.....	R., S, res L., 0	0	S. aureus S. aureus	0	.....	.....	4.6	14	+	0	0	0	0
9. A. G.	Right pyelolithotomy, left pyelolithotomy	.....	R., D, res L., D, res	+	B. coli Enterococcus, S. albus	+	10.23	4.30	5.2	16	+	0	0	0	0
10. S. G.	Right ureterolithotomy	Calcium oxalate, ammo- nium magnesium phosphate	R., 0 L., M	0	0	0	.....	.....	5.0	16	0	0	0	0	0
11. E. G.	Right pyelolithotomy	Calcium carbonate, ammo- nium magnesium phosphate	R., S, res L., 0	+	B. proteus 0	+	10.40	4.60	5.4	32	0	0	+	0	0
12. M. K.	Left pyelonephrolith- otomy	Calcium oxalate, ammo- nium magnesium phosphate	R., 0 L., M, res	+	B. pyocyaneus 0	0	9.84	4.30	5.0	16	0	+	0	0	0
13. G. K.	Left pyelonephrolith- otomy with plastic, left secondary neurectomy	.....	R., S L., 0	+	B. coli, B. alkaligenes .....	0	8.63	4.60	4.8	32	0	0	0	0	0
14. J. M.	None	Calcium carbonate, ammo- nium magnesium phosphate	R., 0 L., S, ureter	0	0	0	10.17	4.60	5.2	27	+	+	0	0	0
15. T. Oll.	Right ureterolithotomy, right nephrolithotomy	Ammonium magnesium phos- phate, calcium carbonate	R., S, res L., S, res	+	B. coli, B. proteus 0	0	.....	.....	6.8	13	0	+	0	0	0
16. O. O.	None	Calcium carbonate, ammo- nium magnesium phosphate	R., M L., S	0	0	0	9.50	4.75	4.6	39	+	0	0	0	0
17. E. R.	None	.....	R., D L., S	+	S. albus S. albus	+	11.03	5.10	5.3	50	0	0	0	0	0
18. L. R.	None	.....	R., 0 L., S	0	0	0	10.00	4.45	4.8	25	0	0	0	0	0
19. C. S.	None	.....	R., S L., 0	0	0	0	.....	.....	4.8	10	0	0	0	0	0
20. C. S.	None	.....	R., S L., 0	+	B. Friedländer 0	+	.....	.....	4.8	22	0	0	0	0	0
21. R. T.	None	.....	R., 0 L., M	0	0	0	10.78	4.8	5.0	14	0	0	0	0	0
22. R. T.	Right nephrolithotomy, right ureterolithotomy	Calcium carbonate, calcium oxalate, ammonium magne- sium phosphate	R., 0 L., M	+	B. coli B. proteus, B. pyocyaneus	0	10.60	4.50	5.0	28	0	+	Formed new stone	0	0
23. L. V.	Right pyelolithotomy	.....	R., S L., 0	+	B. proteus, B. coli 0	0	.....	.....	5.2	24	0	0	+	0	0
24. J. K.	None	.....	R., 0 L., S	0	0	0	.....	.....	4.8	17	0	0	0	0	0
25. L. S.	None	.....	R., 0 L., D	+	B. coli B. coli	+	.....	.....	4.8	16	0	0	0	0	0
26. R. K.	None	.....	R., M L., 0	0	0	0	.....	.....	5.0	10	0	0	0	0	0
27. A. H.	None	.....	R., 0 L., S	0	0	0	.....	.....	5.0	16	0	0	0	0	0

Symbols: R., right kidney; L., left kidney; Cakali; S., single; M., multiple; D., denticle; res., residual; rec., recurrent. Calcium, calcium ions and phosphorus are expressed in milligrams per hundred cubic centimeters.

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## THE COMPREHENSIVE MANAGEMENT OF DELIRIUM TREMENS

INCLUDING A TREATMENT UTILIZED IN THREE  
HUNDRED CONSECUTIVE CASES

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The fact that delirium tremens may result fatally is frequently overlooked by the practicing physician. In a survey of the available literature as far back as 1910, one finds that the statistics concerned with delirium tremens show a considerable mortality, the peak being reached in one reputable clinic which reported 37 per cent.<sup>1</sup> Recently the death rate has diminished considerably, undoubtedly because of more intelligent treatment of these cases, so that the mean mortality in the past ten years has been approximately 10 to 12 per cent. It is because rational management of this disease apparently has produced favorable results generally and in the hope of stimulating an effort to bring about a further reduction in the death rate that this report is being made.

Because of the traditional negligence with which medical statistics are usually compiled, it is not possible to evaluate accurately a comparison between the results reported by other clinicians and those accomplished by us in the psychiatric division of the Cincinnati General Hospital during the past two and a half years. Nevertheless, that our cases offered no better prognosis on admission than did those concerning which reports have been made from other clinics is suggested by the probability of a nutritional caliber which is lower in patients admitted to the Cincinnati General Hospital than in the general population, the probability of a greater incidence of other coincidental pathologic processes in our patients, and the fact that (because of the crowded conditions at the hospital) only those individuals are admitted by the receiving physicians who are definitely too ill to be cared for elsewhere. With these factors in mind, we feel that our crude death rate of 5.3 per cent is significant and that our method of accomplishing this reduction merits consideration by those physicians who are called on to manage patients with delirium tremens.

This report has to do with 300 consecutive cases that were admitted to the Cincinnati General Hospital from Jan. 1, 1933, to July 1, 1935. The cases included

in this series were limited to those concerning which there was no question as to diagnosis. Cases presenting impending delirium tremens were excluded, though they received the same treatment as did the active cases. The presence of a complicating disorder—pneumonia, fracture, gastric hemorrhage and the like—was not considered a significant factor in the selection of patients, so that the sole prerequisite to inclusion in this series was the definite diagnosis of active delirium tremens, regardless of what other pathologic process might be coexistent.

The treatment that we employ involves no principle or medication that is essentially an innovation. We have culled over the therapeutic suggestions that have been made by various physicians<sup>2</sup> and have attempted to organize therefrom a regimen which would include the more rational and effective measures of each. Our choice of procedures has been limited, of course, by the circumstances under which we find ourselves at the Cincinnati General Hospital. We realize that our management of these cases could be improved in a

### 2. These include:

- Ranson and Scott.<sup>1</sup>  
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1. Ranson, S. W., and Scott, G. D.: The Results of Medicinal Treatment in 1,106 Cases of Delirium Tremens, Am. J. M. Sc. 141: 673-687, 1911.



fects but whose bladder is infected with an alkali-producing organism. Another source of error in using the bladder urine  $p_H$  as an indication of the renal acidity is in a situation in which one kidney has diminished function, obstruction or infection. Here the bladder urine  $p_H$  represents the average of the urine of the two sides, one of which may be normal and giving a low  $p_H$  while the diseased stone-bearing kidney may yield a urine with a higher  $p_H$ . That this is true was proved by actual simultaneous measurement of the  $p_H$  of the urine from the renal pelvis by the electrical method. In some instances there was a difference between the normal and the diseased sides measuring up to 0.6  $p_H$  unit. It is obvious that, when a stone-bearing kidney has a markedly diminished function or a severe infection with alkali-producing, urea-splitting organisms, little relief can be expected from this type of therapy unless one can actually demonstrate a sufficiently low  $p_H$  in the pelvic urine.<sup>8</sup> This deduction assumes the premise that the reported good results are dependent on the production and maintenance of a low  $p_H$ .

**Renal Function.**—In order for a kidney to excrete a urine with a  $p_H$  which markedly deviates from the normal range (infection excluded), that kidney must have the ability to excrete and concentrate acid or alkaline ions in sufficient quantity. If the kidney function is too impaired to do this, the urinary  $p_H$  will tend to approach that of blood and there will result a piling up of the excess acid or alkali in the blood stream with a resultant acidosis or alkalosis. This has been clinically demonstrated by one of us<sup>9</sup> in discussing acidifying salt therapy.

A satisfactory acid  $p_H$  level was obtained usually only in those cases in which the kidney function was shown to be adequate by specific gravity tests indicating sufficient concentrating ability. However, there was an occasional patient who exhibited a low  $p_H$  in the presence of a low specific gravity. Theoretically and practically the buffering reaction of such a urine is so poor that the total amount of acid is indeed very small. Such a dilute urine with low  $p_H$  but with a poor buffering power cannot be expected to exert a strong solvent action.

It is evident that the use of the type of therapy under discussion is distinctly limited to those patients whose stone-bearing kidney can maintain adequate function and can concentrate a sufficiently acid urine. As previously noted, kidneys infected with certain *Staphylococcus albus* or *B. proteus* organisms will also fail to have a sufficiently acid urine.

SUMMARY OF RESULTS

Twenty-seven patients were on the diet for from six to sixteen months, an average duration of eleven months. Twenty of these maintained a mean bladder

8. For example, E. G., a woman, aged 46 (case 11) Dec. 28, 1934, had an ... of the right kidney, which kidney and an ... th a 25 cc. infected hydronephrosis was a ... y control showed two fragments in (B. proteus). The patient was placed on the diet April 2, 1935. May 5, roentgenograms showed an oval concretion 1.5 by 1 cm. in the right kidney.

Cystoscopy: Bladder $p_H$ —5.18		
Specimens	Right	Left
1. $p_H$	5.44	5.13
2. $p_H$	5.49	5.06
3. Culture	B. Proteus	Negative
4. Microscopic study	Many bacteria	Negative
	Triple phosphate crystals	
	0.3%	0.5%
5. Urea		

It will be noted that, if judged by the bladder urine, the  $p_H$  is sufficiently low. Actually the right kidney urine  $p_H$  is above the optimum level for satisfactory results.

9. Oppenheimer, G. D.: Dangers of Acidifying Salt Therapy in Urologic Cases, *J. Urol.* 33: 22-27 (Jan.) 1935.

$p_H$  of 5.2 or under. In none was a complete or partial solution (disappearance) of the urinary calculus noted on the frequently controlled x-ray films. Five patients showed an increase in size of their renal calculi and in one patient a new stone formed while on the regimen. In our hands, the high vitamin acid ash diet has not caused a disappearance or reduction in the size of renal calculi of the alkaline earth type.

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URINARY EXCRETION OF GONADOTROPIC HORMONE IN CRYPTORCHIDISM

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Numerous investigators<sup>1</sup> recently have reported favorable results in the treatment of undescended testes with gonadotropic substance. There has arisen a good deal of justifiable skepticism, however, as regards the value of this form of treatment in unselected cases. Where there is a mechanical factor preventing the normal descent of the testes the administration of gonadotropic substance cannot be expected to bring them down.

Engle<sup>2</sup> has brought forward evidence as to the hormonal nature of the factors controlling the natal descent of the testes in the human being. That the gonads in turn influence the functional activity of the hypophysis has been shown by Nelson.<sup>3</sup> This worker has reported that, as the testes of rats which are rendered cryptorchid undergo retrogressive changes, the hypophysis in these animals exhibits changes similar to those found after castration. The injection of gonadotropic factor from pregnancy urine (antuitrin-S) into these animals results in the stimulation and restoration of the seminal vesicles and prostates, while the hypophysis shows a disappearance of the castration cells. There is no change in the epithelium of the seminiferous tubules but there is a marked stimulation of the interstitial tissue of the testes. The treatment of a series of castrate rats with gonadotropic factor extracted from pregnancy urine resulted in no change in the hypophysis and sex accessories. Nelson believes that the testes play an intermediary rôle in the influence exerted on the pituitary and sex accessories. This may be exerted by the secretion of the testis hormone or by estrogen, either secreted directly by the testis or converted from the testis hormone.

It is apparent that cryptorchidism of endocrine origin, whether it stands in a causal or a secondary relationship to pituitary dysfunction, should be accompanied by evidence of such dysfunction. It is generally agreed that

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The authors are indebted to Dr. Samuel Soskin for his helpful suggestions and to Miss Rita Neilson, R.N., for her cooperation and aid in the management of clinic patients.

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2. Engle, E. T.: *Endocrinology* 10: 506 (Sept.-Oct.) 1932.

3. Nelson, W. O.: *Proc. Soc. Exper. Biol. & Med.* 31: 1192 (June) 1934.

nary doses have seemed to have practically no sedative value, and we have hesitated to give representatives of this group in repeated large doses because of the depressing effect on the circulation.

When all our routine measures have failed to secure rest in a patient, we have occasionally administered one dose of sodium amytal intravenously, to the extent of from 10 to 15 grains (0.6 to 0.9 Gm.), with fairly good results. Because our use of this drug is limited by the small supply available at the hospital, we have employed it only as a last resort. Using it thus in those cases which were most refractive to ordinary sedative measures does not justify a comparative evaluation as to its efficiency. It is quite possible that, were one dose of sodium amytal given as a routine and early, it might induce therapeutic sleep considerably sooner than do the usual sedatives.

Another procedure that has a certain amount of indirect sedative effect is spinal fluid drainage. Lumbar punctures are done as a routine in our cases at the beginning of their stays in the hospital. When a delirium tremens patient shows no sign of improvement within forty-eight hours after treatment is instituted, a second lumbar puncture with drainage of the spinal fluid will not infrequently diminish his restlessness sufficiently to permit him to sleep. In the same category—namely, of procedures tending to promote rest by reducing intracranial pressure—are the administration of intravenous dextrose, intramuscular and oral magnesium sulfate, and hypodermic caffeine.

It has been our custom to be quite cautious in the selection of sedative medication. We are aware that bromides, chloral, tribrom-ethanol and other compounds have been warmly recommended and are indeed in more or less common usage by physicians who report good results. Our policy, however, has been to avoid so far as is reasonable the possibility of adding insult to already injured tissues. So we abstain from chloral because of the likelihood of an already intoxicated heart; from tribrom-ethanol because of the comparatively great incidence of liver disease in chronic alcoholic patients; from bromides because the large doses necessary to be effective occasionally may produce intoxications in their own right; and so on. It may be that we are unduly careful; but, on the other hand, it is possible that our elimination of most of the commonly used sedatives has had something to do with the lowering of our death rate.

At this point we would stress the contraindication to morphine that exists in the management of these cases. It has been definitely established<sup>3</sup> that morphine increases intracranial pressure. A case in point is included in this series. The patient was admitted to the medical service suffering from profuse gastric hemorrhage, probably ulcerous etiologically. He was given morphine, quite properly, every four hours for twelve doses, after which he developed delirium tremens and was transferred to the psychiatric service. On lumbar puncture 150 cc. of spinal fluid under exceedingly great pressure was obtained; the intern withdrew the needle not because of a diminution in the flow but because he was, as he said, "afraid to remove more fluid." The next day 65 cc. was obtained, and on the third day 75 cc. The probability of a causal relationship between the morphine this patient had received and the amount of spinal fluid obtained from him—the largest amount

we have been able to remove from any alcoholic patient admitted to our wards—is to be considered quite pertinent.<sup>4</sup> That morphine increases the chances of death in a case of delirium tremens is not to be doubted. In the psychiatric service of the Cincinnati General Hospital the cardinal sin that can be committed by an intern is the ordering of morphine for a patient with delirium tremens.

There is one other procedure calculated to promote rest which is to be highly recommended in cases of this type, though we have been unable to include it in our regimen because of lack of facilities and a paucity of personnel. We refer to the use of hydrotherapy, which has been reported quite helpful and which offers a method of sedation which adds not at all to the patient's toxicity.

Also worthy of mention at this point is the contraindication to mechanical restraint, except as it may be necessary as part of a hydrotherapeutic maneuver. A sufficiently numerous staff of nurses and orderlies, together with the use of hydrotherapy, would practically eliminate the need for shackles, restraining jackets and the like. In our wards, because of our limited facilities, it is almost a routine to shackle patients with delirium tremens. With us it is the lesser of two evils. We feel that, could we make this unnecessary, we would remove what is definitely a physical and emotional irritant, and consequently increase the patient's chances for recovery and shorten his stay in the hospital.

#### PROMOTION OF ELIMINATION

We need not dwell long on the obvious importance of elimination. To rid the bowel of any accumulated sources of toxicity and for general purgative measures, a single dose of cascara followed by daily doses of magnesium sulfate is recommended. In addition, it is necessary to maintain an active kidney function in order to eliminate as rapidly as possible the accumulating products of a disordered metabolism. Here the caffeine, the intravenous dextrose and in some measure the digitalis provide the necessary diuretic stimuli.

#### DECREASE OF INTRACRANIAL EDEMA AND PRESSURE

That there is an irritation and edema of the brain and meninges and an increase in intracranial pressure in delirium tremens has been demonstrated clinically and in the autopsy room sufficiently often to need no further discussion at this time. It is exceedingly important that we combat these pathologic conditions as intensively as possible, first because of their existence *per se* and secondly because sedatives are much more likely to be effective when the brain is less toxic and irritable. The most simple direct method of decreasing intracranial pressure is by spinal fluid drainage. We recommend that this be done as soon as possible and that the fluid be allowed to escape slowly until the drops are quite far apart. Although the edema of the brain is not always reflected by an increase in spinal fluid pressure in delirium tremens, we feel that the drainage of as much fluid as is readily removable, whether 5 or 50 cc., is likely to be of some aid. Concerning the factor of safety in the complete reduction of pressure by the removal of as much fluid as possible, we can report that in the approximately 1,500 cases of acute alcoholism and delirium tremens that we have

3. Kennedy, Foster, and Wortis, S. B.: *Modern Treatment of Increased Intracranial Pressure*, J. A. M. A. 96:1284 (April 18) 1931.

4. Nuzum, Frank, and LeCount, E. R.: *The Ability of Brain Tissue to Take Up Water in Delirium Tremens and Other Conditions*, J. A. M. A. 67:1822 (Dec. 16) 1916.

bilateral undescended testes or of at least one functionally active testis.

On the basis of this, the five bilateral cases showing an increased excretion of gonadotropic hormone may be regarded as cases in which the gonadal mechanism has failed to function but in which the pituitary is still active. The administration of anterior pituitary-like substance in these cases resulted in a descent of the testes and the development of other signs of gonadal stimulation. Following the establishment of gonadal function, the excretion of gonadotropic hormone returned to the level below which it could not be demonstrated by the Zondek precipitation method.

The eight cases, three unilateral and five bilateral, in which gonadotropic hormone was not excreted before treatment are of particular interest. The presence of a normal testis in the three unilateral cases must be interpreted as indicating the presence of a normally functioning pituitary and also explains the absence of the gonadotropic hormone in the urine.

The failure of two of the three unilateral cases to respond to treatment is attributed to the presence of a mechanical obstruction.<sup>9</sup> In the other unilateral case the administration of the anterior pituitary-like factor was followed by descent of the testis into the scrotum. Unquestionably there was no mechanical obstruction and the success of therapy might be explained by the stimulation of an underdeveloped testis. Three patients with bilateral cryptorchidism who showed no clinical evidence of pituitary dysfunction and who did not excrete gonadotropic hormone in the urine responded rapidly to treatment (cases 7, 8, 9). The testes descended well into the scrotum in six, four and four weeks, respectively. In these cases there was no mechanical obstruction and evidently the undescended testes were sufficiently developed to utilize the pituitary gonadotropic hormone from the blood, with stimulation and descent following therapy.

The absence of the gonadotropic hormone in two of the five bilateral cryptorchids may be interpreted as indicating a primary pituitary dysfunction, as both cases (5 and 10) showed clinical evidence of infantilism. In these cases the administration of the anterior pituitary-like factor failed to bring the testes down.

#### SUMMARY AND CONCLUSIONS

The determination of the gonadotropic hormone in the urine of thirteen boys with cryptorchidism revealed the presence of significant amounts of the hormone in the urine of five of these boys. These results are consistent with the belief that the latter cases resulted from a failure of the gonadal mechanism, the pituitary gland being functionally active. These cases responded to treatment with the use of the anterior pituitary-like factor by descent of the testes and disappearance of the hormone from the urine.

Three cases of unilateral cryptorchidism in which the descended testis was apparently normal did not show any increased excretion of gonadotropic hormone prior to treatment and only one of these three (case 2) responded to treatment by descent of the other testis.

Two of the five cases of bilateral cryptorchidism which showed no gonadotropic hormone before treatment and which did not respond to treatment with

anterior pituitary-like substance were interpreted as cases of primary pituitary dysfunction, as both cases (5 and 10) showed clinical evidence of infantilism. The other three cases with no clinical evidence of pituitary dysfunction that responded to treatment must be explained on the basis of functionally active undescended testes.

If the results of our small series of cases are borne out by future observations, they indicate a possible sphere of usefulness for the determination of the urinary gonadotropic hormone in the prognosis of cryptorchids under treatment.

In view of these observations we believe that in many instances the determination of the gonadotropic hormone in the urine is a valuable procedure in determining both the type of treatment and the prognosis. The presence of the hormone in the urine justifies medical treatment and offers a good prognosis in the absence of mechanical obstruction. The absence of the hormone in the urine of bilateral cryptorchids may be due to: 1. Functionally active testes, although abnormally placed; they offer a good prognosis following endocrinotherapy in the absence of mechanical obstruction. 2. Primary pituitary dysfunction, in which case functional results will be questionable. Absence of the hormone in the urine of unilateral cryptorchids indicates adequate gonadal function in at least one testis. Organotherapy should be tried in both 1 and 2; in the event of failure, surgery is indicated.

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## INCREASE IN HEIGHT AND WEIGHT AND DECREASE IN AGE OF COLLEGE FRESHMEN

OVER A PERIOD OF TWENTY YEARS

LAURENCE B. CHENOWETH, M.D.

CINCINNATI

Sufficient material is not available on which to base an accurate opinion of the stature and weight of ancient and medieval men. It is said that the height required for a recruit for the ancient Roman cavalry and for the first cohorts was 5 feet 10 inches,<sup>1</sup> Roman measure.<sup>2</sup> Men of smaller stature were accepted for other less important cohorts.<sup>3</sup> From a study of about 300 thigh bones Parsons<sup>4</sup> estimated that the midland English male of the thirteenth to the fifteenth centuries averaged 65.75 inches (167 cm.) and the female 63 inches (160 cm.) in height.

In 1921 Clelia Mosher noted that the height of Stanford University women students had increased 1 inch (2.5 cm.) in thirty years.<sup>5</sup> In 1926 Czechoslovakian children were found to be one year advanced in size over what they were thirty years before.<sup>6</sup> In 1927 Gray found American boys of American born parents to be more than 2 inches taller than the same

From the Students' Health Service, University of Cincinnati, assisted by National Youth Administration workers.

1. Daremberg, C., and Saglio, E.: *Dictionnaire des antiquités grecques et romaines*, Paris, Hachette et Cie 3: 1957, 1994. Vegetius *Pentateuchus*, Flavius: *Epitoma rei militaris*, Leipzig, Teubner 1: 5, 1885. Ruzart, Thierry: *Acta martyrorum*, Amsterdam, Weiten, 1713, p. 360.

2. The Roman foot was approximately 11 1/2 inches, our measurement, which means that recruits taller than 5 feet 7 1/2 inches (171 cm.) were accepted for these organizations.

3. Codex Theodosianus 7: 1, 5; 22, 8.

4. Parsons, F. G.: *Measurements of Mediaeval English Femora*, J. Anat. & Physiol. 48: 266, 1914.

5. Mosher, Clelia D.: *Concerning the Size of Women*, California State J. Med. 10: 53 (Feb.) 1921.

6. Physical Development of School Children, Prague letter, J. A. M. A. 86: 967 (March 27) 1926.

9. Since this paper went to press, the two boys with unilateral cryptorchidism (cases 12 and 13) were operated on and the testes in each instance were found to be embedded by thick adhesions below the internal ring. The testes were atrophic but were successfully placed into the scrotum. Anterior pituitary-like substance was administered to each boy one month after operation, followed by an increase in the size of the testes.

Let us reemphasize the fact that there is a considerable mortality associated with delirium tremens and that there is a considerable danger attached to the negligent management of such cases.

## SUMMARY

Three hundred consecutive cases were treated by a comprehensive method of therapy for delirium tremens in the psychiatric division of the Cincinnati General Hospital with a resultant crude mortality of 5.3 per cent and an average stay in the hospital of 4.8 days.

Cincinnati General Hospital.

ATTEMPTED SOLUTION OF RENAL  
CALCULI BY DIETETIC  
MEASURES

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Higgins<sup>1</sup> has reported the successful solution of renal calculi in human beings. The method employed was the administration of an acid ash diet supplemented by vitamins A, B, D, G and E from several sources. This work was based on the earlier reports of many investigators<sup>2</sup> and also on his own animal experimentation.<sup>3</sup>

The preliminary reports published by Higgins were so promising and of such clinical importance that a parallel series of patients was treated by the method he outlined. The medical aspects as well as the diet supervision and the urinary  $p_H$  measurements were controlled in the nutrition clinic of the dispensary. A representative of the surgical service cooperated, selected the cases and performed the necessary genito-urinary procedures.

The diet as employed in this work differed somewhat in detail but not in principle from that used by Higgins. This was necessitated by the fact that the majority of the patients were financially unable to buy the more expensive foods. The simplification to be described later was therefore needed. The following is a standard regimen as outlined to the patient: A diet outline reproduced here (table 1) was given to each patient. This called for the ingestion of three regular meals daily. Each patient was instructed individually in the manner of preparation of the food and the limitations as to variation from the fixed diet. The diets were prescribed salt free whenever possible. In the case of the "kosher" Hebrew patients with whom the salting of the meat is a ritual, an effort was made to have the meat thoroughly washed in running water after its

preparation. The total fluid intake was restricted to 1,800 cc. daily in order to prevent excessive dilution of the excreted urinary acids. The patients visited the clinic every week for the first few months and bimonthly thereafter. The  $p_H$  and specific gravity determinations were made at each visit if possible.

When the  $p_H$  of the urine could not be brought down to the desired level by this diet alone, ammonium chloride up to 6 Gm. daily was given in divided doses. However, it should be pointed out that only in occasional cases did the ammonium chloride succeed in changing the urinary  $p_H$  when the diet failed to do it alone. It must be mentioned at this point that the use of the acid sodium phosphate as an acidifying drug was considered bad practice in patients with grossly infected urine. This salt increases the phosphate concentration of the urine. In the presence of an alkaline urine it is easily seen that the formation of phosphatic incrustations and depositions may be facilitated by an increased phosphate concentration. Ammonium chloride is to be preferred in these cases. Most alkaline stones contain phosphates. It is poor chemical practice to attempt to dissolve a salt by the same acid radical from which it was formed. A further consideration is that calcium phosphate is insoluble whereas calcium chloride is quite soluble.

As will be noted, the diet is poor in vitamins. The vitamin supplement was supplied to the patients gratuitously at their dispensary visits through the courtesy of Mead Johnson & Co. Vitamins A, B, D, G and E were used in the form of halibut liver oil 30 drops daily for the first month and 10 drops daily thereafter, wheat germ embryo one-half ounce (14 cc.) daily, and brewers' yeast tablets 36 grains (2.3 Gm.) daily in divided doses.

TABLE 1.—Diet Outline

Use no more than 1 pint of milk a day.		
Breakfast:		
4 tablespoonfuls of cooked cereal with milk and sugar		
2 eggs		
2 slices of bread and butter (2 teaspoons)		
Lunch:		
¼ pound of meat or fish		
1½ cups of macaroni, spaghetti or noodles		
Rice pudding, custard, bread pudding, cornstarch pudding or french toast		
2 slices of bread and butter		
Supper:		
¼ pound of meat or fish		
1½ cupfuls of macaroni, spaghetti or noodles		
½ cupful of vegetables (from list)		
1 portion of plain cake		
2 slices of bread and butter		
Bedtime:		
4 tablespoonfuls of cooked cereal with milk and sugar		
Use no salt		
Eat only the following foods:		
Cornmeal	Sweet butter	Corn, fresh
Oatmeal	Beef	Turnips
Rice	Beef liver	Squash
Whole wheat bread	Lamb	Onions
Macaroni	Veal	Tea
Spaghetti	Halibut	Coffee
Noodles	Codfish	Sugar
Eggs	Mackerel	

Fifty-two patients have been treated since the diet was first used in this clinic sixteen months ago. Twenty-seven of these patients have been on the regimen for from six to sixteen months in an attempt to cause solution of their renal calculi. These calculi were all radiopaque. In thirteen cases (table 2) the probable chemical composition was indicated by analyses of stones, either removed at a previous operation or

From the Surgical Service of Dr. Edwin Beer and the Medical Service of Dr. George Baehr and the Nutrition Clinic of the Mount Sinai Hospital.

- (a) Higgins, C. C.: The Medical Management of Urinary Lithiasis, Cleveland Clin. Quart. 2: 44 (April) 1935; S. Clin. North America 15: 923 (Aug.) 1935; M. Ann. District of Columbia 4: 63 (March) 1935; (b) Experimental and Clinical Observations on Urinary Calculi, New England J. Med. 213: 1007 (Nov. 21) 1935.
- Oshorne, T. B.; Mendel, L. B., and Ferry, Edna L.: The Incidence of Phosphatic Urinary Calculi in Rats Fed on Experimental Rations, J. A. M. A. 69: 32 (July 7) 1917; Fujimaki, Y.: Formation of Urinary and Bile Calculi in Animals Fed on Experimental Rations, Jap. M. World 6: 29 (Feb.) 1926; McCarrison, Robert: The Experimental Production of Stone in the Bladder, Brit. M. J. 1: 717 (April 16) 1927; Van Leersum, E. C.: Vitamin A Deficiency and Urolithiasis, ibid. 2: 873 (Nov. 12) 1927; J. Biol. Chem. 76: 137 (Jan.) 1928; Perlmann, S., and Weher, W.: Experimentelle Erzeugung von Blasensteinen durch Avitaminose, Deutsche med. Wchnschr. 54: 1045 (June 22) 1928.
- (a) Higgins, C. C.: The Experimental Production of Urinary Calculi, J. Urol. 29: 157 (Feb.) 1933; (b) The Experimental Production of Urinary Calculi in Rats, Journal-Lancet 53: 522 (Oct. 1) 1933; (c) Production and Solution of Urinary Calculi, Experimental and Clinical Studies, J. A. M. A. 104: 1296 (April 13) 1935.

At the time of physical examination the age is recorded in years and months, the height in tenths of an inch and the weight to the nearest pound. All students, men and women, are measured in their bare feet. The men are entirely stripped when weighed, and the women are weighed in a light cotton flannel examining gown. This gown is the same size and weight today as it was twenty years ago. Examinations were performed between 9 a. m. and 5 p. m. Freshmen students were examined each year between July 1 and November 1; the great majority of them were examined in the month of October.

The accompanying table is a summary of the average heights, weights and ages of entering freshmen students from October 1916 to June 1936. The total number of individual students measured was 13,092, of whom 8,968 were boys and 4,124 were girls. By a study of this table one notices a significant trend in stature and weight, which is graphically illustrated in charts 1 and 2.

By consulting chart 1, a gradual increase in height is to be noted. Men freshmen entering in 1935 were 1.78 inches (4.45 cm.) taller than those entering in 1916, and women freshmen in 1935 were 0.79 inch (2 cm.) taller, on an average, than those admitted in 1916. The tallest girls were found in the freshman class of 1933-1934.

A similar increase was noted for weight. Chart 2 represents the average weight of freshmen for each academic year. The curves show that there has been a gradual increase in weight in all students but that the increase has been greater for men than for women. The heaviest boys and girls were admitted in the academic year 1933-1934.

In order to evaluate properly the significance of the changes in height and weight it was necessary to plot

*Average Height, Weight and Age of Freshmen at the University of Cincinnati*

Academic Year Examined	Men				Women			
	Number Measured	Age, Years	Height, Inches	Weight, Pounds	Number Measured	Age, Years	Height, Inches	Weight, Pounds
1916-1917	150	19.45	67.45	132.05	153	18.87	62.93	119.00
1917-1918	172	19.02	67.97	135.00	126	18.98	62.98	118.63
1918-1919	54	18.42	67.25	121.68	136	18.93	62.60	114.63
1919-1920	272	19.72	67.90	134.65	128	18.54	63.12	119.32
1920-1921	593	19.53	67.97	135.15	192	18.49	62.95	120.09
1921-1922	489	19.16	68.09	136.66	206	18.33	62.59	118.56
1922-1923	472	19.20	68.17	135.92	178	18.47	62.95	122.06
1923-1924	480	19.31	68.24	136.78	191	18.62	63.13	119.34
1924-1925	581	19.25	68.23	137.18	212	18.66	62.83	117.45
1925-1926	599	19.27	68.46	137.92	59	19.12	63.76	121.47
1926-1927	566	19.11	68.32	137.60	246	18.97	63.03	122.66
1927-1928	641	19.29	68.23	139.26	174	18.56	63.42	121.46
1928-1929	607	19.31	68.44	133.16	108	18.53	63.69	119.81
1929-1930	434	19.42	68.66	140.94	102	19.03	63.47	118.47
1930-1931	815	19.16	68.44	139.50	206	18.55	63.73	122.47
1931-1932	503	18.97	68.62	141.25	321	18.44	63.69	119.41
1932-1933	313	18.75	69.00	142.29	202	18.60	63.74	118.55
1933-1934	381	18.99	69.14	149.07	310	18.65	64.21	122.56
1934-1935	390	18.77	69.14	143.41	353	18.44	63.73	121.89
1935-1936	456	18.53	69.23	141.79	331	18.60	63.72	120.58

the average age for each year. The age is recorded in years and months on the examination form, but in making the averages age was considered at the nearest birthday.

By consulting chart 3, one notes that the general tendency of the curves is downward, especially in the case of the men. At the present time, men freshmen are slightly older than women freshmen. However, the men have shown a greater decrease in age on

admission than the women have. The academic year 1918-1919 was the only one in which the boys in college were younger than the girls, and it will be remembered that boys 18 years of age and older were being drafted for the army at that time.

#### SUMMARY AND CONCLUSIONS

1. The height, weight and age of 8,964 young men and 4,124 young women entering the University of Cincinnati from 1916 to 1935 were averaged each year.

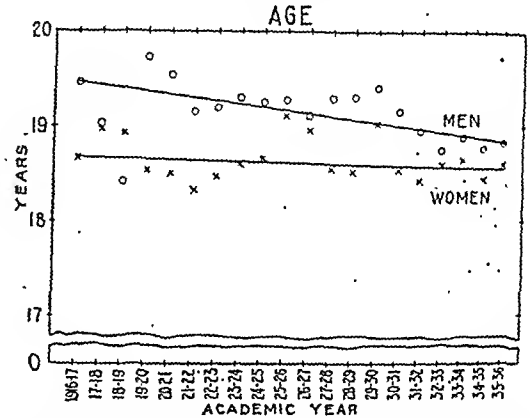


Chart 3.—The age of freshmen at the University of Cincinnati at the time of their examinations, arranged by academic years from 1916 to 1936. The curve has been smoothed to show the general trend. Averages have been plotted with the same symbols as in chart 1.

2. The results showed that freshmen are admitted at a younger age now than they were twenty years ago.

3. Freshmen are taller and heavier today than they were twenty years ago, in spite of their younger age.

4. Judging from evidence from the past, mankind in civilized countries is steadily growing taller.

5. There is no definite answer to the question of what causes this to be true, but the probable causes of the increase in stature and weight of young people are better nutrition in infancy and childhood, less communicable disease, higher standards of living, and a higher degree of health intelligence among people in general. Undoubtedly those who have contributed most to this state of affairs have been physicians (especially pediatricians), nutritionists, public health workers and educators.

6. Studies in the end product of the public schools (college freshmen) seem to indicate that a definite racial betterment is taking place in the United States and that the improvement is only partially influenced by social and economic position.

**Silicosis and Tuberculosis.**—It is remarkable that a simple inorganic compound such as dioxide of silicon ( $\text{SiO}_2$ ) can set in motion a complicated series of cellular reactions comparable to those produced by a living organism made up of proteins, carbohydrates and lipoids. Each one of these components is customarily assigned a special rôle in the production of the tissue reaction to the tubercle bacillus. The proteins are known to stimulate exudation from the blood vessels; the lipoids, proliferation of fixed tissue elements; and the carbohydrates determine humoral changes. Furthermore, these major elements have been split into a number of chemical fractions which on injection into animals have produced either exudative or proliferative tissue responses. The validity of these observations has not been questioned, but it is at least debatable whether or not the tubercle bacillus excites a given cellular reaction because of the presence of some fatty acid that can be extracted from it by chemical manipulation.—Gardner, L. U.: The Similarity of the Lesions Produced by Silica and by the Tubercle Bacillus, *Am. J. Path.* 13:13 (Jan.) 1937.



passed spontaneously. They varied in number and size from small single stones to multiple or large dendritic stones. A number of cases are under treatment to prevent recurrence of stone formation following operation, but these cases have not been included in the series.

Patients were discharged from the regimen for lack of cooperation, because of poor concentrating ability of the kidneys, or because of evidence of renal impairment, i. e., azotemia. In two patients, uremia with acidosis seemed to be precipitated by the acidifying regimen. Both of these patients died within six weeks in uremia, necropsy showing bilateral calculous pyonephrosis. Patients also were discharged in whom the diet or medication was not tolerated by the gastrointestinal tract or in whom pathologic changes in this tract contraindicated the treatment.

The clinical course of twenty-seven patients who adhered to the regimen for from six to sixteen months is given in table 2. The average duration of the therapy for this group was eleven months. All the patients either maintained their normal weight or gained in weight. As will be noted from the table, these patients did not show evidence of hyperparathyroidism as indicated by the calcium, phosphorus and calcium ion concentrations in the blood.<sup>4</sup> The blood studies on patient E. R. (case 17, table 2) indicate calcium values at the upper limit of normal. To rule out hyperparathyroidism, twenty-four hour urinary calcium excretions were determined. On an intake of 110 mg. of calcium daily the patient excreted 130 mg., which is well within normal limits.

#### THEORETICAL PRINCIPLES

A discussion of the theoretical principles involved in the use of the regimen may be in order.

1. *Use of Vitamin A in the Solution of Calculi.*—The etiologic factors in the formation of urinary calculi are not all known. However, as previously stated, the experimental work, particularly in rats, has shown that a vitamin A deficiency in the diet may play an important rôle. This phase has recently been comprehensively reviewed by the Council on Pharmacy and Chemistry.<sup>5</sup> In brief, urinary calculi are apparently formed in rats on the basis of epithelial changes of the lining surface of the calices, pelves and bladder, mainly a hyperkeratosis. Exfoliated keratinized epithelial masses are supposed to act as a nucleus for crystalline deposits in an alkaline urine. The latter is a concomitant finding with vitamin deprivation, particularly vitamin A. Fujimaki,<sup>2</sup> Saiki<sup>6</sup> and Higgins<sup>3c</sup> reported the solution of urinary calculi in experimental animals by the administration of vitamin A. Of interest is the experimental observation that administration of vitamin A causes a change in the urinary  $p_H$  from alkaline to an acid reaction. In our experience, by their sole administration neither plain cod liver oil nor halibut liver oil has brought about such a change in this group of patients.

While it is quite plausible that adequate or excessive amounts of vitamin A may permit a return of a damaged epithelial surface to normal and consequently prevent the formation of new stones on this basis, it is not so easily understood how solution of calculi can be effected in human beings through these means. Neither the chemical structure of vitamin A nor any of its

known physiologic properties can conceivably have the remotest effect on a precipitated mass of inert alkaline earth salts, especially when they are so intimately bound up with impervious albuminous material. This mass, which is called a calculus while in the body, is subject to no possible changing influences except those caused by or in the excretory fluid in which it is bathed.

2. *Use of the Acidifying Diet.*—This is based on the fact that precipitation of the salts of alkaline earths take place only in alkaline solution. The converse is also true; i. e., alkaline earth salts in vitro dissolve in acid mediums. With this diet it is believed that the constant excretion of a highly acid urine may cause solution of calculi. The question naturally arises as to the amount or degree of acidity ( $p_H$ ) of the solution required to effect the solution of these salts. Theoretically, the lower the  $p_H$  the more solvent effect the urine will have on certain of the alkaline earth salts. However, in the body there are factors which definitely limit the degree of acidity of the urine. The lowest  $p_H$  obtainable in the urine in our patients was 4.4. At this  $p_H$  uric acid crystals tend to form in the urine and painful crises have been observed.

In studying the range of precipitation of urinary salts according to the  $p_H$  levels of the urine, Higgins<sup>7</sup> has stated that the first evidence of precipitation of the alkaline salts takes place at  $p_H$  6.9. To prevent recurrent stone formation, he believes that the urinary  $p_H$  should be kept below this level. To cause dissolution of calculi with the high vitamin acid ash diet, he believes that the optimum  $p_H$  limits are from 4.9 to 5.2.<sup>1b</sup>

It will be noted that in this series of twenty-seven patients, twenty had a mean  $p_H$  level of 5.2 or lower (table 2). In seven patients the mean  $p_H$  did not reach this level. This inability to reach the desired level of acidity was associated in the main with three causes:

1. Infection with the alkali-producing organisms: *Staphylococcus albus* or *Bacillus proteus*.

2. Poor cooperation of the patient.

3. Poor renal function. Cases of the latter two types were discarded earlier in the treatment and are not included in the series.

Urinary  $p_H$ : The routine method used in the determination of the urinary  $p_H$  was the "universal indicator" covering a range from  $p_H$  4.4 to 8.8. This indicator method was checked frequently by means of a quinhydrone electrode and potentiometer circuit. The latter is the most accurate method available in this  $p_H$  range and can be used with simplicity and speed in the clinic. The volume of urine required is small (from 1 to 5 cc.). The limit of accuracy for the electrical method as used was plus minus 0.03  $p_H$  unit. The disadvantages of the colorimetric method are that:

1. The urine is turbid, which is particularly disturbing in infected urine.

2. The limit of accuracy in the most expert hands is plus minus 0.1  $p_H$  unit.

3. The high color of the urine, generally deep yellow to orange, coincides unfortunately with the color of the indicator in the neighborhood of  $p_H$  5.5.

4. The method requires the use of 10 cc. of fluid for the best results.

At the onset of this work it was immediately realized that the bladder urine may not represent the true  $p_H$  value of the actual urine in the kidney pelvis. This is especially obvious in patients whose kidneys are unin-

4. Pollack, Herbert, and Reiner, M.: Ionized Blood Calcium in Patients with Renal Calculi, *Proc. Soc. Exper. Biol. & Med.* 33: 432-433 (Dec.) 1935.

5. Vitamin A and Urinary Lithiasis, Report of the Council on Pharmacy and Chemistry, J. A. M. A. 105: 1983 (Dec.) 1935.

6. Saiki, T.: Disposition und Ernährung, *Deutsche med. Wchnschr.* 53: 517 (March 25) 1927.

7. Higgins, C. C.: Address before Section of Urology of New York State Medical Society, April 1936.

**Course in the Hospital.**—On entrance his temperature was 102.4 F., his pulse was 60 and respiration rate 20. His chief complaint was severe headache. Mentally he was clear and answered questions easily and accurately. Speech was normal. There was no paralysis of the cranial nerves. The pupils were rather small but reacted to light and in accommodation. There was well marked photophobia, which made examination of the optic fundi difficult. Both disks, however, appeared to be slightly blurred. There was no definite choking of the optic disks or change in the blood vessels. On examination it was found that his neck was definitely stiffened and it was impossible for him to touch his chin to his chest. The spine also was somewhat stiffened but not tender. There was no paralysis of the arms or legs. The deep reflexes were present and equal. Babinski's sign or other abnormal reaction was not present. Kernig's sign was not present. The spinal fluid was examined at once (table 1). The white blood corpuscles numbered 11,300 per cubic millimeter. Blood culture was negative. On the second day the patient's temperature continued between 101 and 104 F., except for one drop soon after entrance to the hospital, when the temperature was recorded as 97.2 F.

**Neurologic Examination** (by H. R. V.).—The patient, seen on the tenth day, was cooperative, answered questions readily and spoke of going back to his college shortly. Except for some fatigue, the patient was alert. The optic fundi were

although he had to be catheterized three times a day. The white blood corpuscles fell to 8,650 per cubic millimeter from a count on the ninth day of 17,300 per cubic millimeter. The blood sugar was reported as 40 mg. per hundred cubic centimeters. The Hinton test of the blood was negative. A third lumbar puncture showed that the pressure in the spinal fluid was relatively unchanged and that the cells were slightly more numerous than on the second examination. Blood culture in the meantime had shown no growth and a Widal test was negative. During the course of the thirteenth day, in the evening, he appeared about as he had previously. At midnight, however, he became more restless and a considerable amount of mucus developed in his throat. At 5 a. m. November 6 he had a convulsion, and half an hour later a second convulsion was immediately followed by death.

#### POSTMORTEM EXAMINATION

**General Examination.**—The body was examined seven hours after death. All the organs of the body, with the exception of the nervous system, were relatively normal. There was, however, some slight congestion and edema of the lungs, kidneys and spleen, with a mild cystitis. A tuberculous lymph node was found in the mesentery.

**Nervous System.**—There was marked congestion of the tissue of the scalp, and the brain itself appeared edematous. The surfaces were injected and this injection was seen on section throughout the whole brain, including the cerebrum, midbrain, pons, medulla and upper part of the spinal cord.

The meninges were edematous, congested and infiltrated with lymphocytes, chiefly small, with a few large and a few endothelial cells. Cellular infiltration was found extending along the vessels entering the cerebral tissue. The cerebrum showed a localized edema of the cortex just below the surface. In the gray matter a few of the vessels were surrounded by a perivascular infiltration composed of lymphocytes and a few endothelial cells, especially just below the surface of the brain (fig. 1). Perivascular infiltration appeared more intense about the vessels in the white matter, and eccentric foci of gliosis were noted adjacent to these vessels (fig. 2). Occasional vessel walls showed early degenerative changes in the endothelial cells and infiltration of lymphocytes with polymorphonuclear leukocytes in the walls of these vessels. The perivascular infiltration was made up of cells of the lymphocytic series. Other cells resembling microglia and a few large cells four or five times the diameter of the lymphocytes with somewhat acidophilic cytoplasm and eccentric large,

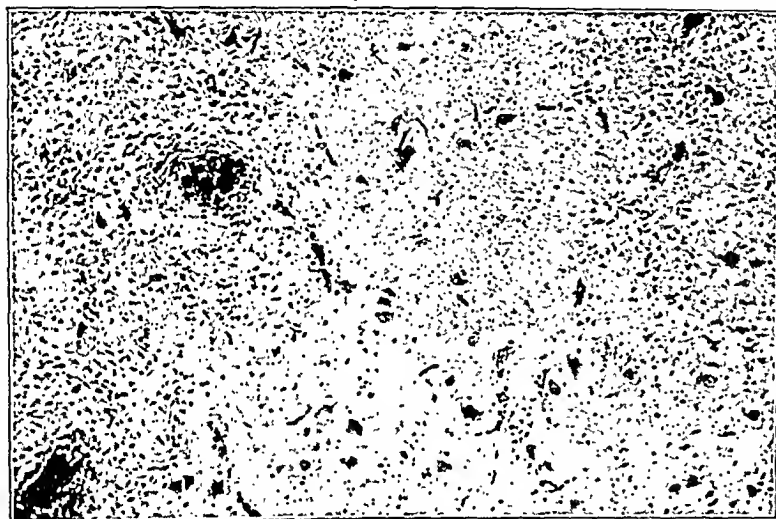


Fig. 2 (case 1).—Perivascular infiltration and eccentric foci of gliosis of cerebrum. Eosin methylene stain;  $\times 80$ .

slightly blurred, but there was no choking. Examination of the cranial nerves was negative. Hearing was normal and there was no tenderness over the sinuses or mastoid. The

TABLE 1.—Cerebrospinal Fluid Observations in Case 1\*

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides	Colloidal Gold
8th	11/1/34	330†	500+	50	..	...	0000000000
10th	11/3/34	250†	350	..	40	...	0001100000
12th	11/6/34	315‡	350	..	50	661	0001100000

\* In the tables, day indicates days after the first symptoms, and cells the number of white blood corpuscles per cubic millimeter of cerebrospinal fluid. Where the cells are other than lymphocytes, this fact is noted. The initial pressure is recorded in millimeters of water; the Queckenstedt test was always negative. The total protein, sugar and chlorides are reported in milligrams per hundred cubic centimeters. Fibrin clots, color changes and guinea-pig inoculation results are also noted. The quantitative tests, in cases seen at the Massachusetts General Hospital, were done in the spinal fluid laboratory of that institution by Miss E. F. Grzebiatowska.

† Pellicle formation; 85% lymphocytes; Wassermann test negative.  
‡ Pellicle formation; all lymphocytes; no bacteria in smear or culture; guinea-pig inoculation negative.

neck was not stiff and Kernig's sign was not present. No paralysis was made out. The reflexes were equal and normal throughout. There was no clonus or Babinski sign, no sensory loss or sphincter weakness. Photophobia was present. The patient continued to improve, from the clinical point of view.

indefinite nuclei were observed. Occasionally these cells showed phagocytic activity (fig. 3). The ganglion cells of the cerebrum showed only slight changes. Some of them possessed eccentric nuclei, being otherwise normal. In others the nuclei were beginning to undergo pyknosis, while in still others there was evidence of chromatolysis. Cells in which the nuclear changes were present possessed numerous small vacuoles in their cytoplasm. Still other cells appeared somewhat shrunken. Although no inclusion bodies were noted, cells were seen in which both the nucleus and the cytoplasm took a diffuse dark stain.

In the midbrain the changes noted in the cerebrum were even more evident. Glial nodules were prominent and perivascular hemorrhages were noted. There was well marked evidence of ganglion cell damage similar to that seen in the cerebrum, but in addition, in numerous swollen ganglion cells, cytoplasmic inclusion bodies were seen. In those cells in which the inclusion bodies were few, these bodies were quite rare and of an irregular, rodlike shape. These, surrounded by distinct halos of a dusky red, were usually grouped together at one end of the perikaryon. In other sections of the tissue the inclusion bodies were much smaller and more round. Although colored more intensely than those previously described, they usually lacked a halo. These bodies were situated in a coarse, edematous, yellowish reticulum, which sometimes caused distention and bulging of the cell wall. Surrounding the coarse reticulum a fine bluish reticulum could be seen. In some sections of the midbrain large ganglion cells were observed containing green-

whenever gonadal function is diminished or absent, as in adult hypogonadism,<sup>4</sup> the menopause<sup>5</sup> or castration,<sup>6</sup> there is an excessive excretion of gonadotropic hormone, presumably of pituitary origin. Since the clinical diagnosis of pituitary or other endocrine dyscrasia always is subjected to considerable variation in interpretation, it seemed important to study our cases of cryptorchidism with more objective criteria. We therefore determined, in a semiquantitative manner, the excretion of gonadotropic substance in the urine of our cryptorchid boys, both before and after treatment with gonadotropic substance.

#### PROCEDURE

Three unilateral and ten bilateral cryptorchids between the ages of 5½ and 14½ years were treated with ante-

#### RESULTS AND COMMENT

The results are summarized in the accompanying table. It may be seen that of the three unilateral and ten bilateral cases of cryptorchidism the unilateral (cases 2, 12, 13) and five of the bilateral cases (cases 5, 7, 8, 9, 10) showed no gonadotropic hormone in the urine by our test before treatment, while the other five (cases 1, 3, 4, 6, 11) gave a positive test showing the presence of at least 66 mouse units per liter of urine.

Katzman and Doisy<sup>8</sup> have shown that the urine of normal children contains little or no gonadotropic hormone. We have previously referred to the work of Engle, which shows that in experimentally cryptorchid rats the hypophysis resembles that of the castrated animals. The presence of significant amounts of gonado-

*Results of Treatment with Anterior Pituitary-like Substance*

Case	Age	Description	Urine *	Treatment †	Duration	Results	Urine *
1	10½	Bilateral cryptorchidism; infantile genitalia	Pos.	APL 100 RU 3x weekly	4 mos.	Descent of testes to upper scrotum	Neg.
2	12½	Right undescended testis; left testis normal	Neg.	APL 100 RU 3x weekly	4 mos.	Descent of right testis to upper scrotum; left unchanged	Neg.
3	10	Bilateral cryptorchidism; infantile genitalia; hypothyroidism	Pos.	APL 100 RU 3x weekly; thyroid 2 grains daily	2½ mos.	Descent and growth of both testes	Neg.
4	12	Hypoplastic undescended right testis 2 years after orchidopexy; hypoplastic partially descended left testis	Pos.	APL 100 RU 3x weekly	4 mos.	Descent and growth of both testes; pubic hair; enlargement of penis	Neg.
5	11	Bilateral cryptorchidism; infantile stature and genitalia	Neg.	APL 150 RU 3x weekly	2 mos.	Testes undescended; swelling inguinal canals; no hernia; slight growth of testes	Neg.
6	7	Bilateral cryptorchidism; small genitalia	Pos.	APL 100 RU 3x weekly	1 mo.	Descent both testes to upper scrotum; growth of both testes	Neg.
7	9½	Bilateral cryptorchidism; both testes riding freely in inguinal canals; can be pulled into scrotum	Neg.	A-S 150 RU 3x weekly	1½ mos.	Complete descent of both testes; growth of testes	Neg.
8	8	Bilateral cryptorchidism; both testes riding below internal ring	Neg.	A-S 100 RU 3x weekly A-S 150 RU 4x weekly	3 wks. 1 wk.	Complete descent of both testes; slight growth of testes	Neg.
9	5½	Bilateral cryptorchidism; right testis not palpated; left riding in canal	Neg.	A-S 100 RU 3x weekly A-S 150 RU 3x weekly	3 wks. 1 wk.	Complete descent of both testes; right smaller than left	Neg.
10	14½	Bilateral cryptorchidism; infantile stature and genitalia; ht. 54¾", wt. 68½ lbs.	Neg.	A-S 150 RU 4x weekly	3 wks.	No change	Neg.
11	11½	Bilateral cryptorchidism; hypoplastic testes at internal ring	Pos.	A-S 100 RU 3x weekly A-S 150 RU 3x weekly	4 wks. 2 wks.	Complete descent of both testes; growth of testes and scrotum	Neg.
12	5½	Right undescended testis; left testis normal	Neg.	A-S 150 RU 3x weekly	4 wks.	No change	Neg.
13	8	Right undescended testis; left testis in scrotum slightly smaller than normal	Neg.	A-S 150 RU 3x weekly	1 mo.	No change	Neg.

\* Pituitary gonadotropic hormone excreted in urine.

† APL, anterior pituitary-like preparation, Ayerst, McKenna and Harrison derived from the placenta; A-S, antuitrin-S, Parke, Davis & Co. (pregnancy urine extract).

rior pituitary-like substance, from 100 to 150 rat units, three times a week, for a period of from three weeks to four months, the duration depending on the success or failure of treatment. Determinations of gonadotropic hormone were made before the onset, during the course and three months after conclusion of treatment. The method used was Zondek's alcohol precipitation method.<sup>7</sup> According to this method, a minimum of 66 mouse units per liter of urine is demonstrated. A negative reaction, therefore, does not rule out the presence of minimal amounts of the hormone. For practical purposes, however, a negative reaction may be considered as an absence of the hormone, although it is realized that traces of the hormone may be present.

tropic hormone in the urine of cryptorchid children may therefore be compared to the increased excretion of gonadotropic hormone that occurs after castration in man. Since in the castrated person and in cryptorchid boys the gonadotropic hormone is presumably of pituitary origin, it seems logical to conclude that the presence of gonadotropic hormone in the urine of the cryptorchids indicates an active anterior pituitary gland as to gonadotropic function. The appearance of the hormone in the urine may therefore be ascribed to insufficient activity of the gonads which fail to modify the hormone or remove it from the blood. On the other hand the occurrence of cryptorchidism with an absence of gonadotropic hormone in the urine may be interpreted to mean either the presence of a primary pituitary dysfunction or the presence of functionally active

4. Goldhammer, H., and Loewy, P.: *Klin. Wchnschr.* 14:704-705 (May 18) 1935.

5. Evans, H. M.: *Present Position of Our Knowledge of Anterior Pituitary Function*, J. A. M. A. 101:425, 1933.

6. Smith, P. E., and Engle, E. T.: *J. Pediat.* 5:163 (Aug.) 1934.

7. Zondek, Bernhard: *Die Hormone des Ovarium und des Hypophysenvorderlappen*, Berlin, Julius Springer, 1931.

8. Katzman, P. A., and Doisy, E. A.: *The Quantitative Determination of Small Amounts of Gonadotropic Material*, J. Biol. Chem. 106:125 (Aug.) 1934.

disappeared, and the patient showed no signs of mental abnormality. While the patient was in the hospital, eight examinations of the white blood corpuscles varied from 6,100 to 11,900 per cubic millimeter. Examination of the blood smears was reported as negative. The blood Hinton test was also negative and all the Wassermann tests on the various spinal fluids were negative. A guinea-pig test from the spinal fluid failed to show evidence of tuberculosis. Roentgen examinations of the lung fields were normal and there was no evidence of miliary tuberculosis. Examination of the ears, sinuses, nose and throat was also negative. When the patient was seen again, Jan. 10, 1936, about eighty days after admission to the hospital, he was in perfect health and showed no signs of his recent illness. Spinal fluid examination done at that time is recorded in table 2. A similar examination was made in March 1936. The only abnormal finding was the increased protein in the spinal fluid. The blood, taken in March, was reported on by Dr. Charles

cation,<sup>1</sup> is unchanged. No new signs or symptoms have been discovered. In case 2, however, it will be noted that the lymphocytes may appear in the cerebrospinal fluid in larger numbers than had been suspected previously, reaching a level of nearly 4,000 per cubic millimeter at the height of the disease. Our highest finding in former cases was 790 cells, including 356 polymorphonuclear leukocytes and 79 large lymphocytes in

TABLE 2.—Cerebrospinal Fluid Observations in Case 2

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides	Colloidal Gold
3d	10/23/35	214*	106	121	61	...	00001221
4th	10/24/35	676	130	138	53	660	00001221
5th	10/25/35	880†	100	174	67	658	00012321
6th	10/26/35	2750‡	95	159	50	624	00001221
7th	10/27/35	3110†	180	235	47	636	...
8th	10/28/35	3530†	170	342	45	626	00001222
9th	10/29/35	3523†	125	498	41	600	00112323
10th	10/30/35	3975†	100	570	46	618	01231334
11th	10/31/35	3550†	100	510	40	615	01342334
12th	11/ 1/35	2750†	...	546	54	630	41333334
13th	11/ 2/35	3150†	...	534	53	...	...
27th	11/16/35	90	120	198	46	730	41333335
32d	11/21/35	48	100	168	64	738	11123341
82d	1/10/36	4	150	108	70	718	00012320
148th	3/16/36	2	150	87	...	...	00011108

\* Including 2 polymorphonuclear leukocytes.  
† All lymphocytes; fine web clot on standing.  
‡ Blood tinged fluid (traumatic).  
§ Xanthochromic.



Fig. 5 (case 1).—Large ganglion cell in the midbrain showing inclusion bodies scattered throughout cell. Eosin methylene stain; X 2,350.

Armstrong of the National Institute of Health, Washington, D. C., as containing "strong protective antibodies against the virus of lymphocytic choriomeningitis."

CASE 3.—This case is reported through the kindness of Dr. Gerald Blake. Rosalin D. S., a student, aged 18, seen at the hospital Feb. 3, 1936, had been sick for two days with an intense headache. The day before entrance, in addition to the headache, she had a slight stiffness of the neck with Kernig's sign. On entrance to the hospital the cerebrospinal fluid was examined (table 3). The patient at no time seemed very ill and the day after entrance the stiffness of the neck and Kernig's sign were no longer present. In five days she was discharged from the hospital without signs or symptoms. A second examination of the cerebrospinal fluid was not felt to be justified.

COMMENT

The cases here reported illustrate three types of the disease: fatal, prolonged and severe, and transient. In these, as in the cases previously reported, the clinical syndrome varies only in degree, not in character. The description of the disease, given in a previous communi-

case 11, reported in 1934.<sup>1</sup> The protein too, in case 2 of the present series, was higher than previously recorded; 498 mg. per hundred cubic centimeters before any blood had entered the cerebrospinal fluid. These high readings do not appear to justify a change of diagnosis, although the persistence of such a high cell count may well postpone the correct diagnosis, as it did in case 2. The sugar level, falling to 40 mg. per hundred cubic centimeters, has also not been observed before. This finding suggested tuberculous meningitis, until a turn upward the following day was distinctly in favor of meningitis of the benign type (table 2). The protective antibodies also are of interest in view of the work of Armstrong and his colleagues on the virus. Thus, the most severe case with recovery yet observed appears to fit into the same category as those previously described. Case 3 is merely used by way of contrast, to show how mild the disease may be and how transient the symptoms.

Interest centers, however, in case 1, containing the pathologic report. This patient, so far as is known, was the first to come to necropsy. Clinically and serologically the case does not appear to be different from many others that have been reported. The cell count was not higher than is commonly observed;

TABLE 3.—Cerebrospinal Fluid Observations in Case 3

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides	Colloidal Gold
3d	2/3/36	370*	120	118	63	...	00012210

\* 70% lymphocytes.

pressure was much increased, but this has been a not uncommon finding (case 13 in Viets and Watts<sup>1</sup>); the protein, sugar and colloidal gold curve were not abnormal for the disease. The chlorides, however, on the one time that they were done, were lower than we usually see in this disease. The clinical course, moreover, was not unusual, except for the terminal convulsions. The pathologic changes were surprising. Instead of being confined to the meninges, the lesions were

type were reported to be fifty years earlier.<sup>7</sup> Mohr discovered that boys and girls from 10 to 18 years of age in the lower public schools and the gymnasiums of Oslo, Norway, were from 2.52 to 4.88 cm. taller and from 1.97 to 4.31 Kg. heavier in 1930 than similar children were in 1920.<sup>8</sup> A similar report was made from Germany.<sup>9</sup> One of the most striking increases in size was reported for the school children of Leipzig, certain analogous groups of whom showed an increase of 11.6 cm. in height and 11.1 Kg. in weight from 1918 to 1935.<sup>10</sup>

The World War was undoubtedly responsible for the underdevelopment of the school children in 1918, but it is an interesting observation in human biology that children in the aggregate should respond so quickly to more favored circumstances. In discussing the work of Koch, the Berlin correspondent of *THE JOURNAL* said:<sup>11</sup> "This study revealed that the whole period of growth in man has undergone material change. Although the length and weight of man at birth have changed but slightly, the rapidity of growth has increased so that children equal in height children from one and a half to two years older of the prewar period. In both sexes there has been a shortening of the period of maturity of from one and a half to two years."

An interesting study was made at Harvard College several years ago when the records of 1,166 fathers of Harvard students were searched out and compared with the present-day records of their 1,461 sons. The fathers were measured between the years 1875 and 1910 and were found to have a mean height of 68.6 inches (174 cm.). Their sons averaged 70 inches (178 cm.) tall. Similar studies were also made at Wellesley, Vassar, Smith and Mount Holyoke and the college

was conducted by Bowles and published as a monograph.<sup>13</sup> This investigator concluded that stature has been increasing at Harvard for the past eighty years or more and that the mean annual increase has been at the rate of 1 inch every thirty-two years.

The present study was suggested to corroborate the results of others and to contribute some further data

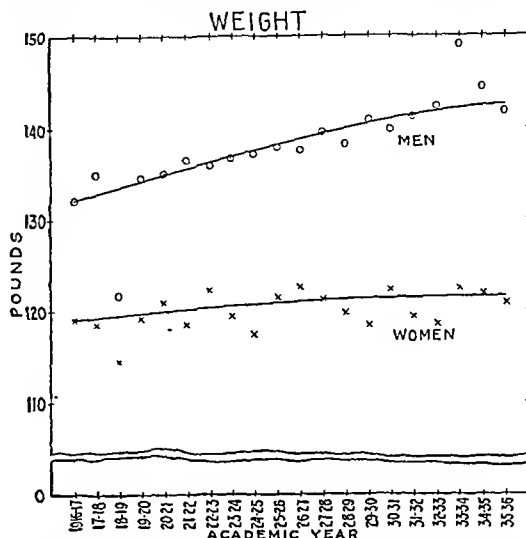


Chart 2.—The weight of freshmen at the University of Cincinnati from 1916 to 1936, arranged by academic years. Men students were weighed stripped, while women were weighed wearing a light weight examining gown. The curve has been smoothed to show the general trend. Yearly averages have been plotted with the same symbols as in chart 1.

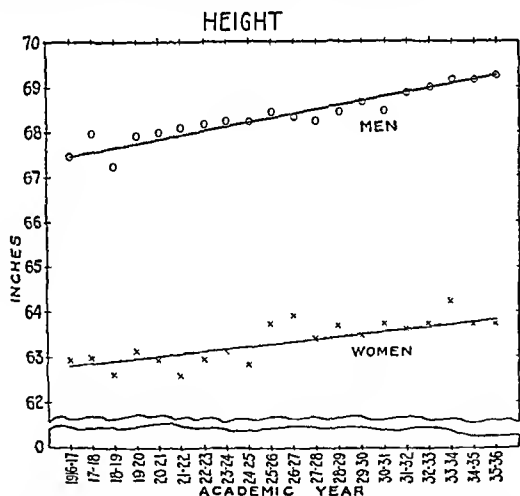


Chart 1.—The height of freshmen at the University of Cincinnati from 1916 to 1936, arranged by academic years. Men and women were both measured in their bare feet. The curve has been smoothed to show the general trend. Yearly averages from the table have been plotted by a circle and a dot for men and by a cross for women.

daughters averaged 64.8 inches (164 cm.) in height, which was 1.1 inches (2.79 cm.) taller than their mothers had been while students.<sup>12</sup> The whole study

to this study of widespread interest. Good records of careful physical measurements of students exist in the Students' Health Service of the University of Cincinnati. These records go back to 1916 and contain a history and physical examination for each student. Among other things they show his place of birth, his present legal residence and the place of birth of each of his parents. The geographic distribution of students' homes has remained remarkably constant through the years. The majority of the students are graduates of local high schools or of high schools in Ohio, Kentucky and Indiana. Only a rather small minority come from a greater distance than these three states. There are but few foreign born students among them; most of the young men and women are native born and come of native born parents. The study is thus controlled, to a certain extent at least, geographically.

The students come from middle class homes; there are very few specially privileged ones among them. Many of them are underprivileged and are entirely self supporting. The Harvard study previously mentioned was made on a group that all will admit are a privileged class. Many investigations show that economic status and social position greatly influence growth.<sup>14</sup> The present study bears out these facts, for freshmen at the University of Cincinnati are shorter and lighter than recent Harvard students as reported by Bowles.

7. Gray, Horace: Increase in Stature in the Last Fifty Years, *J. A. M. A.* 88: 908 (March 19) 1927.

8. Mohr, O. L.: Heredity and Disease, New York, W. W. Norton & Co., Inc., 1934, p. 225.

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10. Koch, E. W.: The Increase in Height and Weight of Young People in the Last Two Decades: Its Cause and Effect, *Deutsche med. Wchnschr.* 61: 143 (Jan. 25) 1935.

11. Increases in the Average Height and Weight of Children, Berlin letter, *J. A. M. A.* 104: 1919 (May 25) 1935.

12. Hooten, E. A.: A Glimpse of Human Evolution at Harvard, *Harvard Alumni Bull.* 33: 994, 1931.

13. Bowles, G. T.: New Types of Old Americans at Harvard, Cambridge, Harvard University Press, 1932.

14. Dick, J. L.: Defective Housing and the Growth of Children, London, George Allen and Unwin, Ltd., 1910. Robertson, T. B.: Studies in the Growth of Man, *Am. J. Physiol.* 41: 547 (Nov.) 1916. Gray, Horace, and Fraley, Frederick: Growth Standard: Height, Chest-Girth and Weight for Private School Boys, *Am. J. Dis. Child.* 32: 554 (Oct.) 1927. Luhsen, J.: State of Nourishment of Amsterdam School Children, *Nederl. tijdschr. v. geneesk.* 2: 1865 (Nov. 24) 1917. Parsons, F. G.: A New Type of Englishman, *Am. J. Phys. Anthropol.* 11: 378 (Jan.-March) 1928. Gray, Horace, and Ayres, J. G.: Growth in Private School Children, Chicago, University of Chicago Press, 1931. Diehl, H. S.: Height and Weights of American College Men, *Human Biol.* 5: 445 (Sept.) 1933.



CASE 2.—A man, aged 30, had had a right mastoid operation three months prior to consultation. Following the operation a dermatitis developed, which persisted in spite of the efforts of the aurist. The patient became discouraged and, unknown to his aurist, asked for advice. There was marked scaling over the entire posterior surface of the ear, with a fissure in the usual area. The mastoid incision wound had healed. Smears taken from the fissure and also those prepared by pressing out the crusts on glass slides disclosed chains of streptococci. Cultures produced a hemolytic streptococcus. Application of



Fig. 2 (case 2).—Posterior intertriginous scaling and fissuring following mastoid operation.

ammoniated mercury ointment brought about prompt healing (fig. 2).

CASE 3.—A man, aged 43, was seen in June 1933 for "itching ears," which had persisted for some time despite the treatment administered by his aurist. There was no history of otitis media. The patient was given a few treatments with the roentgen rays but no culture was made. Improvement, objectively and subjectively, was marked. In January 1935 the patient returned with an acute dermatitis involving the right concha centering about the right lobe. The left ear was also involved but to a much less degree. All possible irritants were considered. The patient gave up his usual pillow and avoided with great care everything that could conceivably be a factor in the production of such a dermatitis. The canals were red and swollen but there was no indication of furunculosis. There was gradual improvement with local applications, but the condition persisted in both ears and the patient became discouraged. March 27 he reappeared with exacerbation in both canals. The clear serum contained chains of streptococci in the smears, and brain broth cultures repeatedly grew long chains of hemolytic streptococci. Application of 3 per cent ammoniated mercury ointment brought prompt healing, with no recurrence to date. The condition had been undoubtedly, from the beginning, a streptococcic infection of the eczematiforme type which simulated an irritant dermatitis to such a degree that smears and cultures had been neglected and for which only soothing applications had been made for fear of adding further irritation (fig. 3).

CASE 4.—A woman, aged 25, seen April 11, 1935, complained of itching areas, which had been present in both ears for an indefinite time. There was no history of otitis media or of mastoiditis. Various local applications had been made. Examination disclosed crusting and scaling in both vestibules and canals. There was considerable clear serous fluid, in which there were numerous short chains of cocci in the right ear. Brain broth cultures of both ears resulted in cultures of hemolytic streptococci. Ammoniated mercury ointment was prescribed and on April 28 all signs and symptoms had disappeared. There has been no recurrence to date (fig. 4).

CASE 5.—A woman, aged 26, seen in June 1932, complained of itching of the ears for the past year. Various kinds of treatment had been carried on without result. The patient stated that there had been fissures in the labial commissures on

several occasions. Cultures made on agar and on Sabouraud medium resulted in nothing definite. Ammoniated mercury ointment was prescribed on the assumption that a streptococcic infection had been missed. August 4 the ears were apparently healed. The patient was seen again a few times, but in October 1935 she appeared with pain, swelling, erythema and serous crusting in both canals. The erythema extended to the tragus and to the preauricular region. There were chains of cocci and a diphtheroid bacillus in the smears of one ear. Brain broth cultures were positive for hemolytic streptococci. The temperature was 100.3 F. and the white count 18,400. Hospitalization, with hot packs and glycerin and alcohol instillation, resulted in rapid recovery. In all probability this patient had had a streptococcus eczematiforme infection in the canals for three years, but owing to the failure to use proper cultural technique when first seen the organism had not been found.

CASE 6.—A man, aged 60, had suffered considerable discomfort from itching of the ears for the past two years. Various local applications had been made without result. When first seen there was semiserous scaling and crusting in both canals and vestibules. Scrapings were made on glass slides and thoroughly pressed out into thin films with a knife blade. Chains of cocci could be seen in all fields of the preparation. Long chains of hemolytic streptococci were grown in brain broth on two occasions from both ears. Application of ammoniated mercury ointment brought about prompt healing (fig. 5).

CASE 7.—A woman, aged 62, complained of an itching area in the anterior portion of the left auditory meatus, which had been present for three years. The right ear, according to the patient, had not been involved. On examination there was found an area of eczematiforme scaling in the incisura anterior, beneath which could be seen a small fissure. Cultures in brain broth were made on three different occasions in the absence of any treatment, which had been purposely withheld. Short chains of nonhemolytic streptococci were grown in all. This is interesting in view of the observation of Kinnear<sup>4</sup> that the eczematiforme lesions yield anhemolytic streptococci, whereas



Fig. 3 (case 3).—Scaling and crusting of external auditory canal and cavum.

Kinnear found that impetigo invariably yields hemolytic streptococci.

CASE 8.—A man, aged 50, was seen Feb. 17, 1932, for "eczema of the ears" and a patch of serous crusting in the occipital region. The activity in the ears consisted of scaling of the canals and of the vestibules. In the smears there were short chains of cocci but the cultures on blood agar yielded only staphylococci. Both ears were given two roentgen treatments, twice, and an ointment containing salicylic acid and ammoniated mercury was advised for the scalp. February 28 the scalp was

4. Kinnear, John: *Brit. J. Dermat.* 44: 173 (April) 1934.

# ACUTE LYMPHOCYTIC MENINGITIS

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In 1934 Viets and Watts<sup>1</sup> published their third paper on acute aseptic (lymphocytic) meningitis, in which they summarized the literature up to the time of publication, reviewed the five cases that had been observed in 1929, and added details in regard to nine others. It was felt that the syndrome was so well recognized, both in the literature and as the result of their own experience, that the disease should be considered a clinical entity. In the last two years a number of other patients with the same syndrome have been observed and numerous reports have occurred in the literature. In addition to the elucidation of the clinical syndrome, the whole subject has been brought to a focus by the finding of a virus which is probably the etiologic factor in the disease. This virus has been reported by Armstrong and his associates,<sup>2</sup> by Traub,<sup>3</sup> by Rivers and Scott<sup>4</sup> and by Findlay, Alcock and Stern.<sup>5</sup> There appears to be a close connection between the viruses established by these four sets of investigators. Each has been checked against the virus of Armstrong. This paper will not attempt to elucidate the details of the virus identification. It is our object to report further experiences with the disease from the clinical point of view, especially in regard to the variations in its severity, and the pathologic examination of the tissues from one case.

## LITERATURE SINCE 1934

The chief clinical records of the disease will be found in the papers by Scott and Rivers,<sup>4b</sup> who report one case fully observed in a physician, by Findlay, Alcock and Stern<sup>5</sup> whose patients in a London hospital showed a surprising amount of initial paralysis, by López Albo, Feijóo and Goitia,<sup>6</sup> by Cappellini and Pisani,<sup>7</sup> by Dickens,<sup>8</sup> by Hoesch<sup>9</sup> and by Müller and Klan,<sup>10</sup> who differentiate in a table primary from secondary lympho-

cytic meningitis. Nordwall<sup>11</sup> gives a long list of diseases in which lymphocytes appear in the cerebrospinal fluid, including a few cases of primary lymphocytic meningitis. Weismann-Netter<sup>12</sup> had one patient who was comatose and had convulsions; recovery took place. The clinical reports by Terzani,<sup>13</sup> Charleux<sup>14</sup> and others duplicate the already large existing literature. They bring to attention, however, the widespread distribution of the disease. No form of treatment, other than lumbar puncture, has been effective. The disease



Fig. 1 (case 1).—Edema of the meninges and cortex with cellular infiltration along vessels and into cerebral tissue. Eosin methylene stain; X 120.

may run a long course, with symptoms of great severity, even when complete recovery ultimately takes place. No deaths have been reported in the literature.

## REPORT OF CASES

**CASE 1.—History.**—Raymond P., aged 20, referred by Dr. F. G. Brigham, entered the hospital Nov. 1, 1934, and died November 7. Seven days before entrance a slight headache developed, which gradually increased in severity, followed by a chill two days later. During the period up to his entrance to the hospital he had several attacks of vomiting. There was no history of tuberculosis in the family. The patient had always been well except for children's diseases and had taken an active part in athletics for a number of years.

11. Nordwall, Gunnar: Ueber Fälle zelulärer, aseptischer Meningitis, *Acta psychiat. et neurol.* 9: 285-349, 1934.
12. Weismann-Netter, R.: Les méningites lymphocytaires aiguës bénignes, *Semaine d. hôp. de Paris* 9: 637-653 (Dec. 15) 1933.
13. Terzani, Alberto: Contributo allo studio della "Meningite acuta criptogenetica con iperlinfocitosi del liquor," *Gior. di clin. med.* 14: 1418-1437 (Dec. 30) 1933.
14. Charleux, G.: Méningites lymphocytaires bénignes, *J. de méd. et chir. prat.* 104: 820-824 (Nov. 25) 1933.

- From the Neurological Department, Massachusetts General Hospital, and the Laboratory of Pathology, Palmer Memorial Hospital.
1. Viets, H. R., and Watts, J. W.: Acute Aseptic Meningitis, *J. Nerv. & Ment. Dis.* 80: 253-273 (Sept.) 1934; Three Cases of Aseptic (Lymphocytic) Meningitis, *New England J. Med.* 200: 633-634 (March 28) 1929; Aseptic (Lymphocytic) Meningitis, *J. A. M. A.* 93: 1553-1555 (Nov. 16) 1929.
  2. Armstrong, Charles, and Lillie, R. D.: Experimental Lymphocytic Choriomeningitis of Monkeys and Mice Produced by a Virus Encountered in Studies of the 1933 St. Louis Encephalitis Epidemic, *Pub. Health Rep.* 49: 1019-1027 (Aug. 31) 1934. Armstrong, Charles, and Wooley, J. G.: Studies on the Origin of a Newly Discovered Virus Which Causes Lymphocytic Choriomeningitis in Experimental Animals, *ibid.* 50: 537-541 (April 19) 1935. Armstrong, Charles, and Dickens, P. F.: Benign Lymphocytic Choriomeningitis (Acute Aseptic Meningitis): A New Disease Entity, *ibid.* 50: 831-842 (June 21) 1935.
  3. Traub, Erich: A Filtrable Virus Recovered from White Mice, *J. Immunol.* 29: 69 (July) 1935; *Science* 81: 298-299 (March 22) 1935.
  4. (a) Rivers, T. M., and Scott, T. F. McN.: Meningitis in Man Caused by a Filtrable Virus, *Science* 81: 439-440 (May 3) 1936. (b) Scott, T. F. McN., and Rivers, T. M.: Meningitis in Man Caused by a Filtrable Virus: I. Two Cases and the Method of Obtaining a Virus from Their Spinal Fluids, *J. Exper. Med.* 63: 397-414 (March 1) 1936. (c) Rivers, T. M., and Scott, T. F. McN.: Meningitis in Man Caused by a Filtrable Virus: II. Identification of the Etiologic Agent, *ibid.* 63: 415-432 (March 1) 1936.
  5. Findlay, G. M., Alcock, N. S., and Stern, R. O.: The Virus Etiology of One Form of Lymphocytic Meningitis, *Lancet* 1: 650-654 (March 21) 1936.
  6. López Albo, W.; Feijóo, A., and Goitia, D.: Meningitis linfocitaria aguda benigna, *An. de med. int.* 3: 259-282 (March) 1934.
  7. Cappellini, I., and Pisani, G.: Contributo alla conoscenza della meningite acuta linfocitaria benigna, *Diagnosi* 14: 81-98 (April) 1934.
  8. Dickens, P. F.: Benign Lymphocytic Choriomeningitis (Acute Aseptic Meningitis): A New Disease Entity, *U. S. Naval M. Bull.* 32: 427-434 (Oct.) 1935.
  9. Hoesch, K.: Ueber epidemische lymphocytäre Meningitis (akute seröse Meningitis) und ihre Ätiologie, *Zentralbl. f. inn. med.* 56: 401-411 (May 4) 1935.
  10. Müller, A. H., and Klan, Hermann: Ueber verschiedene Formen aseptischer Entzündungen der Gehirnhäute, *Deutsches Arch. f. klin. Med.* 177: 672-682 (June 15) 1935.

necessary in ear infection than in the infections of the hands and feet.<sup>5</sup> Failure to grow streptococci in cases 1, 5 and 8 was due to the use of blood agar only. If blood agar is used, the technic of Sabouraud, which consists in making the inoculation by a long sinuous trail of the loop over the petri dish surface without recharging the wire, should be practiced. At the beginning of the trail only staphylococci will be found, but at the end of the path the staphylococci have thinned out to a degree which allows the delicate streptococci to grow. Haxthausen<sup>2</sup> finds that addition of 0.06 per cent thallium nitrate or 1:100,000 crystal violet to blood agar plates not only will serve to inhibit the staphylococci but also will aid in the determination of the percentage of scales giving cultures, thereby indicating roughly the number of streptococci present. He finds, however, that the staphylococcus inhibitors may also inhibit some strains of delicate streptococci. Crystal violet can be added to liquid cultures in 1:500,000 concentration and successfully inhibit staphy-



Fig. 6 (case 8).—Scaling of cavum and meatus with impetiginous fissuring at incisura intertragica.

lococci. It should be added from a stock solution at the time of inoculation of the tube, because it is decomposed by the high temperature of the autoclave.

The technic of Sabouraud, which consists of drawing up serum in a Wright pipet, sealing off and incubating for seventeen hours, is usually not suitable in the ear infections because of the lack of sufficient serum. When serum is obtainable, the method is very successful and is due to the fact that the streptococcus can survive partial anaerobic conditions, whereas the staphylococcus is an obligatory aerobe. After incubation the tip of the pipet is broken off and the first drop of serum will contain a practically pure culture of streptococci.

A simple and at the same time very successful method of culture is the use of the brain broth glucose medium in tubes at least 12 inches long. Crystal violet may be added if desired. Subcultures on brain broth or blood agar after seventeen hours will be of much aid in finding the more delicate strains. Drawing up a few drops

from the surface of the brain tissue by means of a long Wright pipet and then smearing is the best way of finding the streptococci.

The question arises as to the rôle played by the streptococcus in the etiology of the cases described. Haxthausen<sup>2</sup> was able to find streptococci on normal skin in seven out of ninety-two individuals. Sabouraud<sup>3</sup> answers this as follows: "Dr. Haxthausen would like to establish a sharp distinction between the streptococcus saprophyte and the streptococcus parasite. This distinction seems to me to be purely verbal. There are not two microbes one of which is virulent and the other inoffensive. On the one hand there is an inert organism which merely contaminates a normal skin and on the other an actively multiplying organism which has infected a skin."

Kinnear<sup>6</sup> was able to obtain positive cultures in fifty-one of fifty-two cases of recognized streptococcal diseases of the skin. In fifteen cases of retro-auricular fold lesions of the eezematiform type a nonhemolytic streptococcus was grown in all of them.

The contention of Sabouraud that the streptococci isolated from normal skin can never be considered as saprophytic is given further confirmation by the work of Dold,<sup>7</sup> who divides the reactions of laboratory animals to streptococci into three types: (1) erythema more or less extensive with absence of infiltration; (2) severe inflammatory reaction with infiltration and sharp demarcation of a deep, chronic, necrotic process; (3) rapidly extending cellulitis, with death of the animal within a few days.

With these three types of reactions in mind, the Lévinés and Rabinovitch<sup>8</sup> investigated the pathogenicity of streptococci isolated from the normal skin of fifteen individuals. Of these strains twelve produced a reaction of type 1 and three strains produced a reaction of type 2. The conclusions arrived at by the authors as a result of their investigation are as follows: 1. Streptococci on the normal skin of persons in good health can never be considered as saprophytic. 2. There is a difference in the virulence of streptococci found in various pyodermas from the streptococci found in the normal skin.

#### CONCLUSIONS

Itching and scaling dermatoses in and about the ears may be, in some instances at least, of streptococcal origin.

Failure to obtain positive cultures early in some of the cases of this series was due to faulty technic.

Streptococci on the skin are never to be considered as saprophytic.

I am in complete accord with the observations of Sabouraud.

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#### ABSTRACT OF DISCUSSION

DR. CLINTON W. LANE, St. Louis: Cases of postauricular dermatitis are not all due to the streptococcus. Many cases of similar clinical type accompany a definite seborrhea of the scalp. These are lesions of seborrheic dermatitis which together with the scalp heal with local applications of salicylic acid and sulfur. Postauricular contact dermatitis is indistinguishable clinically from these cases of streptococcal dermatitis. Examples

6. Kinnear, John: An Investigation into the Streptococci Found in Certain Diseases of the Skin. *Brit. J. Exper. Path.* 12: 354 (Dec.) 1931.

7. Dold, H.: *Zentralbl. f. Bakt.* 127: 367 (Jan. 30) 1933.

8. Léviné, E. M.; Léviné, I. M.; Léviné, M. M., and Rabinovitch, M. S.: Recherches expérimentales sur le dermatisme des post-les dans la streptodermie. *Ann. de dermat. et syph.* 5: 849 (Sept.) 1934.

5. Mitchell, J. H.: Streptococcal Infection Simulating Ringworm of the Hands and Feet. *J. A. M. A.* 104: 1220-1225 (April 6) 1935.

pigment granules in the perikaryon (fig. 4). In some of these cells the inclusion bodies were crowding out pigment granules; in others they were scattered diffusely throughout (figs. 4 and 5).

In sections of the brain through the internal capsule the reactions previously noted were less intense and no inclusion bodies were found. In other sections of the midbrain these bodies were also not found, even in places in which perivascular reaction and gliosis were marked. In the medulla and at the

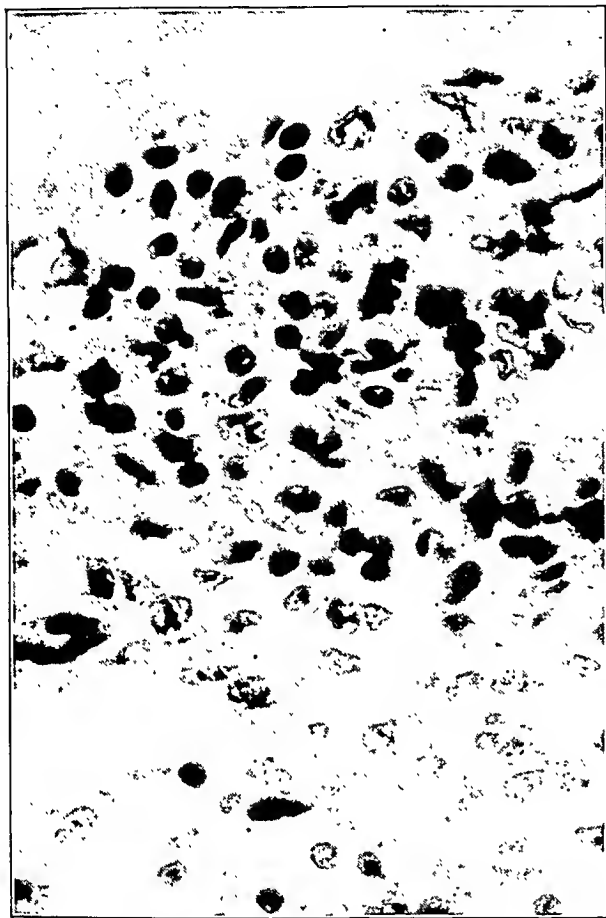


Fig. 3 (case 1).—Cell types in perivascular infiltration of the cerebrum. Eosin methylene stain;  $\times 2,000$ .

level of the olivary bodies a few small cellular inclusions without halos were seen in the ganglion cells. In general the changes observed were similar to those found in the cerebrum. In addition, slight neuronophagia was seen. At a slightly lower level in the medulla, perivascular infiltration with nodules of gliosis was observed. The changes in the ganglion cells were slight and no inclusion bodies were noted. In the cerebellum similar perivascular infiltration and gliosis in the white matter was seen, the ganglion cells being little affected and without inclusion bodies. A small section of the upper end of the spinal cord also showed perivascular infiltration and gliosis. The ganglion cells were slightly affected and showed some eccentricity and chromatolysis of the nuclei.

**CASE 2.—History.**—Adam M., aged 18, a student, admitted to the Massachusetts General Hospital Oct. 23, 1935, complained of severe headache of about thirty-six hours' duration. The headache had come on suddenly and was accompanied by a chilly sensation, without actual shaking chills. The patient was unable to sleep the night of the onset and during the night noted some stiffness of his back. About twenty-four hours before entrance to the hospital the patient's headache became very severe and he vomited three times before he entered. The only illness recorded in the past history was tonsillitis prior to tonsillectomy at the age of 8.

**Course in the Hospital.**—The patient was in the hospital from October 23 to November 21. During the first week the tem-

perature ranged from 100 to 103 F. but gradually fell off during the second week to normal. There were no changes in the reflexes on the initial examination and the only positive manifestation was a bilateral Kernig sign with some stiffness of the neck. The patient was extremely restless, apprehensive, anxious and at times almost terrified. His lips twitched continuously and he complained of great dryness of the mouth. One examiner thought there was slight weakness of the left side of the soft palate and possibly the right side of the face. There was no difficulty, however, in swallowing or breathing. The patient's condition suggested poliomyelitis of the bulbar type, and this diagnosis was entertained at the beginning of his illness. On the fourth day of his illness he vomited repeatedly and yawned continuously. The fifth day he was somewhat better although he still showed marked anxiety and complained of headache. The right facial paralysis was more definite and there was also paresis of the right soft palate. The reflexes were rather sluggish, but all were present and the plantar responses were normal. Six days after the onset the patient's respirations dropped rather suddenly to 4 per minute, without particular signs of distress and without cyanosis. Yawning was still a prominent symptom. The seventh day the respirations again resumed a rate of 15 per minute and were fairly regular. The next day the respirations became 20 per minute and the patient showed distinct signs of improvement. At this time the cells in the spinal fluid were nearly at their height (table 2). During the next week, except for a slightly infected



Fig. 4 (case 1).—Large ganglion cell in the midbrain, with inclusion body and pigmented granules. Eosin methylene stain;  $\times 2,350$ .

gland at the angle of the jaw on the left side, which gradually receded without being opened, steady progress was made toward recovery. On the twentieth day the patient was able to sit up in a chair. He was alert and cooperative and made no complaint of headache. A slight bilateral Kernig sign was still present. On the day of his discharge (thirty-second day) the patient appeared normal except for slight general weakness. There was no stiffness of the neck or Kernig's sign. The weakness of the facial nerve on the right and of the palate had

few weeks ago with a streptococcic fissure at the base of the penis. He had Monilia in the scales of the old lesions, which had practically healed, and a new streptococcic fissure. The two infections can therefore coexist. As to psoriasis back of the ear, in my experience the organism is not present, and usually lesions of psoriasis are found elsewhere, which will help one out. Psoriasis, by the way, can simulate to quite a marked degree the inframammary intertrigo of moniliasis. As regards Dr. Ayers' remark about inadequate proof, one must take it or leave it, for I can't prove it; the patients were all private patients who, I felt, had been mistreated enough and I didn't feel like mistreating them any more. I tried to make it clear that in these cases there was permanent cure as far as I know. Of course I suppose one should use the five-year period as in cancer of the lip, but not enough time has elapsed as yet. Seborrhic dermatitis, as far as I am concerned, does not exist. I don't know what it is, and as to this scaling type of streptococcus, it can be and to all practical purposes is what is understood as seborrhic dermatitis. The *Pityrosporon ovale* preparations are prepared exactly in the same way as are the streptococcus scales, and I have been making them for years on the scalp. *Pityrosporon* is not present in these scales, for I have carefully looked for them. I don't know just what ought to be done about the background. Most of these patients were in excellent health. The background of diabetes, of course, is a factor in Monilia, but not in my experience with streptococcus.

## THE DIAGNOSIS OF TUBAL PREGNANCY

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There is probably no more dramatic incident in the life of a physician than that of the textbook type of ruptured tubal pregnancy. This condition, with its typical history of a missed menstrual period, sharp lancinating pain in the lower part of the abdomen followed by dizziness, weakness and faintness, soreness in the abdomen, and bleeding from the vagina, represents only a small percentage of all the cases of tubal pregnancy. The others, not typical, are at times very difficult to diagnose. There are patients with symptoms and complaints so minor or so bizarre that the physician may actually wonder whether or not there is anything wrong at all. There is no doubt that many cases go undiagnosed and that the effects go unnoticed. Witness as proof of this the number of lithopedions that have been found. With the exception of rupture of a graafian follicle or a corpus luteum with hemorrhage, no other pelvic disorder is so easily misinterpreted.

Collected statistics are usually gathered on the basis of tubal pregnancies correctly diagnosed. With this method of figuring, some clinics can boast of correct diagnoses of from 50 to 70 per cent of their cases. However, if these statistics took into account the number of cases diagnosed as tubal pregnancies which proved not to be such, the percentage of correct diagnoses would fall appreciably. One fact is undeniable: the diagnosis cannot be made unless the physician has the condition in mind. He must remember that any vaginal bleeding in the child-bearing age following a missed period might possibly mean an ectopic pregnancy.

This discussion will be limited almost entirely to the diagnosis of tubal pregnancy and will stress some of the more or less unusual diagnostic methods under the following headings: pelvic examination, pain, pregnancy tests, decidua, needling of the posterior culdesac, Cullen's sign, urobilinogen and icterus index tests, sedimentation test and hysterosalpingography.

The pathologic condition found explains quite accurately the symptoms seen by the physician. In other words, the size of the pregnancy, its location in the tube, whether it is rupturing or has ruptured, and whether it is aborting from the distal end or has aborted leaves its characteristic mark in the clinical picture.

### PELVIC EXAMINATION

One would think that pelvic examination would clear up the whole matter, but often this examination reveals nothing of importance. If there is a palpable mass it may vary in size from that of a normal ovary to one that fills the entire pelvis. This mass may be tense, fluctuant or boggy. Frequently there is no mass palpable. The best positive evidence by pelvic examination is obtained by palpating the cervix and uterine body. The cervix may be soft or patent, the body of the uterus is usually enlarged, and movement of the cervix or of the fundus causes pain. Usually generalized pelvic pain is elicited in bimanual examination.

### PAIN

There are eight types of pain connected with this condition, all explainable on a pathologic basis:

1. Acute lancinating pain coincident with rupture of the tube.
2. Dull, constant pain associated with stretching and slow tearing of the tube before rupture.
3. Crampy, almost constant pain caused by peristalsis of the tube and dilatation of the distal end of the tube during a tubal abortion.
4. Soreness and tenderness of the entire abdomen caused by irritation of the peritoneum from the escaped blood.
5. Phrenic or shoulder pain produced when the blood gets high in the abdominal cavity, under the diaphragm, and irritates the phrenic nerve endings (this pain is felt on either side or both sides of the neck).
6. Pain elicited by the deep muscle resistance that results when the palpating fingers sink deeply enough to cause pressure on the parietal peritoneum.



Fig. 1.—Tubal pregnancy aborting from the left tube. Note the peculiar hazy filling of the entire left tube and filling defects in the uterine cavity, probably due to decidua.

When there is free blood in the abdominal cavity, palpation of the anterior abdominal wall is almost pathognomonic. In such a patient the abdomen is usually not distended. There is generalized pain or soreness over the entire abdomen and with fairly light palpation the fingers will sink part way into the abdominal wall without resistance, only to be met by a rather doughy resistance as the fingers sink deeper. This



widespread throughout the central nervous system, and encephalitis, as well as meningitis, was well marked. With so evident an encephalitis it might well be questioned whether one should classify this case as acute lymphocytic meningitis. Clinically the patient conformed to the accepted diagnosis, and the appearances in the cerebrospinal fluid were consistent with what little is known about the disease. Further studies in the pathology of this syndrome are needed. On the basis of one case, it is justifiable only to set down the observations, without drawing definite conclusions regarding them. The nervous tissue reaction was a severe one, although the pathologic appearance did not preclude recovery.

#### CONCLUSIONS

Acute lymphocytic meningitis, now classed as a specific virus disease, shows a wide variety of clinical manifestations. The disease may be transient, severe and prolonged, or even fatal. Examples of all three types are reported, with a detailed examination of the cerebral tissue from the fatal case. Based on this single report, the disease in its most severe form is an encephalitis as well as a meningitis. With the recovery rate nearly 100 per cent, it must be assumed, however, that the degree of encephalitis in the majority of cases reported is not profound, and therefore the clinical designation of acute lymphocytic meningitis is still justified.

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### STREPTOCOCCIC DERMATOSES OF THE EARS

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Pruritic and scaling dermatoses of the ears are frequently encountered by both the aurist and the dermatologist. Various terms, such as "eczema" and "seborrheic dermatitis," are applied to them. Retro-auricular intertrigos, with serous crusting, scaling and fissuring, are not infrequently seen and are recognized by many as due to a streptococcus. Itching and scaling of the cavum, auditory meatus and canal, however, are not so readily accepted as being of streptococcic origin, particularly in America. In this country the tendency seems to be to regard itching of the canals as "eczema" or as a mycosis, judging from the replies to queries in both the medical and the lay press, and from what patients say they have been told by various physicians. It is true that an infection by *Aspergillus niger* occurs in the canals, but in my experience that infection is extremely rare and is readily recognized; clinically by the appearance of the plug in the canal and microscopically by finding the fungi in the mass.

My object in this paper is to focus attention on the rôle played by streptococci in the production of dermatoses of the ear, and to aid, if possible, in the differential diagnosis of aural lesions by describing the clinical manifestations of the streptococcic infections and the laboratory procedures necessary to establish the diagnosis.

As long ago as 1897 and 1900, Sabouraud described streptococcic retro-auricular intertrigo and scaling plaques extending into the scalp. The scaling plaques

may produce alopecia resembling that of ringworm to such a degree that only by microscopic examination can the diagnosis be determined. An excellent example of this type of case is to be found on page 150 of *Pyodermites et eczémas*, by Sabouraud.<sup>1</sup> Of this manifestation of the disorder he says "It was confused and is still confused with impetiginous eczema (?) or even called seborrheic eczema, by a flagrant impropriety of terms." This subacute impetigo, according to Sabouraud, is the *porrigo scabida* or *impétigo scabida* of Alibert, depending on the stage of evolution of the disorder.

For this scaling type of lesion Haxthausen<sup>2</sup> has proposed the term *pityriasis streptogène*. This term, however, Sabouraud<sup>3</sup> says is not a happy one and that all epidermic streptococcic infections which have not already been given a definite classification should be called *streptococcides eczématiformes*.

The retro-auricular intertrigo is so well recognized that I wish to call attention especially to the streptococcides eczématiformes of the cavum and canal and to report cases in which the two conditions have coexisted or have been preceded one by the other. A few cases presenting the conditions mentioned will be presented in detail:

CASE 1.—A woman, aged 20, was seen in January 1931 with a scaling disorder about the canal and cavum of the left ear. There was similar activity on the posterior surface, in addition to which there was a deep and tender fissure. On both surfaces of the right ear there was similar but much less activity. In the scalp there was a diffuse pityriasis scatoides. The patient stated that her left ear had had a discharge several months before the onset of the auricular dermatoses and that she had had a similar discharging of the left ear in childhood. Cultures were made of both ears on blood agar which yielded only staphylococci and on Sabouraud medium which produced the same organism. The patient was given some radiotherapy for the ears together with a 10 per cent naftalan ointment. For the scalp she was given an ointment containing salicylic acid and ammoniated mercury. She made rapid improvement and on the fifth visit, March 2, the ears were apparently healed. She was next seen November 4, with weeping, crusting and fissuring back of the ears and marked scaling in the canals. She had been wearing white gold bows to her glasses for several months and later a brownish composition which, on inquiry, was found to be free from nickel. Careful cultures taken from the fissures, canals and tonsils gave a hemolytic streptococcus. After removal of the tonsils, in which there was a chronic hemolytic streptococcus infection, and local application of ammoniated mercury ointment, the infection cleared and remained so. The smears and culture slides were lost and no photographic record was made (fig. 1).



Fig. 1 (case 1).—Posterior intertriginous scaling and fissuring simulating seborrheic dermatitis. The right ear was similarly affected. Complete healing occurred after application of ammoniated mercury and removal of infected tonsils.

1. Sabouraud, Raymond: *Pyodermites et eczémas*, Paris, Masson & Cie, 1928.

2. Haxthausen, H.: *Les streptococcies épidermiques étudiées par une nouvelle méthode de culture*, Ann. de dermat. et syph. 8: 201 (April) 1927.

3. Sabouraud, Raymond: Ann. de dermat. et syph. 8: 321 (June) 1927.

## CULLEN'S SIGN

The sign described by Cullen is the presence of an area of ecchymosis in the tissues of the umbilicus. There must of necessity be not only an actual hernia but also some break in the integrity of the peritoneum at this site so that the blood can actually reach the subcutaneous tissues. One can easily see that with these requirements the sign must be exceedingly rare. However, once this thought of Cullen's sign was the actual pivotal point in the diagnosis in a very sick patient. This patient appeared at the hospital with the lower por-



Fig. 4.—Hysterosalpingogram showing peculiar abrupt rounded ending in middle of right tube just proximal to tubal pregnancy.

tion of the abdomen entirely filled with what appeared to be a huge pelvic abscess. The intern was able to elicit from her a very fine history, which seemed to confirm the diagnosis of salpingitis with pelvic abscess. On examining the patient, almost the first thing I noticed was an ecchymotic area in an incisional scar in the lower portion of the abdominal wall with definite evidence of a very small hernia in the scar. This evidence (the ecchymosis in a small hernia in the scar) I took to be Cullen's sign and made a diagnosis of ruptured ectopic pregnancy. I asked the intern to take another history with the thought of ruptured ectopic pregnancy in mind (he had not thought of ectopic pregnancy at the time he took the history). He presented me later with the history of a typical textbook picture of a ruptured ectopic pregnancy which contained these words: "She was well on Monday and worked. She worked on Tuesday. She worked on Wednesday. But on Wednesday evening she suffered an acute lancinating pain in the lower abdomen and soon after this she fainted." Operation revealed the mass in the lower part of the abdomen to consist of clotted blood which came from the rupture of a rather large tubal pregnancy. The abdominal incision was made through the former scar and a small hernia was found approximately 0.5 cm. in diameter with a tiny piece of omentum projected through a defect in the peritoneum. The blood had seeped along this piece of omentum and had gotten into the subcutaneous tissues. An added note of interest is contained in a letter from Cullen, who said he had never seen or heard of such a variant of the sign.

## UROBILINOGEN AND ICTERUS INDEX TESTS

I have been unable to find in any textbook on gynecology a reference to the urobilinogen or the icterus index tests as aids in the diagnosis of ruptured ectopic pregnancy. However, these tests are well described in books on laboratory diagnosis,<sup>1</sup> with the information that they are of value in determining the presence of a hematoma or of blood in the process of absorption. On more than one occasion in my experience these tests proved to be the key-point in reaching a correct diagnosis. I mentioned them in a paper on pregnancy tests some years ago.<sup>2</sup> I know of no specific test for ectopic pregnancy per se, but these tests are good for determining the presence of a hematoma which might point to ruptured ectopic pregnancy.

## SEDIMENTATION TEST

The sedimentation rate cannot be relied on in the diagnosis of ectopic pregnancy except in a negative way. There is either no change in the rate of sedimentation of the red cells or only a slight increase in this rate. Of course, days after a rupture, when an encysted hematoma is present, there might be some appreciable increase in the rate. But the chief value of the test in this condition is in its use as a differential diagnostic procedure in ectopic pregnancy, salpingectomy and pelvic abscess. In both salpingitis and pelvic abscess there is a marked increase in the sedimentation rate which can be used for its differential value. In other words, a high sedimentation rate usually rules out ectopic pregnancy, while a low rate usually rules out pelvic abscess or acute salpingitis. To depend on this test for anything more is wrong.

## HYSTEOSALPINGOGRAPHY

I have used hysterosalpingography in several cases as an aid in diagnosis and have obtained practically 100 per cent correct diagnoses. I have been able to visualize beautifully the abortion of the tubes (figs. 1



Fig. 5.—Showing abrupt rounded ending of left tube just proximal to tubal pregnancy. All cases presented in the illustrations were diagnosed before operation and proved at operation.

2 and 3) and to establish what seems to be a pathognomonic x-ray sign (figs. 4 and 5) for a tubal pregnancy in the midportion of the tube. In cases of tubal pregnancy aborting from the distal end of the tube, the injected oil enters all the crevices between the aborting pregnancy and the walls of the distal ends of the tubes

1. Osgood, E. E.: *Laboratory Diagnosis*, ed. 2. Philadelphia: P. Blakiston's Son & Co., 1933.  
2. Mathieu, Albert: *Pregnancy Tests*, *M. Sordal* 37:623 (Nov) 1929.

clear and the ears were much less itchy but still scaly. The patient was not seen again until May 1, 1936, at which time scaling in the canals and cavae of both ears was marked. On the left helix was an area of a subacute impetiginous type of infection. At the incisura intertragica of the right ear was a similar area with serous crusting, beneath which was a fissure. Furfuraceous scales could be easily gathered on a curet from the cavum and canal. These scales, when pressed out on a glass slide and stained with methylene blue, disclosed short chains of cocci in all fields. Cultures of the scales in brain broth, with

no attempt at selection of material, produced short chains of streptococci in all tubes. Examination of ten hour cultures disclosed short chains of streptococci only. After twenty-four hours small groups of staphylococci were to be seen (fig. 6).

The patient was given 3 per cent ammoniated mercury ointment, with prompt relief of subjective symptoms and marked improvement in the clinical appearance of the lesions.

Retro-auricular intertrigo may be associated with intertriginous fissures in other parts of the body, illustrated by the following case:



Fig. 4 (case 4).—Mild scaling in the cavum with marked itching.

1933 with a severe retro-auricular intertrigo and fissuring of the right ear. She also had inframammary intertrigo and fissures and a similar involvement of the umbilicus. Fungi were absent, but both brain broth and blood agar cultures produced short chains of hemolytic streptococci from all of the lesions. The patient, the only clinic one in this group, disappeared and her present condition is not known.

The association of chronic otitis media, perforated drum membrane and "running ear" with the streptococcide eczematiforme of Sabouraud is illustrated by the following case:

CASE 10.—A man, aged 48, who was referred for treatment for lupus erythematosus of the chronic fixed type on the cheeks was found to have marked scaling and itching of the right canal and concha. The discharging ear had been present for such a long time that the patient was not at all concerned. In the clear serous fluid and in the scales, hemolytic streptococci were found both in smears and in cultures. As the patient was nominally under the care of an otolaryngologist, no treatment was advised. Improvement of the lupus erythematosus under sodium gold thiosulfate was rapid and the patient ceased his visits. He has not been seen for several years.

The clinical manifestations of retro-auricular intertrigo are fairly definite. If the lesion is seen shortly after onset there is a fissure deep in the retro-auricular fold, and the posterior surface of the ear is bright red and covered with clear serum. Quickly the weeping subsides and is succeeded by a thin white squamelike crust. By extension the lesion may involve the scalp, developing the so-called seborrheic dermatitis, which Sabouraud terms *impétigo en nappes* and which he says is the *impétigo scabida* of Alibert. The retro-auricular lesions may involve one or both ears, but if

both ears are affected they are rarely involved to the same degree at a given time. The posterior lesion may coexist or alternate with the canal and cavum infections.

The lesions of the concha may or may not be preceded by "running ears." The patient gives a history of gradual onset of itching in the canals, which in time may be very troublesome. Only one or both the ears may be affected but again, as with the retro-auricular lesions, the activity is rarely bilaterally symmetrical. The canals may be dull red and somewhat lessened in caliber or there may be only the squamelike crust rather firmly adherent to the skin of the canals, meatus, cavum and even in the fossa triangularis. Fissures similar to those seen in the nares may be found at the incisura anterior (case 7) or at the incisura intertragica (case 8). These fissures may be concealed by yellowish, firmly adherent crusts. Removal of the crust is painful and discloses beneath it a bright red moist fissure with a minute amount of clear serum in which streptococci are easily demonstrated.

The diagnosis must be verified by laboratory methods adapted to the purpose. The presence or absence of fungi can be readily determined by microscopic examination of the scales in the usual solutions of potassium or sodium hydroxide. Sensitization to nickel can be determined by the application of the patch test. Other irritants should be searched for in the history and eliminated if found.

Microscopic demonstration of the streptococci in the serum from the fissures and in the squamelike crusts is not at all difficult. If serum is found, smearing and staining with methylene blue will disclose the presence of streptococci. If only the squamous scales are availa-



Fig. 5 (case 6).—Scaly and itchy lesions in the canal and about the meatus.

ble, they should be carefully and patiently pressed out on a slide with a thin blade. Eventually the material can be finely divided and made to adhere to the slide. This is then fixed with heat and stained with methylene blue. The preparations do not lend themselves well to photography because of the thickness and unevenness of the individual masses. Nevertheless it is possible to obtain fairly good photomicrographs.

Cultures can be uniformly obtained successfully only by special methods. The special methods are even more

results in cases involving mainly the skin and subcutaneous tissues. These cases appear serious because of the extensive blebs, black discoloration, edema and pain. However, the only tissue seriously injured in these cases is the epithelium, which heals with simple dressings. Therapeutic efficacy must be judged by the less common cases of white, stiff, cold fingers or toes which go on to formation of indolent ulcers or bone necrosis.



Fig. 3 (A. A.).—January 1936, loss of little finger.

It has long been assumed that frost-bite is a peripheral vascular occlusion that is spastic in the early stages and thrombotic in later stages. This assumption requires reexamination. Cold first causes a sensory paralysis—an anesthesia—and it is because of this anesthesia that the patient is unaware of the condition and exposure is continued, and the frost-bite progresses to the danger point. Clinically, it seems to me, the ulcers of frost-bite resemble trophic ulcers more closely than the lesions of vascular disease. The dry necrosis of bone, without any infection, suggests some etiology other than vascular disease. One must inquire whether sensory nerve paralysis or direct tissue injury is not a more important factor in serious frost-bite than is usually imagined. Progress in the therapy of frost-bite must await a more detailed study of the pathologic effects of cold.

#### PREVENTION

The poor results of treatment emphasized the need of prevention. A man with diabetes or advanced arteriosclerosis should not be permitted to work outdoors in freezing weather. For him, frost-bite is an extraordinary risk.

In the previous communication I suggested that workers be given time off every two hours to warm up.



Fig. 4 (W. B.).—January 1936, no amputation; loss of flexion in distal joints of all four fingers resulting in complete loss of grasping power.

A more detailed analysis of the 556 cases occurring since then demonstrates that 65 per cent of cases occur in the first two hours of exposure and 90 per cent in the first three hours. Therefore any such method of prevention must prove futile.

Protection by adequate clothing has produced a dramatic decrease in the incidence of frost-bite. In 1934-

1935 most of the men wore no ear protectors; the temporary laborers wore cotton or shoddy wool gloves, bought for from 10 to 40 cents, which gave a minimum of insulation against cold. Foot protection was equally inadequate (fig. 6). With better clothing the frost-bite cases dropped from an average of 393 for the winters of 1933-1935 to 186 in 1935-1936 (fig. 7), although the number of men exposed to frost-bite weather was greatest in the last year.

Regular employees were protected against frost-bite by orders and instructions issued in the autumn of 1934. Most of the temporary snow laborers were given the necessary clothing in the autumn of 1935 (fig. 8). Because of the difference in method and of time we



Fig. 5 (P. H.).—February 1936, loss of all five toes and part of foot.

have a clear basis for the comparison of the effect of these measures on the incidence of frost-bite. There was a sharp decrease in number among regular employees in 1934-1935 after precautions were taken, although in that winter there was an increase among



Fig. 6.—Temporary laborers in 1933-1934. No ear laps and inadequate protection for hands and feet. Two regular employees (in uniform), both without ear laps, one without gloves. (Photograph by Department of Sanitation.)

temporary laborers (fig. 7). The following year (1935-1936) adequate protection was provided for temporary laborers and there was a sharp decrease in the number of frost-bites among these men in that winter in spite of the fact that more men were exposed to frost-bite weather than in any preceding winter.

**Ears.**—Late in 1934 the commissioner of sanitation issued orders that all regular employees must have ear laps on their uniform caps ready for use in case of cold. From the 1933-1934 record of seventy-five cases of frost-bitten ears among regular employees, the number dropped to four in 1934-1935. In the same winter the number among the temporary laborers showed a

of this are the patients sensitive to nickel in the ear pieces of their glasses and the women sensitive to hair dye and to toilet water applied behind the ears. Such eruptions disappear with the removal of the cause and the application of soothing medications. The interesting point is the manner by which the streptococcus invades these regions. In an ascending irritation of the auditory canal that follows purulent otitis media and rupture of the drum there is no question about the origin of the infection. The descending infection is more difficult to fathom. Cerumen is irritating at times, and various implements are used to remove it. Hair pins, common steel pins and other such agents may traumatize the mucous membrane and set up a streptococcal infection. Postauricular irritation may also be due to trauma. The patient with dandruff usually has pruritus about the ears four or five days following a shampoo. The scratching and rubbing finger nail may deposit the streptococcus. I agree with Dr. Mitchell that there is such a disease as streptococcal dermatitis of the ears. In some cases it is a primary infection but in many it is secondary to some other condition. I still do not feel that a diagnosis of seborrheic dermatitis is always incorrect.

DR. S. W. BECKER, Chicago: Dr. Mitchell is to be congratulated on his various contributions on the rôle of the streptococcus in inflammatory diseases of the skin. The present tendency is an enthusiasm for fungous infections, and the aurists with whom I am associated are inclined to call all these conditions due to fungi or yeasts. Some years ago Dr. Ritchie and I obtained cultures of cryptococci from these lesions, but we were never able to prove by the number of cryptococci or by inoculation experiments that they were causative. There are certain streptococcal eczemas, as we call them, which will not respond to the ordinary applications. The chief feature of these conditions is often the marked erythema and the enormous exudation. In many cases, when there is at all a suspicion that the streptococcus may be causative, it is our custom to supply the patient with some sulfonated bitumen or tar preparation for use at night and ammoniated mercury to use in the daytime. In that way the condition is relieved if it happens to be a seborrheic dermatitis, and it is also relieved if it happens to be streptococcal.

DR. ANTHONY C. CIPOLLARO, New York: Dr. Mitchell has clarified the etiology of many conditions involving the ear canals and the postauricular regions. I have had great difficulty in differentiating the different diseases that occur in these locations. I thank him for bringing to attention the fact that streptococci are capable of producing these scaly and itching dermatoses of the external auditory canals. Within the past two or three years I have been particularly interested in unusual forms of psoriasis, and to my surprise I have been finding that a great many of these eczemas involving the postauricular areas which clinically resemble intertrigo have turned out to be psoriasis. Many intertrigo-like eruptions involving the postauricular areas, axillae, submammary regions, umbilicus and inguinal areas which were recalcitrant to therapy have been proved by biopsy to be cases of psoriasis. I am glad to know that many of these conditions can also be caused by a streptococcal infection.

DR. SAMUEL AYRES JR., Los Angeles: I can't feel that adequate proof has been presented that the streptococcus found is the cause of the skin lesion. The mere fact that a special culture medium was used and the streptococcus found does not prove that this organism any more than the staphylococcus is the cause of the lesion in question. It would be interesting if Dr. Mitchell would make intradermal tests of all the organisms that could be found by using different types of culture medium and see which particular organisms the patient was sensitive to. I would also like to ask him how permanent the results of treatment have been following the use of ammoniated mercury. My impression is that I have employed that drug but that there has been a tendency to recurrence. I have felt that many of these cases are a type of seborrheic dermatitis, since they seem to be associated with the characteristic lesions of the scalp, and it is quite possible that, if proper culture mediums were employed, *Pityrosporum ovale* also would be found in these ear lesions. I should like to mention also that such lesions within the ear canal can at times be due to allergic manifestations. I recall one particular instance in a woman who

had had a history of allergic reactions of various sorts, including eczema from childhood on, who developed severe contact dermatitis from an ointment containing procaine hydrochloride. This patient was later operated on for tonsillectomy and died on the operating table from the injection of procaine, apparently an extremely sensitive individual with varying types of sensitivity.

DR. D. TRUETT GANDY, Houston, Texas: Dr. Mitchell is concerned in his discussion with streptococcal dermatitis chiefly in the region of the ears. I think it should be pointed out that, according to the French, who have written a good deal on this subject, this form of infection frequently involves the other folds of the body in addition to the postauricular fold. Sabouraud has said of the streptococcus that "it loves the folds," and that is certainly true of this condition. This infection may vary from a tiny lesion behind the ear to a more or less generalized involvement, and in the latter case the obvious predilection for the folds is a striking feature and constitutes a noteworthy point of difference from impetigo. I wonder whether some of the impetigos of the major folds of the body, such as in the submammary region in the slide just shown by Dr. Mitchell, heretofore regarded as yeast infections, may not be at least partly streptococcal in origin. It should be reiterated that streptococcal dermatitis is not an eczema and that it has no right to be called seborrheic. It seems plausible that this concept of streptococcal dermatitis as a separate and distinct disease may be a step forward in sorting out the "rubbish heap" of seborrhea, in the same way that the splitting off of the fungus infections reduced the size of the eczema group.

DR. MOSES SCHOLTZ, Los Angeles: Dr. Mitchell has confirmed something that the clinician has been suspecting for a long time. Whenever a clinician sees a marked marginated lesion with exudation he suspects streptococci. However bacteriology alone will not solve these cases completely. Infection in these cases is entirely secondary, and I am rather surprised that not one of the discussers has emphasized the systemic background of these cases. If the clinical behavior of these cases is compared with impetigo, it will be seen that impetigo clears up but does not recur; but these cases recur time and again. It shows that there is a systemic background that breeds there a reinfection, a recurrence. Also in these cases one sees a considerable mixture of the morphologic picture, which may look one day like eczema, another day like seborrheic dermatitis. I am obliged to disagree with the last speaker. It will be a great step in advance if these morphologic units are not considered separately. Excuse me for emphasizing my dynamic point of view, which conceives dermatoses as a biologic reaction which can change the morphologic pattern. The solution of these cases is not in the laboratory but in the clinical and the etiologic study of the case, and any one who neglects the systemic and dietetic side of these cases will have more trouble than those who pay attention to the systemic angle.

DR. JAMES HERBERT MITCHELL, Chicago: I tried to make it clear in the hasty presentation that I was dealing with cases in which I was not able to determine some other causative factor. As regards nickel, hair dye, resorcinol and various other irritants, I have seen all of those, and such cases are familiar to all dermatologists. I assumed at first in one of the cases I spoke of that it might be a dermatitis of that sort. I even had the patient isolate himself from his wife, with the thought that he might be sensitized to her hair or to her cosmetics. We went to great extremes in that particular instance. As regards the origin of the streptococcus in the ear, there is an old Chinese adage: "Never pick your nose or your ear with anything but your elbow." I tried to make clear that the presence of otitis media made it perfectly simple to account for the streptococcal origin of the dermatosis. I am interested in the fungi, and some of the Chicago men know of the rather extensive collection of *Monilia* pictures and the work that I have done in that field. *Monilia intertrigo* is clinically different and the streptococcus is not present. The maceration of the *Monilia intertrigo* is quite extensive and is usually symmetrical. As regards the other folds, streptococcal intertrigo may occur in all the folds. I have a patient now who has had *Monilia* infection in the crotch. He came in a



present, there should be little difficulty in diagnosis. Unfortunately, the atypical cases are in the majority. This study is based on 153 cases of ectopic pregnancy: ninety-eight seen in the department of obstetrics and gynecology of the State University of Iowa College of Medicine, sixty-two of which have been reported by Brown,<sup>3</sup> and fifty-five cases in which one of us (E. v. G.) operated in private practice and at the Second Gynecologic Clinic in Vienna, Austria.

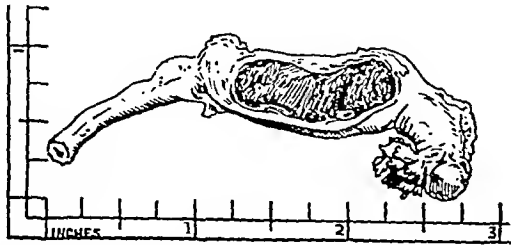


Fig. 1.—Correct diagnosis was made with persistent, brown, bloody discharge as the only symptom.

Operation immediately after the condition was recognized resulted in a mortality of two (1.96 per cent). The only death among the patients seen at Iowa City and reported by Brown was caused by hemorrhage into the incision. Two of the patients operated on in Vienna succumbed, one to a pulmonary embolism on the fourth postoperative day and one to an embolic obstruction of the superior mesenteric artery on the third postoperative day. In none of these cases was death caused by the operation itself or by its immediate performance.

Repetition of the well known phases of the subject will be omitted, and the discussion will be limited to a few points that may help in the diagnosis of many atypical cases of ectopic pregnancy.

A thorough previous history is of tremendous importance. If pelvic inflammation or gestational disturbances appear in the story of a woman with vaginal bleeding, suspicion should be aroused.

TABLE 1.—Gestational History (Ninety-Five Cases with Adequate Records)

Pregnancy Preceding Ectopic Pregnancy	Number of Cases	Per Cent
Primary sterility.....	18	18.8
Ectopic pregnancy.....	5	5.3
Abortion.....	25	26.3
Delivery at term.....	47	49.5
followed by a sterile period of from 3 to 16 years in 23 cases		

Of this series, 33 per cent of ninety-five cases gave evidence of previous pelvic inflammation of some sort. In addition, some similar pathologic condition could be inferred from the record of previous pregnancies. In 19 per cent the ectopic pregnancy followed a period of primary sterility, in 26 per cent the pregnancy preceding the ectopic pregnancy had resulted in an abortion, while 5 per cent of the patients had experienced a previous ectopic pregnancy. The ectopic pregnancy followed a delivery at term in only half of the cases but followed it at a markedly long interval. In twenty-three instances there had been no pregnancy for a period of from three to sixteen years. Although contraception is a factor, this delay suggests secondary sterility.

In none of these cases was the patient herself conscious of pelvic disease. However, inflammation could

be suspected wherever an ectopic pregnancy or a previous abortion had occurred. Underdevelopment may have caused part of the primary sterility and favored the ectopic nidation but, on the whole, the presence of sterility and, particularly, secondary sterility suggests inflammation.

The importance of previous miscarriage is well illustrated by a report of Bamberger.<sup>4</sup> Among his 150 ectopic pregnancies, sixty-three occurred following criminal abortions.

The history of bleeding is an essential point. There is no tubal abortion or rupture without uterine bleeding. If the patient starts bleeding after missing at least one menstruation and the onset is accompanied by localized abdominal pain, with or without nausea and dizziness, the diagnosis is fairly obvious. Unfortunately, this happens in less than 40 per cent.

TABLE 2.—History of Bleeding (Ninety-Two Cases with Reliable Data)

Irregular Bleeding for from Three to Ten Months	Amenorrhea: Onset of Bleeding from a Few Days to Three Months Following the First Missed Menstruation	No Previous Amenorrhea: Onset of Bleeding:	
		During Inter-menstruum	Presumably at a Normal Period
8 9%	33 35%	21, 23%	23, 25%

As table 2 shows, in 9 per cent irregular bleeding over a period of several months barred definite conclusions. In 38 per cent the bleeding followed amenorrhea as in the classic picture, but 53 per cent showed absolutely no previous menstrual disturbances. The bleeding started either during the intermenstruum or at the expected time, presumably as a normal period, but was unduly prolonged.

The latter type of bleeding is very misleading, especially if there are no local symptoms. Such an early stage of pregnancy often causes little or no perceptible discomfort. There is no doubt that many pregnancies, both intra-uterine and extra-uterine, terminate spontaneously, without any symptoms beyond a more than usually profuse menstruation.

Table 2 indicates quite clearly that in more than 60 per cent of these cases the menstrual history does not show the typical disturbance. Obviously this is the most important cause of mistaken diagnosis of ectopic pregnancy and it is not merely a coincidence that nine out of the fifteen diagnostic errors in our own material included this type of misleading menstrual history.



Fig. 2.—Properly diagnosed ectopic pregnancy, which, because of the presence of retro-uterine hematocoele, could have been mistaken for a pyosalpinx.

Observation of the bleeding itself offers definite clues to its cause.

At the onset there may be copious bleeding with the expulsion of clots and tissue. As this is equally characteristic of intra-uterine miscarriage and only histologic examination will determine the nature of the material, confusion is understandable. While the blood in uterine abortion, dark or light, remains red, in ectopic pregnancy the discharge gradually assumes a dirty

J. Brown, T.: Ectopic Pregnancy. *Am. J. Surg.* 27: 89-84 (Jan.) 1935.

4. Bamberger, E.: Beobachtungen an 150 Extra-uterin Schwangerschaften. *Zentralbl. f. Gyn.* 47: 3079, 1924.

tenderness is quite unlike that of the acute firm resistance and tenderness one finds in acute appendicitis with peritoneal involvement.

7. Pain produced by moving the cervix or the fundus.

8. Generalized pelvic tenderness and pain produced by the palpating fingers.

Here again is corroborative proof that the pathologic condition leaves its mark in the clinical picture. In



Fig. 2.—Tubal abortion as shown in hysterosalpingogram (fig. 1). The sketch of the left tube was made from the posterior aspect of the pathologic specimen.

many cases this knowledge of the character and location of the pain will aid in arriving at a solution of the problem.

#### PREGNANCY TESTS

The Aschheim-Zondek test, or its modification the Friedman test, has been a disappointment to many in the diagnosing of ectopic pregnancy, owing to a misconception of what the test really means. A positive test means that there is living chorionic tissue present. Hence the test can be positive even when the fetus is dead. A negative test merely means that there is no living chorionic tissue present. Therefore the test will not exclude the diagnosis of ectopic pregnancy.

#### DECIDUA

It is a physiologic fact that wherever a pregnancy exists—be it in the uterus, the tube, the ovary or the abdomen—decidua is formed in the uterus, and when the fetus dies or when the pregnancy is disrupted the decidual lining of the uterine cavity is cast off and bleeding takes place. This, in all but a few rare cases, is the cause of the uterine bleeding. Probably the only time that blood regurgitates from the tube into the uterus is in the rare condition of interstitial pregnancy. On two or three occasions this knowledge pertaining to the decidua has stood me well in hand and led me to the correct diagnosis. In one patient, whose history and physical examination gave no suggestion of ectopic pregnancy, a piece of tissue was seen emerging from the cervix which on examination proved to be pure decidua and contained no chorionic tissue. This finding induced me to make a hysterosalpingogram, which showed a pregnancy aborting from the tube. On another occasion I was witnessing a curettage for an apparently early abortion. The thorough curettage revealed no chorionic tissue but considerable thick decidua. This, plus some new facts garnered from the history, led to an exploratory laparotomy, which revealed an unruptured tubal pregnancy. At times when operation for extra-uterine pregnancy is done early the decidua is not cast off until after the operation. This might cause cramping pain in the uterus and bleeding and might also cause consternation in the mind of the nurse when she finds a piece of tissue coming from

the vagina. On the contrary, the absence of decidua might mean nothing since the decidua may separate and pass out before the curettage takes place.

#### NEEDLING OF THE CULDESAC

It is obvious, when fluid is felt in the posterior culdesac, that one wants to know what the nature of the fluid is. This knowledge is necessary not only from the standpoint of diagnosis but also from the standpoint of treatment. One would not want to evacuate an ovarian cyst or a hematoma by means of a posterior colpotomy. Neither would one want to open a pelvic abscess through an abdominal incision if it could be drained easily through the vagina. Therefore needling of the posterior culdesac is often a great aid in diagnosis. This should be done carefully and with a full knowledge of the anatomy involved. Though there are some arguments against this procedure, in "safe hands" it offers a maximum of diagnostic advantage with a minimum of harm. On many occasions the finding of blood in the posterior culdesac has served me beautifully. But the method has its pitfalls, as witnessed by the case in which I needled the posterior culdesac and obtained the clear fluid of an ovarian cyst. On opening the abdomen in this case, I was much dismayed to find bilateral tubo-ovarian abscesses superimposed on an ovarian cyst lying deep in the pelvis. In another case the needling and finding of blood was not conclusive. This patient denied absolutely the possibility of pregnancy and had no symptoms of ectopic pregnancy. However, she did have a large fluctuant mass in the pelvis which was firmly adherent and which caused considerable pain on one side. The uterus could not be differentiated from the mass. A needling in the fluctuating area behind the uterus revealed dark blood. Notwithstanding this sign, I could not reach the conclusion that this was an ectopic pregnancy. The mass proved to be what I had not thought of—a severe endometriosis with a large chocolate cyst of the ovary. In taking the history I attempted to identify the pain



Fig. 3.—Tubal pregnancy aborting from distal end of right tube. Note how oil seems to drape itself over the aborting pregnancy.

as that associated with endometriosis and, since I could not, I abandoned this possible diagnosis. This case also goes to prove that needling is not conclusive. I do not wish to give the impression that this procedure is harmless and that it is done promiscuously. I do it only when the presence of fluid in the pelvis is obvious. When indicated and when done by "good hands," with a full knowledge of the anatomy involved, it is often an important diagnostic procedure.

As to the diagnostic errors, seven patients were operated on presumably for an ectopic pregnancy. Pyosalpinx was present in four, chocolate cyst in two and a fibroid uterus with intra-uterine pregnancy in one case. As surgery was indicated, no harm was done to the patients.

More serious, diagnostic errors were those made in cases in which the symptoms caused by the ectopic pregnancy were not correctly interpreted. This happened in fifteen cases, or 9 per cent of our 153 cases. Fortunately, the assumed pathologic condition indicated operation, so that the patients were not handicapped by an improper delay.

#### CONCLUSIONS

1. In 153 cases of ectopic pregnancy there was a mortality of two, or 1.96 per cent; there were three deaths, none due directly to operation or to its immediate performance.

2. Prompt diagnosis is of great importance.

3. Careful previous history, intelligent evaluation of uterine bleeding, repeated bimanual examination and the relation between temperature and pulse rate are essential to the elimination of most diagnostic errors.

4. Incorrect interpretation of laboratory observations is the chief source of diagnostic errors in hospitals.

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#### ABSTRACT OF DISCUSSION

DR. THEODORE H. ASCHMANN, Kansas City, Mo.: The results of the authors are gratifying. The mortality rate of ectopic pregnancy is rather high. The doctors' mortality rate reported here was very low. It is known that ectopic pregnancies occur more often than is recognized. Fortunately they do not occur as frequently in the rural districts. One reason is that there is less pelvic inflammation in the rural districts. About 33 per cent of the cases reported by the authors followed pelvic inflammation. About 50 per cent of the patients had previous normal pregnancies. The bleeding is the high point in the paper presented. Continuous red bleeding and the dark brown flow two or three days after the onset of the pain signify that the case is one of extra-uterine pregnancy. One additional diagnostic point that I might add is frequent urination or frequent attempts to urinate followed by a little bleeding.

DR. WALTER T. DANNREUTHER, New York: Except for acute appendicitis, ectopic pregnancy supplies more emergent and tragic cases than any other lesion of the lower abdomen. Few cases conform with the typical textbook description, and correct diagnosis is not always easy. Tubal gestation is most often confused with uterine abortion, salpingitis and spontaneous rupture of an ovarian cyst with intraperitoneal bleeding. The authors are to be commended for their frankness in admitting an erroneous preoperative diagnosis in 9 per cent of 153 cases, and the difficulties they experienced in avoiding additional mistakes. Comparatively, their incidence of error is not high, as Falk in reporting a series of 304 cases recently confessed to an inaccurate diagnosis in 20 per cent. However, it is better to operate on five patients and find that the diagnosis is wrong in four of them than to jeopardize a single one by undue procrastination. The authors made no attempt to review the symptomatology and objective evidence of ectopic pregnancy in their entirety and have not referred to exacerbations of pain with interval soreness in the lower part of the abdomen, the frequent paroxysmal character of the pain, the characteristic discomfort excited by manual traction on the cervix, and the rapidly developing anemia and progressive decline in blood pressure hour by hour which parallel the blood leakage from the tube, all of which are of great significance. The application of the Aschheim-Zondek test is practical and reliable only in the minority of cases in which the gestation sac in the tube is intact. There is a material difference in the clinical picture when the sac is unruptured, after a tubal abortion has begun, and following a sudden perforation of the isthmus portion of the tube with a tear in the mesosalpinx. Usually the severity of the patient's collapse is directly related to the site of implan-

tation; the nearer the sac is to the uterine cornu, the more serious is the effect of rupture. The statement that there was no previous menstrual disturbance in 53 per cent of the patients is surprising. Only 15 per cent of Falk's patients failed to admit a previous amenorrhea. I have found that a delay in the onset of bleeding, an amenorrhea of even one day, is an extremely reliable subjective manifestation in the majority of cases. If every patient suspected of harboring an ectopic pregnancy is hospitalized, a critical history is taken promptly and the available subjective, objective and laboratory data are correlated by an experienced clinician, the incidence of error will be reduced to a minimum.

DR. ERWIN VON GRAFF, Des Moines, Iowa: Dr. Aschmann has mentioned the symptom of frequent urination. We never paid much attention to it. The closest guess would be that the frequent urination is caused by the peritoneal irritation. I am pleased that Dr. Aschmann agrees with the diagnostic importance of the brown discoloration of the discharge. Dr. Dannreuther has criticized us because we did not sufficiently emphasize the symptom of pain and the fact that the bleeding occasionally may be delayed only a few days past the menstrual term. We omitted these points purposely to reduce the size of the paper. It is understood that if there is any delay in the monthly bleeding at all and strictly localized pain, it should not be difficult to make a correct diagnosis. As to the white count, we agree that the higher white count is more in favor of pelvic inflammatory disease and a minor degree of leukocytosis is in favor of ectopic pregnancy. This is quite true. We wanted to emphasize that the presence of leukocytosis should not be indiscriminately used as an argument against the possibility of ectopic pregnancy and in favor of some pelvic inflammation. I am grateful to Dr. Dannreuther that he has emphasized again, as one of the more important points in the diagnosis of ectopic pregnancy, that we should always be suspicious in every case of irregular bleeding in a woman during the child-bearing age; in other words, that the more ectopic minded we are in examining patients with bleeding, the fewer mistakes we make.

#### CANCER OF THE LIP

##### RESULTS OF THERAPY IN FOUR HUNDRED AND TWENTY-FIVE CASES FOLLOWED FROM ONE TO TEN YEARS

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AND

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Over the ten year period that ended Jan. 1, 1935, 425 cases of carcinoma of the lip were seen at the University Clinic. As far as possible by frequent check-up examinations, by contact with the home physicians, and by answers to questionnaires sent to the patients or their families, an attempt has been made to follow to the present time the cases treated.

There has long been an irreconcilable difference of opinion between most dermatologists, surgeons and radiologists regarding the most efficacious method of treatment to be used in this condition. From this group of cases observed over a ten year period and treated by local destruction, surgery and radiation therapy furnish a material from which one may take stock, as it were, of the results achieved to determine a fair and unbiased plan of treatment to be followed in the future in carcinoma of the lip.

Studies and contributions from the Department of Dermatology and Syphilology, University of Michigan Medical School, service of Dr. U. J. Wile.

Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the reprint.

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in such a way that it literally drapes itself about the mass and allows the oil-covered mass to be visualized by the x-rays.

In my cases of tubal pregnancy in the midportion of the tube the injected oil went down to the site of the pregnancy and, because this site was apparently well sealed off, ended abruptly and showed in a characteristic shadow. This also proved quite conclusively what has long been suspected by many—that the bleeding from the uterus in cases of tubal pregnancy is from the uterine wall and not from the site of the tubal rupture. While I do not advise hysterosalpingography except when it appears necessary to establish the diagnosis, I do feel that the injection of iodized oil into the uterus and tubes in a case of tubal pregnancy is practically harmless. When the injection is done carefully and by one experienced in its use, there is no reason to believe that it can do harm. I can present sufficient proof that its use is of the highest value. The least that one could say in behalf of hysterosalpingography is that, in case both tubes fill well and normally to their distal ends, one can surely rule out tubal pregnancy.

#### DIFFERENTIAL DIAGNOSIS

Acute appendicitis, salpingitis and twisted ovarian cyst probably are the conditions to be differentiated most frequently from tubal pregnancy. One less common than these, but extremely more difficult of differential diagnosis, is rupture of a graafian follicle or a corpus luteum with sufficient hemorrhage to cause symptoms. This rather rare condition so closely simulates ectopic pregnancy that it defies one to differentiate between them. It has been said that there is no absolute differentiating point. Nevertheless, the hysterosalpingogram should absolutely differentiate between the two.

#### OPERATION

If a reasonable suspicion of ectopic pregnancy exists after careful attempts have been made at diagnosis, the woman should be operated on at once. Blood transfusions should be used freely, if necessary, before, during and after the operation. Only enough blood should be removed from the abdominal cavity to allow a good visualization of the tubes. The fundus of the uterus should be grasped with a fine-pointed volsellum and held up to improve the view. Both tubes and ovaries should be examined carefully, as it is possible that there might be a pregnancy in both tubes. Each ovary should be examined, as the bleeding might be due to an ovarian hemorrhage. The bleeding should be stopped with clamps as soon as it is located. The abdomen should be closed as soon as the operation is over to allow the free blood to remain in it. The appendix should not be removed at operation for tubal pregnancy, as this procedure increases the mortality rate for the operation. When operating for acute appendicitis, if the pathologic changes do not seem to coincide with the diagnosis, the surgeon should carefully sponge deep into the pelvis with a moist sponge stick. By this maneuver he might discover blood in the pelvis which would lead to examination of the tubes and the discovery of a previously unsuspected ectopic pregnancy or hemorrhage from a ruptured follicle or corpus luteum which would have been missed otherwise.

Tubal pregnancy is often very difficult to diagnose. Frequently several, and occasionally all, diagnostic maneuvers at one's disposal must be used before the diagnosis is made.

415 Stevens Building.

## THE PREVENTION OF FROST-BITE

LEOPOLD BRAHDY, M.D.

NEW YORK

Because mild, transient frost-bite in American cities is common, one is prone to forget that it may be a serious disease among outdoor workers. In the three winters 1933-1936, this disease caused one death each year among employees of the city of New York. Two of these fatal cases were complicated by diabetes and

one by advanced arteriosclerosis which, in combination with frost-bite, produced fatal gangrene. Other cases, with or without underlying disease, resulted in permanently crippled hands and feet in spite of all treatment (figs. 1-5).

In 1934 a study was made of the conditions under which frost-bite occurs among the city employees exposed to winter weather in the



Fig. 1 (J. T.).—March 1934, loss of index finger.

course of their work.<sup>1</sup> During the past two years 505 new cases have occurred. Experience with these cases has confirmed the opinion previously expressed that the most important factor besides cold is the wind velocity and that the humidity of the atmosphere does not have any effect. However, if the mittens or the socks get wet there is a decidedly increased chance of frost-bite occurring.

In New York City the tall buildings and the ravine-like streets increase the velocity of the wind in some areas. The absence of respiratory infections or other diseases from exposure to the cold was again observed in the last two years. This may not apply in other climates or in cases in which there is prolonged exposure or exhaustion or no physical activity. The present studies are confined to men working in city streets who return to their homes after eight hours of work.

#### TREATMENT

The hope that newer methods of physical therapy would minimize functional loss and the necessity for amputations has not been realized. I have seen excellent results in the treatment of various forms of vascular disease obtained by different technics of physical therapy. No such good results have been obtained in the treatment of frost-bite, although it is usually considered essentially a peripheral vascular lesion. There are physicians who believe in the efficacy of physical therapy in this condition, but examination of their cases often shows that they obtained their good



Fig. 2 (L. H.).—January 1935, loss of distal phalanx of ring finger.

From the Division of Workmen's Compensation, Office of the Corporation Counsel of the City of New York.

1. Brahdý, Leopold: Frost-Bites Among Employees of the City of New York, J. A. M. A. 104: 529 (Feb. 16) 1935.

## THE CASES

The 425 cases were divided into three groups by personal examination or by the description in the record. This division did not take into consideration the question of metastases, which was considered separately. As would be expected, clinical metastases were suspected much more frequently in the moderately advanced and far advanced cases than in the early ones.

The early group includes all those from the smallest to those the size of a nickel (21 mm.). In this were included a few keratoses with suggestive dyskeratotic changes in the epithelium. This group consisted of 216 cases, of which 195 received treatment.

The moderately advanced group includes those from the size of a nickel almost to that of a half dollar (30

The 386 cases treated here were divided into 286 previously untreated cases and 100 cases which are referred to as recurrent cases in which either some form of local treatment or radiation therapy had been given before the patients came to this hospital.

The 286 previously untreated cases were treated at this hospital in the following way:

Thirty cases by surgical excision.

Twenty cases by surgical excision plus roentgen or radium therapy.

Twenty-five cases by surgical excision plus dissection of the cervical lymph glands.

Twenty-nine cases by surgical excision plus dissection of the cervical lymph glands plus roentgen or radium therapy.

Forty-six cases by roentgen or radium therapy.

Eighty-three cases by local destruction.

TABLE 1.—Final Results in Cases Followed According to Age

Age Period	Number Followed	Dead		Dead of Cancer		Recurrent		Metastatic		Relative Cures		Five Year Cures	
		Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
20-29	27	2	7.4	1	3.7	..	...	..	...	26	96.2	17	62.9
30-39	42	9	21.4	4	9.5	2	4.7	1	2.3	35	83.3	16	38
40-49	76	19	25	9	11.8	2	2.6	1	1.3	64	84.2	32	42.1
50-59	95	32	33.6	13	13.9	2	2.1	3	3.1	75	78.0	34	35.7
60-69	65	30	46.1	13	20	1	1.5	1	1.5	50	76	15	23
70-79	8	6	75	2	25	..	...	..	...	6	75	2	25
80-89	..	..	...	..	...	..	...	..	...	..	...	..	...

TABLE 2.—Classification According to Treatment

Treated Here	Stage	Number Followed	Dead		Dead of Cancer of Lip		Recurrent		Metastatic		Immediate Recurrent Metastatic		Relative Cures		Five Year Cures	
			Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Surgical excision + or — Irradiation	Early	15	6	40	2	13.3	1	6.6	..	...	3	20	11	73.3	5	33.3
	Moderate	15	7	46.6	3	20	..	...	1	6.6	3	20	10	66.6	6	40
	Far advanced	4	3	75	3	75	..	...	..	...	1	25	1	25	1	25
Surgical excision + or — Irradiation; nodes negative	Early	13	1	7.5	..	...	1	7.5	..	...	1	7.5	12	92.5	8	61.5
	Moderate	17	6	35.2	1	5.9*	..	...	..	...	1	...	16	94.1	9	52.9
	Far advanced	5	2	40	1	20	1	20	..	...	0	...	3	60	1	20
Positive nodes on dissection of suprabulbar nodes	Early	2	1	50	1	50	..	...	..	...	1	50	1	50	1	50
	Moderate	5	2	40	2	40	..	...	..	...	1	20	3	60	3	60
	Far advanced	1	..	...	..	...	..	...	..	...	..	...	1	100	1	100
Radium	Early	5	..	...	..	...	..	...	1	20	2	40	3	60	3	60
	Moderate	14	3	21.4	2	14.2	..	...	1	7.2	1	7.2	11	78.5	2	14.2
	Far advanced	11	4	36.3	2	18.1	1	9	..	...	3	27.2	8	72.7	0	...
Irradiation by x-rays	Early	5	3	60	2	40	..	...	1	20	1	20	2	40	1	20
	Moderate	..	..	...	..	...	..	...	..	...	..	...	..	...	..	...
	Far advanced	..	..	...	..	...	..	...	..	...	..	...	..	...	..	...
Local destruction + or — radiation therapy	Early	91	16	17.5	4	4.4	2	2.2	..	...	8	8.8	83	91.2	49	53.5
	Moderate	28	6	21.4	1	3.5	..	...	..	...	5	17.8	24	85.7	14	50

\* Postoperative.

mm.) in which the lesion was not fixed to the underlying structures of the lip or jaw. This group includes 150 cases, of which 138 received treatment.

All the rest were included in the far advanced group, of which fifty-nine cases were seen and fifty-three received treatment. In many of these cases the treatment was only of a palliative nature, as they seemed inoperable and unsuitable for any form of treatment.

## NO TREATMENT AT THIS HOSPITAL

Thirty-nine patients for one reason or another were discharged without receiving treatment of any kind. This group included twenty-one early, twelve moderately advanced and six far advanced cases. Most of the six far advanced cases were considered hopeless and the patients were discharged home for local care in the form of opiates. Though no attempt has been made to trace any of these thirty-nine patients, it is definitely known that two with far advanced cases of carcinoma died within a short time after discharge, and from their condition at the time of discharge, there is little doubt regarding the fate of the other four far advanced cases.

Fifty-three cases by local destruction plus roentgen or radium therapy.

The group included under apparent cures include all those patients who did not die of cancer of the lip, excluding those in which the cancer recurred to be cured by some other form of therapy than the initial type employed.

The five year cures include all cases in which the patient was alive five years after the initial therapy was given, excluding those cases in which there was recurrence, to be subsequently cured by a different form of therapy.

## SURGICAL EXCISION PLUS OR MINUS ACTINIC OR RADIATION THERAPY

Thirty-four of the fifty-one previously untreated cases treated by surgical excision with or without radiation therapy have been satisfactorily followed. These include fifteen early, fifteen moderately advanced and four far advanced cases; 86.6 per cent of the early, 93.3 per cent of the moderately advanced and 100 per



slight increase from ninety-three to ninety-seven. Although the low incidence among regular employees was not quite maintained in the last year, the change clearly shows the effectiveness of this simple measure. Late in 1935 most (about 80 per cent) temporary snow laborers were given caps with ear laps by the Emergency Relief Bureau. From the 1933-1935 average of

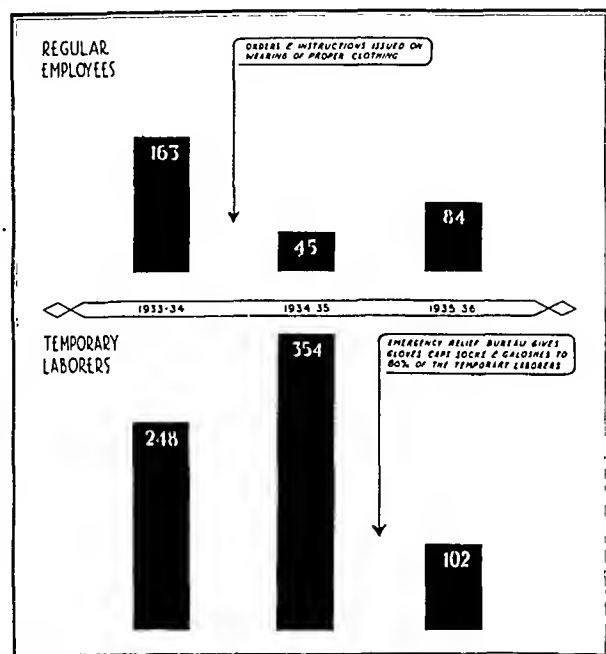


Fig. 7.—Decrease in number of frost-bite cases of hands, feet and ears on snow removal work in the three winters 1933-1936.

ninety-five cases there was a sudden drop to forty-eight cases in the last year.

**Extremities.**—Frost-bite of the ears may cause loss of a few days from work but seldom leaves any permanent effect. Prevention, to be considered effective, must reduce the crippling frost-bite of hands and feet.



Fig. 8.—Temporary laborers in 1935-1936 with work clothing given by the Emergency Relief Bureau.

In 1934 instructions were given to the regular employees on what constituted adequate protection for the hands and feet. The advantages of mittens over gloves and the importance of well fitting shoes and woolen socks were emphasized. That winter the number of frost-bitten extremities among regular employees fell to 47 per cent of the number in 1933-1934 at the

same time that frost-bitten extremities among temporary laborers who received no instructions rose to 177 per cent of the 1933-1934 number. As with frost-bitten ears, the low number of cases of frost-bitten hands and feet was not maintained in the last winter (the most severe of the three). However, among temporary laborers there was a sharp decrease this year, which can be ascribed only to the fact that 80 per cent of these men, in addition to caps, had been given suits, socks, galoshes and mittens. The mittens were felt-lined and wool padded with canvas coverings. The cases dropped from an average of 201 during the two previous winters to fifty-five for 1935-1936. Most significant of all is the fact that among temporary employees suffering frost-bites 50 per cent had not received the equipment. Only 20 per cent of the temporary laborers on the job had not been equipped, and there is an incidence of frost-bite among these men four times as high as among the men who have been equipped with adequate clothing.

1700 Municipal Building.

## THE DIAGNOSIS OF ECTOPIC PREGNANCY

ERWIN VON GRAFF, M.D.

DES MOINES, IOWA

AND

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Ectopic pregnancy is far from uncommon. According to Schumann,<sup>1</sup> it occurs once in every 300 pregnancies. As the Census Bureau records births but not miscarriages in the United States, it is possible only to estimate the actual number of ectopic pregnancies, but it is safe to say that more than 10,000 occur annually in this country.

There is an appalling mortality of from 5 to 10 per cent or more, and its reduction is largely dependent on sound early diagnosis. Unfortunately, of all gynecologic conditions, there is none involving so many diagnostic errors. Even in well equipped and efficiently supervised institutions, as many as 30 per cent of all ectopic pregnancies are surprises, discovered only during operation.

If this occurs in hospitals with every opportunity for close observation, even a greater number of cases must remain unrecognized in general practice. This may explain the fact that many busy practitioners claim that they seldom see an ectopic pregnancy.

In hospitals, the ectopic pregnancy is usually mistaken for acute appendicitis, pelvic inflammation or ovarian or uterine tumors. The general practitioner is likely to diagnose cases of prolonged bleeding as incomplete intra-uterine abortions. Runge<sup>2</sup> found that, among 234 cases of ectopic pregnancy admitted, forty-five had been mistaken for miscarriage and curettage had been done, with its detrimental influence on the prognosis.

It seems certain that if the mortality in ectopic pregnancy is to be reduced, physicians must learn to recognize it early. If the classic picture of local and general symptoms as depicted in the textbooks and lectures is

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Schumann, E. A.: Extra-Uterine Pregnancy, New York, D. Appleton & Co., 1931.

2. Runge, H.: Die Gefahren der Abrasio mucosae uteri, Deutsche med. Wchnschr. 54: 651 (April 20) 1928.

far advanced metastases with fixation. The enlarged lymph nodes may be due to metastatic cancer or more often to chronic lymphadenitis from secondary infection of the local lesion.

A clinical diagnosis of enlarged lymph nodes was made in 128 of the cases treated here. A microscopic diagnosis of metastatic carcinoma in the lymph nodes removed, or the appearance of immediate metastases in those in which only the local lesion was treated, occurred in but twenty-five, or 17.5 per cent. Even though but 17 per cent of our cases with glandular enlargement proved to be carcinoma by microscope, nevertheless we concur with those who believe that palpable lymph nodes in cancer of the lip should be dissected in all operable cases.

Of those treated at this hospital, 283 patients had no enlarged glands clinically at the time the diagnosis of cancer of the lip was made here. In the great majority of cases no resection of the suprahyoid nodes was done.

#### LOCAL DESTRUCTION PLUS OR MINUS RADIATION THERAPY

Of the 135 previously untreated cases, 119 treated by local destruction with or without irradiation have been adequately followed.

These cases include ninety-one early and twenty-eight moderately advanced cases; 63.7 per cent of the early and 75 per cent of the moderately advanced cases were proved cancer by pathologic study.

Four, or 4.3 per cent, of the ninety-one early cases recurred with or without metastases and succumbed to cancer of the lip in spite of subsequent therapy of various types. Four others recurred immediately, to respond successfully in two cases to x-rays and in two to local destruction. Two other cases recurred after a number of years to be still active after five and seven years. An apparent cure of eighty-three, or 91.2 per cent, of which forty-nine, or 53.8 per cent, were five year cures, was obtained in these ninety-one early cases.

TABLE 4.—Further Treatment of Cases Previously Treated Elsewhere

Treated Here	Stage	Number Followed	Dead		Dead of Lip Cancer		Recurrent		Metastatic		Immediate Metas- tatic Recurrent		Relative Cures		Five Year Cures	
			Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Local Destruction, Surgical Excision or Caustic Therapy (Sixty-Five Cases)																
Local destruction (22)	Early	10	3	30	..	....	1	10	..	....	2	20	0	00	8	50
	Moderate	7	1	14.2	1	14.2	..	....	..	....	3	42.8	0	85.6	4	57.2
Radiation (19)	Early	4	..	....	..	....	..	....	..	....	..	....	4	100	2	50
	Moderate	4	3	75	3	75	..	....	..	....	2	50	1	25	..	....
	Far advanced	7	4	57.2	4	57.2	..	....	1	14.2	5	71.4	2	28.4	0	....
Surgical excision	Early	3	2	66.6	1	33.3	..	....	..	....	2	66.6	2	66.6	2	66.6
	Moderate	3	3	100	2	66.6	..	....	..	....	3	100	1	33.3	1	33.3
	Far advanced	2	2	100	2	100	..	....	..	....	..	....	..	....	..	....
Surgical excision plus nodes (15)	Moderate	7	4	57.2	3	42.8	1	14.2	..	....	2	28.4	3	42.8	3	42.8
	Far advanced	2	..	....	..	....	..	....	..	....	1	50	1	50	0	....
Radiation (Thirty-Five Cases)																
Local destruc- tion (14)	Early	7	1	14.2	..	....	..	....	..	....	2	28.0	0	85.8	3	55.6
	Moderate	2	..	....	..	....	..	....	..	....	0	....	2	100	1	50
	Far advanced	3	3	100	3	100	..	....	..	....	2	68.0	..	....	..	....
Radiation (6)	Moderate	2	2	100	1	50	..	....	..	....	1	50	1	50	..	....
	Far advanced	3	3	100	3	100	..	....	..	....	3	100	..	....	..	....
Surgical excision (5)	Early	1	1	100	..	....	..	....	..	....	..	....	1	100	1	100
	Moderate	1	1	100	..	....	..	....	..	....	..	....	1	100	..	....
	Far advanced	2	..	....	..	....	1	50	..	....	2	100	1	50	..	....
Surgical excision and lymph nodes	Early	4	1	25	1	25	..	....	..	....	..	....	3	75	2	50
	Moderate	3	..	....	..	....	..	....	1	33.3	..	....	2	66.6	2	66.6
	Far advanced	3	3	100	3	100	..	....	..	....	1	33.3	..	....	..	....

These cases, however, in which the nodes were not resected were adequately followed for at least a year, during which time clinical metastases did not appear in any case. Four of the few cases in which the suprahyoid nodes were resected showed microscopic metastases. Three of these presented moderately advanced local lesions and the fourth was a recurrent case which was microscopically Broders' type 4.

In cancer of the lip with nonpalpable lymph nodes, therefore, metastases apparently had not occurred in early cases and were seen but rarely in the moderately advanced cases in our series.

Though we strongly advocate frequent check-up examinations in the first year following treatment to the local lesion in order to diagnose early that rare case in which metastases appear following the local treatment, we do not advocate subjecting these patients to the pain, expense, loss of time and danger of surgical dissection of the lymph nodes.

It is our opinion from comparing groups with and without roentgen therapy to the regional nodes that high voltage roentgen therapy to the glands is useless as a prophylaxis against metastasis, and for that reason we do not advocate its use for this purpose.

One of the twenty-eight moderately advanced cases recurred and death was due to cancer of the lip. An immediate metastasis occurred in one other case, which was treated by dissection of the metastatic nodes, to result in a nine year cure. An immediate recurrence took place in three cases; surgical excision in one resulted in a ten year cure, surgical excision plus dissection of the uninvolved suprahyoid lymph nodes resulted in a two year cure, and local destruction plus roentgen therapy resulted in a four year cure in the third. An apparent cure of twenty-four, or 91.4 per cent, and a five year cure of fourteen, or 50 per cent, were obtained in these twenty-eight moderately advanced cases.

Owing in part to the fact that many of the apparent cures have not been followed long enough to be five year cures, the results with local destruction, while excellent here, are not quite as good as those of Stevens,<sup>13</sup> with 80 per cent five year cures, Pfahler and Vastine,<sup>14</sup> with 96 per cent five year cures, and the

13. Stevens, J. T.: Electrothermic Surgery in the Management of Carcinoma of the Lip, *Am. J. Surg.* 7: 831-835 (Dec.) 1927.  
14. Pfahler, G. E., and Vastine, J. H.: Treatment of Cancer of the Lip by Electrocoagulation and Irradiation, *J. A. M. A.* 94: 1572 (Jan. 2) 1932.

brown color. This characteristic was definitely recorded thirty times, and its frequency increased after its significance was appreciated. The brown discharge is almost pathognomonic. We recall only a single case in which this symptom misled us and the operation revealed a chocolate cyst.

As important as the color is the duration of bleeding. In intra-uterine abortion, since the pregnancy is not far advanced, the flow usually stops with the spontaneous completion of the miscarriage. Bed rest affects it favorably and oxytocics are efficient. In tubal abortion, the discharge goes on regardless of treatment.

On the whole, strict observation of the character of the bleeding is essential to correct diagnosis.

In connection with local symptoms and physical examination, the obvious is again omitted, but the fact must be emphasized that a tubal abortion may exist without pain, moderate but intractable bleeding being the only sign, as was the case shown in figure 1, which was correctly diagnosed before operation by this single symptom. Anemia is very often not marked. Unilateral mydriasis,<sup>5</sup> pain in the shoulder, and discoloration of the navel, known as Cullen's<sup>6</sup> sign, are helpful if present but are extremely rare. In the bimanual examination, the finding of an adnexal mass on one side is highly indicative. The absence or presence of tenderness is of no consequence. If, in addition, there is a

TABLE 3.—*Differentiation Between Extra-Uterine and Intra-Uterine Abortion*

	Extra-Uterine	Intra-Uterine
Tissue expelled.....	Decidua	Chorionic villi
Color of blood.....	Changes into dark brown discharge	Remains red
Course of bleeding.....	Continues	Stops
With bed rest.....	No change	Often stops
With solution of posterior pituitary	No change	Stops

doughy resistance in the Douglas pouch, the diagnosis is definitely positive. It should be kept in mind that the hematocele is frequently located in front of the uterine body and tightly attached to it, giving the same impression as a uterine fibroid, for which it is often mistaken. In cases in which the abdominal ostium of the tube is closed there may be no hematocele. This is easily confused with a pus tube (fig. 2).

Another point that should be mentioned is that the mechanical irritation of a bimanual examination is often followed by a conspicuous enlargement or other change in the condition within twenty-four to forty-eight hours. As a rule, this rapid growth due to further bleeding does not produce the pain and fever that are inevitable after manipulation of pus tubes or other inflamed pelvic organs.

Needling of the culdesac is a generally accepted and extremely helpful diagnostic procedure. Because of the danger of infection, it should be performed only as a preliminary to laparotomy.

A scrupulously accurate history, intelligent evaluation of the bleeding, and competent, repeated bimanual examinations should usually make possible the diagnosis of ectopic pregnancy. At least the differentiation between intra-uterine and extra-uterine abortion should be clear. This would eliminate the commonest diagnostic error encountered in general practice.

Not so in the hospital. Here one sees the condition mistaken for appendicitis, pelvic inflammation, fibroids and ovarian tumors. Many years of clinical work have convinced us that this is due to certain established prejudices in the interpretation of laboratory observations, illustrated by table 4.

The hemoglobin and red blood cell count often do not suggest intra-abdominal bleeding.

The white cells are frequently increased to such an extent as to suggest infection. This explains the fre-

TABLE 4.—*Laboratory Examinations*

	Cases	Cases	Per Cent
Hemoglobin.....	95	Under 60% Above 60%	17 18 82
Red cells.....	97	Less than 4 million Above 4 million	46 51 48 52
White cells.....	92	10 to 24 thousand Less than 10 thousand	53 40 57 43
Urobilinogen test.....		Caused erroneous diagnosis in three cases of pyosalpinx	
Pregnancy test.....		Negative in more than 70%	

quent erroneous diagnosis of acute pelvic inflammation or appendicitis. The highest number of white cells, 24,000, was found in a case of rupture, the abdomen containing a considerable amount of blood. The lowest white cell count of 4,800 was present in a case of infected tubal abortion showing a pus tube containing hemolytic streptococci. There was a generalized peritonitis, so that a hysterectomy had to be performed in order to secure proper drainage.

The urobilinogen test, known as a highly sensitive reaction in the presence of extravascular blood, caused us to suspect ectopic pregnancy in three cases of pyosalpinx.

A positive biologic pregnancy reaction is very helpful, but a negative finding is not conclusive. Treatment therefore should never be delayed for the sole purpose of making a pregnancy test.

On the whole, table 4 shows how easily the laboratory examinations may be misleading. Every effort should be made to form an opinion from the history, obser-

TABLE 5.—*Febrile and Afebrile Cases*

Febrile			Afebrile		
Temperature	Pulse	Hemoglobin	Temperature	Pulse	Hemoglobin
100.4	100	....	99	110	....
100.4	120	80%	98	100	....
101	136	....	99	120	80%
101	110	....	99.8	120	....
100	116	....	99	120	45%
101	130	80%	98	104	90%
100.6	110	....	98	120	....
100.6	140	45% (rupture) (abortion)	99.6	130	....
102	140		98	140	(rupture)

vations and examination, which are accessible to every physician regardless of his equipment.

Of greater importance than commonly acknowledged is the relationship between temperature and pulse rate. The temperature was normal and elevated in equal proportions. Only two patients had fever over 101 F. Nine cases of each group are recorded in table 5.

In either febrile or nonfebrile cases the pulse rate is unusually high. This is not surprising with marked anemia and shock but may be present even when the patient's general condition is good. It is apparently due to the peritoneal irritation by the blood and should be given due attention.

5. Salmon, U. J.: A Pupillary Sign in Ruptured Ectopic Pregnancy, *Am. J. Obst. & Gynec.* 28:241 (Aug.) 1934.

6. Cullen's Sign in Ruptured Ectopic Pregnancy, editorial, *J. A. M. A.* 104:1828 (May 18) 1935.

few of these cases, roentgen therapy locally or to the glands was combined with surgery or local destruction.

Of this group, forty-nine cases were adequately followed. Table 4 would seem to indicate that the results in this group, though not as satisfactory as in the fresh cases, were still excellent. This was particularly true of the cases that were treated by local destruction. The percentage of moderately advanced and far advanced cases was larger in this group, as would be expected, than in the previously untreated group.

In cases treated by surgical excision plus block dissection of the regional nodes, 33⅓ per cent showed definite microscopic metastases. Death from carcinoma occurred in a short time in all the cases that were followed. This very poor result in these recurrent cases with metastatic glands is compared to the 62.5 per cent five year cures in those previously untreated cases presenting positive lymph nodes.

Of the thirty-five who received inadequate radium or roentgen therapy prior to receiving therapy here, the treatment here consisted of local destruction in fourteen, irradiation in six, surgical excision in five and surgical excision plus dissection of the regional nodes in ten.

From the thirty-one cases of this group that have been adequately followed, the final results as indicated

treatment and forecasting prognosis, there has been a difference of opinion regarding the reliability of his criteria.

From the study of 108 cases of carcinoma of the lip treated by surgical excision with or without gland resection in which adequate microscopic slides were available, an attempt has been made to determine the relation between cell type, prognosis and early metastasis.

Brewer<sup>8</sup> and others have noted that basal cell carcinoma of the mucous membrane of the lip is an extremely rare condition. On the other hand, Muir<sup>11</sup> stated that basal cell lesions were often seen. Certainly numerous cases begin as basal cell carcinomas of the skin of the lip and invade the mucous membrane secondarily. In almost every case in which this involvement of the mucous membrane takes place, the carcinoma cell type changes to squamous cell type. Only rarely does the lesion remain basal cell in type on the mucous membrane. In only three of the 425 cases was a diagnosis of basal cell carcinoma made from the microscopic slide. Two of these cases were included in the 108 cases reported as treated by surgical excision.

The prognosis in basal cell carcinoma of the lip is extremely good. Metastases are almost unknown. The three patients with basal cell carcinoma in our series are alive and well over nine years.

TABLE 5.—Carcinomas According to Cell Type

	Number	Per Cent	Dead		Dead of Cancer		Recurrent		Metastatic		Relative Cures		Five Year Cures	
			Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Type 1	38	34.1	9	23.6	2	5.2	1	2.6	1	2.6	34	92.1	20	52.1
Type 2	36	34.1	15	39.7	5	13.2	..	....	1	2.6	32	86.9	15	39.7
Type 3	21	19.5	11	52.3	8	38	..	....	1	4.7	12	57.1	8	38
Type 4	9	8.4	8	88.8	8	88.8	1	11.1	..	....	0	....	0	....

in table 4 show that the results were poor. The percentage of five year and apparent cures was lower in almost every form of treatment than in a corresponding group of previously untreated cases or recurrent secondary cases that had received local traumatic therapy outside the hospital.

The results in those which received roentgen or radium therapy alone were particularly poor, since death occurred in five out of six that were followed, in four of which it was due definitely to carcinoma. These cases were moderately advanced or far advanced cases and apparently were radioresistant to x-rays or radium from previous radiation therapy.

The 100 per cent failure in those cases in this series presenting microscopic metastases on resection of the enlarged lymph nodes is parallel to the 100 per cent failure in that group in our series in which local surgical therapy was given prior to excision of the local lesion and dissection of the lymph nodes.

Grouping the previously untreated and recurrent cases here, we find a 35.7 per cent five year cure in cases presenting positive lymph nodes on dissection of the regional lymph nodes. Attention is drawn again to the fact that all the five year cures occurred in the previously untreated group, and in all these five year cures the metastases were microscopic at the time of operation.

#### MICROSCOPIC PATHOLOGIC CHANGES OF THE PRIMARY LESION AND THEIR CORRELATION TO PROGNOSIS AND METASTASIS

Since the introduction by Broders of the division of carcinomas into groups according to cell type to aid in

From table 5 it will be seen that these 106 cases consisted of thirty-eight, or 34.1 per cent, type 1, thirty-eight, or 34.1 per cent, type 2, twenty-one, or 19.8 per cent, type 3, and nine, or 8.4 per cent, type 4.

Nine, or 23.6 per cent, of the thirty-eight type 1 cases were fatal, two deaths of which were due to carcinoma of the lip. One case was metastatic and one was recurrent. The two deaths from cancer of the lip and the metastatic case were recurrent cases and far advanced at the time of diagnosis and treatment here. A relative cure of 92.1 per cent, of which twenty, or 52.6 per cent, were five year cures, was obtained in this group.

The results in types 2 and 3 in table 5 were progressively worse.

Of the nine type 4 cases, death due to cancer of the lip occurred in eight, and the final case was recurrent with local extension to the mandible. Since in this series recovery has not occurred in any case in which the bone was invaded, the ultimate result in the last case can easily be forecast.

The cell type in cancer of the lip is apparently of prognostic value and should be used for this purpose and also may serve as a guide to the best mode of treatment.

#### SUMMARY AND CONCLUSIONS

1. Smoking is apparently of some importance in the background of cancer of the lip.

2. Precancerous lesions of the lip such as keratosis, leukoplakia, chronic ulcers, cutaneous horns, and fissures.

18. Muir, J.: Cancer of the Lower Lip: Suggestions as to Its Treatment by Radiation. *Internat. J. Med. & Surg.* 46:550-554 (1937) 1933.

A study of those other factors which affect the ultimate prognosis such as age, sex, color, location of the lesions, approximate time interval between onset and treatment, previous treatment, stage of the carcinoma, presence or absence of clinical and microscopic metastases, type of carcinoma and microscopic cell type has been made, and these factors will be correlated when possible in this paper.

#### CLINICAL TYPES

Most cases of carcinoma of the lip fall into two clinical types: the papillary superficial elevated type and the ulcerative infiltrative type.

The papillary type, which was the more frequent in this series, is the type that usually begins from a keratosis or a leukoplakic lesion. This type usually remains locally malignant for a considerable period of time, then extends slowly, and ulcerates late in its course. With the advent of ulceration, metastasis to the regional nodes may occur. This type is ordinarily included in Broders' type 1 or type 2 from the microscopic study of the cells. It carries a much better prognosis than the ulcerative infiltrative type.

The ulcerative infiltrative type commonly begins from a fissure, a secondarily infected cut, a minor injury or a chronic ulcer. These lesions ulcerate, break down early and have an early tendency to metastasize. The prognosis is much worse than the papillary type. The cell type customarily is that of Broders' type 3 or 4.

#### SEX

Of these cases 410, or 96.4 per cent, occurred in males and fifteen, or 3.6 per cent, in females. This marked difference in frequency in the sexes has been noted by most others. Elliott<sup>1</sup> found 87.9 per cent in males, Kelly<sup>2</sup> 93.25 per cent, and Hyndman<sup>3</sup> 97.3 per cent. Some of the factors that may account for part of this difference will be discussed under smoking.

Of the fifteen female patients, five received no treatment here, seven received local destruction with or without radiation therapy, and three received roentgen therapy.

Of the seven cases that received local destruction, five were early, one moderately advanced and one far advanced. Omitting the one far advanced case presenting metastasis in which death from carcinoma occurred, the remaining six cases, as was expected, were cured from two to nine years following local destruction.

The three cases in which roentgen therapy was given consisted of two early cases and one far advanced case. In the far advanced case there has been no recurrence or metastasis and the patient is still alive. Both of the early cases were cured and in one case for more than five years.

Though this group of fifteen is a somewhat small number from which to draw conclusions, the ultimate prognosis in lip cancer seems to be better in the female than in the male in our series.

#### LOCATION

Of the lesions in both sexes, 93.3 per cent appeared on the lower lip, 4.7 per cent on the upper and 2 per cent at the angles.

#### AGE

The average age incidence for the entire series was 65.2 years. The average age of the fifteen women was 61.09, which was lower than that of the men, the latter being 65.4 years. The youngest woman affected was 45, the oldest 91.

From table 1, a study of the final results in those cases followed according to age, it may be seen that the younger groups fared much better than older groups. The percentage of deaths increased rapidly with age, as would be expected in any such group of individuals with or without disease. On the other hand, the percentage of deaths from carcinoma increased progressively also, though not quite as rapidly as the total deaths. Vice versa, the percentage of relative and five year cures decreased as the age increased. These results are very interesting in that it is generally believed that most cancers appearing in young persons are more malignant and carry a proportionately poorer prognosis.

#### SYPHILIS

A definite history of syphilis or a positive serologic reaction occurred in 4 per cent of the group, which is about the same proportion found in the general admission to this hospital. It is interesting to compare this infrequent association of syphilis and cancer of the lip with the frequent association of syphilis and cancer of the tongue. Eller and Anderson<sup>4</sup> state their belief that cancer and tertiary syphilis of the tongue are associated in 60 per cent of the cases. In a report from this clinic, Belote<sup>5</sup> found almost 30 per cent of the carcinomas of the tongue to present positive serologic reactions.

Syphilis apparently was of no great importance as an etiologic factor in our series, an interesting contrast to cancer of the tongue studied from the same material.

#### SMOKING

Of the patients, 138, or 32 per cent, gave a definite history of moderate to excessive use of tobacco, and in many of these cases habitual pipe smoking was noted in the history. The percentage of tobacco users was undoubtedly much higher, as many of the records were incomplete regarding this matter.

Certainly in many of these cases smoking seemed to have been of importance in the etiology of cancer of the lip. In a number of cases the cancer definitely appeared on the site of the smoker's patch or leukoplakia where the pipe had rested for years. On the other hand, in 15 per cent of the cases at least, cancer of the lip appeared in individuals who had never used tobacco in any form.

It is interesting to note Brewer's<sup>6</sup> observation that, in a group of white women over 70 years of age, 8.04 per hundred thousand died of carcinoma of the lip, while in a like number of Negro women in which pipe smoking was very common 30.1 per hundred thousand succumbed to cancer of the lip.

The greater prevalence of smoking, particularly pipe smoking, in the male may account in part for the great preponderance of cases occurring in males.

The presence of leukoplakia on the lip prior to the cancer was noted in a number of the cases. In most of these cases the leukoplakia was associated with the use of tobacco, though in several the presence of a positive serologic reaction was noted.

1. Elliott, J. A.: Treatment of Epithelioma of the Lip by the Dermatologist. *Arch. Dermat. & Syph.* 27: 373-382 (March) 1933.  
2. Kelly, Edmund: Radium Therapy in Carcinoma of the Lip, *J. A. M. A.* 100: 388-390 (Feb. 11) 1933.  
3. Hyndman, O. R.: Carcinoma of the Lip: Clinicopathological Analysis of Seventy-Seven Cases and Suggestions for Rational Plan of Treatment, *Arch. Surg.* 27: 250-266 (Aug.) 1933.

4. Eller, J. J. and Anderson, N. P.: Cancer Supervention in Skin Diseases, *J. A. M. A.* 94: 382-387 (Feb. 8) 1930.  
5. Belote, G. H.: The Association of Carcinoma of the Tongue and Syphilis as Determined by Positive Serologic Tests, *J. A. M. A.* 94: 1985-1986 (June 21) 1930.  
6. Brewer, G. E.: Carcinoma of the Lip and Cheek, *Surg., Gynec. & Obst.* 36: 169-184 (Feb.) 1923.



because it is usually painful. Later it should be done vigorously until the lip reforms and the scar has entirely disappeared with renewal of the vermilion border.

DR. MERLIN T.-R. MAYNARD, San Jose, Calif.: Because radiation therapy is under criticism at the present time, I feel that something should be said in its defense. My feeling is that when one cannot palpate a node in the presence of a lip cancer one should cut down on the adjacent node area and remove one or two nodes for sectioning. Early cancer may be found in these nodes before the palpable stage. I believe that this should be done in every case in which the lesion has been active long enough to metastasize. As to the classification by size, I think that thickness is more important than size; infiltration of the lesion should be considered. A pea size lesion may be heavily infiltrated and very active, whereas a quarter or fifty cent size lesion (from 25 to 30 mm.) may be very scirrhous and very slow to metastasize. I suggest that, in the electrodesiccation of these lesions, after desiccating one always curette away all the desiccated material. It will often be found that one has not gone deep enough and one will desiccate further. Many dermatologists desiccate and do not remove their desiccated material, and do not realize that they haven't gone very deep; they miss some of the lesion. Curettage should always follow desiccation. There have been some great changes in the irradiation of these lesions within the last few years. The methods of Coutard and of Chaoul of Berlin have altered greatly that side of the question. Chaoul, using a short skin distance, one of 5 cm. with a special tube, has had 90.5 per cent cures in lip cancer. Coutard technic and Coutard modifications give 95.4 per cent of cures. Those, of course, are properly selected cases. I wouldn't think of using radiation in cases in which there are deep infiltration and heavily infiltrated nodes as well. When, however, the lesions are thin and relatively early, I believe that the Coutard method or modifications should be practiced.

DR. H. J. TEMPLETON, Oakland, Calif.: I wish to discuss the treatment of the local lesion in cases in which there are no palpable glands. These lesions can be cured by different methods of attack, and every one feels that that method is best with which the individual operator is most familiar. I have a strong feeling, however, that any method of radical destruction, whether it is Dr. Percy's cautery, electrocoagulation or widespread surgical excision, is in general preferable to irradiation, and I base my argument on one point. That point is that the most enthusiastic advocate of irradiation must admit that not all tumor cells are radiosensitive. All have seen the exceptional case that would not yield even to 5,000 roentgens in split or single dosage, whereas it is inconceivable that any cancer cell could resist the actual cautery, widespread electrocoagulation or widespread surgery. I think that this argument, as far as the local lesion is concerned, is almost irrefutable. I have just one point with regard to the destructive technic which is of practical importance. Many of these patients can be taken care of in the office. If one wishes to destroy the lower lip, a dentist can do a double mandibular nerve block. This will give an anesthesia sufficient for almost any degree of destruction.

DR. HARRY P. JACOBSON, Los Angeles: Dr. Percy's reference to the fact that he has many referred cases of cutaneous malignant growths from dermatologic colleagues who have been unsuccessful in their treatment is perfectly true. I want to remind Dr. Percy, however, that I know and he knows that he receives a good many more similar cases from other specialists and especially from our surgical friends. That would seem to make the score even. The gist of the situation is this: The treatment of lip cancer is a serious undertaking, requiring agents possessed of destructive qualities and operators able, willing and unafraid to employ these agents skilfully and adequately. I am a disciple of Dr. Percy's; that is, in a dermatologic sense. I have been much impressed with the efficacy of the Percy method in the management of cutaneous malignant growths. In my own work, both in the hospital and in the office, I have in the past few years been handling practically all cutaneous malignant growths (with an occasional exception) by means of the actual cautery, and I am fairly convinced that

for routine purposes nothing compares with it as far as results are concerned. The cautery method is simple of application, seldom requires anesthesia or hospitalization of the patient, is certain to destroy the cancer process when adequately employed, and the final cosmetic results are usually quite acceptable.

DR. EVERETT C. FOX, Dallas, Texas: There has been much discussion this morning about cauterization and other measures of treatment of lip carcinoma. In the clinic where we do not have radiation service available, my associates and I have had much the type of method that the authors have reported, but in private practice better results and certainly far better cosmetic results can be obtained by irradiation alone. We are using roentgen radiation for the smaller cases, two to three erythema doses (680 roentgens) on alternate days for four or five doses, and a perfectly normal lip results. For the larger cases we use the small platinum radium needles, 1 mg. to each running centimeter of needle, and the needle is placed beneath the border of the lesion. The needles are left in from five to seven days, producing approximately 100 milligram hours for each needle. This method has been very successful in our hands, and we prefer radiation therapy for cancer of the lip of any size rather than some of the previous destructive measures that we formerly used.

DR. C. F. LEHMANN, San Antonio, Texas: There is no controversy about the treating of cancer of the lip, provided it is destructive. The purpose of my remarks is to consider the rehabilitation of the patient. There is one part of the treatment of cancer of the lip in which radium, I think, is misused, and that is the application of radium to previously treated cancer in which there is atrophy and scar. It is in that individual that radiation should not be used; it only contributes to more atrophy, it leaves a lip that is vulnerable. Many of these patients are strong men, exposed to the sun and to irritating wind. They have a lip that will not hold up, and in some cases the cautery is an appealing method of treatment. Many times one wishes the patient had had the cautery operation early, primarily because it does leave a soft, supple, pliable, tough scar—either that or surgery. Insufficient surgical methods are responsible for many failures, just as much as the piddling methods used by dermatologists. It has been my experience to see just as many failures from poor surgery as from piddling methods such as trichloroacetic acid or light fulguration.

DR. UDO J. WILE, Ann Arbor, Mich.: Dr. Everett Lain's criticisms were well taken. We have had no real experience with the treatment of cancer of the lip by means of irradiation. That is done in our hospital in the department of roentgenology. But it seemed proper to take their results and to compare them with ours and with those of the surgeon and to draw the conclusion at least that in our hands, that is at the University Hospital, the irradiation methods have not shown as adequate and satisfactory results as the method of destruction. I endorse what Dr. Percy said about heat. Many of our cases have been treated with the actual cautery and I have a great fondness for the galvanocautery for the immediate eradication of such cases as look promising at the outset by this method. I want to call attention to one of the points in our paper which was touched on by Dr. Maynard, and that is the degree of actual involvement of the lymph nodes when they are palpable. I cannot subscribe to the view, nor do I think it is a proper procedure, to remove a lymph node in the complete absence of any suspicion that such a node might be involved. In the total number of palpable lymph nodes only one out of five shows cancer. The majority of them, therefore, are lymphadenitis and not cancer at all. However, the incidence of 20 per cent of actual cancer is certainly a good argument for the removal of all the lymph nodes that can be reached when they are palpable. I cannot subscribe, and I don't think Dr. Hand would either, to the practice of removing a node in the immediate neighborhood or any node for the purpose of ascertaining whether metastasis has taken place where it is not suspected. I endorse Dr. Templeton's remarks. The results with radium in the University Hospital clinic have been decidedly better than those with the x-rays. Dr. Lehmann's remarks were perfectly properly taken. Improper surgery, improper methods of any kind, fall far short of adequate cure. The surgeon is as much responsible for failures as is the dermatologist.

cent of the far advanced were proved carcinoma by pathologic examination.

In two cases, or 13.3 per cent of the fifteen early cases, death was due to cancer of the lip. One recurred after four years, to be still active. An immediate recurrence took place in two cases; one was then treated by surgical excision, to result in a three year cure, and one by local destruction to end in death of unknown etiology. An apparent cure of eleven, or 73.3 per cent, for from one to eleven years, of which five, or 33⅓ per cent, were five year cures, was obtained in this group.

Of the fifteen moderately advanced cases, three patients, or 20 per cent, were dead of cancer of the lip. One case recurred with metastases, to progress in spite of further roentgen therapy. Another recurred immediately, to be treated by local destruction plus roentgen therapy to the glands, resulting in a five year cure. An apparent cure of ten, or 66⅔ per cent for from one to eleven years, of which six, or 40 per cent, were five year cures, was obtained in this group.

Of the far advanced cases, three patients, or 75 per cent, were treated surgically as a palliative measure

One of the early cases presented an immediate recurrence, which was still progressive with metastases in spite of surgical excision. An apparent cure for from one to eleven years in twelve, or 92.5 per cent, of which eight, or 61.5 per cent, were five year cures, was obtained in this group.

Six, or 35.2 per cent, of the seventeen moderately advanced cases were fatal, of which one was post operative. An apparent cure of sixteen, or 94.1 per cent, for from one to eleven years, of which nine, or 52.9 per cent, were five year cures, was obtained in this group.

Two, or 40 per cent, of the five far advanced cases were fatal, one of cancer of the lip and one of intercurrent disease after five years. Two were cured for respectively one and five years, and the final case was recurrent with metastases when last seen.

The excellent results in these cases treated by surgical excision, plus dissection of the suprahyoid lymph nodes, which were negative microscopically, compare favorably with those of Brewer,<sup>8</sup> who reported 92 per cent of five year cures in a similar group.

TABLE 3.—Comparison of Results of Surgical Excision or Local Destruction With and Without Irradiation to Regional Nodes

	Type	Number	Dead of Cancer		Recurrent or Metastatic		Relative Cure		Five Year Cures	
			Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Without Irradiation to Regional Nodes										
Local destruction.....	Early	57	0	....	2	3.5	54	94.7	32	56.1
	Moderate	15	1	....	0	....	12	80	11	73.5
Surgical excision.....	Early	10	2	20	..	....	7	70	3	30
	Moderate	11	2	18.1	1	9.00	8	72.7	5	45.4
Surgical excision.....	Early	5	..	....	1	20	4	80	3	60
	Moderate	13	1	7.7	..	....	11	84.6	6	46.1
With Irradiation to Regional Nodes										
Local destruction.....	Early	24	3	12.5	0	....	21	87.5	7	29.1
	Moderate	12	0	....	0	....	11	91.6	3	25
Surgical excision.....	Early	4	0	....	1	25	3	75	..	....
	Moderate	2	1	50	0	....	1	50	..	....
Surgical excision plus lymph nodes.....	Early	8	1	12.5	..	....	7	87.5	5	62.5
	Moderate	9	..	....	..	....	8	88.9	7	77.7

only and died of carcinoma of the lip. The fourth patient, in whom the cell type was Broders' type 3, which was radiosensitive, received surgical excision plus heavy doses of roentgen therapy and was alive more than five years later. The local lesion was not fixed in this case to the deep structures, nor was there any evidence of metastases clinically.

No cases of postoperative death occurred in this group. From a comparison of those cases treated by surgical excision alone and those in which some form of radiation therapy was given later following the surgical excision, we have come to the conclusion that this subsequent radiation therapy is unnecessary.

#### SURGICAL EXCISION PLUS DISSECTION OF THE REGIONAL LYMPH NODES WITH OR WITHOUT RADIATION THERAPY

Forty-three of the fifty-five previously untreated cases in which surgical excision was done plus dissection of the regional lymph nodes with or without roentgen or radium therapy have been satisfactorily followed. These forty-three cases, which were all proved by microscopic examination, consisted of thirty-five cases in which the removed lymph nodes were negative microscopically and eight cases in which the lymph nodes showed positive metastases.

The thirty-five cases presenting negative nodes consisted of thirteen early, seventeen moderately advanced and five far advanced cases.

The eight cases presenting positive nodes include two early, five moderately advanced and one far advanced.

Three, or 37.5 per cent, of these eight patients succumbed to carcinoma of the lip. Two of these were Broders' type 3 and one was type 4. Five, or 62.5 per cent, were cured for from five to nine years. The metastasis in each of these cured cases was microscopic.

The suprahyoid lymph nodes were resected in a total of ninety-seven cases. The postoperative death rate of one, or 1.03 per cent, was somewhat higher than that reported by others, such as Figi,<sup>6</sup> of 0.42 per cent. The postoperative death occurred in a man aged 65 with a moderately advanced lesion, who was considered to have been a good operative risk. Metastases were not felt to be present clinically in this case, nor were they present on microscopic study.

There is very little difference of opinion regarding the treatment to be used in palpable nodes in cancer of the lip. Eller,<sup>11</sup> MacKee,<sup>11</sup> Collier,<sup>11</sup> Bloodgood<sup>11</sup> and others advocate surgical dissection of palpable glands unless the nodes are fixed or the case is inoperable for other reasons. Most of these workers also advocate postoperative irradiation and in a few cases preoperatively.

It is impossible to make a definite clinical diagnosis of metastatic glands in cancer of the lip except in the

11. Cited by Plueger, O. H.: Treatment of Neck Glands in Cancer of Lips, Tongue and Mouth, California & West. Med. 39: 391 (Aug.) 1933.

(82.6 Kg.), but he has been as low as 170 pounds (77 Kg.), several months ago. He uses tobacco very moderately and no alcohol.

The patient states that about two years ago he began to lose weight and energy. He found he was "all in" at the end of the day's work. He consulted his family physician last spring chiefly because of this lack of energy, and after the acute tonsillitis previously mentioned, and following the tonsillectomy, he thought he was worse than before. From June to September 1935 he was at his worst. By September he had determined that he would have to make a change. He decided to take a vacation and drove back to North Dakota to see his family. While he was away he gained weight and felt very much improved. On returning to San Francisco he again took up his work in the mattress and pillow factory. After a short period he began to have his former symptoms; namely, increased fatigue, pain in the long bones, anorexia and loss of weight. Finally he quit work, Jan. 11, 1936. It is striking that at no time has he had any acute chills or other acute symptoms of so-called acute metal fume fever.

**Occupation.**—The patient has been a renovator operator continuously since April 1931. During the first year that he was doing this work, no zinc chloride solution was used in the renovator, steam alone being used for sterilizing the feathers. The process for which the patient is responsible is somewhat as follows: 1. The feathers are washed with tap water and a softener. 2. The feathers are run from the washer into a centrifuge for drying. 3. The feathers are removed from the centrifuge by hand and carried to a table near the renovator. 4. The feathers are then gradually sucked off the table into the renovator, where they are dried further, and then steam, along with zinc chloride solution, is sucked into the renovator. The zinc chloride solution is used as a detergent and sterilizing agent. This solution is made from 3 pounds (1,360 Gm.) of zinc chloride to 1 gallon (4 liters) of water. 5. After the feathers have been processed with the zinc chloride and steam, they are dried and cooled. The renovator is not air tight, and fumes escape from the top of it. This process, however, is carried out in a large room with high ceilings and good ventilation.

**Physical Examination.**—The foregoing history was obtained from the patient on admission and the following observations were made on the same day:

The temperature was 98.4 F., the pulse 76, respiration rate 20, the height 5 feet 10 inches (178 cm.), the weight 182 pounds (82.6 Kg.), and the blood pressure 135 systolic, 90 diastolic.

The patient is well built and well nourished. The head and hair are normal. The skin is of good color and shows no local lesions anywhere. The eyes are normally set and the pupils are equal and regular and react actively to light and in accommodation. The tongue is median and shows no atrophy. The tonsils are out. The nasopharynx is normal. Many of the teeth have been removed. There is considerable metal repair work on the upper left jaw. There is nothing remarkable about the gum margins and no lead line is present. The lymph glands and thyroid are normal. The heart, lungs and pulse show no abnormalities. The abdomen presents no localized tenderness. The liver and spleen are not palpable. The joints and spine are normal. The deep reflexes are equal and active throughout.

Routine urine examination showed an acid reaction, a specific gravity of 1.010, no albumin or sugar, and a negative microscopic test. The blood Wassermann reaction was negative.

Examination of the blood showed: hemoglobin 85 per cent, red blood cells 4,590,000, color index 0.94, white blood cells 11,550, slight achromia; slight polychromatophilia, and no nucleated red cells. The differential count revealed polymorphonuclears 51 per cent, of which 47 per cent were mature; lymphocytes 45 per cent, monocytes 1 per cent and eosinophils 2 per cent. There was slight stippling of the red cells. Apparently this was not as marked as it was in the previous blood examination of January 10.

Dental roentgenograms showed no evidence of periapical abscesses but some absorption of the alveolar processes.

Previous to my examination, certain laboratory determinations had been made on this patient, Jan. 10, 1936. At that time a blood examination gave the following results: hemoglobin 69 per cent (Sahl), red blood cells 3,650,000, color index 0.9, white blood cells 8,100, differential count: polymorphonuclears 57 per cent, small lymphocytes 21 per cent, large lymphocytes

18 per cent and monocytes 4 per cent. Study of the blood smear showed the following: the red blood cells were mostly microcytes; there was slight achromia, with one stippled cell to each 10,000 red blood cells, and moderate poikilocytosis. No erythroblasts were seen; platelets were reduced in size and number; no malarial parasites were seen; the white blood cells showed the distribution of the polymorphonuclears as follows: 50 per cent adult cells; 60 per cent immature and 10 per cent stab cells; three myelocytes were seen; polymorphonuclears showed toxic granules; no myeloblasts were seen; lymphocytes and monocytes were normal. February 3, examination of the urine was negative for lead and arsenic. Zinc was present, but in too small amounts to be estimated quantitatively.

#### INSPECTION OF THE PILLOW DEPARTMENT OF THE MATTRESS FACTORY

April 10, 1936, I visited the factory where the patient was employed to inspect the process of sterilizing the feathers in the renovator.

I was particularly inquisitive about the making up of the zinc chloride solution used in the renovator. It was a part of the patient's duties to make up this solution by hand. The zinc chloride is obtained in 100 pound drums, and fresh solutions of this material are made about three times a week. This is done by dipping the crystalline zinc chloride powder out of the stock drum by hand, without gloves. After the zinc chloride powder has been removed from the drum, water is added to it and the finished solution is then stored in a small barrel with an outlet spigot. From this barrel the solution is drawn off into a mason jar as needed. This mason jar containing the zinc chloride solution is placed near the renovator, and the solution is drawn in along with the steam in the process described.

The zinc chloride in the solid form as it comes from the drum is obviously a very hygroscopic salt of zinc. When a small amount of this powder is placed on the finger, the finger becomes moist and takes on a greasy feel within a minute or two. When a small amount of this material has been exposed to the atmosphere on the hand, ordinary washing with soap and water will not remove it, whereas washing with a 5 per cent solution of hydrochloric acid is effective in its removal. The precaution of immediately washing the hands with the weak acid solution has not been followed, since it has never been recognized that there was a metal hazard involved in this work. Besides the likelihood of exposing the hands to the zinc chloride solution when it is being made up, it is obvious that in filling and carrying the solution in the mason jar from the stock barrel to the renovator the fingers would be exposed to the splashing of the fluid. As already noted, the patient has had complete charge of making this solution and using it since 1932.

#### CONCLUSIONS

From the examination it appeared probable that I was dealing with a toxic condition which had been brought about by the exposure of the hands in the making of the solution of zinc chloride used in the renovator. From the nature of the zinc chloride and the carelessness that had been exhibited in the exposure of the hands and forearms to this chemical, it was obvious that the patient had ample opportunity, over a period of four years, to absorb toxic amounts of zinc. Clinically, the picture presented was not unlike some of the instances recorded by McCord in his study of chronic zinc intoxication. At the time when my examination was made it appeared that the patient was improving. The blood changes were not so striking as they were January 10. In the meantime he had had treatment for his anemia, and he had not been further exposed to zinc. In association

excellent results of Elliott.<sup>1</sup> On the other hand, the results with local destruction here compare very favorably with the results with radium alone or surgery alone at this clinic, and much better than with roentgen therapy alone.

The methods employed in actual destruction of the local lesion at this clinic are, briefly, curet and wide cauterization with the actual cautery, curet and chemical cautery with a strong acid such as trichloro-acetic or acid nitrate of mercury; electrodesiccation of the local lesion including from one-fourth to one-half inch of normal lip, and, lastly, adequate removal with the electric cutting current followed by cauterization of the bleeding exposed surface.

Local destruction requires no loss of time from work, and no hospitalization or expensive equipment. Local anesthesia was adequate in almost every case. The traumatic ulcers that result from the treatment healed with boric compresses in almost every case in from two to four weeks, with a surprisingly excellent cosmetic and a perfect functional result. These reasons add further to the advantage of local destruction over other methods.

#### ROENTGEN AND RADIUM THERAPY

Of forty-six previously untreated cases treated by this method, thirty-five cases have been followed, five by radium and thirty by roentgen therapy. Approximately 25 per cent of these were proved by biopsy.

#### RADIUM THERAPY

Five early cancers of the lip were treated here by radium therapy in one of which roentgen therapy was given to the regional lymph nodes. Three were cured for five years or more. The immediate recurrence that appeared in the fourth case was destroyed by local cautery to result in an eight year cure. The palpable lymph nodes that appeared in the fifth case were removed surgically to show microscopic evidence of metastasis. This case was still recurrent with metastases after four years. The cosmetic results in the three cases with five year cures were excellent.

Radium therapy for early epithelioma of the lip has been advocated by many.

This excellent method of treating cancer of the lip has many things in its favor. The method requires no hospitalization. It is free from pain, hemorrhage and shock. In competent hands the method is almost free from danger. The cosmetic results are certainly as good as if not better than with any other form of therapy. One limitation of its use is that in untrained hands recurrences of a particularly intractable type are common. Attention should be drawn to the poor results obtained here and elsewhere in recurrent cancers of the lip following both radium and roentgen therapy. The expense of radium and radon seeds when indicated, moreover, will limit, at least for the time being, its use to large clinics and the occasional prosperous patient.

#### ROENTGEN THERAPY

The thirty previously untreated cancers of the lip treated by local roentgen therapy with or without roentgen therapy to the regional lymph nodes consisted of fourteen early, eleven moderately advanced, and five far advanced cases.

Of the fourteen early cases death had occurred in three, or 21.4 per cent, of which two were due to cancer of the lip. The enlarged lymph nodes that occurred shortly after the roentgen therapy in one case were removed by surgical dissection and proved to be metas-

tases by pathologic examination. This case was still progressively metastatic after three years. An apparent cure in eleven, or 78.5 per cent, for from one to eight years, of which two were five year cures, was obtained in these fourteen cases.

Four of the eleven moderately advanced cases ended fatally, two of which had recurred immediately and death was due to carcinoma of the lip. One case was still active despite subsequent roentgen therapy. An apparent cure of eight, or 72.7 per cent, for from one to three years was obtained in this group.

In two of five far advanced cases, cancer of the lip proved fatal; the immediate recurrence with metastases which appeared in one case was still active when last seen. Two patients were cured, of whom one died of intercurrent disease after eight years.

The results with surgery plus dissection of the regional lymph nodes and local destruction as carried out here were better than the results reported by Schreiner and Mattick<sup>16</sup> with radiation therapy and certainly were much better than those with irradiation only in our series.

For economic reasons, adequate roentgen therapy in cancer of the lip is limited to large clinics, the same as radium, and is therefore not so available as locally destructive methods. Under all but the best trained workers, recurrence of a particularly dangerous type is a not infrequent occurrence. The severe reactions from toxic absorption from the destroyed cancer cells, the almost unbearable dry mouth in most cases from inhibition of the salivary glands, and the possibility of roentgen dermatitis with possible malignant changes are certainly not in its favor. Roentgen dermatitis in cases treated by heavy dosage has been noted in our group in at least a few cases.

From table 3, a comparison of those cases treated by surgical excision, surgical excision plus regional lymph nodes and local destruction, and like groups in which these forms of treatment were combined with roentgen therapy to the regional lymph glands, it is our opinion that roentgen therapy is of little if any use as a prophylaxis against metastasis.

In those cases in which there are definite palpable nodes, we advocate surgical dissection of the regional nodes. We do not advocate roentgen therapy to these nodes.

In those cases in which large fixed metastatic nodes are present there is no choice. These cases are almost invariably hopeless. High voltage roentgen therapy or radium or radon implants may in the occasional case retard growth of the metastasis.

#### RECURRENT CASES

One hundred and sixteen recurrent cases were seen in this series. Of these, sixteen cases were not treated at this hospital. Most of the latter were moderately or far advanced cases with probable metastases in which treatment was considered futile.

Of the 100 recurrent cases in which treatment of one kind or another was given here, local therapy either surgical or chemical or actual cautery was given in sixty-five, and radiation therapy either roentgen-ray or radium was given in thirty-five prior to coming to this clinic.

Of the sixty-five that had received local therapy prior to therapy here, twenty-two were treated further with local destruction, nineteen by radiation therapy, nine by surgical excision, and fifteen by surgical excision plus the removal of regional nodes at this clinic. In a

per cent of the drug is excreted in the urine; 67 per cent is evacuated in the feces. According to Lamson and Ward<sup>4</sup> a therapeutic dose (1 Gm. of the crystoid for adults and children over 10 years of age in hard gelatin capsules of 0.2 Gm. capacity each) is from 90 to 100 per cent efficient in removing *Ascaris*, from 80 to 85 per cent for hookworms and from 40 to 45 per cent for *Trichocephalus*. No pretreatment preparation of the patient is necessary. The drug is taken on an empty stomach in the morning and food is proscribed for five hours. For ascariasis and heavy hookworm infection a post-treatment saline purge is recommended. If instructions are heeded not to chew the capsule before swallowing and to fast for five hours after taking the drug, no toxic symptoms will be experienced.

**Ficin** (the active principle of *leche de higueron*).—*Leche de higueron* is the crude sap obtained from *Ficus laurifolia* and related species of this genus in Central America and South America. For centuries it has been an Amerind household remedy for intestinal worms. Ficin, the active principle,<sup>5</sup> is a proteolytic enzyme which is particularly effective in removing *Trichocephalus* from the intestine. On account of its rapidly fermenting properties, the crude sap is not available for anthelmintic use in the United States. Ficin is an acetone-extracted yellowish white powder, which is temporarily irritating to the intestinal mucosa but on intimate contact with the intestinal epithelium for fifteen minutes fails to produce erosion. If this product is made available for the medical profession it may provide a relatively nontoxic specific anthelmintic for *Trichocephalus* and *Enterobius*, for which no satisfactory drug is now provided.

**Gentian Violet, Medicinal**, N. N. R.—Gentian violet is either pentamethyl or hexamethyl rosanilin or a mixture of the two in at least three parts of the dye to one part of dextrin. For biologic certification it must have sufficient bacteriostatic power to prevent growth of *B. subtilis* on nutrient agar when added to the agar one part in a million. Although the dye was originally used as a systemic and urinary antiseptic, it was found by Faust and Yao (1926) to be specific for the Chinese biliary fluke *Clonorchis sinensis* and by DeLangen (1928) and Faust (1930) for *Strongyloides stercoralis*. In strongyloidiasis the orally administered dye penetrates and stains the mucosa of the intestinal wall, where the female worms are lodged, in proportion to the amount of free dye available at the particular level of the bowel. If the dye reaches the worms in sufficient concentration, they are stained and soon die. Excessive amounts of gentian violet irritate the gastric and duodenal mucosa and produce nausea. The therapeutic dose (0.06 Gm. enteric-coated tablets three times a day for sixteen and two-third days) is usually well tolerated; only a small percentage of patients experienced temporary intestinal discomfort and nausea. The dye may also be intubated as a 1 per cent solution in 25 cc. amounts into the duodenum, with curative results following one to three intubations.<sup>6</sup>

**Oleoresin of *Aspidium*** (oleoresin of male fern), U. S. P.—Decoctions and extracts of *Aspidium* were used as anthelmintics by Greek and Roman physicians.

U. S. P. oleoresin is obtained as an ether extract from the rhizomes and stipes of *Dryopteris filix-mas* (syn. *Aspidium filix-mas*) and to a lesser extent from other species of this genus of fern. The oleoresin should be fresh in order to contain a standard 24 per cent of filicin in amorphous form, the active anthelmintic principle. This drug is very irritating to the gastro-intestinal mucosa, frequently producing vomiting and at times dysentery; it may cause jaundice and at times necrosis of the liver; it rapidly paralyzes nonstriated muscle; it slows and weakens heart action; it stimulates the spinal cord with resultant twitching, possible convulsions and respiratory paralysis. In therapeutic doses (from 1.8 to 3.6 cc. in doses of from 0.6 to 1.2 cc. given at half-hour intervals on an empty stomach) oleosin of *aspidium* is an efficient drug for removing tapeworms from the intestine. The diet for two days previous to treatment should exclude absorbable fats. Post-treatment saline purgation should be ordered. Toxic symptoms from a therapeutic dose may include headache, vertigo, bilirubinemia and jaundice, vomiting or dysentery, dyspnea and albuminuria. Occasionally severe abdominal cramps; convulsions, loss of reflexes, optic neuritis or blindness may be experienced and death may result from respiratory or cardiac paralysis. The drug is contraindicated in anemia, debility, old age, infancy and pregnancy.

**Pelletierine Tannate**, U. S. P.—This drug is a yellow amorphous odorless powder, consisting of "a mixture of the tannate of the several alkaloids obtained from pomegranate, *Punica granatum*" (U. S. P. XI, p. 278)<sup>1</sup> derived from the bark or stem. In small doses it produces vomiting and colicky diarrhea, headache, vertigo, drowsiness and diplopia. In addition, toxic doses cause weakness of the limbs and ascending paralysis. It is administered as a decoction containing 0.25 Gm. on an empty stomach. It is believed to be especially good for removal of the pork tapeworm, *Taenia solium*, but is ineffective for *Hymenolepis nana*. Before and during treatment, alcohol is proscribed. It is contraindicated in pregnancy.

**Antimony and Potassium Tartrate**, U. S. P.—Antimony and potassium tartrate (tartar emetic) "contains not less than 99 per cent  $\text{KOOC} \cdot \text{CHOH} \cdot \text{CHOH} \cdot \text{COO} (\text{SbO}) \cdot \frac{1}{2} \text{H}_2\text{O}$ " (U. S. P. XI, p. 57).<sup>2</sup> The common toxic symptoms produced by it include severe cough, a metallic taste, nausea, vomiting, diarrhea and muscular and arthritic pains. Less commonly the patient has manifestations of jaundice, cyanosis, rapid pulse, a choking feeling in the chest, tachycardia and severe headache. The sodium salt is slightly less toxic but is less stable; the pentavalent aromatic compounds of antimony are much better tolerated. Antimony and potassium tartrate and sodium antimony tartrate must be made up fresh before each administration and must be introduced very slowly by the intravenous route. Neo-antimosan (pyrocatechin sodium disulfonate of antimony), distributed under the trade name "fuadin," can be administered intramuscularly without local necrosis. Antimony and potassium tartrate and the related salts of antimony are specific anthelmintics in the treatment of schistosomiasis; they are also stated to relieve fever and myositis in trichinosis (Grove, 1925), and patients suffering from dracunculosis are believed to be benefited by four or five intravenous injections on alternate days of 0.06 Gm. of antimony and potassium tartrate (Macfie, 1922).

4. Lamson, P. D., and Ward, C. B.: The Chemotherapy of Helminth Infections, *J. Parasitol.* 18: 173 (March) 1932.

5. Robbins, B. H.: A Proteolytic Enzyme in Ficin, the Anthelmintic Principle of *Leche de Higueron*, *J. Biol. Chem.* 87: 251 (June) 1930.

6. Faust, E. C.: *Strongyloides* and *Strongyloidiasis*, *Rev. de parasitol. clin. y lab.* 2: 315 (May-June) 1936.



tures should be considered as potentially malignant and should be treated early by local destruction in all cases.

3. Treatment in early cancer of the lip assures a high per centage of cures if the lesion is completely destroyed.

4. The results of treatment of early cancer of the lip in this series were excellent with local destruction or with surgical removal plus dissection of the regional lymph nodes, were good with surgical excision alone or with radium therapy, but were only fair with roentgen therapy.

5. For economic reasons we feel that the treatment of choice in early cancer of the lip without enlarged lymph nodes is local destruction.

6. The results in the moderately advanced lesions, though fair, were not as good as in the early lesions, and the best results were achieved by surgical excision plus removal of the suprahyoid nodes.

7. The results in the far advanced cases except for the rare case were extremely poor. No case presenting invasion of the mandible has been cured.

8. The previously untreated cases did better than cases in which local therapy was administered prior to treatment here and much better than those in which inadequate radiation therapy had been given before their treatment here.

9. Metastases were almost never found in early cases without palpable nodes and rarely in the moderately advanced cases without palpable nodes.

10. Surgical dissection of the regional lymph nodes is indicated only in those operable cases presenting palpable nodes in which the latter are not fixed.

11. Surgical dissection of the suprahyoid nodes in this series gave close to 40 per cent five year cures in cases presenting positive nodes.

12. High voltage roentgen therapy to the regional lymph nodes was by this study found to be unnecessary in cases without palpable nodes and useless when metastasis had occurred.

13. The study of the cell type in cancer of the lip was found to be useful as an aid in determining prognosis and the form of treatment.

#### ABSTRACT OF DISCUSSION

DR. EVERETT S. LAIN, Oklahoma City: Those who attended the meetings of this section at St. Louis in 1922 will recall Dr. Bloodgood's discussion when I presented the same subject with a report of 248 cases. It resulted in the usual bitter attack on the radiologist's method of treating lip cancer as contrasted with the surgical method. Today's presentation is an excellent commendation of the surgical technic. On the other hand, it is not so complimentary to their radiation technic, nor do they report a sufficient number of cases (thirty-five) to base a fair opinion as to the radiologic treatment. They do not tell us the technic of their radiation treatment. Whereas surgical technic is fairly well standardized, radiation methods have been constantly improving, and only within the past five or seven years have they become even comparatively standardized. Cures have been increasing since the introduction by Coutard of methods of radiation, further advocated by Clark, Pfahler and others. I cannot fully agree with the conclusion that the prognosis in lip cancer in the young is better than in the aged. This is contrary to the behavior of cancer in other parts of the body. I am more inclined to attribute their favorable results in the young to the early seeking of treatment. The young person has more pride in his appearance and will naturally call on a doctor when he has a lesion on his lip, especially in view of the possibility of an extragenital chancre. The reports

of other clinics which the authors have quoted, and which I have recently reviewed, are a commendation on preoperative and postoperative irradiation in association with the surgical removal of the primary lesion and the lymph nodes. I want to endorse fully all that was said about surgical diathermy and diathermic coagulation methods which they use in the destruction of the lip cancer. It is a short method and just as effective as irradiation in the group of early cases, though I cannot agree that the cosmetic results are equally good. I cannot help but believe that, in their second group of cases, the infiltrating type, in the private practice of Drs. Wile and Hand, where they have personal supervision over the daily applications of interstitial radium needles or radium packs, they obtain better results than those reported from their university hospital. I believe that both dermatologists and surgeons would obtain better results if they cooperated and more frequently held counsel over all the questionable cases. The treatment should be individualized for each case in which there is a possibility of metastases.

DR. RICHARD L. SUTTON SR., Kansas City, Mo.: I agree with Dr. Lain that the statistics in my office would indicate that the lesions are much worse if untreated and that the outlook is much worse in the young than in the old. Otherwise I cannot agree with Dr. Lain. My experience with regard to the classification types 1 to 4 of Broders parallels that of Dr. Hand and Dr. Wile. My assistants and I have a good deal of trouble now (we used to have a great deal more), on account of marked lymph node involvement, with the old fashioned doctor: not necessarily the country doctor—the city doctor as well was to blame. The doctor would say to a patient with a cancer of the lip "Don't bother that until it bothers you." When the patient gets to somebody who recognizes what the condition is, he has enlarged lymph nodes under his chin and not much can be done for him. We have learned more about the successful treatment of cancer from one of the pioneers in this country than from anybody else, and I am glad that he is here this morning—Dr. James F. Percy of the Pacific Coast. With regard to the use of radium and x-rays we often have recourse to these agents, before and after, but as I tell my students at school I really believe that if a man would start out with a small Percy cautery or, as he graduated in wisdom, go up to a stronger one, he would cure more cancers than with any other one agent in the whole world.

DR. JAMES F. PERCY, Los Angeles: My dermatologic colleagues on the coast make mistakes. Some of them are kind enough, when they get too far along, to send some of these patients to me, and by the use of the cautery method I have been able to salvage a rather large proportion of them. I look on lip cancer as a disease that ought to be cured in a large percentage of cases. The thing that must be done in all cancer is to do the big thing first. There exists only one good chance at cancer and that is the big operation early. I am devoted to the cautery. It was proved long ago that the cancer cell cannot be transplanted after it has been heated to 113 F. (45 C.) for ten minutes, and that is what isn't done; the heat isn't infiltrated; none of these operations are done big enough. I have treated about 900 cancers of the lip with the cautery. I do most of them without an anesthetic. I heat the cautery knife to from 1,200 to 1,500 F., which is determined by sticking the knife into tincture of green soap for a distance of a quarter of an inch. At that temperature it will not hiss when it enters the soap and nothing will stick to it when it is removed. One can put that on the lip, first covering the eyes of the patient, and the patient won't have any pain. The important point, after the diseased area has been removed, is the infiltration of the heat at a lower temperature, about 700 or 800 F., into the bed of the remaining tissue with my ball-tipped cautery, until there is a horn or leather-like surface. This leather-like surface should be kept free from saliva as far as possible for two weeks; otherwise it will be digested. Two weeks is required for the normal repair cells to be deposited under this horny layer, after which the extremities of the wound in the lip should be pressed intermittently with the fingers toward the center for three or four minutes morning and evening. For the first few days this should be done gently,

common lead pencil. The infection has a cosmopolitan distribution but is most common in warm countries and is particularly prevalent in children under 10 years of age. Both sexes have three conspicuous triangular lips at the anterior end of the body. The female is appreciably larger than the male, which has a posterior ventral curvature. *Ascaris* is a lumen parasite of the small intestine. The female lays about 100,000 eggs daily. The fertilized but unembryonated eggs, when deposited on moist soil, embryonate slowly for several weeks, following which they are found to contain motile infective stage larvae, which, however, hatch normally only after ingestion and arrival in the small intestine. The escaping larvae migrate through the intestinal wall and are carried through the lymphatics or blood stream to the lungs. Escaping from the pulmonary capillaries into the bronchioles, they are carried up to the epiglottis and down through the esophagus and stomach to the small intestine, where they develop into adult worms. Mature ascarids, single or in multiples, may or may not produce symptoms. Acute symptoms are usually due to the worms becoming irritated and entangled into a mass, or migrating into unusual foci, as the common duct or the appendiceal lumen, or perforating the intestinal wall. Toxic manifestations or pronounced allergy may result from *Ascaris* infection. Specific diagnosis consists in identification of the eggs by microscopic examination of the feces. The drug of choice in ascariasis is hexylresorcinol (1 Gm. for an adult, from 0.2 to 0.8 Gm. for children under 10 years of age, in hard gelatin capsules), administered on an empty stomach with a post-treatment saline purgation and no food for five hours. This drug is much less toxic than either santonin or oil of chenopodium, is much more efficient than santonin and is as efficient as oil of chenopodium. Since infection usually results from oral contamination with soil "seeded" with infective-stage *Ascaris* eggs as a result of previous promiscuous defecation, ascariasis usually produces a vicious cycle, particularly in small children. Prevention therefore consists in educating small children to use sanitary toilets, privies or latrines.

#### WHIPWORM INFECTION (TRICHOCEPHALIASIS)

Trichocephaliasis in man is produced by the nematode *Trichocephalus trichiurus* (syn. *Trichuris trichiura*), which occurs typically with its head embedded in the wall of the cecum and appendix, less frequently the posteriormost levels of the ileum, or the colon. The worms have a length of from 35 to 50 mm. and are threadlike in their anterior half and fleshy in their posterior half. The females have a club-shaped posterior extremity; the males have a posterior watch-spring coil. Each day the female lays a few thousand barrel-shaped eggs with bipolar mucoid plugs. When evacuated in the feces these eggs are unembryonated, but on favorable moist ground they embryonate slowly and in a few weeks or months become infective. When these infective-stage eggs are accidentally swallowed by human beings they hatch in the small intestine, and the emerging larvae gradually pass down in the intestine and without need for migration soon reach the cecum or nearby level of the intestine, where they become attached and grow into adults. Light infections usually produce no significant symptoms, although individual cases occasionally show signs of systemic toxemia. Very heavy infections, which are rarely seen in the United States, may produce a syndrome

simulating hookworm disease. There is no satisfactory chemotherapeutic available for use by physicians in treating this infection, although leche de higuerón (2 fluidounces, or 60 cc., taken on an empty stomach), or the equivalent amount of ficiu, has been demonstrated to be extremely satisfactory. In the United States trichocephaliasis is not a public health problem.

#### SEATWORM INFECTION (PINWORM INFECTION, OXYURIASIS)

Seatworm infection is cosmopolitan in distribution. It is produced by *Enterobius vermicularis* (syn. *Oxyuris vermicularis*). The young adult worms live attached to the wall of the distal portion of the ileum, less commonly of the cecum and appendix. These worms are considerably smaller than hookworms. The females have an acuminate posterior end; the smaller males have the posterior extremity curved ventrally. Gravid females lose their attachment to the intestinal wall and become migratory forms. They seldom lay their eggs within the bowel, but in migrating out of the anus at night they crawl in the perianal and perineal folds, setting up an intolerable pruritus which invariably provokes scratching. The integument of these worms is then usually ruptured and the eggs are dispersed, soiling the skin of the area, the fingers, the clothing and the bed linen. When discharged, the eggs are usually fully embryonated and infective. Soiled fingers contaminate the mouth and cause reinfection of patients; soiled clothing and bed linen, as well as toilet seats, serve to cause infection of other persons in the same family or institution. Symptoms due to the infection within the intestine are usually infrequent and relatively mild; nervousness, insomnia, loss of appetite and more serious constitutional manifestations frequently result from the excursions of the gravid female worms. Diagnosis may be made from microscopic identification of the characteristic eggs in the feces (considerably less than 5 per cent of the cases) but usually depends on recovery of the female worm migrating out of the anus. The treatment of choice consists in (1) oral administration of hexylresorcinol crystalloids (as recommended for ascariasis), followed the same night by a high retention enema of an alkaline solution (1:1,000) of the crystals which has been preceded by an ordinary water enema to evacuate feces from the large bowel. Several such courses of treatment are frequently needed to eliminate the infection. Children are most commonly infected. They should use closed sleeping garments, which should be frequently sterilized by boiling, their finger nails should be clipped close and kept clean, and they should be taught to wash their hands thoroughly each time after visiting the toilet and before meals. Only by enforcing such rules of personal hygiene can seatworm infection be eradicated.

#### STRONGYLOIDIASIS (STRONGYLOIDOSIS)

Strongyloidiasis is caused by *Strongyloides stercoralis*. It is usually prevalent in warm moist communities of the world and is not uncommon in the southern part of the United States and in the American tropics. The parasitic female worms typically inhabit the mucosa of the intestine, most frequently at the levels of the duodenum and jejunum. There they lay partially embryonated eggs, which usually hatch in the bowel wall and liberate motile larvae, which are discharged in the feces. In favorable soil these larvae either develop into free-living adults, which in turn produce

## CHRONIC ZINC INTOXICATION

AN INSTANCE OF CHRONIC ZINC POISONING  
FROM ZINC CHLORIDE USED IN THE  
PILLOW MANUFACTURING  
INDUSTRYERNEST S. DU BRAY, M.D.  
SAN FRANCISCO

Brass founders' ague, spelter shakes and brass chills have long been known to be caused by the fumes in the founding of brass and the smelting of zinc. The condition is now called metal fume fever and is caused by the inhalation of zinc oxide fumes. The symptoms of metal fume fever come on a few hours after exposure, usually after the workman has reached home. Alice Hamilton's<sup>1</sup> description of the clinical picture of the attack is illuminating. "Chilling of the body is often the exciting cause, and the cases are always more numerous in winter, although this is partly due to the better ventilation of the foundry in summer. The actual chill is preceded by a sense of dryness in the throat, with cough, and a sense of lassitude and oppression in the chest, sometimes nausea, rarely vomiting. The Russians have found that a warm bath taken at this stage may avert a chill. The chill is followed by sweating and more or less prostration, but the man usually goes back to work. The temperature, according to Drinker's observations, is hardly ever over 101 F., reaching its maximum in ten or twelve hours after the inhalation of the fumes. The leukocytosis persists longer." Drinker and Fairhall<sup>2</sup> state that "a single industrial condition arises from zinc and this condition is not produced by zinc alone. This is the 'zinc chill,' better known as 'metal fume fever.' The different groups of symptoms described as chronic industrial zinc poisoning, together with other complexities which have been ascribed to zinc, may be disregarded, as they are due to a contamination by other substances." Nevertheless, studies of groups of brass workers show that their health is below the average for their class.

Zinc has the lowest boiling point of all the industrial metals, giving off fumes at about 500 C. It is volatilized zinc that causes industrial poisoning in zinc smelting, in brass founding, in brazing, in galvanizing and in oxyacetylene autogenous molding. The poisonous agent is the flaky oxide of zinc that forms as the fumes cool. The mechanism by which the acute symptoms of metal fume fever are produced has been disputed. According to Lehmann,<sup>3</sup> since zinc oxide is itself harmless and brass chills are followed by a rise of temperature which does not follow exposure to other metallic poisons, and since the result is immunity, not accumulative poison, the theory is propounded that this is not, strictly speaking, a zinc poisoning but occurs as follows: As the fumes cool, zinc carbonyl is formed, which is hygroscopic, and as it spreads over the lungs it sears the surface cells, and it is the resorption of the toxalbumins from these destroyed cells that accounts for the symptoms of so-called brass poisoning.

Besides the aforementioned acute metal fume fever (brass founders' ague) the subject of chronic intoxication with zinc has been seriously considered. One of the most convincing reports that such a chronic intoxica-

tion can be brought about in those exposed to zinc compounds over a long period is that of McCord,<sup>4</sup> whose work was based on a study of the crews of two galvanizing plants in which sheet metal was coated with molten zinc. Strange to say, in galvanizing, acute zinc poisoning is rare under normal operating conditions, although zinc fumes arise in abundance because of the low temperature required to generate these fumes at 468 C.

In the chronic cases of zinc intoxication studied by McCord, the gastro-intestinal symptoms predominated in the clinical picture. Such complaints as nausea, vomiting, pain in the epigastrium, anorexia and loss of weight were the most common. Of these nausea and vomiting were particularly constant complaints in the twelve case histories presented in this report. Hypochromic anemia was also present in several cases, whereas basophilic degeneration in the red cells was much less commonly encountered than in his series of cases of lead poisoning. Zinc was found in pathologic amounts in several cases in which it was determined in the urine.

The following case is presented for its interest as an unusual source of probable chronic zinc intoxication in the pillow manufacturing industry. As will be noted, the portal of entry of zinc in this case was believed to be absorption through the skin of the hands and forearms after occupational exposure of these parts to zinc chloride over a period of several years. The inhalation source of intoxication was unlikely, because the temperature produced in the renovator was not sufficient to volatilize zinc in appreciable quantities.

## REPORT OF CASE

**History.**—A married man, aged 34, engaged as a renovator operator in a mattress and pillow factory, complained April 3, 1936, of a general "run-down condition" and fatigability. He stated that during the past two months, since he had stopped work, these complaints were very much less marked. His appetite had also improved and he was not having the pains in the long bones of the lower extremities that were so troublesome the summer and fall before.

The patient's father was living and well in North Dakota. His mother had died of pneumonia at the age of 51. He had three brothers and four sisters living and well. The patient's wife and two children also were well. He came to California in 1929 from North Dakota. During all of his California residence he had worked in the aforementioned mattress and pillow factory.

His past health had been good. He had had the usual diseases of childhood but none of the more serious infectious diseases. In the spring of 1935 he had a rather severe attack of acute tonsillitis. May 30, 1935, the tonsils were removed. He was not subject to headache. The eyes and ears were good; he did not wear glasses. Many of the teeth were out; three had recently been removed; that is, in December 1935. The patient stated that these teeth were removed because the fillings had dropped out and he could not afford to have them crowned.

The appetite is now good; it has improved since he stopped work on Jan. 11, 1936. The bowels are also fairly regular; previously they were constipated. He has no cardiorespiratory symptoms, such as cough, sweating or palpitation. There is no nocturia. There was no history of venereal diseases.

At present he has no joint symptoms. Last summer one of his prominent symptoms was aching in the bones of the lower extremities. When he took a vacation from his work in September and October 1935 this pain disappeared, only to return again when he resumed work in November.

The patient sleeps well. His average weight was 190 pounds (86 Kg.) until two years ago. His present weight is 182 pounds

1. Hamilton, Alice: *Industrial Toxicology*, New York, Harper & Brothers, 1934, p. 81.

2. Drinker, C. K., and Fairhall, L. T.: *Zinc in Relation to General and Industrial Hygiene*, Internat. J. Med. & Surg. 46: 553 (Nov.) 1933.

3. Lehmann, K. B.: *Einige Beiträge zur Bestimmung der hygienischen Bedeutung des Zinks*, Arch. f. Hyg. 28: 291, 1897.

4. McCord, C. P., and Friedlander, Alfred, with collaboration of Brown, W. E., and Minster, Dorothy K.: *Occupational Disease Among Zinc Workers*, Arch. Int. Med. 37: 641 (May) 1926.

inflammatory reactions, abscesses and pseudotubercle formation. *S. haematobium* infection results in serious functional impairment of the urinary bladder and adjacent tissues. In *S. mansoni* and *S. japonicum* infections the intestinal wall and liver are most seriously involved. Hepatic cirrhosis, ascites and splenomegaly are usually found in the later stages of the intestinal schistosomiasis. Diagnosis is based on microscopic identification of the typical eggs in the urine or feces.

The drug of choice in all three of these diseases is antimony and potassium tartrate or sodium antimony tartrate by vein or neoantimonan intramuscularly. A complete course of treatment usually kills the worms and allows them to be absorbed, but specific therapeutics is of little avail in old chronic cases in which advanced intestinal and hepatic involvement has occurred.

#### FASCIOLIASIS (SHEEP LIVER-ROT) AND FASCIOLOPSIASIS

Fascioliasis is produced by a large biliary fluke, *Fasciola hepatica*, which has a cosmopolitan distribution wherever sheep are raised but only incidentally infects man. The mammalian host acquires the infection from ingesting raw vegetable matter to which the post-cercarial cysts have become attached. Infection produces a necrosis of the liver parenchyma, hypertrophy of the biliary ducts with the development of fibrous adventitia around them, and eventual portal cirrhosis. There is no eminently satisfactory chemotherapeutic agent for this infection in man, although Khouri and Basnuevo (1935) claim satisfactory results after administration of emetine hydrochloride.

Fasciolopsiasis, caused by *Fasciolopsis buski*, is a fluke infection common in certain areas of China and other parts of the Far East. It is acquired from raw consumption of certain aquatic plants. The large fleshy flukes live attached to the wall of the duodenum and jejunum, where they frequently produce a profound systemic toxemia. Carbon tetrachloride is the drug of choice. When administered as in hookworm infection it produces a high percentage of cures.

#### CLONORCHIASIS AND OPISTHORCHIASIS

Clonorchiasis is produced by *Clonorchis sinensis*, a small bile duct fluke prevalent in man, dogs and cats in the Far East. Opisthorchiasis is caused by *Opisthorchis felinus* in East Prussia, Siberia, the Balkan states and probably other areas, and by *O. viverrini* in northern Siam. All these worms are acquired from eating raw infected fresh water fishes. The presence of the worms in small numbers in the bile passages provokes slight hypertrophy and fibrosis of the walls of the distal bile ducts; only in heavy infections are there symptoms indicative of extreme involvement of the liver.

Gentian violet medicinal and antimony salts are lethal for these worms, provided these therapeutic agents reach the worms in lethal amounts within the tolerance of the patient. In recently acquired infections treated with these chemotherapeutic drugs the prognosis is good. In chronic infections in which the worms have become walled off in the bile ducts by fibrous tissue deposits about the duct walls, reduction in the number of worms may be effected but cure is doubtful.

#### HETEROPHYDIASIS AND METAGONIMIASIS

Heterophydiasis and metagonimiasis are caused by species of the superfamily Heterophyoidea. One or more species of these small flukes occur as an infec-

tion of man, dogs, cats and other animals in the Far East, Siberia, Egypt, the Balkan states and other regions of the Eastern Hemisphere. Infection is acquired from eating infected raw fish (usually fresh-water species). The worms are relatively transitory parasites of the mucosa of the small intestine and can be readily removed by carbon tetrachloride or tetrachlorethylene as administered in hookworm infection. The danger of the minute eggs of these species getting into the circulation and filtering out in the myocardium, with the production of a pseudoberiberi syndrome, has been recently demonstrated by Africa, Garcia and de Leon.<sup>8</sup>

#### PARAGONIMIASIS (PULMONARY DISTOMIASIS)

Paragonimiasis is produced by *Paragonimus westermani*, a fluke that parasitizes human, canine and feline hosts in the Far East and has been introduced into Venezuela in recent times. It results from eating the tissues of infected crabs or crayfishes which harbor the encysted stage of the parasite. The organism is somatic in its habitat, typically residing in the lungs, although it may develop in the abdominal viscera or even in the brain. It produces abscesses and fibrous tissue formation. Eggs are usually discharged in sputum together with blood and mucus. Although emetine hydrochloride has been claimed to be remedial in cases of paragonimiasis, there is no proof that this drug is curative for this infection.

#### SUMMARY

1. Beta-naphthol, thymol, oil of chenopodium, carbon tetrachloride, tetrachlorethylene, santonin, hexylresorcinol, ficin and gentian violet are the most important chemotherapeutics useful in removing intestinal nematodes. Of these, tetrachlorethylene is probably the safest efficient drug for hookworm infection, and hexylresorcinol for ascariasis and seatworm infection. Gentian violet is the only known specific for strongyloidiasis. Ficin would probably be the drug of choice in trichocephaliasis but it is not as yet available for use by the medical profession. Oil of chenopodium is very potent for both hookworm infection and ascariasis, and carbon tetrachloride for hookworm and tapeworm infections, but both drugs are highly toxic and are frequently contraindicated.

2. Oleoresin of aspidium and pelletierine tannate are commonly employed in removing tapeworms. Both are highly toxic and are at times contraindicated. Probably oleoresin of aspidium is the drug of choice in these infections, with carbon tetrachloride the second choice.

3. Antimony and potassium tartrate is the drug of choice in blood fluke infections, although other antimony compounds have been found satisfactory in these diseases. Except possibly in fascioliasis, emetine hydrochloride has not been demonstrated to be a satisfactory drug in helminthic diseases.

4. Ethyl chloride is the drug of choice for local use in patients suffering from creeping eruption.

5. No anthelmintic is completely nontoxic for the patient in therapeutic doses. Certain drugs are more efficient and at the same time less toxic than others. Before prescribing anthelmintic treatment the physician should be sure of his diagnosis, should be familiar with the several aspects of the infection and should have clearly in mind the relative efficiencies and toxicities of the anthelmintics available for use.

<sup>8</sup> Africa, C. M.; Garcia, E. Y., and de Leon, W.: Intestinal Heterophydiasis with Cardiac Involvement, *Philippine J. Pub. Health* 2:1, 1937.

with improvement of the blood picture, symptomatic improvement has occurred, as manifested by increased appetite, gain in weight, disappearance in bone pains and subsidence of all gastro-intestinal disturbances.

The case is of moment, since it has occurred in an industry in which I can find no previous record of zinc intoxication.

490 Post Street.

## Clinical Notes, Suggestions and New Instruments

### ALUMINUM PASTE AND SKIN PROTECTION IN ENTEROSTOMY

SAMUEL McLANAHAN, M.D., BALTIMORE

The striking differentiations between various epithelial surfaces are well illustrated when intestinal contents are permitted to drain on the skin of the abdominal wall. Substances that are innocuous to the epithelium of the intestinal tract and that are even produced by it may prove most irritating and destructive to the cutaneous epithelium. This physiologic fact produces at once a clinical problem, and this problem has already been dealt with in many practical ways.

Ingenious methods of managing high intestinal fistulas have been devised, depending for their success on the twofold principle of neutralizing the alkaline secretion and of supplying some sort of protein from without the body on which the enzymes may act, thereby preserving the patient's own tissues from digestion.<sup>1</sup> In addition, suction and the application of dry kaolin have been used with great success.<sup>2</sup>

The more common problem, however, is the one presented by an ileostomy or colostomy. Here digestion per se may not be taking place, but a continuing irritation of the abdominal skin, caused probably by small amounts of trypsin, may cause the patient great physical distress. This, coupled with the mental agony occasioned by the realization, especially in the early stages, of the presence of an artificial anus, is enough to make many an individual utterly miserable. While it is quite true that many patients will have a minimal amount of irritation, still others will have a great deal, and any surgeon who has cared for such patients must necessarily have given much thought and attention to this matter of skin protection.

Seeking for a compound which when spread on the skin would form a protecting coat "heavy" enough to stick and which at the same time would be nonirritating and antiseptic, Dr. Harvey B. Stone began many years ago using an aluminum paste. The use of this paste for skin protection has extended to many of the Baltimore hospitals, where it has been employed for years with the greatest satisfaction to doctor, nurse and patient. No claim is made herewith for originality in either the composition of the paste or in its use. Indeed, I have been unable to determine the exact origin of the formula. However, a strong claim is made that there is presented here a simple medicament which has fulfilled its function of mechanical skin protection admirably through a long clinical trial.

The formula for the aluminum paste is as follows:

R Aluminum metal (fine powder).....	1 part
Liquid petrolatum (or olive oil).....	q. s. to stiff paste
Zinc oxide ointment .....	2 parts

Sometimes the preparation is used with less of the metal, the proportions being one part of the metal to three parts of the zinc oxide ointment, and this has proved satisfactory to those who have employed it. The paste may be kept in jars, and in some hospitals is kept as a routine on the dressing carriages. At other times it may be advisable to maintain a supply at the bedside of the patient who is using it. It is well to start applying the paste before there is irritation, employing it at the time the drainage is expected to commence—as when the colostomy or ileostomy is about to be opened. There is no reason, however, not to apply it to skin already irritated, and indeed in

such instances it is appreciated the most. Where there is profuse drainage, it may be necessary to apply the ointment quite frequently, sometimes with each change of dressing, to insure that the skin is adequately covered. Removal of any soiled excess of the paste may be facilitated by the use of olive oil on gauze or cotton pledgets.

The paste has also been found to be of value in protecting the skin from drainage arising from other types of fistulas. Thus it has been helpful in instances of profuse biliary discharge in which irritation has been marked, and also in suprapubic urinary fistulas.

108 East Thirty-Third Street.

### A NEW TYPE OF MOVABLE INFANT ISOLATION UNIT

LOUISE W. RAUH, M.D., AND J. VICTOR GREENEBAUM, M.D.  
CINCINNATI

The need for cubicle isolation of infants is universally admitted. Not every nursery, however, lends itself to installation of fixed infant cubicles owing to the arrangement of windows, radiators, doors and the like. This was the situation in the nursery in the Children's Ward of the Jewish Hospital of Cincinnati.

In order to obviate the difficulties presented by the permanent structures of the nursery, one of us (L. R.) conceived the idea of the construction of a movable, single isolation unit. A most efficient unit was constructed for us by a local firm<sup>1</sup> with the dimensions given in the accompanying tabulation.

It may be noted from the illustration that there are individual brakes on each of the wheels. The wheels can be swung to place the cubicle in any part of the room desired. The shelf in the corner of the cubicle and the board under the crib provide space for all articles used in the nursing care of the baby for twenty-four hours.

The nurses have found this unit of great value in that the isolation technic in infant care is more efficiently carried out



Movable infant isolation unit.

#### Dimensions of Isolation Unit

Height in arch in front.....	74	inches over all
Height in back.....	68½	inches over all
Length .....	54½	inches over all
Width .....	38½	inches over all
Height between floor and bottom angle	12	inches
18 gage sheet steel		
4 hard rubber wheels with brake adjustment		
1 aluminum shelf in rear left hand corner		
Constructed of 1½ by ¼ inch angle iron		
Fitted with the following glass:		
2 lights 28½ by 53½ plate glass		
1 light 28½ by 28½ plate glass		

entirely within the cubicle. Up to the present the results of this technic in the use of three units have been excellent and no cross infections have occurred.

3530 Reading Road.

From the Pediatric Department of the Jewish Hospital.  
1. The Neuer Glass Company.

1. Potter, Caryl: The Treatment of Duodenal Fistula, J. A. M. A. 88: 899-901 (March 19) 1927; Treatment of Duodenal and Fecal Fistula, ibid. 92: 359-363 (Feb. 2) 1929.

2. CoTui, F. W.: The Excoriations Around External Gastro-Intestinal Fistulae: Experimental Studies on Their Etiology and Further Experience with the Kaolin Powder Treatment, Ann. Surg. 98: 242-248 (Aug.) 1933.



# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 30, 1937

## IS CANCER A VIRUS DISEASE?

When Pasteur established the germ causation of disease, he opened a path by which hundreds of baffling diseases could be explained as an invasion of the body by microbic parasites. Specific prophylactic or immunologic therapy soon followed. Naturally, similar etiology was early suspected for cancer. Many organisms of various kinds were isolated. One heard of cancer houses, cancer regions, cancer epidemics. Many physicians still believe that cancer is due to some as yet unidentified bacterium, ameba or fungus. Years were required to disprove the idea that some micro-organism of the ordinary sort is the cause of cancer. There has persisted, however, one set of facts, repeatedly confirmed and established, which keeps alive the infective hypothesis; i. e., spontaneous malignant tumors occur in fowls, apparently due to agents that have the character of viruses. The Rous chicken sarcoma, named after its discoverer, Peyton Rous, was first reported in 1910. Much information about viruses has accumulated since then; some believe that they are chemical in nature while others hold that they are tiny living organisms resembling bacteria in serologic and other properties but too small to be seen with even the highest powered microscope. They are certainly the cause of a large group of diseases, infectious in nature, which are called virus diseases.

Now, twenty-five years after the establishment of the chicken tumors as virus diseases, a mammalian tumor has been discovered which is not only caused by a virus but not infrequently becomes a genuine cancer. Thus the relation between virus diseases and cancer becomes closer. For many years hunters in Kansas, Iowa and Texas have observed that cottontail rabbits often carry warty growths on the skin. Several years ago, Shope<sup>1</sup> showed that these growths are due to a small virus. The wart-like growths have the morphology of benign papillomas and resemble certain papillomas of dogs and cattle.

1. Shope, R. E., and Hurst, E. W.: Infectious Papillomatosis of Rabbits, *J. Exper. Med.* 58: 607 (Nov.) 1933.

Rous and Beard<sup>2</sup> undertook the study of the rabbit papilloma and showed that it had tumor characters. They were able to correlate many of their observations with the earlier ones on chicken sarcomas. More significant, however, was the fact that many of the virus-induced papillomas, experimentally engendered in domestic rabbits, became in the course of a few months true malignant squamous cell carcinomas, metastasizing and with morphologic and clinical features identical with similar tumors seen in the human being. The more active the virus, the sooner and oftener did the change from papilloma to cancer occur. These observations were promising, indeed, and the trail became truly exciting. The next step to be undertaken was, of course, the recovery from these cancers of the virus that induced the original papillomas. Despite the fact, however, that the virus could not be recovered from these cancerous growths, though vigorously growing, evidence was obtained that they were present in increasing amounts, as shown by serologic tests and by other indirect observations, even when the growths were transplanted to new hosts. The virus behaves thus differently from the various carcinogenic chemicals, such as dibenzanthracene; these substances, although present in the original tumor, disappear completely after a few transplantations.<sup>3</sup>

Rous and Kidd<sup>4</sup> have continued the attack on this intriguing problem from various angles; recently they have reported that when the virus is injected into the blood stream of rabbits with tarred ears it localizes in these organs and causes both papillomas and cancers to develop at once. Many other suggestive facts give promise that the riddle of the rôle of the virus may soon be solved. In a paper on the virus tumors and the tumor problem in a recent issue of the *American Journal of Cancer*, Rous<sup>5</sup> has assembled and discussed the evidence on the relation of viruses to neoplasms in general. Meanwhile more is being learned of virus capabilities. Investigators are now beginning to realize, through studies of herpes and certain other virus diseases, that the healthy body may harbor a virus population comparable with the many bacteria teeming within the alimentary tract and elsewhere. Unlike bacteria, which really have to live outside the cells in various crevices and along the body surfaces, viruses are protected by the cells they infect. Wherever cells exist, a virus may live; it is the elucidation of this peculiar symbiotic relationship that is the great stumbling block to further advance.

There is still a great gap between neoplasms that occur in animals and the tumors that grow in man

2. Rous, Peyton, and Beard, J. W.: A Virus-Induced Malignant Growth with the Characters of a Tumor, *J. Exper. Med.* 60: 741, 741 (Dec.) 1934.

3. Lorenz, Egon, and Shear, M. J.: Studies on Carcinogenesis. II. The Detection of Dibenzanthracene in Mouse Tumors Induced by This Hydrocarbon, *Am. J. Cancer* 26: 333 (Feb.) 1936.

4. Rous, Peyton, and Kidd, J. G.: The Carcinogenic Effect of a Virus upon Tarred Skin, *Science* 82: 468 (May 15) 1936.

5. Rous, Peyton: The Virus Tumors and the Tumor Problem, *Am. J. Cancer* 28: 233 (Oct.) 1936.

*Emetine Hydrochloride* ( $C_{29}H_{40}O_4N_2 \cdot 2HCl$ ), U. S. P.—This drug is prepared either from ipecac or synthetically. It is a white crystalline powder, which is freely soluble in water and alcohol. It is irritating to the skin and mucous membranes, causes nausea, vomiting and frequently diarrhea when taken by mouth, and when given intramuscularly or by vein may produce marked irritation of the gastro-intestinal tract. It inhibits digestion of starch, although it increases the tone of the nonstriated muscle of the gastro-intestinal tract. It depresses the action of cardiac muscle, causes a fall of about 20 mm. of mercury in blood pressure, and produces an irregular, weak, rapid, compressible pulse. According to Chopra,<sup>1</sup> small doses increase the secretion of the respiratory passages, with slight relaxation of the musculature; excessive doses produce pulmonary congestion. The drug is rapidly absorbed from the tissues and is excreted from the intestinal tract and kidneys. It is a general protoplasmic poison and acts particularly on the protoplasm of muscle fibers, especially of the cardiac and skeletal muscles. When administered intramuscularly or subcutaneously the dose should not exceed 0.06 Gm. daily for twelve consecutive days. A month should elapse before a second course of treatment is given. Excess use of the drug results in myocardial degeneration, which may not become manifest for many months after treatment. Khouri and Basnuovo (1935) claim beneficial results in *Fasciola hepatica* infection after the administration of 0.03 Gm. daily for from seventeen to eighteen days. Its value in pulmonary distomiasis (paragonimiasis) has not been satisfactorily demonstrated. The drug is advocated by some physicians for use in patients with blood fluke infections when antimony compounds are poorly tolerated.

*Ethyl Chloride*. (monochlorethane,  $C_2H_5Cl$ ), U. S. P.—Under pressure, ethyl chloride is a colorless, volatile inflammable liquid with an ethereal odor. Its usefulness has been amply proved in cases of "creeping eruption" due to infective stage larvae of hookworms migrating in the cutaneous layers (Kirby-Smith, 1935). When it is sprayed on the parasitized skin in sufficient amounts to insure temporary freezing of the involved area, the larvae are killed and are later phagocytosed and absorbed.

#### IMPORTANT HELMINTHIC DISEASES

In considering helminthic diseases it is desirable to include (1) those commonly observed in the United States and (2) those common in other parts of the world which both are clinically important and are sufficiently prevalent as to constitute a public health problem. In the first group hookworm infection and ascariasis are conspicuous; in the second category diseases such as schistosomiasis deserve consideration.

#### HOOKWORM INFECTION

Hookworm infection in man is produced by three separate species of hookworms: (1) *Necator americanus*, which is almost the only species in the United States and is the prevalent form in Central and South America, Central and South Africa, southern Asia, Polynesia and Micronesia; (2) *Ancylostoma duodenale*, the species of Europe, northern Africa and the prevalent form in northern Asia, and (3) *A. braziliense*, a species with "spotted distribution" in tropical and subtropical areas of the world. The former two species are almost exclusively human parasites; *A. braziliense* is more commonly found in dogs and cats than in man.

The adult males and females, which are about the size of a small pin, live attached typically to the wall of the middle third of the small intestine. The females each lay a few thousand eggs daily. The eggs, which are evacuated in the stools, become fully embryonated and hatch when they are deposited on warm moist humus in a shady location. The larvae feed on organic debris, grow and metamorphose in the soil and in nine days or more become infective for man, usually entering the human body through the skin of the feet, less commonly on other exposed parts of the body. From the skin they migrate through the lungs to the digestive tract, where they grow into adult worms, become attached to the intestinal wall and repeat the life cycle. At the sites of attachment to the intestine the worms produce nonhealing lesions and withdraw blood from the intestinal capillaries. A few worms cause little symptomatology; many hundreds or thousands produce hookworm disease, which modern experimental and clinical studies attribute primarily to loss of blood, with a picture of microcytic hypochromic anemia. This drain on the erythropoietic system constitutes the background for the classic hookworm syndrome of "laziness," toxic edema and emaciation, dry skin, indigestion and delayed puberty so characteristic of a severe infection. Frequently the infection is complicated by or is superimposed on a state of malnutrition. Specific diagnosis consists in the recovery and identification of the eggs of the parasite from the patient's feces, either in unconcentrated films or after centrifugation or brine flotation of a stool specimen.

In severe cases it is desirable to build up the patient by transfusions or administration of iron and liver before specific therapeutics is instituted. In hookworm infection uncomplicated by ascariasis, tetrachlorethylene is the drug of choice (3 cc. for an adult, 3 minims per year of age for children). When *Ascaris* is also present hexylresorcinol may be used (1 Gm. in gelatin capsules for persons over 10 years of age, from 0.2 to 0.8 Gm. for smaller children) to remove from 90 to 100 per cent of *Ascaris* and 75 to 85 per cent of the hookworms. Treatment with hexylresorcinol may safely be repeated once a week to kill the remaining hookworms. Pretreatment and post-treatment purgation, preferably with sodium sulfate (Glauber's salt) is desirable to clean off excess mucus from the intestinal wall and to increase peristalsis. A light (i. e., subclinical) hookworm infection, which may be diagnosed by the scarcity or absence of eggs in three consecutive unconcentrated films, should be distinguished from hookworm disease, in which the number of worms in the intestine is sufficient to produce symptoms. Instruction should be given to the patient and his relatives regarding the preventive aspect of hookworm infection.

*A. braziliense* in the southern part of the United States rarely develops into the adult intestinal stage. On entering the skin the larvae usually produce "creeping eruption," migrating for considerable distances in serpiginous tunnels through the cutaneous tissues. This clinical entity is particularly prevalent along the South Atlantic and Gulf coasts. For it ethyl chloride spray is indicated.<sup>7</sup>

#### ASCARIASIS

Ascariasis is produced by the large intestinal roundworm, *Ascaris lumbricoides*, which is usually creamy yellow or creamy pink and approximately the size of a

<sup>7</sup> Kirby-Smith, J. L.: The Treatment of Creeping Eruption, South. M. J. 28: 999 (Nov.) 1935.

of the amount of vitamin C stored by these subjects at saturation gave values of approximately 2,500 to 3,000 mg. These suggestive calculations are supported by other data in the literature and supply an interesting answer to the important question of the capacity of the tissues to store vitamin C. Furthermore, it appears that the clinical practice of providing large quantities of orange juice for patients with suspected or outspoken scurvy has definite support from this experimental study.

## Current Comment

### THE VITAMIN C CONTENT OF ORANGE JUICE

In newspapers and magazines, on car cards and billboards the public is being told by the California Fruit Growers Exchange that Sunkist navel oranges are "22 per cent richer in vitamin C." What evidence exists for this statement and what significance should be attached to it? Last September, among other papers presented at the meeting of the American Chemical Society in Pittsburgh, was a report by A. J. Lorenz of the California Fruit Growers Exchange. His paper bore the imposing title "Statistical Review of 1,100 Sugar-Ratio Determinations Correlated with Vitamin C Values Representing 14,000 Oranges under Varying Conditions." The juice of California oranges was reported to contain an average of 0.60 mg. of cevitamic acid per cubic centimeter, whereas the juice of Florida oranges contained 0.53 mg. when tested by the same chemical method. The difference is only 13 per cent, so perhaps the California organization did not use its own values as a basis for the claim of superior vitamin C content. A recent report from the laboratory of the Bureau of Home Economics of the United States Department of Agriculture contains data of interest.<sup>1</sup> The Washington investigators determined the cevitamic acid content of the juice of fresh valencia and navel oranges grown in California and of valencia and pineapple oranges grown in Florida. The cevitamic acid in milligrams per cubic centimeter of orange juice for each of these four varieties was found to be respectively 0.40, 0.58, 0.45 and 0.51. There appears to be no justification, therefore, in this unbiased report to a claim that the oranges grown in California provide 22 per cent more vitamin C than do Florida oranges, because the variety of orange, as well as the locality in which it is grown, must be considered. It is the opinion of the government investigators that the volume of juice per orange is also a factor worthy of consideration. The California navel orange yields less juice than do other varieties of the orange of equal size. Of greater importance is the application of the laboratory observations to problems of nutrition. When the vitamin C content is translated to international units (one international unit is equivalent to 0.05 mg. of cevitamic acid) the point is brought out that fresh orange juice contains approximately 1,000 units per hundred cubic centimeters. This volume is roughly  $3\frac{1}{2}$  fluidounces, or somewhat less

than one-half cup in terms of ordinary household measures. The relatively slight differences in vitamin C content of different varieties of fresh oranges amounts to about a tablespoonful more or less of juice added or subtracted from this volume. It is generally recognized that the minimum amount of vitamin C required to prevent scurvy in man is about 300 international units. A desirable intake for an adult would be more than the estimated minimum requirements, of course, and different authorities have suggested values of from 500 to 1,000 units. It is apparent that all four varieties of the orange are excellent sources of vitamin C. To direct attention to slight differences in vitamin C content with the view of capitalizing them is both misleading and contrary to the interests of the public. Such unfortunate publicity tends to defeat the efforts of nutritionists and physicians to educate the public about the importance of the various fruits and other foods that go to make up our diet. It does not reflect credit on the large California Fruit Growers Exchange.

### AUTOMOBILE TRAILER SANITATION

As trailers multiply on our roads, new sanitary problems arise to disturb our health officials. Foremost are the provision of safe milk and water and the sanitary disposal of human waste.<sup>1</sup> With reasonable care in choice, safe water is readily available along the highways in many states; similarly the obtaining of safe milk, while slightly more difficult, offers no great hazard to the careful purchaser. The chief source of concern is the unsafe or insanitary disposal of human excreta by trailer travelers. Many trailers now provide a small toilet compartment in which excreta may be deposited in cans containing chemical solutions reputed to render the waste innocuous. What to do with the material in the cans is the problem of present concern. No extensive or satisfactory sanitary provisions have been made for the disposal of these wastes and the cleansing of the cans. Serious consideration, it is believed, must now be given to providing roadside facilities for the sanitary disposal of human waste from auto trailers. State or county departments of health may construct disposal systems near roads frequented by auto trailers, the location of which can be made known by appropriate road signs. Recognition has been recently accorded the problem by the city and county of San Francisco,<sup>2</sup> which has prepared a sanitary code suggested for their citizens when using such conveyances for traveling. According to this code, all trailers should be equipped with an air-tight container of not less than five gallons capacity for the storage of garbage. This container may be emptied only in places approved and so designated by the health authorities of a particular locality. If the trailer is equipped with running water and a flush toilet, an adequate sewage tank should be provided underneath the trailer for the collection and storage of such waste. The tank should be emptied only into sewer connections or by other approved methods of disposal provided by the community. When equipped with water tanks for household use, the tanks must be

1. Daniel, Esther P.; Kennedy, Mary H., and Munsell, Hazel E.: Relative Vitamin C Content of Orange and Tomato Juices Determined Chemically and Biologically, *J. Home Economics* 28: 470 (Sept.) 1936.

1. A New Problem in Sanitation, *Pub. Health Rep.* 51:174 (Dec. 25) 1936.

2. Geiger, J. C.: Sanitary Code for Automobile Trailers, City and County of San Francisco, personal communication.

a progeny that eventually becomes infective for man by the skin route. The migration through man's tissues parallels that of the hookworms. Strongyloidiasis is a chronic insidious infection, frequently without dramatic symptoms. At times, however, there is a persistent watery or mucous diarrhea due to extensive irritation and desquamation of the intestinal mucosa, systemic toxemia and nervous symptoms, anemia, emaciation, debility and complete exhaustion. At times internal reinfection is believed to occur. The mother worms may also colonize the respiratory epithelium. Diagnosis is based on recovery of the motile larvae in the stools. Only one chemotherapeutic, gentian violet medicinal, has been found to be specific for this infection. When administered in enteric-coated tablets (0.06 Gm. three times a day for sixteen and two-thirds days) immediately before meals, it is usually well tolerated and frequently eradicates the organism. At times two or three courses of treatment are necessary to effect a cure; less commonly cure cannot be secured by this method and intubation of 25 cc. of a 1 per cent solution of the dye into the duodenum is indicated. A satisfactory technic for treating pulmonary strongyloidiasis has not been developed. Prevention follows essentially the same lines that have been devised for hookworm infection.

#### TAPEWORM INFECTIONS

Human intestinal tapeworm infections include those produced by *Taenia saginata* (beef tapeworm), *T. solium* (pork tapeworm), *Diphyllobothrium latum* (broad fish tapeworm), *Hymenolepis nana* (dwarf tapeworm) and *Hymenolepis diminuta* (rat tapeworm). Other species of tapeworms recovered from man's intestine are relatively unimportant because of their infrequent occurrence. *Echinococcus granulosus*, the cystic larval stage of which produces hydatid disease in man and mammals, is a somatic infection which is not amenable to chemotherapy. The eggs of all intestinal tapeworms are evacuated in the feces. *Taenia saginata* and *T. solium* require as an intermediate host respectively the ox and the pig. The raw flesh of these animals, containing the mature larval stage, produces infection in man. The broad fish tapeworm requires two larval hosts, (1) a cyclops and (2) later a fresh-water fish. Ingestion of the uncooked flesh of the infected fish is responsible for human infection. *Hymenolepis nana* requires no intermediate host; the eggs evacuated in human feces are directly infective for man. *Hymenolepis diminuta* requires an insect or other arthropod intermediate host, the accidental ingestion of which causes infection in man. With the exception of *Diphyllobothrium latum*, which is conspicuously prevalent in the north temperate and subarctic regions, all these infections have a more or less cosmopolitan distribution, although they are correlated with certain food preferences of a population or with lack of personal or group hygiene. *Hymenolepis nana* is more common in children than in adults.

All tapeworm infections provoke essentially the same type of symptoms, which vary in amount depending primarily on the mass of the infection (i. e., worm burden) and the individual susceptibility to absorbed toxins. These symptoms include indigestion, loss of weight, false hunger pains, insomnia, nervous reflexes and other evidences of systemic toxemia. At times, as in *Diphyllobothrium latum* infection, a severe secondary anemia may be produced. The infections are all

detected by identification of the eggs or "segments" of the worm discharged in the feces. The most reliable drug for all tapeworm infections is probably oleoresin of aspidium. The night before treatment a sodium sulfate purge should be administered. On the morning of treatment the patient should remain in bed, should refrain from taking food, and should take the drug in capsules, preferably in three divided doses of from 10 to 20 minims each (total 30 to 60 minims for adults, 2 minims each per year of age for children) at half-hour intervals. Two hours after the last dose a post-treatment sodium sulfate purge should be administered. No food should be taken until after a copious bowel movement has been effected. Stools should be saved and examined up to twenty-four hours for the heads of the worms. On account of the toxicity of the drug (see precautions and contraindications under "Oleoresin of Aspidium"), a second treatment should not be given within one week. For small children or adults who become severely nauseated by the drug, administration may be by intubation into the duodenum. In case of *Taenia* infections, Maplestone and Mukerji (1931) recommend carbon tetrachloride, as administered for hookworm infection. Hexylresorcinol, as prescribed for ascariasis, is fairly efficient in removing *Hymenolepis nana* from the intestine and is probably the drug of choice for small children harboring this worm, since its toxicity is very slight and repeated treatments may be given within a relatively short time. Prevention of tapeworm disease depends on the source of infective material, whether animal flesh consumed by man, accidental ingestion of arthropod intermediate hosts or direct ingestion of eggs.

#### BLOOD FLUKE INFECTIONS (SCHISTOSOMIASIS)

Three species of blood flukes, *Schistosoma haematobium*, *S. mansoni* and *S. japonicum*, parasitize large groups of the human population, in whom they invariably produce serious clinical manifestations. *S. haematobium*, causing vesical schistosomiasis, is prevalent in Egypt, many other parts of Africa and regions of Asia west of the Indus River. It has also been discovered endemically in southern Portugal. *S. mansoni*, causing intestinal schistosomiasis, is common through extensive areas of Africa and is prevalent in northern Brazil, Venezuela, Dutch Guiana, the Lesser Antilles and Puerto Rico. *S. japonicum* is found in a few foci in Japan, in extensive areas in central and southern China, in Formosa and in at least one locality (Leyte) in the Philippines. These worms reside in the vesical and pelvic plexuses of the venous blood stream (*S. haematobium*) and the intestinal venules and portal system (*S. mansoni*, *S. japonicum*), where they lay their eggs, some of which work their way through the tissues and are discharged in the urine (*S. haematobium*) or feces (*S. mansoni*, *S. japonicum*). The eggs hatch in water and the escaping larvae enter the appropriate species of snail and undergo a metamorphosis and twofold multiplication. A second larval stage (cercariae) eventually erupts from the snail. This free-swimming stage is infective for man, typically through the skin. After a circuitous journey through the lungs and systemic circulation the young worms accumulate in the portal blood system, grow and then migrate against the venous blood flow to the sites of their predilection (i. e., vesical or mesenteric veins and their tributaries). The juvenile and adult worms are responsible for the toxic symptoms; the eggs which they discharge produce local

the meaning of this act," and (5) to authorize imprisonment in the county jail for from two to six months for narcotic addicts and to forbid probation to or the staying of execution of the sentence imposed on a convicted narcotic addict. A. 181, to amend the state retail sales tax act of 1933, proposes to exempt from the provisions of the act "the gross receipts from sales of all medicines and preparations recognized in the United States Pharmacopeia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease of either man or other animals." A. 384 and A. 385, to supplement the workmen's compensation act, propose that all records of any hospital, physician or other person or institution with respect to services rendered to any injured workman, including but not restricted to x-rays and histories of injuries and diagnoses, shall be exhibited to the patient and to any person authorized in writing by him to examine the same. The patient or his authorized agent must be permitted to make copies of such records.

### CONNECTICUT

**Bill Introduced.**—H. 32 proposes to exempt from taxation "one vehicle owned by a practicing physician or surgeon and used by him in the practice of his profession."

### DISTRICT OF COLUMBIA

**Medical Bills in Congress.**—*Bills Introduced:* S. 989, introduced by Senator Copeland, New York, and H. R. 3352, introduced by Representative Mitchell, Illinois, propose to provide for the issuance of a license to practice the healing art in the District of Columbia to Dr. Clarence Quinton Pair.

### GEORGIA

**Chevalier Jackson to Give Memorial Lecture.**—Dr. Chevalier Jackson, professor of clinical bronchoscopy and esophagoscopy, Temple University School of Medicine, will deliver the Jonte Eguen Memorial Lecture of the Fulton County Medical Society, February 11. His subject will be "Pulmonary Abscess in Adults and Children, Based on a Series of Clinical Observations."

**Bills Introduced.**—H. 7, to amend the dental practice act, proposes to authorize the revocation of a practitioner's license, among other things, for "unprofessional dental conduct," which the bill states "shall mean gross indecency, or gross uncleanness, or habitual intemperance or addiction to drugs to such an extent as to make him unsafe to render dental services; or employing directly or indirectly any suspended or unlicensed dentist to perform dental operations; or soliciting dental business directly or indirectly, by himself or through an agent, by the use of cards, letters, circulars, publications, pictures, radio, display or signs." S. 32 and H. 37 propose to require all applicants for licenses to practice any form of the healing art, as a condition precedent to examination by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology before a state board of examiners in the basic sciences, no member of which is to be actively engaged in the practice of the healing art or any branch thereof. H. Res. 11-41B proposes so to amend the state constitution as to permit any county to levy a tax to provide medical care and hospitalization for the indigent sick of the county. H. 12 proposes to establish a board of naturopathic examiners and to regulate the practice of naturopathy defined as "a system of treating the human body by use of drugless methods and shall include the following therapeutic measures: mechanotherapy, hydrotherapy, psychotherapy, phytotherapy, phototherapy, therotherapy [sic], electrotherapy, and embracing such practices as manipulation and massage, mineral, thermal, electric and vapor baths, external applications and dietetics." The bill proposes to license without examination all persons who have been engaged in the practice of naturopathy in the state for one year or more prior to the approval of the bill. All other applicants for licenses must be high school graduates or have completed equivalent courses of study and have studied naturopathy for four years of nine months each in a school of naturopathy approved by the board of examiners, and pass examinations to be given by the board in anatomy, physiology, chemistry, pathology, histology, bacteriology, massage, therapeutics, diagnosis and treatment and such added subjects as may subsequently be taught by accredited schools of naturopathy. H. 35 authorizes the sexual sterilization of certain socially inadequate inmates of state institutions.

### ILLINOIS

**Appointments to Medical Examining Committee.**—Dr. Milton M. Portis, Chicago, has been appointed a member of the professional committee for medicine in the Illinois State Department of Registration and Education, to fill the vacancy caused by the death of Dr. Gilbert FitzPatrick. Dr. William L. Karcher, Freeport, was appointed to succeed the late Dr. Malcolm L. Harris, Chicago. Dr. Portis, a graduate of Rush Medical College, was formerly clinical professor of medicine at Loyola University School of Medicine. Dr. Karcher graduated from the Medico-Chirurgical College of Philadelphia in 1900. Other members of the committee are Drs. John R. Neal, Springfield, secretary, and Arthur H. Geiger, Chicago. There is still one vacancy on the committee.

### Chicago

**Dr. Means Lectures at Thorne Hall.**—Dr. James H. Means, Jackson professor of clinical medicine, Harvard University Medical School, Boston, will address the North Side Branch of the Chicago Medical Society in Thorne Hall, on McKinlock Campus, Northwestern University, February 4, at 8 o'clock. His paper is entitled "The Role of the Physician in the Management of the Patient with Thyrotoxicosis."

**Dr. Kreuscher Named Surgeon of Steel Company.**—Dr. Philip H. Kreuscher, assistant professor of surgery, Northwestern University Medical School, has been appointed chief surgeon of the Carnegie-Illinois Steel Corporation in the Chicago area. He succeeds Dr. George C. Davis, resigned. Dr. Kreuscher graduated from Northwestern in 1907 and has been teaching there since 1915. He was formerly medical director of the Illinois Industrial Commission and in 1933 was president of the Illinois State Medical Society.

**Society News.**—The Chicago Roentgen Society was addressed, January 14, by Drs. Bernard H. Nichols, Cleveland, on "Significance of Anomalies of the Kidney and Ureter," and Jacob Sagel, Gary, Ind., "Ewing's Tumor of the Femur."—Dr. Arthur J. Bedell, Albany, N. Y., addressed the annual meeting of the Chicago Ophthalmological Society, January 18, on "The Ophthalmoscopic Signs of Failing Health."—At a meeting of the Chicago Society of Allergy, January 18, Dr. Francis L. Foran, among others, discussed "Treatment of Hay Fever with a Modified Pollen Solution."—The Chicago Pediatric Society was addressed, January 19, among others, by Dr. Frederic W. Schlutz on "Treatment of Nephrosis in the Young Child."

### KANSAS

**Bills Introduced.**—H. 66 proposes to establish a state registration and examining board for medical technicians, to regulate the carrying on of "the occupation which includes bacteriology, serology, hematology, microbiology, parasitology, and biochemistry," and to make it unlawful for any person to operate or engage in clinical laboratory work unless first licensed by the board. Registered medical technicians are to be classed as either senior or junior medical technicians. A senior medical technician must be a graduate of an accredited college or university with a minimum degree of bachelor of arts or science and must have had three years' experience in a laboratory acceptable to the board, while a junior technician need only be a graduate of an accredited high school and have had one year training or experience acceptable to the board. A senior medical technician is to have the right to supervise or direct a clinical laboratory, while a junior technician can practice only under the direction of a senior technician. H. 75 proposes to make it the duty of every physician to report to the state board of health within forty-eight hours after knowledge of the facts the name of every person he knows to be afflicted with syphilis. The state board of health is then to be authorized to require such reported person to appear before it and, if the board finds the person to be afflicted with syphilis, it is its duty to order such person, if a female under 45 or a male under 65, to be sterilized.

### KENTUCKY

**Personal.**—Dr. Jacob L. Tanner, Henderson, was elected president of the Green River Valley Public Health Association at a meeting December 31 in Madisonville, and Dr. James O. Nall, Cadiz, vice president.—Dr. Herbert H. Hunt, Mayfield, has been appointed health officer of Graves County, succeeding Dr. John R. Pryor.—Dr. Ernest L. Gates, Greenville, has recently been appointed a member of the state board of health.

**Society News.**—At a joint meeting of the medical societies of Carlisle, Hickman and Ballard counties at Bardwell, December 1, the speakers were Drs. George Ezra Titzworth Jr., Bandana, on "Differential Diagnosis of Tuberculosis from a



## Council on Physical Therapy

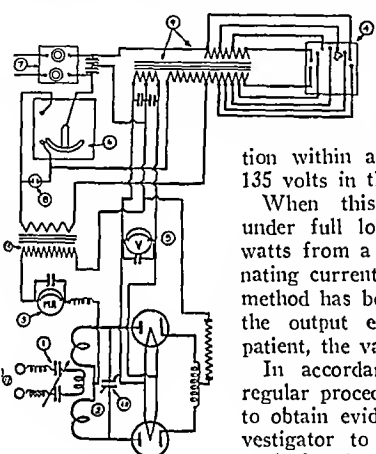
THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

### PEERLESS SHORT WAVE UNIT, MODEL SWP-5, ACCEPTABLE

Manufacturer: Peerless Laboratories, Inc., New York.  
The Peerless Short Wave Unit, Model SWP-5, is recommended for medical diathermy and minor electrosurgery. The attachments for tissue cutting, coagulation and desiccation are part of the equipment. Pad and cuff electrodes are supplied with the set.

The apparatus is a two tube self-excited, push-pull oscillator operating at 14 meters. The patient circuit is inductively and capacitatively coupled to the oscillator circuit. The tuning of the patient is accomplished by means of a double condenser (with plates moving parallel), which tunes the two branches of the patient circuit simultaneously.

For consistency of performance and maximum life to tubes and other component parts, a switching arrangement is incorporated in the machine



Peerless Short Wave Unit, Model SWP-5

which enables the physician to adjust the operating voltages on filament, grid and plate to line voltage variation within a range of from 105 to 135 volts in the power supply line.  
When this machine is operated under full load, it draws about 650 watts from a 60 cycle 115 volt alternating current line. Since no reliable method has been proposed to measure the output energy available to the patient, the value is not given.  
In accordance with the Council's regular procedure, the firm was asked to obtain evidence from a reliable investigator to substantiate the claims made for the unit.  
Subjects for the test were two vigorous male students weighing 174 and 180 pounds and were 24 and 27 years of age. Six observations were made. Two trocars placed in hard rubber cannulas were inserted into the thigh. One was introduced midway between Poupert's ligament and the knee and straight down into the depth of the muscular tissue until the instrument was at an approximate depth of 2 inches, or until the femur was encountered. The second was introduced as nearly parallel to the skin as possible and subcutaneously at an approximate depth of one-eighth inch. The trocars were removed, leaving the rubber cannulas in situ. Temperature measurements were then taken by means of thermocouples of the hypodermic needle type and introduced through the cannulas. The constant junction was immersed in ice, enclosed in a quart vacuum bottle.

#### Average of Six Observations with Cuff Electrodes

Deep Muscle Temp. F.		Subcutaneous Temp. F.		Oral Temp. F.	
Initial	Final	Initial	Final	Initial	Final
99.7	103.4	98.7	102.4	98.8	99.0

The electromotive force due to the difference in temperature of the junctions was read in millivolts from a Leeds and Northrup portable potentiometer. The thermocouples were calibrated in degrees Fahrenheit, against a Bureau of Standards certified thermometer. Initial temperatures were taken and then the subject was subjected to a twenty minute application of maximum current intensity consistent with skin comfort. At the end of this period, temperatures were again recorded until the temperature began to drop. The highest temperature attained was recorded as the final temperature in each instance. Oral temperatures were also recorded.

Rubber pad electrodes measuring  $2\frac{1}{2}$  by  $23\frac{1}{2}$  inches were employed as cuffs, one above and one below cannulas inserted in the thigh; three-eighths inch thickness of orthopedic felt with two layers of towel between the skin surface and the electrodes. Cannulas were placed midway between the cuff electrodes.

Each reading in the table is an average of six observations. The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. The shipping weight of the unit is about 100 pounds. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is less than with conventional diathermy, employing metal electrodes.

The Peerless Short Wave Unit, Model SWP-5, was tried out in a clinic acceptable to the Council and found to be satisfactory. No claims are made for its use in fever therapy.

In view of the favorable report based on the performance of this unit when cuff electrodes were applied, the Council on Physical Therapy voted to include the Peerless Short Wave Unit, Model SWP-5, in its list of accepted devices.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**CRYSTAL VIOLET.**—Hexamethyltri-amino-triphenylmethane.—Hexamethylpararosaniline chloride.— $(\text{CH}_3)_2\text{N.C}_6\text{H}_4.\text{C}:\text{C}_6\text{H}_4:\text{N}:(\text{CH}_3)_2\text{C}_6\text{H}_4$ .

**Actions and Uses.**—See general article "The Triphenylmethane (Rosaniline) Dyes," New and Nonofficial Remedies, 1936, p. 199.

**Dosage.**—For direct application, a solution of from 1 in 500 to 1 in 1,000 may be employed. For the treatment of burns, local applications in the form of a spray or jelly containing 1 per cent of crystal violet have been employed.

Crystal violet occurs as a dark green amorphous powder having a light metallic luster. It is soluble in alcohol, chloroform, glycerin and water, practically insoluble in benzene and ether.  
Reduce about 0.2 Gm. of crystal violet with zinc and diluted hydrochloric acid until colorless, filter through paper; no immediate coloration occurs, but a blue zone appears at point of contact when the solution is spotted with ammonia water.

When tested for arsenic according to U. S. P. XI, the product should meet the requirements for arsenic (p. 438, Arsenic Test). To about 1 Gm. of crystal violet previously ignited in a platinum dish with an excess of sulfuric acid, add 5 cc. of hydrochloric acid and evaporate to dryness, treat the residue obtained with 20 cc. of a diluted hydrochloric acid (1 part of acid and 20 parts of water), warm, filter through paper and divide into two portions: a faint precipitate occurs on saturation with hydrogen sulfide (*heavy metals*); no precipitation on the addition of 1 cc. of potassium ferrocyanide solution (*zinc*).

Dry about 1 Gm. of crystal violet, accurately weighed, to constant weight at 100 C.; the loss does not exceed 2.5 per cent. Incinerate about 1 Gm. of crystal violet, accurately weighed, previously dried at 100 C.; the ash does not exceed 1 per cent. Dissolve about 1 Gm. of crystal violet, previously dried at 100 C., in 300 cc. of alcohol; heat to boiling; collect the insoluble matter, if any, in a tared Gooch crucible; wash the insoluble matter with hot alcohol, dry the insoluble matter to constant weight at 100 C.; the insoluble matter does not exceed 0.1 per cent. Transfer about 0.5 Gm. of crystal violet to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, chapter 2, paragraph 22: the percentage of nitrogen corresponds to not less than 10 per cent, nor more than 11 per cent when calculated to the dried substance. Transfer about 0.5 Gm. of crystal violet to a Parr sulfur bomb; determine the chlorine content by the Parr method: the amount of chlorine found corresponds to not less than 8.4 per cent nor more than 8.9 per cent when calculated to the dried substance. Dissolve about 5 Gm. of crystal violet, accurately weighed, in 400 cc. of water, previously boiled, cool under carbon dioxide and make up to a 500 cc. volume in a volumetric flask; transfer an aliquot of 50 cc. to a mixture of 20 cc. alcohol, 10 cc. glacial acetic acid, 50 cc. of a 20 per cent solution of potassium and sodium tartrate, and 50 cc. of water, and while continually boiling titrate with tenth-normal titanium trichloride solution: the percentage of purity (using factor 0.020386) corresponds to not less than 96 per cent nor more than 100 per cent when calculated to the dried substance.

**Crystal Violet Medicinal-Calco.**—A brand of crystal violet-N. N. R.

Manufactured by the Calco Chemical Co., Inc., Bound Brook, N. J. No U. S. patent or trademark.

**Crystal Violet Jelly-Calco.**—A 1 per cent aqueous solution of crystal violet-N. N. R. in a gum tragacanth jelly base.

a group of cooperating specialists. Three nights a week, Monday, Wednesday and Friday, will be devoted to special lectures in the center. The tuition for each week's course is \$15 for full time enrolment. An advance registration fee of \$3 should be sent with the application, which must be addressed to the director of the Center for Continuation Study, University of Minnesota, Minneapolis.

### NEW JERSEY

**Dr. Shope Awarded Medal.**—Dr. Richard Edwin Shope of the department of animal and plant pathology of the Rockefeller Institute for Medical Research, Princeton, is to receive the John Phillips Memorial Medal of the American College of Physicians for 1937. Dr. Shope is 34 years old and a graduate of the State University of Iowa School of Medicine, class of 1924. He has been associated with the Rockefeller Institute since 1925, working in the field of animal pathology, especially on the filtrable viruses. The medal will be awarded at the annual meeting of the American College of Physicians in April.

**Society News.**—The Society of Surgeons of New Jersey met in Newark, January 6. Clinics were held at the Newark Beth Israel Hospital, followed by a dinner at the Hotel Douglas. Dr. Frank G. Scammell, Trenton, was elected president. Dr. Leonard G. Rowntree, Philadelphia, addressed the Camden County Medical Society, Camden, January 5, on "Endocrinology from the Internist's Viewpoint." Dr. Samuel A. Loewenberg, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, January 8, on "Diagnosis and Treatment of the More Common Forms of Cardiac Affections." Dr. George T. Pack, New York, addressed the Bergen County Medical Society, Hackensack, December 8, on cancer and its early diagnosis. Dr. Theodore Neustaedter, New York, addressed the society, January 12, on endocrinology.

### NEW YORK

**Bills Introduced.**—S. 67 proposes to establish in the Department of Public Health a bureau of narcotic control. S. 159 proposes to limit the hours of labor of employees of private hospitals to eight consecutive hours in any twenty-four hours, not more than eight hours in any day and not more than forty-eight hours in any calendar week, except in an extraordinary emergency during an epidemic, plague or other catastrophe.

**Society News.**—Dr. George T. Pack, New York, addressed the Medical Society of the County of Westchester, White Plains, January 19, on "Diagnosis and Treatment of Cancer of the Stomach and Duodenum." Dr. James E. Sadlier, Poughkeepsie, addressed the Putnam County Medical Society, December 2, on surgery of the large intestine. Dr. John J. Morton Jr., Rochester, addressed the Ontario County Medical Society at its recent quarterly meeting at Canandaigua Lake on modern treatment of cancer.

### New York City

**Personal.**—The honorary degree of doctor of science will be conferred on Dr. Charles Gordon Heyd, President of the American Medical Association, by Temple University, Philadelphia, at its Founders' Day exercises, February 15. Dr. Victor G. Heiser sailed January 7 for a five months' tour of Africa. He will visit leper colonies and investigate the possible spread of yellow fever by airplane travel.

**Dr. Stookey to Succeed Dr. Elsberg at Neurological Institute.**—Dr. Byron Stookey, associate professor of neurological surgery at Columbia University College of Physicians and Surgeons and senior attending surgeon at the New York Neurological Institute, has been appointed chief of the neurologic service at the institute, an affiliate of Columbia. Dr. Stookey succeeds Dr. Charles A. Elsberg, who has been associated with the institute since 1909 and is also professor of neurologic surgery at Columbia. Dr. Elsberg, who is 64 years old, will retain his professorship at Columbia and will devote most of his time to research. Dr. Stookey is 50 years old and was graduated from Harvard University Medical School in 1913. In addition to his position on the faculty of Columbia he is director of neurosurgery at New York Post-Graduate Medical School and consulting neurosurgeon to various hospitals.

**Society News.**—At a meeting of the International Spanish Speaking Association of Physicians, Dentists and Pharmacists, December 18, the speakers were Drs. William T. Kennedy, on "Incontinence of Urine in the Female"; Oscar Glassman, "Hyperemesis Gravidarum," and Joseph Broadman, "The Role of the Physician in the Coming War." The New York

Academy of Medicine held its annual meeting January 7, with Hon. Thomas D. Thacher, former solicitor general of the United States, as the guest speaker on "Medicine and the State." Dr. Eugene H. Pool, retiring president, reviewed recent activities of the academy and Dr. James Alexander Miller, incoming president, made an address on "Ideals in Medicine." At a joint meeting of the section of neurology and psychiatry of the New York Academy of Medicine and the New York Neurological Society, January 12, the hypoglycemic treatment of psychoses was discussed by Drs. Manfred Sakel, Vienna, Bernard Glueck, Ossining, and Joseph Weris of Bellevue Hospital. Dr. Thomas P. Sprunt, Baltimore, addressed the Harlem Medical Association, January 6, on "The Parathyroids and Diseases of Bones." The New York Society of Tropical Medicine gave a dinner in honor of Dr. Ernest Muir, London, secretary of the British Empire Leprosy Relief Association, at the City Club, December 1.

### NORTH DAKOTA

**Bill Introduced.**—H. 21 proposes to establish a board of naturopathic examiners and to regulate the practice of naturopathy, defined as "the manipulation of the articulation of the human skeleton by hands or mechanical appliances and/or the use of any physical force such as air, water, light, heat, color, exercise, pressure, vibration, electricity, hydrotherapy, including mineral salt baths and/or any other means or system of therapeutics and didactics connected with the above therapeutic measures, including non-toxic herbs and their essential oils, gums and resins applied, administered or prescribed, but shall not include the administration of drugs or major surgery." An applicant for such a license must be over 21 years of age, have completed a course of study in an accredited high school, or its equivalent, and in addition thereto have received from an accredited legally chartered school or college of naturopathy, after a four year period of study, credits in anatomy, physiology, hygiene and sanitation, chemistry, histology, pathology, diagnosis, didactics, gynecology, obstetrics, toxicology, minor surgery, therapy and practice of naturopathy and physical therapy, electrotherapy and hydrotherapy, clinic, and such other subjects as the board may require except materia medica and major surgery. Applicants must pass examinations in the subjects just noted. The bill further provides that "naturopathic physicians shall be subject to all health laws relating to contagious diseases and birth and death certificates as now apply to other licensed physicians."

### OHIO

**Bills Introduced.**—H. 42 proposes to forbid the issuance of a marriage license until there has been filed on behalf of each party to the proposed marriage a certificate signed by a licensed physician, stating whether or not "the serological reaction of a blood test of such applicant gives a positive or negative finding of syphilis, and also a record of the standard laboratory blood tests made." If the serologic reaction of a blood test of an applicant gives a positive finding of syphilis, no license to marry can be issued. H. 45, to amend the workmen's compensation act, proposes that the term "injury" as used in the act "shall include any injury received in the course of employment." H. 54, to amend the medical practice act, proposes to require applicants for licenses to practice medicine, if they do not possess a diploma from a reputable college granting the degree of A.B., B.S. or equivalent degree, to present a certificate from an accredited college or university of arts or sciences showing that the applicant has satisfactorily completed at least two full college years in such an institution in premedical subjects.

### OKLAHOMA

**Personal.**—Dr. John A. Morrow, Sallisaw, has been appointed chairman of the committee on practice of medicine in the state house of representatives. Dr. Vester M. Rutherford, Woodward, has been appointed health officer of Woodward County.

**Bill Introduced.**—H. 126 proposes to forbid the issuance of a license to marry unless both parties to the proposed marriage are free from gonorrhea, syphilis or other venereal disease, which facts must be certified to by a licensed physician.

**State Hospital Meeting.**—Mr. R. L. Loy Jr., superintendent, Oklahoma City General Hospital, was elected president of the Oklahoma State Hospital Association at its annual meeting in Tulsa in December. Dr. Bert W. Caldwell, executive secretary of the American Hospital Association, Chicago, and Mr. Robert Jolly, Houston, Texas, former president of the American Hospital Association, were among the speakers.

Moreover, even if cancer in man proves to be a virus-induced disease it cannot be considered as being infective from person to person in the ordinary sense of the word. Repeated clinical study has not revealed any instance of such a transmission of cancer. As far as present evidence is concerned, therefore, in spite of the relation of the viruses to infection, there need be no fear of contact with cancer patients.

### STORAGE OF VITAMIN C

The development of accurate and rapid methods for the quantitative determination of vitamin C has led to extensive investigations of its biochemistry and physiology. Its solubility in water suggests the kidney as a pathway for the excretion of any vitamin C that might not be required by the organism. Numerous data have been obtained bearing on the variations in urinary vitamin C in health and disease. Correlation of these urinary analyses with clinical manifestations of scurvy has established the value of a study of the excretion of the vitamin as an aid in the detection of a deficiency. Thus it has been established<sup>1</sup> that in normal persons the urinary excretion of cevitamic acid reaches levels that are proportional to the intake of the vitamin. Surprisingly little variation was found between individual normal subjects, the same daily dose of vitamin given to a number of persons producing after a time an almost identical rate of excretion. Furthermore, the percentage excretion of a dose of 600 mg. of vitamin C given to healthy persons apparently depended on the previous level of excretion of the vitamin. For example, when the habitual excretion was 33 mg. for a twenty-four hour period, 27 per cent of the 600 mg. dose was recovered in the urine; if the normal twenty-four hour excretion was 14 mg., only 6 per cent of the same dose was excreted. In view of these results it may be said that the diet has provided insufficient vitamin C when the daily excretion falls below 10 to 15 mg. a day or when a standard test dose of 700 mg. fails to give a response on the second day. In other words, a person with a low daily excretion of vitamin C will generally retain the major portion of a single large administered dose of this factor. Under these conditions, therefore, there appears to be a replenishment of the depleted tissue stores.

This question of vitamin storage and vitamin reserves is of considerable importance in medicine. The magnitude of these reserves and the length of time required for their depletion are factors that are significant in determining the rapidity with which vitamin deficiencies manifest themselves and the rate of recovery from the deficiency when adequate amounts of the proper vitamin are administered. In times of restricted nutrition imposed by either personal or national economic stress, inhabitants of a given area may be ingesting certain of

the vitamins in quantities that are subminimal with respect to the daily requirement. Resistance to the effects of dietary deprivation then becomes solely dependent on the stores of these dietary accessories in the body tissues. The extent of this storage and the amount of vitamin required to saturate the tissues thus become problems of fundamental importance.

Studies on the storage of vitamin C by normal adults have recently been reported by O'Hara and Hauck.<sup>2</sup> These investigators have looked into the urinary excretion of vitamin C in persons in a known state of saturation with respect to this vitamin. The studies were conducted on four normal adult women and were arranged to make possible the determination of the vitamin C intake necessary to reestablish saturation of the tissues after prolonged administration of a diet poor in this factor. The basal diet was adequate with respect to all other nutritive factors but contained only 5 mg. of vitamin C. This diet was ingested for approximately thirty days, following which it was supplemented daily with 200 mg. of cevitamic acid in the form of orange juice. The latter regimen was continued until the subjects were saturated, as evidenced by failure to show further increases in urinary output of vitamin C on a constant high intake. In addition to the quantitative analyses, capillary resistance studies were conducted. The latter, however, yielded variable results and could not be correlated with the urinary excretion of vitamin C. During the period on the basal diet the daily urinary output of the vitamin fell sharply, reaching a low level of 15 mg. within one to two days. All subjects showed a general tendency to decreasing excretion of vitamin C as the period on the basal diet alone was continued. The experiments were not intended to be continued until clinical signs of scurvy appeared, but the urinary analyses which showed a depletion of the body stores of vitamin C were supported by suggestive symptoms of scurvy, which appeared in one of the subjects. In the latter case the gums on the left side of the mouth on both upper and lower jaws from the first premolars through the second molars were swollen, edematous and purple. Since this occurred during the fourth week on the basal diet and disappeared promptly after orange juice was administered, it may probably be interpreted as a symptom of deficiency of vitamin C. With this exception, however, clinical symptoms suggestive of scurvy were not found in the subjects.

When orange juice was given following a period of deprivation, the vitamin C ingestion amounted to from 1,000 to 1,600 mg. before a noticeable increase in excretion occurred. Saturation occurred when from 2,200 to 2,800 mg. of the vitamin had been taken. Approximately four fifths of this quantity was not accounted for in the urine and it seems probable, therefore, that a large part of this quantity was stored. An estimation

1. Abbasy, M. A.; Harris, L. J.; Ray, S. N., and Marrack, J. R.: *Lancet* 2: 1399 (Dec. 21) 1935.

2. O'Hara, P. H., and Hauck, H. M.: *J. Nutrition* 12: 413 (Oct.) 1936.

Irwin Schulz and Lemuel D. Smith, all of Milwaukee; Henry L. Greene and Herman W. Wirka, Madison, and Ralph M. Carter, Green Bay. In pediatrics the speakers were Drs. John E. Gonce Jr. and Horace K. Tenney Jr., Madison; Mynie G. Peterman, Milwaukee, and Henry A. Sincok, Superior. Instructors in cardiology were Drs. Chester M. Kurtz and Harold E. Marsh, Madison, and James A. Evans, La Crosse. In addition to the scientific program a discussion of legislative problems was presented at each meeting by the president, the secretary or the assistant secretary of the state society.

### GENERAL

**Fund for Advancement of Laryngology and Rhinology.**—The secretary of the American Laryngological Association, Dr. James A. Babbitt, Philadelphia, announces that the sum of \$500 has accrued from the Casselberry Fund and is now available in part or as a whole for a prize award, decoration or the expense for original investigation or research in laryngology and rhinology. Theses or reports of work must be in the hands of Dr. Babbitt, 1912 Spruce Street, Philadelphia, before February 1 of any given year.

**Dr. Boudreau Appointed Director of Milbank Fund.**—Dr. Frank G. Boudreau, chief of the service of epidemiologic intelligence and public health statistics of the League of Nations, Geneva, Switzerland, has been appointed executive director of the Milbank Memorial Fund, New York, to succeed the late Edgar Sydenstricker. Dr. Boudreau, a native of New Glasgow, Que., was born in 1886 and graduated from McGill University Faculty of Medicine, Montreal, in 1910. In 1911, he was appointed epidemiologist to the state board of health of Ohio, remaining in that position until 1925. During the World War he saw service in the United States Army in France, Belgium and England. Appointed statistician-epidemiologist with the Health Organization of the League of Nations in 1925, Dr. Boudreau has been made chief of that service and is also in charge of the League's system of liaison with health administrations. For a time in 1933 he was acting director of the health organization of the League during the absence of Dr. Ludwig Rajckman on an extended stay in China.

**Meeting of Bacteriologists—Dr. Novy Honored.**—James M. Sherman, Ph.D., professor of bacteriology, Cornell University Medical School, New York, was chosen president of the Society of American Bacteriologists at its annual meeting in Indianapolis, December 30. Other officers are Paul F. Clark, Ph.D., Madison, Wis., vice president, and Ira L. Baldwin, Ph.D., Madison, Wis., secretary-treasurer. Honorary membership was conferred on Dr. Frederick G. Novy, professor emeritus of bacteriology at the University of Michigan Medical School, Ann Arbor. Dr. Novy is a charter member of the society and served as its president in 1904. The speakers on the program included the following:

Dr. Alice C. Evans, National Institute of Health, Washington, D. C., Human Infections with *Brucella Melitensis* Variety *Melitensis*.  
Claude E. Zobell, Ph.D., and Karl F. Meyer, Ph.D., University of California Medical School, San Francisco, Growth Zones of the *Brucella* in Semisolid Media.

Miss Marjorie B. Patterson, B.S., and Dr. Robert L. Preston, New York Post-Graduate Medical School and Hospital, New York, Experimental Staphylococcus Arthritis in Rabbits: Bacteriologic and Pathologic Observations.

C. T. Butterfield, principal bacteriologist, U. S. Public Health Service, stream pollution investigations, Cincinnati, The Purification of Sewage by Bacteria in Pure Culture.

Louis A. Julianelle, Ph.D., associate professor of applied bacteriology and immunology, Washington University School of Medicine, St. Louis, The Immunologic Specificity of Staphylococci.

**International Congress of Radiology in Chicago.**—Plans are under way for the Fifth International Congress of Radiology to be held at the Palmer House, Chicago, September 13-17. Contributions for the program are now being received and those who wish to participate are asked to apply to the president of the Congress, Dr. Arthur C. Christie, 1835 Eye Street N.W., Washington, D. C., stating the subject they wish to present. Participants in the program must be members of the congress; application for membership should be made to the secretary of the congress, 2561 North Clark Street, Chicago. If possible, the application for a place on the program should be accompanied by a 500 word abstract. In any case such abstract must be received by the president not later than April 1 and the full text of the paper by May 1. Abstracts are to be published in three official languages, English, French and German, at least six weeks prior to the congress. The full texts will also be translated and will be projected on the screen in the other languages while they are being delivered. Prompt transmission of the abstract and text will greatly facilitate the translation, publication and preparation of films for projection.

**Medical Bills in Congress.**—Bills Introduced: S. 421, introduced by Senator George, Georgia, proposes to reduce the rate of retirement pay to emergency officers that was in effect prior to March 19, 1933. S. 629, introduced by Senator Thomas, Utah, proposes to create an executive department of the government to be known as the Department of Education and Public Welfare. H. R. 48, introduced by Representative Ramsay, West Virginia, and H. R. 1627, introduced by Representative Dirksen, Illinois, propose to make it unlawful to sell certain spirits containing alcohol produced from materials other than cereal grains. H. R. 2274, introduced by Representative Pierce, Oregon, proposes to provide pensions for persons who served ninety days in foreign service under the jurisdiction of the Quartermaster General, Surgeon General of the United States Army, the Secretary of the Navy or Marine Corps, during the Spanish-American War, including the Philippine Insurrection and the Chinese Boxer Rebellion. H. R. 2280, introduced by Representative Ferguson, Oklahoma, in proposing appropriations for emergency relief in stricken agricultural areas, provides for the supplying of hospitalization and medical care to persons in need. H. R. 2308, introduced by Representative Cannon, Missouri, proposes to reenact all public laws granting medical and hospital treatment, domiciliary care, compensation and other benefits to veterans of the World War that were repealed by the Economy Act of March 20, 1933. H. R. 2551, introduced by Representative Whelchel, Georgia, proposes to reenact all laws in effect on March 19, 1933, granting pensions to veterans. H. R. 2751, introduced by Representative Connery, Massachusetts, proposes to recognize the public service rendered by soldiers who volunteered and served in trench fever experiments in the American Expeditionary Forces. H. R. 3009, introduced by Representative Fulmer, South Carolina, proposes to provide for federal cooperation with the several states in the care, treatment, education, vocational guidance and placement, and physical rehabilitation of persons under the age of 21 years "who have some physical defect such as affections of the joints, affections of the bones, disturbances of the neuromuscular mechanism, congenital deformities, static and other acquired deformities that may be corrected or improved by orthopedic surgery or other surgical and medical care." H. R. 3035, introduced by Representative Scruggs, Nevada, proposes to authorize the President to employ unemployed citizens of the United States in the discovery and development of the mineral resources and to provide them with such medical attendance and hospitalization as may be necessary. H. R. 3130, introduced (by request) by Representative Bacon, New York, proposes to extend the status of veterans of the World War to persons enlisted and serving on United States Shipping Board vessels during the World War in war zones. H. R. 3298, introduced by Representative Buchanan, Texas, proposes to include Roger P. Anes among those honored by the act recognizing the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. H. R. 3300, introduced by Representative Dunn, Pennsylvania, proposes to establish a nation-wide system of social insurance by the enactment of a Workers' Social Insurance Act. H. R. 3412, introduced by Representative Ludlow, Indiana, proposes to erect a 200 bed addition to the existing Veterans' Administration Facility at Indianapolis, for the treatment of general medical and surgical disabilities. H. R. 3419, introduced by Representative Pfeifer, New York, proposes to prevent the pollution of navigable waters of the United States. H. R. 3469, introduced by Representative Fernandez, Louisiana, proposes to erect a 300 bed veterans hospital in the parish of Orleans, Louisiana. H. R. 3491, introduced by Representative Collins, Mississippi, proposes to provide for adequate dental service for individuals of the Military Establishment of the United States.

### CORRECTION

**Professor Dessauer a Catholic.**—We are informed by Dr. Leopold Jaches of New York that the statement in the Vienna letter (*THE JOURNAL*, January 2, p. 57) that Professor Dessauer is a Jewish refugee from Germany now residing in Istanbul is incorrect. He states that Professor Dessauer is not a Jew but a devout Catholic and that the name of Dessauer first appeared in the records of the city of Aschaffenburg in the vicinity of Frankfurt) in 1805 and has since remained in the records of the Catholic church. The great grandfather of Professor Dessauer were buried in the Catholic Cemetery of Aschaffenburg. Professor Dessauer is a refugee from Germany and is at present ordinarius for radiology and physics at the University of Istanbul.

inspected by an approved health authority at intervals of six months with reference to the potability of the water. Furthermore, water for filling the tanks should be drawn only from certified sources. The code also imposes regulations concerned with parking, food supply, ventilation, cleanliness and screening. The use of pasteurized milk exclusively is recommended, and trailer travelers are warned concerning the need for securing medical attention if illness arises. The desirability of vaccination of children against smallpox and their inoculation against diphtheria is stressed. Even if no further increase in the number of individuals traveling and living in automobile trailers should occur, it is definitely incumbent on local health authorities to enact and enforce suitable legislation covering the health problems raised by this migratory population.

### HOSPITAL INSURANCE PLANS

Out of 172 group hospitalization and hospital insurance plans recently addressed by the Bureau of Medical Economics of the American Medical Association, ninety were found active and eighty-two inactive. Of the active plans, fifty-six were found to be operating and thirty-four in the state of established proposals. Fourteen new plans have recently been proposed. Thus the present status may be defined as one of active experimentation in an effort to find out the workable features and thus maintain systems capable of meeting existing needs. Various investigations indicate that somewhere between 500,000 and 700,000 persons are now members of such plans. Incidentally, three plans have 50 per cent of the entire membership, and ten plans have 80 per cent of the entire membership. In Chicago, the plan proposed through the Hospital Council involved the setting up of a hospital service corporation as a nonprofit corporation, organized under the Illinois act exempting a nonprofit service corporation from the insurance code of the state. This plan has been under active consideration by a committee of the Chicago Medical Society, which proposed six requirements before it could place the approval of the Chicago Medical Society on the plan. Of these, the chief demand is that all matters of medical administration and medical policy be referred to the Chicago Medical Society, whose decision in these instances shall be final and binding both on the Chicago Hospital Council and on its member hospitals. Unfortunately, the Council of the Chicago Medical Society has not yet accepted the report of its committee, owing to the apparent insistence of one of its members that the medical society do not enter into the arrangement unless it has a guaranty of 51 per cent of the directorate, an insistence to which the Hospital Service Corporation may hesitate to consent. It is interesting to realize that Chicago has already had ten group hospitalization plans besides the Hospital Service Corporation, not one of which has attained even slightly significant proportions. Two of these plans were organized under the same law that created the Hospital Service Corporation and both secured articles of incorporation notwithstanding the fact that they were promoted by hospitals considered to be unable to give first class service. Another unfortunate aspect of the situation is the fact that the propaganda and

promotion associated with the Hospital Service Corporation have brought into the field various unethical imitators, one of them advancing himself by the circularization of the public in his vicinity with a schedule labeled the Chicago Hospital Service Plan, a vague imitation of the proposition advanced by the Hospital Service Corporation. It will apparently become the obligation of those who actively promote such plans under legitimate auspices to protect the public at the same time against illegitimate promoters, through exercising the rights of any business group to the protection of their names and style in the courts.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

**Bill Introduced.**—S. 11, to amend the osteopathic practice act, proposes (1) to authorize a licensed osteopath "to practice osteopathy in all its branches as taught and practiced in legally incorporated schools of osteopathy," (2) to define "legally incorporated schools of osteopathy" as "those recognized as reputable and approved by the American Osteopathic Association," and (3) that all licensed osteopaths "shall be qualified to sign birth and death certificates and all other certificates pertaining to the public health."

### CALIFORNIA

**Meeting on Heart Disease.**—The Los Angeles Heart Association held a two day session at the Los Angeles County Medical Association building, January 28-29. The first evening there was a joint meeting with the Los Angeles Clinical and Pathological Society. Round table discussions were led by Drs. Howard F. West, Burrell O. Raulston, Verne R. Mason, John W. Budd Jr. and William H. Leake. Other speakers included:

Dr. James F. Churchill, San Diego, Diagnosis of Cardiac Infarction.  
Dr. Hilmar O. Koefod, Santa Barbara, Diuretics.  
Dr. William Dock, San Francisco, The Value of Auscultatory Findings in Heart Disease.

Friday evening a joint meeting of the society with the Los Angeles County Medical Association was addressed by Drs. Dock and Arthur M. Hoffman on "Significance of Dyspnea" and "Heart Disease as a Community Problem" respectively.

**Bills Introduced.**—S. 59 and S. 62 to amend the state narcotic drug act, propose (1) to prohibit a person, in connection with the prescribing, furnishing, administering or dispensing of any narcotic drug, to give a false name or address or make any false statement to any person authorized by law to prescribe, furnish, administer or dispense any such drug; (2) to eliminate from the substances exempted from the law preparations containing not more than "one-fourth grain of morphine" or "one-sixteenth grain of heroin"; (3) to forbid the furnishing of any narcotic drug pursuant to a telephone order of a physician and surgeon except that in an emergency a pharmacist may deliver any narcotic drug through an agent pursuant to a telephone order if the agent is supplied with a properly prepared prescription before delivery is made; (4) to define a narcotic addict as "any person who takes or otherwise uses any of the narcotics enumerated in section 1 of this act, and who is so far addicted to the use of such narcotics as to have lost the power of self control with reference to his addiction, except that when such user of narcotics is suffering from an incurable disease or an accident or injury or from the infirmities of age and such narcotics are furnished, prescribed or administered to him in good faith and in the course of his professional practice by a physician and surgeon duly licensed in this state, in the course of treatment for such disease, ailment, injury or infirmities, and are not so furnished or prescribed in order to satisfy the narcotic addiction of a user of narcotics, such person shall not be held to be an addict within



the same conclusion, that radioactive substances should never be introduced and left in the human body because of the danger of inducing malignant tumors.

#### CANCER AND THE SEX HORMONES

The recent studies of Cramer and Horning on the carcinogenic properties of the sex hormones were reviewed by Dr. Gye, who said that they demonstrate clearly the importance of susceptibility in the genesis of cancer. "The specificity of the results suggests the question whether there may not be a range of susceptibilities which, under the changing environment of the modern world, are liable to be brought under observation." The discovery that these sex hormones were carcinogenic had engendered some nervousness among the medical profession, since they were widely used in the treatment of gynecologic disorders, but there was no reason to fear that their skilled administration might produce cancer.

#### Therapy of Cancer by High Voltage Radiation

Great attention continues to be devoted in this country to the radiotherapy of cancer. The latest advance is the Mozelle Sasoon High Voltage X-Ray Therapy Department at St. Bartholomew's Hospital. It was opened by Mrs. Meyer Sasoon, who has financed this addition to the hospital's equipment for treating cancer. The department has been designed to overcome the three main limitations to radiotherapy. In addition to the difficulty of delivering an adequate dose of radiation to a tumor deep in the body without damage to outlying structures, it has not been possible to give doses within a reasonably short exposure time, while there existed a narrow margin of safety because of the small difference in radiosensitivity between normal and malignant tissues. The new installation, which may be operated at from 250,000 to 1,000,000 volts, is expected to remove these difficulties by reason of the fact that x-rays of a greater penetrative power, of a higher intensity and of shorter mean wavelength can be used.

Some novel features have been introduced into the new department. Radiation-proof walls, constructed of interlocking barium concrete, separate the treatment and generator rooms from the administrative section. The doors of the treatment section of the building are constructed of heavy steel plates and are designed to prevent radiation leakage. Electrical interlocks on the doors of the x-ray tube render the apparatus absolutely safe.

The x-ray tube is a massive construction 30 feet long. From a small aperture the x-ray beam is directed on the patient through an applicator. Since the tube is permanently fixed to the walls, although the applicator cylinder can be rotated independently, the floor of the treatment room has been made movable, so that the horizontal position of the patient in relation to the tube may be adjusted as desired. Communication between the control room and the patient receiving treatment is possible by a two-way microphone and loud speaker, and the patient can be kept under observation by a novel periscopic system of eight concave mirrors. At the opening ceremony the physicist Lord Rutherford congratulated the hospital on its valuable acquisition and said that the new department should put this country in the lead in the experiments of the treatment of cancer by high voltage radiation.

#### Clinic for Diabetic Children

The first clinic in this country for the treatment of diabetic children has been established at King's College Hospital, London. There are diabetic clinics at the other great teaching hospitals, but none especially devoted to children. Presiding at the opening, Dr. G. F. Still (pediatrician) said that twenty-five years ago the idea of a diabetic clinic for children would have seemed a grim jest. Diabetes was uncommon in children and the outlook in those days for a child was so black that

there could have been but a meager attendance at any clinic. Some thought that the disease was becoming more frequent in childhood. If so there was to be set against this the fact that the outlook had entirely altered. With discovery of insulin, it had become bright and hopeful. Nowadays, with intelligent care in dieting, which was an essential adjunct to the use of insulin, a diabetic patient might look forward to a happy and useful life. King's College had the good fortune to be able to put in charge of the new clinic Dr. R. D. Lawrence, whose skill and experience in the treatment of diabetes was mature.

#### The British Pharmacopoeia

In accordance with the principle of decennial revision, the next edition of the British Pharmacopoeia would be published in 1942; but the Pharmacopoeia Commission of the General Medical Council, recognizing the desirability of regular alternation at five yearly intervals with the United States Pharmacopoeia, has suggested that, as the eleventh of the United States series was published in 1936, efforts should be made to publish the next edition of the British Pharmacopoeia in 1941. The commission has invited clinicians, pharmacologists, pharmacists and other experts to assist in the revision. The response received has been generous. The cooperation of committees in India and the dominions has also been invited.

#### One Hundred and Fifty Thousand Dollars a Year for an Institute of Chemotherapy

At the seventy-fourth anniversary dinner of the Royal Society, Mr. Neville Chamberlain, chancellor of the exchequer, said that he had consented to give a grant of \$150,000 a year toward the establishment of an institute of chemotherapy. That allocation was in response to a request from the Medical Research Council, backed up by the Department of Scientific and Industrial Research.

#### PARIS

(From Our Regular Correspondent)

Dec. 26, 1936.

#### The French Urologic Congress

This year's meeting of the French Urologic Congress was held in Paris during the week of October 5. The president for 1936 was Dr. Octave Pasteau. In recognition of his services as secretary during the last thirty years, Dr. Pasteau was presented with a medal following addresses by Professors Leguen, Verhoogen and Nogues. The officers for the 1937 congress are Dr. Lepoutre of Lille, president, and Dr. Levenant of Paris, vice president. The subjects chosen for the 1937 meeting and those appointed to report on them are surgical treatment of medical nephropathies, Drs. Chabanier, Gaume and Lobo-Onell, and indications and results of endoscopic resection of the prostate, Professor Gayet and Dr. Imbert. Among the foreign corresponding members present were Drs. Keyes and Gutierrez of New York and Dr. C. H. de T. Shivers of Atlantic City, N. J. The subject chosen for this year's discussion was surgical aspects of anomalies of the kidney and ureter. The reporter was Dr. Darget of Bordeaux. As to abnormal vessels which obstruct the ureter, he said that their division, even when the vessel is a relatively important one, has not been followed by any complication. This is not the view of the majority of American urologists. Plastic operations of the Fenger or Kelly type for obstruction (congenital) at the ureteropelvic junction are seldom employed at present. Resection of the renal pelvis is often an adjuvant procedure in certain cases of hydronephrosis. Lateral anastomosis of the ureter and renal pelvis, preferably as low as possible, is the operation of choice in obstruction at the ureteropelvic junction. In spite of the disappearance of symptoms following the various plastic procedures, a certain degree of pyelectasis persists and hence such operations should be done before too much dilatation of the

Clinical Standpoint"; Earle E. Smith, Bardwell, "Treatment of Pleurisy" and Willis R. Moss, Clinton, "A Case of Mastoiditis and Anemia."—Dr. John A. Kolmer, Philadelphia, addressed the Jefferson County Medical Society, Louisville, January 4, on "Immunity and Vaccination in Infantile Paralysis."

**State Commissioner of Health.**—Dr. Arthur T. McCormack, secretary of the state board of health, Louisville, will now bear the title state commissioner of health, in accordance with a statute passed by the 1936 legislature authorizing reorganization of the department. Dr. McCormack has served as state health officer since 1912. He is also secretary of the Kentucky State Medical Association and editor of the *Kentucky Medical Journal*. At the 1936 meeting of the American Public Health Association he was made president-elect of the association.

## LOUISIANA

**Dr. Nix Appointed Director of Graduate School.**—Dr. James T. Nix, New Orleans, has been appointed director of the Graduate School of Medicine of Louisiana State University. Although plans were formulated for the development of the graduate school in the spring of 1931, inadequate facilities and stress on the growth of the undergraduate school kept the advanced department inactive until the appointment of Dr. Nix, Nov. 26, 1936. Actual work started December 9. Short courses will be offered in 1937.

**Meeting in Memory of Dr. Lewis.**—The New Orleans Gynecological and Obstetrical Society and the Orleans Parish Medical Society held a joint meeting, January 18, to honor the memory of the late Dr. Ernest Sydney Lewis. The speakers were Drs. John F. Dicks, New Orleans, who presented "Memoirs of Dr. S. M. D. Clark," and Robert A. Wilson, Brooklyn, "The Initiation of Respiration in Asphyxia Neonatorum." Dr. Lewis was chairman of the Section on Obstetrics and Diseases of Women and Children of the American Medical Association from 1878 to 1880; professor of materia medica, therapeutics and clinical medicine, 1873-1876; professor of obstetrics and diseases of women, 1876-1911, and from 1911 to his death in 1935 professor of obstetrics and gynecology, emeritus, Tulane University of Louisiana School of Medicine. In 1867 he served as state health officer. He died Aug. 12, 1935.

## MASSACHUSETTS

**Pediatric Meeting.**—The New England Pediatric Society met at the Children's Hospital Amphitheatre, Boston, January 15. The speakers were Drs. Warren E. Wheeler on "The Use of Ammonium Mandelate in Urinary Infections," and Benjamin W. Carey Jr., "Prontosil: Impressions on Its Use in Streptococcus Infections." Both are of Boston. Orthopedic and surgical patients were presented, and in the evening Dr. Henry F. Helmholtz, Rochester, Minn., presented a paper at the Boston Medical Library entitled "Thyroid Disorders in Children."

**Personal.**—Honorary fellowship in the Royal College of Physicians and Surgeons of Canada was recently conferred on Dr. Henry A. Christian, Hcrsey professor of the theory and practice of physic, Harvard University Medical School, Boston. —Dr. Harold F. Norton, Hyde Park, senior physician at the Boston State Hospital, has been appointed superintendent of the institution, succeeding Dr. James V. May, retired. According to the *Boston Traveler*, this is the first time in the history of the hospital, which is 100 years old, that a Massachusetts physician has been named superintendent.

**Dr. Holmes Honored.**—Dr. George W. Holmes, clinical professor of roentgenology, Harvard University Medical School, Boston, was guest of honor at a dinner, December 28, celebrating his sixtieth birthday and the twenty-fifth anniversary of his appointment as roentgenologist of the Massachusetts General Hospital. At a dinner, given by his students and assistants, Dr. Holmes was presented with a special copy of the *American Journal of Roentgenology* for December, which is designated the George W. Holmes Anniversary Number. It is made up of contributions by his former students all over the country, according to the *New England Journal of Medicine*.

**Bills Introduced.**—S. 182 proposes to establish a board of registration of chiropractors and to regulate the practice of chiropractic, defined as "the science of locating, and removing, by hand only, interference with the transmission or expression of nerve force in the human body, where such interference is indicated or misalignment or subluxations of the vertebral column appear. It excludes operative surgery, prescription or

use of drugs or medicine, or the practice of obstetrics, except that the x-ray may be used solely for the purposes of examination." Applicants for such licenses must be 21 years of age, of good moral character, be high school graduates, be graduates from reputable chiropractic schools which require courses of resident instruction of four academic years of not less than thirty-two weeks each and pass written examination to be given by the board. However, persons who have been practicing chiropractic in Massachusetts, whether in violation of law or not, for one year prior to the enactment of the bill may receive a license to practice without examination. S. 183 proposes to establish a board of registration in osteopathy and to regulate the practice of osteopathy. No definition of osteopathy is given in the bill and presumably such practitioners would be authorized to practice without restriction. An applicant for such a license is to be required to possess a high school education or its equivalent, to have completed two years of premedical collegiate work, including physics, chemistry and biology, in a college or university approved by the board, and to have attended courses of instruction for four years of not less than thirty-two school weeks in each year in a legally chartered school of osteopathy. S. 184 proposes to require hospitals receiving public support to permit licensed osteopaths to practice within their confines on the same terms as licensed physicians and surgeons are permitted to practice therein. H. 413 proposes to require the appropriate school committee to cause every child in the public schools to be examined at least once a year to ascertain defects in sight or hearing and other physical defects. The tests of sight and hearing are to be made by teachers, directions for which are to be prescribed by the department of public health. The physical examination is to include especially the examination of the feet by a person qualified to examine the feet. H. 759 proposes to require (1) the consent of a patient before a physician may remove any organ, (2) the physician to submit to the patient a written explanation of the necessity of its removal and (3) the preservation of any organ so removed until the patient has directed its disposal. H. 383 proposes a statewide system of compulsory health insurance applicable to all workers except (1) those making in excess of \$1,800 a year; (2) agricultural workers; (3) adherents of any established church or cult "whereby such adherence or membership prejudices the employee by the teachings inculcated," and (4) a member of an industrial medical service plan. The benefits proposed to be conferred on workers by the proposed insurance scheme include the services of a physician when required for preventive, diagnostic or therapeutic treatment and care, including antepartum and maternity treatment and surgical and specialist services and necessary hospital maintenance and care in a public ward, including drugs, medicines and dressings. These benefits it is proposed to provide by means of contributions to be exacted from both worker and employer.

## MICHIGAN

**Bill Introduced.**—H. 54, to amend the workmen's compensation act, proposes to require an employer to furnish and pay for medical, surgical and hospital services and medicines to an injured employee so long as they are needed. The present law imposes this liability on an employer only during the first ninety days after an industrial injury.

## MINNESOTA

**Classes for Crippled Children.**—Social security funds will be used to finance classes for crippled children who are unable to attend regular schools, according to *Minnesota Medicine*. Dr. Herman E. Hilleboe, St. Paul, of the state board of control is in charge of the program.

**Bills Introduced.**—S. 88 proposes to permit a feeble-minded person under the guardianship of the state board of control to contract marriage on the approval of the board of control provided the feeble-minded person is sterile. H. 71, to amend the workmen's compensation act, proposes to make compensable all occupational diseases or infections arising "naturally" out of an employment.

**Courses for Practicing Physicians.**—The Center for Continuation Study of the University of Minnesota in cooperation with the medical school and the state medical association began a series of graduate courses for practicing physicians January 17 to continue through February 13. The first week was devoted to traumatic surgery; the second to obstetrics and gynecology; the third will be given over to pediatrics, and the fourth to internal medicine. The courses consist of lectures, clinics, demonstrations, ward walks, seminars and practical work, and each student will be permitted to present his own problems to

Hospital, in preventing contamination in children admitted for noncontagious ailments. The special intern also is obliged to notify the family physician, the medical school inspector and the parents of the possible future appearance of certain contagious diseases which have been attenuated by the prophylactic serum injections. Thus a contagious disease that might appear in one of these vaccinated children will be rapidly detected and early isolation thereby made possible. Debré made a plea for the appointment of a commission to study the creation of a special service in all children's hospitals to prevent contagion arising after admission to noncontagious disease wards.

#### Etiology of Volkmann Contracture Following Fractures Around Elbow

At the October 21 meeting of the Académie de chirurgie a case of Volkmann's contracture following a supracondyloid fracture of the humerus was reported by Folliasson of Grenoble. The discussion of this case by Etienne Sorrel, who has had a large experience in children's surgery, was of particular interest. The child was 8 years of age and had sustained a supracondyloid fracture of the humerus with marked displacement of fragments two months before being seen by Folliasson. The latter found a typical Volkmann syndrome. There was evidence of complete sensory and motor paralysis of the median nerve. Although at operation the brachial artery was found to be normal, a periarterial sympathectomy was done. The median nerve was embedded in a mass of scar tissue, which was removed. In order to overcome the deformity of the wrist and fingers, the second row of carpal bones except the trapezius was resected and the flexors of the fingers were separated at their point of origin from the bone. There was slight improvement following these procedures in spite of prolonged physical therapy. Folliasson raised the question whether a resection of the bones of the forearm and of the compressed portion of the median nerve followed by a nerve graft were not indicated. The orthopedic surgeon Etienne Sorrel, in commenting on this case, said that the brachial artery had remained intact, confirming recent observations that the frequency of injury of this vessel as a complication of elbow fractures has been greatly exaggerated. It cannot be denied that in a certain number of reported cases (Leriche, Lance, Carcassone, Mathieu) injury of the artery and vasomotor nerves existed, but this is exceptional, as is further proved by the absence of improvement following sympathectomy or arteriectomy. In Folliasson's case neither the artery nor the vasomotor nerves were affected, the damage being limited to the median nerve. The more frequently operations for relief of Volkmann's contracture are performed, the more commonly does one find a nerve injury noted. Such observations have been confirmed by numerous examinations by competent neurologists before any operation; hence it follows that the vascular and vasomotor factor plays less and less of a part than was formerly taught. Sorrel in a large children's fracture service has observed only four cases of Volkmann's contracture and this is the experience of many other surgeons. The etiology of the syndrome still remains to be cleared up. Neither the sympathectomy nor the lengthening of the flexors was of any benefit in Folliasson's case, because as to the latter step Sorrel believed there was already too much retraction of the flexors present when the patient was first seen. As to the proposed resection of both bones of the forearm, the success of such an intervention depends on the extent of damage to the median nerve. If signs of the latter exist within the first few days after a supracondyloid fracture of the humerus, immediate operation is indicated to avoid a potential Volkmann contracture. The symptoms are marked edema, cyanosis and coldness of the forearm and hand, associated with anesthesia and paralysis of the fingers. Even if there is no such evidence of nerve injury but only marked displacement of fragments, an open reduction will forestall future complications, according to Sorrel.

#### BERLIN

(From Our Regular Correspondent)

Dec. 14, 1934

#### Persons Engaged in Care of Sick

The National Health Bureau has issued an official statistical report on the number of persons actively engaged in the medical, nursing and kindred professions as of Jan. 1, 1935. The report includes statistics on all other groups the members of which derive their livelihood from the care of the sick. In all, 286,944 persons were included within the survey. That a majority were females is due to the fact that by far the largest unit listed comprises members of the nursing profession. The medical profession, as the keystone of all the professional groups covered by the survey, represented 17 per cent of the foregoing grand total; its members numbered 47,419 persons who are licensed to practice medicine in Germany. There were 44,491 men physicians and 2,928 women physicians. These figures represent an increase in the total number of physicians of 0.3 per cent (144) over 1934. There were 12,088 licensed dental physicians, of whom 785 were women; 10,981 registered pharmacists, including 549 women; 25,737 midwives; 20,298 dentists (dental practitioners without university training), including 2,353 women; 11,922 bone setters, masseurs and so on, including 5,494 women; 126,008 trained nurses, of whom the vast majority (104,822) were women; 6,869 nurses especially trained to care for infants; 1,240 confinement assistants; 5,581 disinfectors, including 593 women, and finally there were 14,023 *heilpraktiker* (lay practitioners who by no means are to be considered as physicians but rather as so many quacks), including 3,359 women. Lumping all these groups together as a unit, the distribution according to sex was found to have been 130,520 men and 156,428 women. While the foregoing figures may be regarded as official, they still lack uniformity, as this type of statistical survey is relatively new and not all of the German states have instituted compulsory registration for the members of all these groups.

Only a slight increase took place in the number of regular physicians during 1934. There were 7.2 physicians to each

TABLE 1.—Distribution of Specialists as of Jan. 1, 1935

Specialties	Absolute Number		Number on Jan. 1, 1935 per 100 Listed on Jan. 1, 1934	Number per 100 Physic. class	Women Physicians in the Specialists	
	Jan. 1, 1934	Jan. 1, 1935			Number	Number per 100 Specialists of Both Sexes
Surgery.....	2,729	2,682	98	6.7	24	0.9
Gynecology and obstetrics.....	1,757	1,781	101	3.8	99	5.6
Internal medicine.....	2,795	2,975	106	6.3	89	5.0
Pediatrics.....	1,125	1,183	105	2.5	323	27.6
Dermatology and venereology.....	1,813	1,746	96	3.7	63	2.9
Mental and nervous diseases.....	1,633	1,687	102	3.6	73	4.6
Ophthalmology.....	1,260	1,344	99	2.8	70	5.2
Otorhinolaryngology.....	1,476	1,498	101	3.2	15	1.0
Totals.....	14,711	14,991	101	31.4	771	5.2

10,000 of population and 10.1 physicians in each 100 square kilometers of area, or one doctor to each 1,388 inhabitants and to each 9.9 square kilometers of area. The previously mentioned 144 physicians were chiefly women. 127 new women physicians to only seventeen men. From this one may conclude that the proportion of women physicians will undergo a yet greater increase in the near future, since it is significantly higher among the rising generation as compared to the older generation of physicians. In the year 1933-1934, 15.4 per cent

**Society News.**—At a meeting of the Southern Oklahoma Medical Association in Ardmore, December 7, the speakers included Drs. Robert B. Giles, Dallas, Texas, on "Classification and Medical Treatment of Peripheral Vascular Diseases"; Hervey A. Forcster, Oklahoma City, "Rational Treatment of Syphilis," and Mr. O. E. Shaw, superintendent of Ardmore schools, "Relation of Physicians and Teachers for the Benefit of Public Health."

### PENNSYLVANIA

**Hospital News.**—A \$10,000 fireproof building was opened December 8 at the country branch near Malvern of Rush Hospital for Consumption and Allied Diseases, Philadelphia. The new building replaces one destroyed by fire in January 1936, in which two children were burned to death.

**Society News.**—Dr. Maxwell Lick, Erie, president of the Medical Society of the State of Pennsylvania, addressed the Lycoming County Medical Society, Williamsport, January 8, on "Diagnosis of Acute Abdominal Tragedies."—A North-eastern Pennsylvania chapter of the National Society for the Advancement of Gastro-Enterology will be organized at a meeting in Easton, February 3. Dr. Norman W. Elton, Reading, will give an address on "The Role of Duodenobiliary Drainage Ulcer and Biliary Tract Disease."—Dr. William L. Estes Jr., Bethlehem, addressed the Lehigh County Medical Society in December on early diagnosis of cancer.

**Bills Introduced.**—S. 26 proposes to authorize the hospitalization of tuberculous patients in state and state-aided hospitals when state owned institutions established for that purpose are unable to provide and care for such patients and to provide that the cost of the care and treatment of such patients shall be paid by the state out of any appropriation made to the department of health and available for the care and treatment of tuberculous patients in state institutions. S. 37 proposes an amendment to the state constitution to prohibit appropriations for charitable, educational or benevolent purposes to any person or community or to any denominational or sectarian institution, corporation or association. H. 99 proposes extensive amendments to the workmen's compensation act. Among other things, the bill proposes (1) to extend to six months, from thirty days, the period following an industrial accident during which the employer must furnish and pay for medical, surgical, dental and nursing services and hospital treatment to an injured workman, (2) to eliminate the provision in the present law which limits the amount of the employer's liability for such services to \$100, and (3) that a worker need not submit to surgical treatment, which in the opinion of at least two qualified physicians might jeopardize his life. H. 126, to amend the workmen's compensation act, proposes to make compensable certain occupational diseases contracted by miners. The bill proposes that the term "occupational disease" shall include only anthracosis, asthma resulting therefrom, or bursitis acquired or resulting from employment in any process involving mining.

### Philadelphia

**Society News.**—Dr. Samuel Barbash, Atlantic City, among others, addressed the Pennsylvania Physical Therapy Association, January 21, on "Medical Diathermy in the Treatment of Diabetic Gangrene."—At a meeting of the Philadelphia Neurological Society, January 22, the speakers included Drs. Ernest A. Spiegel, Philadelphia, and Norman P. Scala, Washington, D. C., on "Cortical Innervation of Ocular Movements," and Drs. Joseph C. Yaskin and Melvin W. Thorne, "The Treatment of Myasthenia Gravis."—Dr. Edwin Beer, New York, delivered the B. A. Thomas Annual Oration of the Philadelphia Urological Society, January 25, on "Some Aspects of Malignant Tumors."—Wendell M. Stanley, Ph.D., Princeton, N. J., addressed the Pathological Society of Philadelphia as guest speaker, January 14, on "Chemical Studies on Crystalline Tobacco Mosaic Virus Proteins."

### Pittsburgh

**Pneumonia Serum Provided by the City.**—Funds to furnish to physicians practicing in private homes and in hospitals specific serum for treatment of pneumonia patients were made available at a special conference between the mayor, the chairman of the city council's committee on health, the city health director and representatives of the medical profession and the pharmacists. Physicians are asked to send sputum promptly to the nearest hospital laboratory; if the analysis indicates pneumonia type I or II, they may send to the health department for the serum indicated. There is no charge for either service.

### RHODE ISLAND

**State Journal Editor Resigns.**—Dr. Fredrick N. Brown, Providence, editor of the *Rhode Island Medical Journal* for fifteen years, has resigned. The new editor is Dr. Albert H. Miller, Providence. Dr. Brown is 71 years old. Dr. Miller, who is 63 years old, is a graduate of Columbia University College of Physicians and Surgeons, class of 1898.

### SOUTH CAROLINA

**Bill Introduced.**—H. 9 proposes to repeal the workmen's compensation act approved July 17, 1935, officially cited as Acts of 1936, Act No. 610.

**Society News.**—Speakers at the annual meeting of the Marlboro County Medical Society, Bennettsville, January 8, were Drs. Robert C. Bruce, Greenville, president of the South Carolina Medical Association, on "The Problem of Compulsory Insurance as It Relates to the Practice of Medicine"; Samuel F. Ravenel, Greensboro, N. C., "Nephritis in Children"; James M. Northington, Charlotte, N. C., "Health Care of the Ageing," and Archibald Johnston Buist, Charleston, S. C., "Endometriosis."—The Medical Society of South Carolina, a Charleston organization, has received a bequest of the library of the late Dr. Joseph Hume, formerly of Charleston. The collection contains 250 volumes on urologic subjects and 150 miscellaneous volumes on medicine and medical history. It has been deposited temporarily in the library of the Medical College of South Carolina. Dr. William Atmar Smith is president of the society and Dr. Joseph I. Waring, secretary.

### TENNESSEE

**Bills Introduced.**—S. 91 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions. H. 144 proposes that whenever any man is sentenced to the penitentiary on the charge of rape it shall be the duty of the commissioner of institutions to have him sterilized within thirty days after arrival at prison.

**Mid-South Medical Assembly.**—The fifty-third annual convention of the Mid-South Post Graduate Medical Assembly will be held at the Hotel Peabody, Memphis, February 16-19, under the presidency of Dr. Carl R. Crutchfield, Nashville. Twenty-four guest speakers are listed in the program. Among them are Drs. Esmond R. Long, Philadelphia; Cyrus C. Sturgis, Ann Arbor, Mich.; Sidney D. Kramer, Brooklyn; Andrew C. Ivy, Chicago, Albert Graeme Mitchell, Cincinnati; Russell L. Haden, Cleveland; Jonathan C. Meakins, Montreal, and Harvey B. Stone, Baltimore. Dr. Arthur F. Cooper, Memphis, is secretary.

### TEXAS

**Bill Introduced.**—S. 25 proposes a new pharmacy practice act. Nothing contained in the act is to be construed to prevent (1) the personal administration, compounding or manufacturing of drugs or medicines carried or kept by licensed physicians in order to supply the needs of their patients, (2) the sale, in stores other than pharmacies, of "patent" or proprietary medicines, household remedies or cosmetics when sold in the original unbroken packages only, or (3) the sale of properly labeled insecticides or fungicides and harmless chemicals when used in the arts.

### UTAH

**Bill Introduced.**—S. 23 proposes to require any physician, employed by an industrial employer of labor within the state to make examinations of workers or prospective workers, to file, within five days from the date of making such examination, a written transcript of his findings with the secretary of the industrial commission of the state and to file a copy thereof with the worker or the prospective worker.

### WISCONSIN

**Demonstration Health Unit in Dane County.**—Dr. Erwin F. Hoffman, Cameron, has been appointed director of a health unit established in Dane County as one of three demonstration units in the state made possible by social security funds. Tuberculin testing and goiter prevention will be special objectives of the new department, which will limit its activities to small towns and rural areas outside Madison. Dr. Hoffman graduated from Rush Medical College, Chicago, in 1933.

**Graduate Course on Disabilities in Children.**—During late November and early December meetings were held in thirteen councilor districts of the State Medical Society of Wisconsin to present a course of instruction on "Prevention of Disabilities in Children." Four physicians made up a team of instructors for each meeting. The following were instructors in orthopedics: Drs. David J. Ansfield, Walter P. Blount,

mean expectation of life for infants of both sexes amounts, on the basis of the table of 1932-1934, to 61.1 years compared to a mean expectation of 57.4 years on the basis of the table of 1924-1926.

### The Offspring of the Tuberculous

Little exact statistical information has heretofore been available with regard to the offspring of severely tuberculous male subjects. Interest attaches to investigations carried on in the course of the last three years by Dr. Diehl at a tuberculosis hospital near Berlin. The study was made of patients who presented open, usually far advanced, tuberculosis, as it is pre-

TABLE 3.—Children Begotten in Various Age Groups

Age	Number of Patients	Number of Children Begotten
21-30 .....	361	80
31-40 .....	353	240
41-50 .....	229	260
51-60 .....	138	250
61 and over.....	34	78

cisely at this stage that a tuberculous person may be regarded as a transmitter of hereditary predisposition to the disease. The uncommonly bad prognosis in active tuberculosis among adults has recently again been described by Braeuning and Neissen: After a follow-up observation period of ten years from the first diagnosis of open tuberculosis, these investigations showed the mortality rate to be 80 per cent. Further observation of the surviving 20 per cent showed a similar further high mortality in the succeeding years. Therefore it is impossible yet to say whether in the long run a final complete cure of open tuberculosis can be spoken of when dealing with larger groups of the openly tuberculous.

Diehl's investigation concerned only 1,115 male patients who presented severe tuberculosis; these he divided into separate age groups and recorded the number of children begotten by the men in each group as in table 3. Thus a total of 908 children could be established as the offspring of these 1,115 tuberculous fathers.

On the other hand, the question of how many children were begotten prior to the father's illness and how many subse-

TABLE 4.—Children Begotten Before and After Manifestation of Tuberculosis

Age of Tuberculous Fathers	Children Begotten Before Manifestation of Tuberculosis	Children Begotten After Manifestation of Tuberculosis
21-30 .....	50	30
31-40 .....	173	67
41-50 .....	224	36
51-60 .....	234	16
61 and over.....	76	2
	757	151

quently was considered of importance. Onset of the tuberculosis was gaged by the history of pulmonary hemorrhages, fever and presence of tubercle bacilli in the sputum, but not by general complaints of debility and so on. The figures appear in table 4. According to the statistics, the children begotten before the fathers became ill outnumber those begotten subsequently about five to one.

Dr. Diehl assumes that the number of children is somewhat below the average number begotten by healthy fathers at the various corresponding age levels. Still, the number of offspring of these severely tuberculous persons seems formidable enough. Eighty-three children (11 per cent) of those begotten before manifestation of tuberculosis in the father were the offspring of fathers in whose direct ascendancy a tuberculous taint had already existed.

## BUCHAREST

(From Our Regular Correspondent)

Nov. 17, 1935

### The New Penal Code

The new penal code, known as the King Charles II Code, provides that those who import narcotic drugs and manufacture them secretly are liable to imprisonment ranging from one to three years and a fine of from 2,000 to 5,000 lei. Those who procure narcotic drugs without a medical prescription or effect them to others, even if gratuitously, are liable to imprisonment of from three to twelve months. Punishment awaits the physician who prescribes a narcotic to an addict. If in consequence of such prescription the health of the person in question is damaged, the punishment is from five to ten years in prison. It is regarded as an offense against public morals and is punishable by from three to twelve months in prison to sell pornographic books, drawings or photos or to import them. Promoting prostitution is liable to imprisonment of from six to twelve months, but if the promoter is the parent or the guardian of the individual, from three to seven years in prison is the punishment. If a girl under age is forced by violence or by means of alcohol or narcotics, the punishment is increased. A man offering protection to a prostitute and accepting money for this is liable to from three to twenty-four months' imprisonment. Procuring involves imprisonment from three to six years.

A new feature of the penal code is the protection of the family. The married mate who carries on an extramarital relation is punished with from one to twelve months in prison, but if the relation is continued also after the starting of the criminal process against him the punishment is doubled. The punishment concerns not only the married mate but also the accomplice. If the couple did not live together when adultery was committed, no complaint can be made.

If youngsters under age live together they are sent to reformatories for from one to three years. The law prescribes that if a man abandons those who are dependent on his support by reason of marriage or parental obligation he is liable to punishment ranging from three months to one year in prison. The same punishment is given the husband who does not pay his alimony for three successive months.

The new code contains severe measures against abortion, which offense is punished with imprisonment of from two to five years if done without the woman's consent. If she is taken ill in consequence of the operation or becomes incapacitated, the punishment is imprisonment ranging from three to six years and, if she dies, from seven to ten years. If the operation is performed by a single woman on herself or if she gives her consent to somebody else to have the operation performed on her, she is liable to from three to six months in prison; if she is married, from six to twelve months. The law does not punish artificial abortion if it is performed by a physician in case the life of the woman is in imminent danger or if pregnancy aggravates some disease to such an extent that her life is endangered and this danger cannot be averted in any other way but by the interruption of gestation. However, in such instances the physician is obliged to make a confidential notification to the public prosecutor within forty-eight hours. In other cases the operation can be performed only with the permission of the attorney's office on the ground of a preliminary medical consultation by at least two duly qualified physicians. The prosecutor's office is obliged to observe the confidential character of the notification.

An interesting section of the new code is that which states that if a physician kills one on his own request or entreaty, even if an aged person who wished to die to get rid of suffering, the act is regarded as manslaughter and is punished with imprisonment ranging from three to eight years.

The new penal code will come in force by Jan. 1, 1937.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Dec. 26, 1936.

#### Antigas Preparations

The extent of the preparations being made by the government against air raids on this country are not encouraging to those who hope for European peace. The latest is the issue by the Air Raids Precautions Department of a circular to local authorities outlining the scheme of antigas instruction for medical, dental and veterinary practitioners, students and nurses. The circular emphasizes the importance of bringing it about that physicians are conversant with antigas measures not only from the point of view of securing skilled treatment of gas casualties but also for the moral effect in enabling the public to look on their medical advisers as qualified to assist and advise in case of need. Accordingly fourteen physicians have been trained at the Civilian Anti-Gas School for the purpose of giving instruction to the medical, dental, veterinary and nursing professions. These physicians will be stationed at different towns, in which and in the areas around they will give instruction. By arrangement with the British Medical Association its branches will be used for organizing local courses for physicians, who will not be limited to members of the association. Arrangements for instruction at medical schools (where this is not given by a member of the staff) are being made with the deans. The College of Nursing is collaborating with regard to nurses.

The scheme for medical training has thus been devised without imposing any burden on local authorities either financially or in the matter of organization. The secretary of state is satisfied that the arrangements made will best suit the convenience of the physicians whom it is desired to reach. He is pleased to announce that the response which has already been made is such as to secure success. The equipment also is being provided by the department, and the only cost to be met locally will be that (if any) for accommodation for the local course and minor office expenses of organization. To meet this it is proposed that a small enrolment fee should be charged to those who attend the courses.

A forty-page booklet is being issued to the people in millions, instructing them to choose a refuge room—a room from which gases can be excluded. For rooms of normal height (8 to 9 feet) an allowance of 20 square feet of floor for each person will allow occupation with safety for twelve hours without ventilation. Thus a room 10 feet long and 10 feet wide will be adequate for five people for twelve hours. The occupants are advised to take in candles, matches, clean rags, tins or jars with air-tight lids for storing food, a screen for privacy, sanitary conveniences, water for drinking, and canned foods. For fire extinguishing, a box of sand with a shovel should be provided. "Never pour water on an incendiary bomb," they are told. "If there is an outbreak of fire, send for the fire department or inform the police."

#### The Services of the Voluntary Hospitals

In these days of vast state expenditure on public health, including municipal hospitals, it is impressive to consider the services of the voluntary hospitals (hospitals supported by the voluntary contributions of the charitable). At the Public Health Congress Lieut.-Col. Walter Parkes, house governor of St. Mary's Hospital, London, gave an address in which he stated that the expenditure of the voluntary hospitals in this country amounted annually to \$60,000,000. Voluntary hospitals were not the spoiled darlings of the state but stood or fell on their merits. Numerous acts of parliament took advan-

tage of the voluntary hospitals to make their schemes workable. Were it not for institutional treatment provided by the voluntary hospitals, national health insurance would break down. But for the treatment provided for highway accidents the government would have to provide a system of ambulance stations costing many millions of pounds. In recognition of this fact the state provided the hospitals with an act difficult to interpret, from which they might, if lucky, recover between a half and a third of the cost of the treatment given. In the matter of workmen's compensation (for injuries), the claims of all were covered except those of the voluntary hospitals. Public authorities were empowered to subscribe to voluntary hospitals. If full advantage were taken of this power, \$7,500,000 would be available, but the amount provided was only \$150,000. The country depended largely on the voluntary hospitals for the supply of nurses, toward whose education the state contributed nothing.

#### Surgeon Not Responsible for Error of Nurse

Attempts are made from time to time to make a surgeon responsible for the error of a nurse or assistant during an operation, but they have failed because it has been held that in the legal sense these persons are not his agents. The most recent case occurred in New Zealand and was due to an unusual cause. A woman claimed damages against a surgeon for injuries received during an operation in a private hospital. The nurse was instructed to paint the patient's skin with iodine but used a mixture containing phenol (carbolic acid). The New Zealand Court of Appeal, in giving judgment, said that the plaintiff's submission would impose an intolerable burden on the surgeon. Under the conditions of modern surgery it was impossible for the surgeon to do the whole of the work involved in an abdominal operation. He had to work in a team. It was true that he was in complete control, but those subject to him were skilled collaborators with independent duties and there was no delegation of duties in the ordinary sense. He did not intend and could not be taken to have intended to do the work of others in the team. He was not vicariously liable for negligence found against the nurse.

#### Cancer Research

At a meeting of the committee of the Imperial Cancer Research Fund, important recent research work was described.

##### THE STUDY OF VIRUSES

Dr. W. E. Gye, the director, said that when its laboratories were constructed twenty-five years ago the technic of cancer research was comparatively simple. During the last fifteen years the scope of research had widened enormously. The chemist working with the biologist was transforming the situation. The study of viruses was now one of the most important branches of their work and had almost become a science in itself. The Medical Research Council was going to build a new institute of chemotherapy which would be adjacent to the fund's new laboratories and they hoped to work in close cooperation. Their plans were largely to develop chemical work and the study of viruses. Some one might make an observation that would enable them to attack the problem from a new line.

##### THE PRODUCTION OF SARCOMA BY THORIUM DIOXIDE SOL

Dr. Gye commented on the experimental production of sarcoma by thorium dioxide sol, a colloidal solution of thorium dioxide, by Dr. F. R. Selbie of Middlesex Hospital. He said that mesothorium and radiothorium, two of the disintegration products of thorium dioxide, are constituents of the luminous paints, which have been shown capable of producing malignant tumors in man. Experimental observations with thorium dioxide sol and past experience with luminous paints lead to

**Charles Magill Fauntleroy** • Medical Director, U. S. Public Health Service, Charleston, S. C.; University of Virginia Department of Medicine, Charlottesville, 1906; for many years in the U. S. Public Health Service; aged 55; died, Dec. 3, 1936.

**Rocco Brindisi** • Boston; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1884; at one time Italian consul; formerly served on the United States federal education board; aged 76; died suddenly, Dec. 14, 1936, of heart disease.

**Arthur Patterson Chadbourne**, Washington, D. C.; Harvard University Medical School, Boston, 1888; member of the Massachusetts Medical Society; formerly connected with the Veterans Administration Facility; aged 73; died, Dec. 2, 1936.

**Charles Herbert Golden**, Wonevot, Wis.; Rush Medical College, Chicago, 1892; member of the State Medical Society of Wisconsin; aged 67; died, Nov. 3, 1936, as the result of a gunshot wound of the spine accidentally incurred while hunting.

**Francis Ambrose Harlow**, Bremerton, Wash.; Northwestern Medical College, St. Joseph, 1890; Cooper Medical College, San Francisco, 1895; formerly mayor; aged 74; died, Nov. 22, 1936, of arteriosclerosis and cardiac decompensation.

**Harold Le Roy Avery**, Primghar, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the Iowa State Medical Society; aged 56; died, Dec. 6, 1936, in Pasadena, Calif.

**William Edson Baker**, Bucyrus, Ohio; Starling Medical College, Columbus, 1895; member of the Ohio State Medical Association; on the staff of the Bucyrus City Hospital; aged 71; died, Dec. 5, 1936, of heart disease.

**Stephen Henry Abbate**, Middletown, N. Y.; New York Homeopathic Medical College and Flower Hospital, 1929; on the staff of the Middletown State Homeopathic Hospital; aged 32; died, Dec. 15, 1936, of pneumonia.

**William Stephen Buckley** • Boston; Harvard University Medical School, Boston, 1902; served during the World War; on the staff of St. Elizabeth's Hospital; aged 58; died, Dec. 8, 1936, of cerebral hemorrhage.

**John Harold Philip**, San Francisco; Bellevue Hospital Medical College, New York, 1895; aged 80; died, Nov. 22, 1936, in the Stanford Hospital, of acute bilateral pyelonephritis and acute myocarditis.

**Adelbert A. Taylor**, Washington, D. C.; George Washington University School of Medicine, Washington, 1900; aged 67; died, Nov. 1, 1936, in the Atlantic City (N. J.) Hospital, of chronic myocarditis.

**Coleman Carter**, Dallas, Texas; Kentucky School of Medicine, Louisville, 1885; for many years health officer of Leon County; aged 76; died, Nov. 29, 1936, in a local hospital, of cerebral hemorrhage.

**Anna G. Hilke Willard**, New Rochelle, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1884; aged 76; died, Nov. 25, 1936, of coronary thrombosis.

**Hugh Campbell Cameron**, Johnstown, Neb.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1900; aged 60; died, Nov. 12, 1936, in the Ainsworth (Neb.) Hospital, of nephritis.

**Joseph Robert McQuaid**, Leetsdale, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1890; member of the Medical Society of the State of Pennsylvania; aged 74; died, Nov. 20, 1936.

**Harry M. Sigal** • Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1905; aged 50; died, Nov. 7, 1936, in the Montefiore Hospital of coronary thrombosis and chronic myocarditis.

**Frank Edmund Donelan**, Glenwood, Iowa; Ensworth Medical College, St. Joseph, Mo., 1890; aged 70; died, Nov. 28, 1936, in Monrovia, Calif., of prostatectomy and cerebral embolism.

**Coburn Badgley**, Fayetteville, N. Y.; Chicago Homeopathic Medical College, 1885; president of the board of education of Fayetteville; at one time village president; aged 78; died, Dec. 17, 1936.

**Arthur T. Barnum**, Toledo, Ohio; Chicago Homeopathic Medical College, 1890; honorary member of the Toledo Hospital; aged 70; died suddenly, Dec. 15, 1936, of diabetes mellitus.

**Jay Lee Cecil**, Armstrong, Mo.; Cleveland Homeopathic Medical College, 1899; aged 62; died, Dec. 18, 1936, in a hospital at Kansas City, following an operation for removal of a kidney.

**John F. Bunton**, Fredonia, Ky.; University of Louisville Medical Department, 1889; aged 73; died, Dec. 11, 1936, in the Welborn-Walker Hospital, Evansville, Ind., of prostatic hypertrophy.

**William W. S. Butler Sr.**, Roanoke, Va.; University of Maryland School of Medicine, Baltimore, 1881; aged 76; died, Dec. 15, 1936, in the Jefferson Hospital, of myocarditis and uremia.

**Mary Jamieson Coon**, Parsippany, Troy Hills, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1885; aged 71; died, Nov. 29, 1936, of empyema and abscess of the lung.

**Daniel Oscar Webster** • Portland, Ore.; Boston University School of Medicine, 1903; aged 60; died, Nov. 29, 1936, in a local hospital, of bronchopneumonia and renal calculi.

**Richard D. Harral**, Honey Grove, Texas; University of Louisville (Ky.) Medical Department, 1890; aged 72; died, Nov. 24, 1936, in Paris, of carcinoma of the lung.

**Egbert James Bailey**, New York; University of Vermont College of Medicine, Burlington, 1926; aged 42; was found dead, Dec. 21, 1936, of pulmonary tuberculosis.

**Ernest William De Long**, Los Angeles; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1904; aged 61; died, Nov. 19, 1936, of leukemia.

**David Mitchell Blum** • Des Moines, Iowa; Rush Medical College, Chicago, 1922; aged 38; died, Dec. 13, 1936, of cerebral hemorrhage and malignant hypertension.

**Cyril Danilovitch Billik** • New York; Rush Medical College, Chicago, 1917; aged 50; died suddenly, Dec. 8, 1936, of coronary thrombosis and arteriosclerosis.

**Fred Wendell Lovejoy**, East Pepperell, Mass.; University of Vermont College of Medicine, Burlington, 1884; aged 76; died, Nov. 25, 1936, of cerebral hemorrhage.

**George McCullagh**, Goodrich, N. D.; Medical Department of Hamline University, Minneapolis, 1903; aged 70; died, Nov. 24, 1936, of acute cardiac dilatation.

**Harvey R. Cronk**, New York; College of Physicians and Surgeons of Chicago, 1889; aged 76; died, Nov. 24, 1936, of carcinoma of the prostate and liver.

**John Byron Sloane**, Los Angeles; Detroit College of Medicine, 1893; aged 70; died, Nov. 28, 1936, in the Hollywood Hospital, of a cerebral hemorrhage.

**Andrew Leight Monroe**, River Junction, Fla.; Hahnemann Medical College of Philadelphia, 1879; aged 80; died, Nov. 17, 1936, of hypertensive heart disease.

**Ulysses Sidney Chapman**, Joplin, Mo.; Beaumont Hospital Medical College, St. Louis, 1892; aged 73; died, Dec. 15, 1936, of intestinal obstruction.

**Hiram Russell Palmer**, Oakland, Calif.; Fort Wayne (Ind.) College of Medicine, 1882; aged 80; died, Nov. 15, 1936, of carcinoma of the prostate.

**Harvey E. Brown**, Seneca Falls, N. Y.; University of Buffalo School of Medicine, 1887; aged 70; died, Dec. 31, 1936, of heart disease.

**Louis James Palmer**, Boston; Tufts College Medical School, Boston, 1906; aged 56; died, Nov. 21, 1936, of carcinoma of the lungs.

**Richard V. Mattison**, Ambler, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1879; aged 85; died, Nov. 18, 1936.

**William Wesley Cook**, Chicago; Physio-Medical Institute, Cincinnati, 1882; aged 77; died, Dec. 28, 1936, of influenza and lobar pneumonia.

**Henry Avery Doyle**, Phoenix, Ariz.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; aged 83; died, Nov. 7, 1936.

**Joseph Milton Curtis**, Tecumseh, Neb.; Omaha Medical College, 1894; aged 70; died, Nov. 26, 1936, of coronary thrombosis.

**James M. Cooper**, Rockwell City, Iowa (licensed in 1842 in 1886); aged 83; died, Nov. 14, 1936, of carcinoma of the antrum.

**Harry C. Smith**, Hawthorne, Calif.; University Medical College of Kansas, Mo., 1903; aged 69; died, Nov. 14, 1936.

**Erico Arnaldo Scalzilli**, Medford, Mass. (licensed in Massachusetts in 1902); died, Nov. 21, 1936, in Malden.

**Gabriel Samter**, Detroit; Detroit College of Medicine, 1895; aged 69; died, Nov. 21, 1936, of myocarditis.

**Martha F. Caul**, Brooklyn; University of Buffalo School of Medicine, 1891; aged 68; died, Dec. 7, 1936.

pelvis and calices has taken place. Ectopic ending of the ureter in the female and its discovery through urologic study of every case of incontinence was especially mentioned. In the discussion, Dossot of Paris stated that in cases of extravasical (ectopic) ending of the ureter, if the ureter arises from half of a double kidney, a heminephrectomy is advisable, whereas if the kidney is a single one a nephrectomy should be done, since the ureter and the renal pelvis are infected in nearly every case. Lepoutre of Lille said that with the routine employment of intravenous urography many anomalies of the upper urinary tract could be found which otherwise escaped detection.

Of the other papers and demonstrations presented at this congress, the following deserve mention:

Films showing the expulsion of the contents of the renal pelvis into the ureter and those of the bladder into the urethra, by Drs. Stobbaerts and Van de Maele of Brussels, Belgium.

Cutaneous manifestations of *B. coli* infections of the urinary tract by Dr. Strominger of Bucharest, Rumania, who cited two cases of recurrent urticaria of five years' duration which were cured only after anticolibacillary treatment.

Value of radiography in upright position in diagnosis of nephralgia due to unsuspected movable kidney, by Dr. Perrin of Lyons.

Role of congenital anomalies of the kidneys and ureter as the cause of surgical conditions, by Dr. Robert Gutierrez of New York.

Indications for prostatic resection, by Dr. Bernard Fey of Paris. He said that, when there is but little residual urine but difficulty in urination and a trabeculated bladder, a transurethral resection is preferable to an ordinary prostatectomy.

#### Tuberculous Bacillema in Erythema Nodosum

The question as to whether there is a direct etiologic relation between erythema nodosum and tuberculosis is being studied here by Debré, Saenz and Broca. Hildebrand in 1907 was the first to find tubercle bacilli in the blood of erythema nodosum patients. Few reports have been published since that time which are above criticism from the bacteriologic point of view. This rarity of proved cases of tuberculous bacillema in erythema nodosum does not conflict with the belief of the authors that this skin disease is of tuberculous origin. It is known that a tuberculous bacillema is of short duration after inoculation of animals with virulent bacilli, whether by the subcutaneous, intraperitoneal or alimentary routes. The authors studied twenty-nine cases of erythema nodosum in order to determine the incidence of tuberculous bacillema in such cases and had only five positive results. Their report was presented at the July 7 meeting of the Académie de médecine. The blood specimen was always taken at the onset of the eruption and fever. In the five positive cases, from 10 to 15 cc. of blood was secured under aseptic precautions and coagulation prevented by the addition of 2 cc. of 5 per cent sodium citrate solution. The blood thus obtained was always found in its behavior toward the inoculated guinea-pigs as containing few bacilli; i. e., a long antiallergic period and a slow tuberculinization of the animals. In three cases the guinea-pigs reacted to tuberculin from sixty to sixty-five days, in one, seventy-two days and in another ninety-five days after inoculation. The animals usually died in from five to seven months, but in one case ten months after inoculation, showing a generalized tuberculosis with a typical lesion at the point of inoculation, regional lymph node enlargements and visceral changes. Three of the five children who had a positive blood culture had a positive skin reaction on admission to the hospital. In the fourth child the reaction was doubtful on admission but markedly positive four days later. In the fifth case it became positive seven months after appearance of the erythema nodosum. The proportion of positive cases, five of twenty-nine, or 17 per cent, is remarkably high, when one considers that the percentage of

positive cases reported and verified according to modern criteria has been only 3 or 4 per cent. The presence of a tuberculous bacillema is of no importance so far as the prognosis of the erythema nodosum is concerned. The bacillema is of only transitory character.

#### Necrosis of Jaws Following Use of Radioactive Salts

At the October 14 meeting of the Académie de médecine, Dechaume, stomatologist in the Paris public hospitals, reported three cases of necrosis of the jaws following the internal use of radioactive salts for chronic rheumatism. The chief danger of the injection of radioactive salts is their cumulative action. This is especially true of thorium and mesothorium salts, which have an elective affinity for the reticulo-endothelial tissue, especially that of the blood-forming organs (liver, spleen and bone marrow). Some individuals appear to store up the salts in the osseous structures. The chief danger of internal curietherapy is the length of time that can elapse between the end of the treatment and the appearance of the first clinical symptoms. There is much variation in this accumulation in individual patients, some tolerating relatively large doses and vice versa. No diagnostic method exists as yet which yields any information as to the degree of accumulation. The jaws are more commonly involved than any other bones. The onset is very insidious, so that the lesions are often well developed when the patient is first seen. The striking feature of Dechaume's three cases was a marked anemia. Intervention should be restricted to treatment of the accompanying infection. No treatment is of avail at present to accelerate the elimination or to neutralize the radioactive salts. F. B. Flinn (*THE JOURNAL*, May 23, 1931, p. 1763) has recommended the use of viosterol as an accelerator of elimination of the radium salts.

In the discussion, Moulouguet stated that the diagnosis of radionecrosis of the jaws is difficult. He had occasion to treat a patient in whom Dechaume had made this diagnosis, because the patient had been given several series of injections of mesothorium. A search for actinomycosis as the cause of the necrosis was at first negative but later positive. Antoine Béchère called attention to the dangers of the use of radioactive salts either as a diagnostic method such as arteriography or as a therapeutic measure. There was, primarily, danger of bone involvement and, secondarily, of the development of osteosarcoma. At the request of Professor Duval, the academy appointed a committee to formulate the present status of the use of radioactive salts in injections.

#### Infection of Intramural Origin in Children's Hospitals

At the October 12 meeting of the Académie de médecine, Robert Debré stated that in spite of the noteworthy improvements in preventing contact infection during recent years, contagion still finds its way into children's hospitals or such services in general hospitals. The institution of the cubicle system, disinfection of the hands of physicians, wearing of blouses and face masks and similar precautions have not sufficed to prevent the bringing in of infectious diseases. Debré made a plea for a special intern who will examine every newly admitted patient and determine the contagious diseases against which the child is more or less completely immunized by a previous attack or as the result of vaccination, and those diseases toward which the child is particularly receptive. This intern should follow the cases as admitted to the observation wards when the diagnosis is doubtful, as well as to the wards for those in which a definite diagnosis could be made on admission. Having thus determined the potentially or actually contagious cases, the intern will immediately immunize children who are receptive by supplementary injection of anatoxin and serum of convalescents from measles, scarlatina, whooping cough and mumps. Debré has succeeded, as the result of the employment of such a special intern in his service at the Herold

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### CALORIES CONSUMED IN WALKING ONE MILE

*To the Editor:*—How many calories does a man of 175 pounds (80 Kg.) and/or a woman of 125 pounds (57 Kg.) consume in walking gently a mile? Please omit name. M.D., Illinois.

**ANSWER.**—A man of 175 pounds would give off 95 calories in walking one mile in twenty minutes, and a 125 pound woman would give off 70 calories in walking the same distance in the same time. Roughly speaking, about one third of the calories would be required for standing quietly, not walking, and the extra two thirds would be that required for the energy of walking itself. Thus, in the case of the man it would be 30.3 calories for standing quietly and 63.88 calories for the extra effort of walking. These figures are assuming that the person is post-absorptive, that is, that there is no active digestion going on, in which case there would be a slight increase over these figures.

### SKIN TEST FOR PREGNANCY

*To the Editor:*—Just recently I was told by one of the drug salesmen calling on me that there is a simple test for pregnancy. He further described this test saying to inject 0.2 cc. of antuitrin-S intracutaneously and wait thirty minutes to take the reading. If a reaction appears (red areola) at the site of injection the patient is not pregnant; if no reaction appears, she is pregnant. This test is supposed to be 95 per cent accurate and to be worth using after one missed period. Is this test really what it is claimed to be. GORDON LAWYER, M.D., Cambridge, Ohio.

**ANSWER.**—The skin test for pregnancy consists in injecting 0.2 cc. of a preparation containing the gonadotropic principle from the urine of pregnancy into the skin and later noting the reaction around the site of the injection. If an erythema occurs the patient is assumed not to be pregnant; if no erythema occurs the patient is supposed to be pregnant. This test is based on the assumption that the pregnant woman, whose body fluids contain large quantities of the gonadotropic principle, would be "immune" to this substance whereas the non-pregnant woman would not be "immune."

This alleged pregnancy test has been known for at least eight years. It was apparently first proposed in 1929 by Porges and Pollatschek of Vienna (*THE JOURNAL*, Aug. 17, 1929, p. 559). It was subsequently investigated by Alfred Deutsch (*Zentralbl. f. Gynäk.* 53:2920 [Nov. 16] 1929) in Europe and by Hyman Strauss (*Am. J. Surg.* 8:1271 [June] 1930; *THE JOURNAL*, Sept. 24, 1934, p. 1015) in this country; both these workers found the test to be quite unreliable. Porges and Pollatschek themselves later reported a high incidence of diagnostic error in using their test (cf. Strauss).

Despite these previous reports, this "skin test" for pregnancy has twice been resurrected (Dowell, D. M.: *J. Missouri M. A.* 30:275 [July] 1933; *THE JOURNAL*, Aug. 18, 1934, p. 510. Gilfillen, G. C., and Gregg, W. K.: *Am. J. Obst. & Gynec.* 32:498 [Sept.] 1936). There is as yet no reason to believe that the test is any more reliable now than it was in 1929.

### HEALING OF SINUS AFTER NEPHRECTOMY

*To the Editor:*—Kindly discuss means of expediting healing of a post-operative sinus following nephrectomy for unilateral tuberculosis of the kidney. Kindly omit name and address. M.D., New York.

**ANSWER.**—A postoperative sinus following nephrectomy for renal tuberculosis frequently persists over a period of several months. This is nothing to be alarmed about, since infection in the perirenal tissues may retard healing. If drainage persists longer than this, however, some complication may be present and various therapeutic measures might be tried to expedite healing.

Tuberculosis itself does not cause much drainage. As a rule a persisting sinus is due to secondary infection, and a bacteriologic study of the secretion from the sinus might well be indicated. If secondary infection is present, injections of a stabilized form of diluted solution of sodium hypochlorite in a solution of 1:20 might be tried. Two or three cubic centimeters of this solution should be injected through a catheter inserted

into the sinus tract and repeated every hour or two during the day for several weeks. Flushing of the wound with hypertonic saline solution may also be of value.

Sometimes on investigation of the wound an undermining or pocket may be found along the anterior wall, which may require adequate drainage. If such a pocket is suspected, a roentgenogram made after injecting any radiopaque substance, such as neo-iopax or hippuran, into the sinus will reveal its presence. In rare cases a patent ureter permits passage of urine from the bladder into a persisting sinus and a complete ureterectomy may be indicated. Renal tissue remaining after incomplete nephrectomy may also cause a persisting sinus.

Heliotherapy is by far the best aid to closure of noncomplicated wounds. Exposure to the sun's rays in gradually increasing dosage, care being taken not to irritate the wound or the skin around it, has hastened healing in many persisting sinus tracts. Although this treatment may be carried out in the summer time in any part of the country, the sun's rays in a dry climate such as that of Arizona give the best results. Heliotherapy by means of lamps is not as efficacious but has been used with some success.

### CARBON MONOXIDE POISONING

*To the Editor:*—I have a group of questions to ask with regard to the physical and chemical observations of the blood in the postmortem examination in a case of suspected carbon monoxide poisoning (gas from exhaust pipe): 1. What is the general appearance of the skin? 2. Will the skin maintain this uniform general color throughout the body or will the color change materially in time? 3. Is there any difference in the length of time of decomposition between the carbon monoxide poisoning case and a case of death from natural causes? 4. Could there be a post-mortem examination done four or five weeks following interment to determine whether such a case was carbon monoxide poisoning? 5. What are the medicolegal tests for carbon monoxide poisoning? 6. Would sodium citrate added to postmortem blood of suspected carbon monoxide poisoning, taken about four hours following death, interfere with subsequent chemical or spectroscopic examination? 7. If a person was comatose from opiates, barbiturates or bromides, would a sufficient amount of carbon monoxide be absorbed by the blood to be tested subsequently? I would appreciate very much an early reply. Please omit name. M.D., South Dakota.

**ANSWER.**—1. When the blood is well saturated with carbon monoxide the skin becomes cherry red; in the dependent parts the color may be a deeper red.

2. The skin may retain the color as described for a considerable time, it is said even for weeks and months.

3. No.

4. Yes. Carbon monoxide poisoning can be detected on post-mortem examination from four to five weeks after death. The blood may retain its redness even longer and carbon monoxide may be detected chemically and spectroscopically months after death.

5. Chemical tests (Katayama's, Hoppe-Seyler's and other tests) and spectroscopic examination.

6. No.

7. Yes; the conditions mentioned would not interfere with the absorption of carbon monoxide if it is present in the air that is inhaled.

### IRRITATING FUMES FROM HOT MOIST PAPER

*To the Editor:*—A patient of mine eight months ago bought a few carloads of paper wet in the Pittsburgh flood. He and his employees who unloaded the cars were subjected to irritating fumes and all developed painful intranasal swelling and irritation. The others recovered promptly. The man has had what he calls sinus headache much of the time since. He has been to half a dozen good nose and throat men without real relief. The sinus x-ray report is not informative. There is no history of allergy. Is there any reason to suppose that irritating fumes from hot moist paper could produce such persistent trouble?

LOVETT DEWEES, M.D., Ardmore, Pa.

**ANSWER.**—Although this query fails to provide full facts as to the type of paper, it is within reason to believe that the paper probably was of the Kraft variety and therefore contained sulfites or chemical compounds formed from sulfites. The wetting process would tend to enhance the production of sulfuric or sulfurous acid. This type of complaint is at present emanating from various newspaper pressrooms where paper dust containing sulfites or sulfur acids are proving to be sources of irritation to the upper respiratory tract. The claim is being made that tuberculosis is becoming of higher incidence among pressmen on this account. The latter claim perhaps is unwarranted and at least is unproved. Low grade irritation, however, is an actuality in some instances. A somewhat analogous situation undoubtedly was created in connection with carloads of moist paper. Although acids, such as sulfuric, do not readily evaporate, irritant vapors no less enter the atmosphere, par-

of all persons receiving the license to practice medicine were women (324 women in a total of 2,109 persons licensed); of students who passed the preliminary examination in medicine (given at the end of the first five semesters of study) 22.1 per cent were women; at the same time 19.8 per cent of all medical students were women. The total number of licenses granted underwent a sharp increase in 1933-1934 (2,109 persons licensed as against 1,280 in 1932-1933). On the other hand there was but a slight increase in the number of students who passed the preliminary examination (4,943 in 1933-1934 against 4,836 in 1932-1933) and, throughout, the increase in the number of

TABLE 2.—Increase in Number of Heilpraktiker Prior to 1935

Year	Number of Heilpraktiker	Number of Women Heilpraktiker	Heilpraktiker per 10,000 of Population	Heilpraktiker to Each Ten Physicians
1876	670	95	0.36	0.49
1887	1,713	305	0.36	1.05
1898	3,059	766	0.56	1.24
1909	4,468	1,322	0.70	1.46
1927	11,761	2,632	1.86	2.70
1928	12,098	2,803	1.90	2.63
1929	12,418	3,001	1.94	2.61
1930	12,942	3,004	2.01	2.74
1931	14,031	3,372	2.17	2.93
1934	14,266	3,378	2.19	3.02
1935	14,023	3,359	2.13	2.96

women was considerably greater than the increase in the number of men. Conversely, the total number of medical students declined, although the number of women students declined at a slower rate than that of the men students. The statistics on the distribution of medical students over various semesters show that the high figures for those entering the medical profession will remain about the same for some three years and then will suddenly drop to about one half their former value. How long the number of new admissions will remain at so low a level cannot be computed beforehand, since the exigencies of the work service and military service are factors conducive to a retrogression in the number of students admitted to the medical schools. On the other hand, the decline in the number of women matriculants is so considerable that it cannot alone be attributed to the work service but may be taken to indicate that fewer women contemplate medicine as a career. Whereas the number of matriculants in medicine amounted in 1933-1934 to 2,866 men and 852 women, corresponding figures for 1934-1935 show only 1,826 men and 338 women or, in terms of percentage of the matriculants in the preceding academic year, only 65 per cent and 39.7 per cent for men and women respectively. The number of specializing physicians Jan. 1, 1935, showed an increase of 1 per cent. over Jan. 1, 1934. The greatest increase was among the internists, whereas the greatest decrease was among the dermatologists and venereologists. The proportion of women is by far the highest among pediatricians and lowest among surgeons and otorhinolaryngologists. Table 1 shows in detail the distribution of physicians engaged in the specialties.

It is further estimated that 4 per cent of physicians were in government service and 17 per cent were occupying permanent posts in institutions for the sick. Only one half of all physicians had selected to exercise their profession in a general, independent, nonspecialized practice. Detailed statistics on the groups lying outside regular medicine are of scant interest with the exception of the figures for the "heilpraktiker." These lay practitioners occupied a more favorable position under the new régime than that formerly enjoyed by them, a fact mentioned in previous letters. In this survey all unlicensed persons who were professionally engaged in the treatment of the sick were reckoned as "heilpraktiker." Jan. 1, 1935, there were three such heilpraktiker to each ten regular physicians in Germany; the corresponding ratio was 2.6:10 in 1929, 1.5:10 in 1909,

1.1:10 in 1878 and 0.5:10 in 1876. Sixty years ago there were only 670 heilpraktiker (according to the rather incomplete records of those times); today there are 14,023 such practitioners. The increase in the number of heilpraktiker took place at a greater rate than the increase in the number of regular physicians until 1927 and has made yet further advances since that time. In 1935 a decrease is to be noted for the first time, presumably a consequence of the measures instituted for the "purgation" of the ranks of the lay practitioners. The increase in the number of heilpraktiker prior to 1935 is shown in table 2.

The proportion of women is higher among the heilpraktiker than among the physicians or the dental physicians. Before the war the proportion of women heilpraktiker had increased from 14 per cent to 30 per cent; after the war it remained with great regularity at around 24 per cent—not quite one fourth of the total. An explanation of the considerable proportion of women lay practitioners may be found in the fact that traditionally many farmers' wives and nurses of one sort or another, including women in holy orders and masseuses, were classed as heilpraktiker.

#### Recent Vital Statistics

According to Dr. Wagner, the national fuerher of physicians, an annual rate of twenty births per thousand of population is to be considered the desired goal. This objective was nearly attained in 1935, the rate for that year being 19.7 per thousand. But in the last quarter of the year a slump to 17.4 took place. Wagner explains this decrease by the fact that many young couples had just previously found it possible to marry with the aid of government subsidies, thus creating a decline in the number of the even more recently married. The foundation of new families, on the wane throughout the depression years, once more proceeds at a more nearly normal rate, thanks largely to state aid for couples contemplating marriage. The total number of marriages contracted in 1935 was 650,851; the living births in the same year numbered 1,261,273. Despite the renewed retrogression in the birth rate observable in the last three months of the year, the number of births in the entire year 1935 still represented an increase of 64,533 (5.4 per cent) over the year 1934 and was still some 30 per cent above the lowest point of 1933. The excess of births reached 469,361 and was therewith smaller by 2,713 than in 1934. The population of the German reich at the close of 1935 was 67,069,000. The easily studied data contained in the new German mortality table for 1932-1934 contain much that is of interest. The last previous German mortality table, that of 1924-1926, had shown an extraordinarily pronounced decline in the death rate. The new mortality table of 1932-1934 exhibits, after a lapse of eight years as it were, a further marked decline in the death rate among nearly all age groups; what is more important, the decline in infant mortality is particularly noteworthy. The death rate for infants in the first year of life has declined more than one fourth. The average 1932-1934 rate for male infants in the first year of life was 85.35 per thousand living births against 115.38 per thousand in 1924-1926. The corresponding rate for females was only 68.39 in 1932-1934 against 93.92 in 1924-1926. On the basis of the mortality statistics for 1932-1934 the mean expectation of life was 59.86 years for each male infant born alive. This represents an addition of four years to the expectation (55.97 years) based on the mortality table of 1924-1926 and is greater by fifteen years than a corresponding figure (41.82 years) based on the still earlier table covering 1901-1910. The expectation of life for female infants born alive is, on the basis of the table of 1932-1934, 62.75 years. This mean figure also represents a four year increase over the expectation according to the table of 1924-1926 and an increase of 14.4 years over a corresponding mean based on the table of 1901-1910. After due allowance is made for the excess of male infants over female infants (106.5 males to 100 females) the



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### CALORIES CONSUMED IN WALKING ONE MILE

To the Editor:—How many calories does a man of 175 pounds (80 Kg.) and/or a woman of 125 pounds (57 Kg.) consume in walking gently a mile? Please omit name. M.D., Illinois.

ANSWER.—A man of 175 pounds would give off 95 calories in walking one mile in twenty minutes, and a 125 pound woman would give off 70 calories in walking the same distance in the same time. Roughly speaking, about one third of the calories would be required for standing quietly, not walking, and the extra two thirds would be that required for the energy of walking itself. Thus, in the case of the man it would be 30.3 calories for standing quietly and 63.88 calories for the extra effort of walking. These figures are assuming that the person is post-absorptive, that is, that there is no active digestion going on, in which case there would be a slight increase over these figures.

### SKIN TEST FOR PREGNANCY

To the Editor:—Just recently I was told by one of the drug salesmen calling on me that there is a simple test for pregnancy. He further described this test saying to inject 0.2 cc. of antuitrin-S intracutaneously and wait thirty minutes to take the reading. If a reaction appears (red areola) at the site of injection the patient is not pregnant; if no reaction appears, she is pregnant. This test is supposed to be 95 per cent accurate and to be worth using after one missed period. Is this test really what it is claimed to be. GORDON LAWYER, M.D., Cambridge, Ohio.

ANSWER.—The skin test for pregnancy consists in injecting 0.2 cc. of a preparation containing the gonadotropic principle from the urine of pregnancy into the skin and later noting the reaction around the site of the injection. If an erythema occurs the patient is assumed not to be pregnant; if no erythema occurs the patient is supposed to be pregnant. This test is based on the assumption that the pregnant woman, whose body fluids contain large quantities of the gonadotropic principle, would be "immune" to this substance whereas the non-pregnant woman would not be "immune."

This alleged pregnancy test has been known for at least eight years. It was apparently first proposed in 1929 by Porges and Pollatschek of Vienna (*THE JOURNAL*, Aug. 17, 1929, p. 559). It was subsequently investigated by Alfred Deutsch (*Zentralbl. f. Gynäk.* 53:2920 [Nov. 16] 1929) in Europe and by Hyman Strauss (*Am. J. Surg.* 8:1271 [June] 1930; *THE JOURNAL*, Sept. 24, 1934, p. 1015) in this country; both these workers found the test to be quite unreliable. Porges and Pollatschek themselves later reported a high incidence of diagnostic error in using their test (cf. Strauss).

Despite these previous reports, this "skin test" for pregnancy has twice been resurrected (Dowell, D. M.: *J. Missouri M. A.* 30:275 [July] 1933; *THE JOURNAL*, Aug. 18, 1934, p. 510. Gilfillen, G. C., and Gregg, W. K.: *Am. J. Obst. & Gynec.* 32:498 [Sept.] 1936). There is as yet no reason to believe that the test is any more reliable now than it was in 1929.

### HEALING OF SINUS AFTER NEPHRECTOMY

To the Editor:—Kindly discuss means of expediting healing of a post-operative sinus following nephrectomy for unilateral tuberculosis of the kidney. Kindly omit name and address. M.D., New York.

ANSWER.—A postoperative sinus following nephrectomy for renal tuberculosis frequently persists over a period of several months. This is nothing to be alarmed about, since infection in the perirenal tissues may retard healing. If drainage persists longer than this, however, some complication may be present and various therapeutic measures might be tried to expedite healing.

Tuberculosis itself does not cause much drainage. As a rule a persisting sinus is due to secondary infection, and a bacteriologic study of the secretion from the sinus might well be indicated. If secondary infection is present, injections of a stabilized form of diluted solution of sodium hypochlorite in a solution of 1:20 might be tried. Two or three cubic centimeters of this solution should be injected through a catheter inserted

into the sinus tract and repeated every hour or two during the day for several weeks. Flushing of the wound with hypotonic saline solution may also be of value.

Sometimes on investigation of the wound an undermining pocket may be found along the anterior wall, which may require adequate drainage. If such a pocket is suspected, a roentgenogram made after injecting any radiopaque substance, such as neo-iopax or hippuran, into the sinus will reveal its presence. In rare cases a patent ureter permits passage of urine from the bladder into a persisting sinus and a complete ureterectomy may be indicated. Renal tissue remaining after incomplete nephrectomy may also cause a persisting sinus.

Heliotherapy is by far the best aid to closure of complicated wounds. Exposure to the sun's rays in gradually increasing dosage, care being taken not to irritate the wound or the skin around it, has hastened healing in many persisting sinus tracts. Although this treatment may be carried out in the summer time in any part of the country, the sun's rays in a dry climate such as that of Arizona give the best results. Heliotherapy by means of lamps is not as efficacious but has been used with some success.

### CARBON MONOXIDE POISONING

To the Editor:—I have a group of questions to ask with regard to the physical and chemical observations of the blood in the postmortem examination in a case of suspected carbon monoxide poisoning (exhaust pipe): 1. What is the general appearance of the skin? 2. Will the skin maintain this uniform general color throughout the body or will the color change materially in time? 3. Is there any difference in the length of time of decomposition between the carbon monoxide poison case and a case of death from natural causes? 4. Could there be a post-mortem examination done four or five weeks following infarction to determine whether such a case was carbon monoxide poisoning? 5. Why are the medicolegal tests for carbon monoxide poisoning? 6. Would sodium citrate added to postmortem blood of suspected carbon monoxide poisoning, taken about four hours following death, interfere with subsequent chemical or spectroscopic examination? 7. If a person was comatose from opiates, barbiturates or bromides, would a sufficient amount of carbon monoxide be absorbed by the blood to be tested subsequently? I would appreciate very much an early reply. Please omit name. M.D., South Dakota.

ANSWER.—1. When the blood is well saturated with carbon monoxide the skin becomes cherry red; in the dependent parts the color may be a deeper red.

2. The skin may retain the color as described for a considerable time, it is said even for weeks and months.

3. No.

4. Yes. Carbon monoxide poisoning can be detected on post-mortem examination from four to five weeks after death. The blood may retain its redness even longer and carbon monoxide may be detected chemically and spectroscopically months after death.

5. Chemical tests (Katayama's, Hoppe-Seyler's and other tests) and spectroscopic examination.

6. No.

7. Yes; the conditions mentioned would not interfere with the absorption of carbon monoxide if it is present in the air that is inhaled.

### IRRITATING FUMES FROM HOT MOIST PAPER

To the Editor:—A patient of mine eight months ago bought a few carloads of paper wet in the Pittsburgh flood. He and his employees who unloaded the cars were subjected to irritating fumes and all developed painful intranasal swelling and irritation. The others recovered promptly. The man has had what he calls sinus headache much of the time since. He has been to half a dozen good nose and throat men without real relief. The sinus x-ray report is not informative. There is no history of allergy. Is there any reason to suppose that irritating fumes from hot moist paper could produce such persistent trouble?

LOVETT DEWEES, M.D., Ardmore, Pa.

ANSWER.—Although this query fails to provide full facts as to the type of paper, it is within reason to believe that the paper probably was of the Kraft variety and therefore contained sulfites or chemical compounds formed from sulfites. The wetting process would tend to enhance the production of sulfurous or sulfuric acid. This type of complaint is at present emanating from various newspaper pressrooms where paper dust containing sulfites or sulfur acids are proving to be a source of irritation to the upper respiratory tract. The claim is made that tuberculosis is becoming of higher incidence among pressmen on this account. The latter claim perhaps is exaggerated and at least is unproved. Low grade irritation, however, is an actuality in some instances. A somewhat analagous situation undoubtedly was created in connection with carloads of moist paper. Although acids, such as sulfuric, do not really evaporate, irritant vapors no less enter the atmosphere and

## Marriages

JOSEPH B. GAIDA, St. Cloud, Minn., to Miss Naonni Mary Ann Aubin of Minneapolis, recently.

WILLIAM ALEXANDER GREENE to Miss Kayte Winesette, both of Whiteville, N. C., Oct. 17, 1936.

ROBERT BOONE OUTLAND, Elm City, N. C., to Miss Lois Griswold of Wendell, Nov. 5, 1936.

JOHN W. MAYHER to Miss Dorothy Shannan Illges, both of Columbus, Ga., Nov. 10, 1936.

JOHN A. BOOHER, Reedsburg, Wis., to Miss Esther Rooney of Baraboo, Sept. 26, 1936.

STUART B. GIBSON, Williamsport, Pa., to Miss Eleanor Orr of Baltimore, Oct. 16, 1936.

JOHN A. TASCHÉ JR. to Miss Myra Mueller, both of Sheboygan, Wis., Sept. 8, 1936.

RICHARD A. KINNEY, Jamestown, N. Y., to Miss Alice Mae Mink of Falconer, recently.

EDGAR M. SHAW to Miss Elizabeth Miller, both of Zvolle, La., Oct. 11, 1936.

## Deaths

Charles Franklin Adams ☉ Trenton, N. J.; Jefferson Medical College of Philadelphia, 1887; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; served during the World War; ophthalmologist to the Orthopedic Hospital, Trenton, and the New Jersey State Home for Boys, Jamesburg; chief of the department of ophthalmology and otolaryngology, and for many years secretary of the medical board of the Mercer Hospital; consultant in ophthalmology, State Hospital; consultant in ophthalmology and otolaryngology, Municipal Hospital, Trenton, and the New Jersey State Village for Epileptics, Skillman; aged 77; died, Dec. 14, 1936, of cerebral hemorrhage.

William Frederick Wegge ☉ Milwaukee; University of Maryland School of Medicine, Baltimore, 1886; clinical professor of neurology, emeritus, Marquette University School of Medicine; past president of the Milwaukee Neuro-Psychiatric Society; fellow of the American College of Physicians; served in various capacities on the staffs of the Milwaukee County General, St. Mary's, St. Joseph's and the Johnston Emergency hospitals; aged 73; died, Nov. 20, 1936, of coronary thrombosis.

George Henry Allen ☉ Topeka, Kan.; State University of Iowa College of Medicine, Iowa City, 1908; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; past president of the Shawnee County Medical Society; served during the World War; aged 56; on the staffs of the Hillcrest Sanatorium and the Jane C. Stormont Hospital, where he died, Dec. 18, 1936, of Hodgkin's disease.

Frederic de Kraft ☉ New York; Jefferson Medical College of Philadelphia, 1883; in 1932 was one of the eight physicians to receive the annual award of the American Congress of Physical Therapy for outstanding accomplishments in his field; past president of the American Electrotherapeutic Society; formerly on the board of consulting physicians of the Manhattan State Hospital; aged 75; died, Dec. 25, 1936, of pneumonia.

Thomas Francis O'Brien, Hartford, Conn.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916; member of the Connecticut State Medical Society; served during the World War; health officer; formerly superintendent of The Seaside, Waterford; for many years on the staff of St. Francis Hospital; aged 52; died, Nov. 30, 1936, of nephritis.

John Smith Fogg, Biddeford, Maine; Medical School of Maine, Portland, 1891; Bellevue Hospital Medical College, New York, 1891; veteran of the Spanish-American War and the Philippine Insurrection and was discharged on account of physical disability incurred in line of duty; aged 71; died, Nov. 20, 1936, in the Veterans Administration Facility, New York.

Gavin Watson, Clarksville, Texas; Kentucky School of Medicine, Louisville, 1905; member of the State Medical Association of Texas; formerly secretary of the Red River County

Medical Society; county health officer; aged 54; died, Nov. 10, 1936, in a sanatorium at Paris, of pneumonia, following fracture of the femur and humerus received in a fall.

John Leo Chabot, Ottawa, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1892; fellow of the American College of Surgeons; formerly member of parliament; served during the World War; consulting surgeon to the Ottawa General Hospital and surgeon to the Ottawa Civic Hospital; aged 67; died, Dec. 8, 1936.

Frank Cook Abbott ☉ Philadelphia; Jefferson Medical College of Philadelphia, 1905; associate professor of general anatomy at the Temple University School of Dentistry; served during the World War; was on the courtesy staffs of several hospitals of Philadelphia, notably St. Joseph's Hospital; aged 58; died, Dec. 24, 1936.

George Alexander Bridge, Bisbee, Ariz.; Columbia University College of Physicians and Surgeons, New York, 1902; past president and treasurer of the Arizona State Medical Association; fellow of the American College of Surgeons; formerly on the staff of the Copper Queen Hospital; aged 63; died, Nov. 18, 1936.

Frederic Courtney Bishop ☉ New Haven, Conn.; Yale University School of Medicine, New Haven, 1895; president of the New Haven County Medical Society; formerly chief medical examiner in New Haven for the Metropolitan Life Insurance Company; aged 66; died, Dec. 22, 1936, of heart disease and coronary occlusion.

Herman S. Bowles, Muncie, Ind.; Medical College of Ohio, Cincinnati, 1902; past president of the Muncie Academy of Medicine; served during the World War; formerly county health officer; aged 59; on the staff of the Ball Memorial Hospital, where he died, Dec. 2, 1936, of tuberculosis.

Clarence Robertson Bass, Cimarron, N. M.; Kentucky University Medical Department, Louisville, 1902; member of the New Mexico Medical Society; aged 59; died in December 1936 at the New Mexico Miners Hospital, Raton, of injuries received in an automobile accident.

John Elisha Campbell, South St. Paul, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; member of the Minnesota State Medical Association; aged 61; died Nov. 24, 1936, in Inver Grove, of a skull fracture received in an automobile accident.

Jau Don Ball ☉ San Francisco; University of Virginia Department of Medicine, Charlottesville, 1902; member of the American Psychiatric Association; aged 56; died, Nov. 25, 1936, in St. Luke's Hospital, of cirrhosis of the liver, gastric hemorrhage and diabetes mellitus.

Grover Pierson Alton, Gashland, Mo.; Kansas City Medical College, 1898; member of the Missouri State Medical Association; served during the World War; aged 64; died, Dec. 16, 1936, in the Research Hospital, Kansas City, of arteriosclerotic cardiovascular disease.

Ingersoll Olmsted, Hamilton, Ontario, Canada; University of Toronto Faculty of Medicine, 1887; member of the American Surgical Association; fellow of the American College of Surgeons; surgeon to the Hamilton General Hospital; aged 72; died, Nov. 12, 1936.

Louis Dale Carman, New York; Howard University College of Medicine, Washington, D. C., 1888; Georgetown University School of Medicine, Washington, D. C., 1889; for many years medical examiner for the Pension Bureau; aged 76; died, Dec. 15, 1936.

Kent Oakley Brown ☉ Hartford, Conn.; Kansas Medical College, Topeka, 1902; chairman and medical member on the rating board of the Veterans Administration Facility, Newington; aged 66; died, Dec. 8, 1936, of coronary occlusion and arteriosclerosis.

Ethan Henry Smith, San Francisco; Bellevue Hospital Medical College, New York, 1889; formerly professor of orthopedic surgery, College of Physicians and Surgeons of San Francisco; on the staff of the French Hospital; aged 72; died, Nov. 24, 1936.

Walter Cayley Belt, Newport, Ore.; Trinity Medical College, Toronto, Ont., Canada, and Victoria University Medical Department, Coburg, Ont., 1892; served during the World War; aged 64; died, Dec. 22, 1936, in the Koloa Hospital, Koloa, Hawaii.

Alfred Clark Carpenter, Milford, Conn.; University of the City of New York Medical Department, 1889; member of the Connecticut State Medical Society; on the staff of the Milford Hospital; aged 70; died, Nov. 1, 1936, of coronary occlusion.

## CARR DRUG COMPANY

To the Editor:—I am looking for information in regard to the reliability of the "Carr Drug Company" of Muncie, Ind. Does your department of investigation have any information regarding the quality of drugs which they sell? The prices they quote are much lower than the ordinary companies offer but I do not want to buy inferior drugs. If you can advise me in this matter I would greatly appreciate it.

M.D., New York.

ANSWER.—No product of the Carr Drug Company stands accepted by the Council on Pharmacy and Chemistry. The inquirer need only look at a recent folder entitled "Special Introductory Prices on Tablets" to note the type of unscientific medicine promoted by this concern. For instance, "Aconite-Binodid Comp. Spec. (T. T.) was Follicular Tonsillitis" is stated to have the following composition:

Extract Cannabis	1/16 gr.
Tr. Aconite U. S. P.	3/10 gr.
Tr. Belladonna, U. S. P.	3/10 gr.
Tr. Bryonia	1/40 gr.
Mercuric Iodide Red	1/100 gr.
Sodium Salicylate	1 gr.
Wintergreen Flavor	q.s.

The phrase "was Follicular Tonsillitis" indicates that the firm has changed the name from one which is therapeutically suggestive to one which partly indicates the composition of this shot-gun mixture.

Or if a physician wishes an example of taking a good drug, phenobarbital, and surrounding it with unscientific pharmaceutical shrunbry there is the example of "Phenobarbital-Passiflora Comp. (S. C. Red)":

Phenobarbital	3/4 gr.
Ext. Passiflora Incarnata	1 gr.
Ext. Valerian	1 gr.
Ext. Sumbul	1/2 gr.
Ext. Hyoscyamus	1/4 gr.

Although the use of calcium sulfide and echinacea compounds has been considered therapeutically undesirable for many years, this firm promotes "Sulphides Comp. & Echinacea (S. C. White) was Acne (Dermatitis)" as having the following composition:

Calcium Sulfide	1/4 gr.
Arsenic Sulfide	1/100 gr.
Ext. Echinacea	3/4 gr.
Iberberis	1 gr.
Nux Vomica	1/50 gr.
Juglandin	1/4 gr.

Many years ago the fallacy of treating rheumatism with lithium was exploded, yet in 1936 this firm presents to physicians "Lithium Salicylate Comp. was Rheumatic B-Yocum R." having the following declared formula:

Lithium Salicylate	5 gr.
Maerotin	1/4 gr.
Phytolaccin	1/4 gr.
Colchicine	1/150 gr.

Such prescriptions are an insult to the intelligence of the medical profession and suggest that the house is one of those the policies of which are inimical to the best interests of the public and the medical profession.

The Carr Drug Company is one of the firms which cater to those physicians who are still using the complex mixtures which were in general vogue more than twenty years ago. Many of these mixtures are not only marketed with unwarranted claims but are sold under names or subtitles which may lead physicians to use them uncritically. Therapeutically suggestive designations are an invitation to use the products without consideration of the component parts or the needs of the individual patient.

## FURUNCULOSIS

To the Editor:—There being such a galaxy of remedies in the treatment of furunculosis, most of them experimental, one is at a loss to know just what treatment to resort to. What in your opinion is the most recent effective therapy employed in combating furunculosis? I have tried stock vaccines, diet and hygienic measures with negative results. Please omit name.

M.D., South Carolina.

ANSWER.—To prevent recurrence of furuncles in an obstinate case demands local and systemic attack. The local treatment is essentially the maintenance of an extreme degree of cleanliness by dressing the furuncle so that its infectious discharge is not disseminated, and by washing the affected area with tincture of green soap and a flesh brush after the lesion has healed, followed by application of a hot towel, and finishing with a disinfectant lotion such as 2 per cent salicylic acid in 75 per cent alcohol. If the skin has a tendency to excessive sweating, a dusting powder (5 per cent salicylic acid in talcum) may be helpful. If this does not suffice, the affected region should be subjected to a series of five or six x-ray treatments (85 kilovolts, no filter, 75 reentgens once a week).

The systemic treatment consists in correcting any existing impairment of nutrition, such as diabetes, nephritis, obesity or hypervitaminosis D. As resistance may be kept up by foci of infection, these should be removed. Resistance may be raised by the administration of autogenous vaccine, which should not be started until the acute lesion has disappeared. It should be given in gradually increasing doses to produce a definite but mild local reaction, and should be repeated at intervals sufficient to permit complete disappearance of all phenomena of reaction. This treatment should be continued until the patient can tolerate without reaction possibly ten times the dose that at first produced a reaction.

## TREATMENT OF CONVULSIVE DISORDER WITH OTITIS

To the Editor:—A woman, aged 28, since February 1932 has had a slight purulent discharge from the right ear. An otologist states that in his opinion there is a low grade bone involvement in the attic and probably antral regions. X-ray examination shows both mastoids to be sclerotic and sclerotic. Specialized testing showed normal cochlear and vestibular function in both ears. The upper part of the drum is perforated. In January 1932 she was in an automobile accident. She was unconscious for not more than one or two minutes. Since the ear trouble dates from one month later, she attributes it to the accident. In April 1933 she suffered an attack of what was diagnosed as idiopathic grand mal. A second attack occurred in July 1933, a third attack in August 1933 and a fourth attack in September 1934. There has been no attack since. All attacks were nocturnal, the patient herself being entirely unaware of anything happening until the spell was over. Cessation of the attacks since September 1934 have not been due to treatment as she has had none. However, before the first attack her ear was treated by insufflating powders. This was continued several months. However, after the last spell, she changed otologists and the doctor avoided all local treatment, merely wiping the canal dry as needed. I omitted to state that there was no history of previous convulsions; but on one occasion in girlhood her mother was unable to awaken her for school and she awoke only after a half hour of slapping and application of cold water to the face. Her hearing is not markedly affected. The infection in the ear seems to have changed since its onset. However, it is making her more and more neurotic and she fears another convulsion. Do you think the otitis could cause the convulsions she had? What do you think the prognosis of the otitis is? Could the automobile accident have caused either the otitis or the convulsions? On one occasion she "washed" her ear herself and became so dizzy that she was confined to bed for twelve hours. There have been no other dizzy spells. Laboratory examinations reveal red cells 4,700,000, hemoglobin 87 per cent, white cells 7,500, differential cell morphology normal, urea nitrogen 14.2, uric acid 2.7, sugar 96, cholesterol 48.5, calcium 0.4, phosphates 3.4, cholesterol 200, carbon dioxide 27.1, platelets 430,000, coagulation time 5 seconds. The specific gravity of the urine is 1.036. The Mosenthal test reveals the lowest specific gravity 1.030, highest 1.037; the total day output is 423 cc. with 5.2 Gm. of chlorides; the total night output is 355 cc. with 1.3 Gm. of chlorides. The phenolsulfonphthalein test returned 97 per cent in two hours; total output 758 cc., with 6.5 Gm. of chlorides. The blood Wassermann reaction is negative. The spinal fluid Wassermann reaction is negative. The colloidal gold curve is 1111000000; globulin, negative; protein, 0.35 Gm. These have been reported as all normal, but don't you think the specific gravity of the urine is constantly high and the total output of urine and of chlorides reduced? Would you please answer these questions: 1. How do the urinary observations any relation to convulsions (by upsetting the water balance)? 2. Do you think the otitis could cause the convulsions? 3. What treatment would you recommend for the ear? 4. What do you think the prognosis is? 5. Do you think the automobile trauma has any relation to the case? Please omit name.

M.D., New York.

ANSWER.—1. The specific gravity is unusually high and suggests that the patient may require fixation of fluid intake and regulation of diet. Normal adult fluid intake averages 2 to 3 ounces of liquid a day. Normal diet should contain from 20 to 30 ounces with a history of convulsive seizures. Liquid intake should not exceed 30 ounces a day and the diet should contain approximately 20 to 24 ounces of water content. Carbohydrate, starch and sugar consumption should be restricted and regulated. The fluid intake and output and the specific gravity of the urine should be recorded over a two week period to determine fluctuations. Under an appropriate diet the specific gravity should be reduced, if the patient's excretion does not involve excessive perspiration.

2. The otitis as described is not the cause of the convulsions.

3. The treatment for the chronic ear condition, in addition to the accepted local care, should include autogenous vaccine and a high vitamin diet.

4. The prognosis as to the convulsive seizures is favorable under strict and continued regulation of weight, diet, fluid intake and appropriate activities.

5. Posttraumatic epilepsy occurs in approximately 2 per cent of cerebral trauma. An encephalogram alone will not determine the cerebral disorder, which may be attributed to traumatic or inflammatory origin. The colloidal gold curve is also normal. The test should be repeated. In view of the early history of the test which suggests a possibility of an attack in childhood.

## Correspondence

### THROMBO-ANGIITIS OBLITERANS

*To the Editor:*—In *THE JOURNAL*, Dec. 12, 1936, Collens and Wilensky, cited a case of thrombo-angiitis obliterans, No. 3 in their series, which was apparently healed, according to the illustration on page 1961. On page 1965 the statement is made "Of all the ulcers that have healed in our series, not one has subsequently broken down."

It may be interesting to report that this patient, P. N., was examined at my office on Oct. 21, 1936, at which time there was an ulcer about 2 by 3 cm. in diameter on the stump of the left foot near the medial surface. According to the patient's statement, this ulcer had been present for a few weeks and showed no signs of healing although he has been using the Collens apparatus continuously. An oscillometric tracing taken on the same day showed no arterial pulsation whatever at the ankle level.

SAUL S. SAMUELS, M.D., New York.

### "SYPHILIS SIVE MORBUS HUMANUS"

*To the Editor:*—I have read with interest your review of Dr. Butler's book *Syphilis sive Morbus Humanus*. In this review appears the following:

However much one may be in sympathy with the contention of the author that syphilis did not originate in the New World, his array of historical evidence in this direction is far from convincing. The description of the venereal diseases by precolumbian physicians might apply to a half dozen diseases that could be easily confused with syphilis. Furthermore, the most authoritative of the postcolumbian writers, Francisco Lopez de Villalobos and Juan de Vigo, are not even mentioned by this author. The former wrote an authoritative treatise in 1498 entitled *Las bubas*, the latter a treatise in 1517 entitled *La mal français*.

Without presuming to impeach the reviewer's impressions, the only inference I can make from this quotation is that Dr. Butler is not familiar with these authors and that these works support the myth of the American origin.

Being grateful to Dr. Butler for a photostat copy of the whole poem in its original text, *Del licenciado de Villalobos, sobre las contagiosas y malditas bubas: estoria y medicina*, printed at Salamanca by Antonio de Barreda in 1498 (the copy in the British Museum), I feel it my duty to absolve him of any charge of ignorance of this work.

If the reviewer means by the work of Juan de Vigo which he calls *La mal français* his fifth book, entitled *De Morbo Gallico*, first published at Rome in 1514, then I would say that the works of neither of these authors makes mention or hints at an American origin for syphilis. And I can testify from personal knowledge that Dr. Butler is familiar with both of these works. More than thirty years ago I met Dr. Butler in the West Indies and accompanied him to leper hospitals and to other hospitals out of pure professional interest in disease and sickness among peoples of primitive habits. His experience as director of public health of the Haitian Republic was no casual contact with the diseases of which he is endeavoring to give his impressions.

In view of the liberal and tolerant expressions of the reviewer on the vexed question of the identity of yaws and syphilis, more than ever it would seem to me that we are approaching a time to overthrow an exotic traditionalism, with a view of examining the past in the light of its more reasonable biologic and social aspects.

Agreeing with the reviewer, I admit that to the ordinary physician the object of Captain Butler's book is of little interest as yet. That new National Social Hygiene Day is not until Feb. 3, 1937. I believe that to the layman the question is confusing, and also to the physician, particularly one who

reads current accounts of the work of Juan de Vigo, to learn that the disease appeared at Rome in December 1494 in epidemic form with the arrival of Charles VIII on his way to Naples; and then going into the subject one learns that the French army arrived at Rome Dec. 31, 1494. But little attention is given to the history of disease, not I believe because the ordinary physician is incapable of being interested but because he does not have the time to go deeply into these subjects. At the Atlantic City session of the American Medical Association in 1935, a part of a day in the Section on Miscellaneous Topics was given to the History of Medicine, because our Canadian brethren jointly meeting with us had such a section. At this time a resolution was offered that the American Medical Association organize such a section, but it died in stillbirth. When there is more encouragement in the field of medical history the ordinary physician will grow more interested, and the layman will be less confused.

Until the obstacle of the American origin of syphilis is attacked and if possible removed, no investigation into the far reaching biologic and social aspects of the antiquity of the disease we now call syphilis will be possible.

R. C. HOLCOMB, M.D., Upper Darby, Pa.

Captain, Medical Corps, U. S. Navy, retired.

*To the Editor:*—In connection with the review of my book "Syphilis Sive Morbus Humanus" (*THE JOURNAL*, Dec. 5, 1936, p. 1915): If it is of no interest to the general practitioner that two conditions such as yaws and syphilis are proved identical, if it would be of no interest to the profession of the United States and the world to expunge from our textbooks the monstrosity called yaws, then I am no judge of what is important and what is not. Yet your reviewer admits that the points here are proved and patronizingly commends my "zeal."

The American Medical Association should be interested in getting the truth about this important subject to the 100,000 or so physicians of the United States and Canada instead of expecting one physician to bear the whole load, as I have done for many years.

The Association's stand as regards the second item of my purpose in writing this book, viz., to expose the fallacy of the American origin of syphilis, is also discreditable. In the Commemoration Volume of 1915 the Association permits Dr. William Allen Pusey to commit the physicians of America to this American origin affair—the thesis of a discredited German, whose writings were not allowed to pass through the mails in Germany before his death. If there is one thing my book does show up it is the fallacious stand of these would-be American history interpreters. The thing is preposterous and certainly not to the credit of American medicine that one man can continue to teach the laity and the medical students of the United States this perfectly patent fallacy.

Now as regards the first item in which your reviewer finds that I have signally failed! If you look up the references in my book you will find that on the 19th of February 1934 the writer of "Syphilis Sive Morbus Humanus" was the first person, medical or lay, to advocate and insist on the use of the medical names of the venereal diseases by the newspapers and in radio broadcasting. This address, delivered in February 1934, was published in the *Medical Record* 140:592-594 (Dec. 5) 1934. Since that time the name "syphilis," which previously never occurred in the newspapers and was tabu by all the radio companies, is being used by both in all the large cities of the United States. Well the record speaks for itself. If you would do me the justice, not to say the courtesy, to publish this in your correspondence, I would appreciate it.

C. S. BUTLER, M.D.,

Naval Medical Center,  
Washington, D. C.

which the breast was removed and may cause much distress. Also, nursing from only one breast subjects the patient to breast irritation at too frequent intervals. Therefore it is usually advisable to avoid breast feeding if the mother has only one breast.

Pneumonia or any other serious acute infectious disease is a contraindication to nursing. The mother rarely has milk in such cases, she should not be subjected to the strain and discomfort of nursing, and the risk is too great of transmitting infection to the baby.

#### DANGER IN ERGOT PREPARATIONS FOR HEADACHE

To the Editor:—A woman, aged 51, has had frequent and intractable headache for about fifteen years. The onset followed a slight head injury in which she sustained a lump against the bow of an automobile top. At that time headache occurred at intervals of once or twice a month. For the past two years the attacks have been more frequent and last always two and sometimes as long as eight days. The headache is chiefly occipital and there has been no nausea or visual disturbance. There is no family history of migraine. She has a history of rheumatic fever at 16 and 19, two attacks of generalized aching said to have been muscular rheumatism, and an infected foot some years ago. The menopause occurred in 1932. There have been no symptoms referable to any other part of the body except pain and tenderness over the right sacro-iliac joint. The tonsils and teeth have been removed. General physical and neurologic examinations disclosed nothing to account for the headache. The patient had a well compensated mitral stenosis. Roentgenograms of the cervical spine were not abnormal, nor was the urine. The spinal fluid was not examined. All previous medication had given no relief. She was given a solution of ergonovine in teaspoonful doses as follows: March 3, one dose; March 16, two doses, at 6 and 8 a. m.; March 17, two doses, at 6 and 8 a. m.; March 23, two doses, at 6 and 8 a. m.; March 24, one dose; April 5, one dose; April 8, one dose; April 18, three doses, at 6, 8 and 10 a. m. On each occasion the headache has been relieved by from one to three doses and naturally the patient is very enthusiastic about the treatment. The two cases of gangrene following the hypodermic use of ergotamine tartrate reported in *THE JOURNAL* May 9, 1936, have raised the question in my mind as to whether there may be danger with this other ergot preparation in the dosage employed. I would appreciate any information covering this point. Please omit name.

M.D., Texas.

ANSWER.—There is certainly such danger. The remedy should be used as sparingly as possible and an effort made to find a suitable succedaneum. As the ergot derivative probably acts by modifying the circulation disturbance in the affected part, other agents affecting the circulation in a somewhat similar manner, e. g., epinephrine or ephedrine, may be tried. The cerebrum exciting and insomnia inducing effect of the latter may be antagonized by combination with phenobarbital. Acetylsalicylic acid probably owes part of its action to redistribution of blood, so that a large dose of it, from 0.6 to 1 Gm., is well worth trying in a case of this kind.

#### BLOOD-TINGED SEMEN

To the Editor:—Kindly advise me as to the possible etiology, treatment and results of cases similar to this: A well developed man, aged 45, a Negro, occupied professionally and living in a good environment, came to my office several months ago with the complaint of blood mixed with semen on ejaculation following coitus. Such a condition has existed for about a year and varies from a trace to an amount sufficient to cause alarm. There is no pain accompanying ejaculation. A thorough physical examination revealed two abscessed teeth (right upper molars), which have been removed, a hypertension with the systolic pressure reading 204 mm. and the diastolic pressure 130 mm., which has been appreciably reduced, and a moderately enlarged prostate gland. The blood Wassermann test was negative, a complete blood count was normal and a urinalysis showed only a trace of albumin. I might add that the patient is apparently a highly nervous type and above the average intellectually. He states that coitus is not in excess and at times only once a month; also if he has a priapism without gratification and a small amount of secretion follows, no blood is evidenced nor is there any before, during or after micturition or any interference of it. He further states that he has not had any gonorrheal infection nor does any evidence show at present. It is apparent that the blood-tinged semen occurs only at the termination of coitus and he is now reluctant to indulge for fear of some serious development. Kindly outline the proper procedure or any information that will aid me in clearing up such a case and, if you please, omit name and address.

M.D., Oklahoma.

ANSWER.—The appearance of blood-tinged semen at the end of coitus is almost always due to a pathologic condition in the prostatic urethra. If the blood came from the seminal vesicles, the entire semen would be uniformly bloody. It is therefore essential to introduce a cysto-urethroscope and carefully look over the entire prostatic urethra without the introduction of any local anesthetic. Often this reveals a polyp or other tumor or an erosion or even an intense congestion of all the parts. The treatment consists in removing whatever pathologic condition is found. The prognosis is excellent.

#### PAROSMIA AND VISUAL DISTURBANCES

To the Editor:—A man, aged 42, a printer, suffers from a large choroidal lesion of the right macular field. The vision is reduced to 20/70 and there is a central scotoma for form and color. Previous to impairment of vision he smelled an odor of rotten onions, which during the past six or seven weeks to an odor of "burnt eggs." The odor is annoying and is disturbing his appetite. The general physical condition is good. The sinuses (roentgenologically and clinically) are normal. A neurologic examination was essentially negative, except for diminution of smell on the right side. Tests for lead poisoning were negative. The Mantoux reaction was positive and he is receiving cutaneous injections of new tuberculin T. R. I will appreciate your advice as to diagnosis and further procedure; also as how to relieve the annoying odor.

M.D., New York.

ANSWER.—This patient is suffering from parosmia in addition to a visual disturbance. Two conditions are suggested by the history. The first is that of an inflammatory lesion (arachnoiditis) at the base of the right frontal lobe. The second condition is that of a neoplasm at the base of the brain in the right frontal region involving the right olfactory bulb and nerve as well as the right optic nerve. Usually the parosmic sensations disappear after a period and anosmia results. This is especially true if there is a tumor and no attempt is made to remove or decompress it. It is suggested that the patient's smell be tested for response to coffee and citral. The test and interpretation of these tests can be found in an article by Elsberg in the April 1936 issue of the *Bulletin of the Neurological Institute of New York*. A careful search should be made for a primary malignant neoplasm of the bronchus, prostate and stomach. Saturnism usually does not produce a syndrome as described. Tumors of the uncinate gyrus of the temporal lobe produce so-called uncinate fits, which are characterized by abnormal sensations of smell in association with a convulsive state. Here lateralizing signs are found on neurologic examination. An exploration of the right anterior fossa is indicated if there is further progress of loss of visual acuity, field defects and loss in sensation of smell.

#### USE OF YEAST NUCLEIC ACID IN ALLERGY

To the Editor:—In the August 1935 issue of the *Archives of Otolaryngology* Dr. Ruskin of New York wrote an article about the use of nucleic acid in nasal conditions and I cannot find just what this is or just how it is given (dispensed) and more details about its use. He makes it sound quite good and as I am looking for new and better ways I wish to get some and try it in my work. I cannot even find what makes it and so am coming to you with my request for information. One man I asked said it was yeast and another said it is made from yeast. If this is answered in *THE JOURNAL*, please omit name and city.

M.D., Alabama.

ANSWER.—The nucleic acid referred to is yeast nucleic acid, sold by Merck or Fleischmann. It is administered either in powder form of 10 or 15 grains (0.65 or 1 Gm.) three times a day or in capsules, two or three 5 grain (0.3 Gm.) capsules three times a day.

Nucleic acid represents nonprotein nitrogen and it seems that the feeding of nonprotein nitrogen is of value in allergic cases. It has also been useful in severe eczema.

In seasonal hay fever the discomfort is considerably diminished and in some cases entirely relieved if the patient takes the nucleic acid beginning about one month prior to the usual onset of symptoms and continued throughout the period of irritation.

#### OPERATIONS FOR IMPOTENCE

To the Editor:—Please advise me whether ligation of the dorsal vein of the penis is really effective when there is too rapid emptying of the vein, and what ill results may follow such procedure. I am unable to get much from the literature at my disposal on this matter. Please omit name.

M.D., Arizona.

ANSWER.—Lydston in the *American Journal of Clinical Medicine* (1903) published an article recommending ligation of the dorsal vein of the penis for the relief of impotence. The effects he noted were twofold, mechanical and psychic. However, the results were not long lasting and the procedure was given up.

Lowsley reports excellent results with both animals and man by tightening the ischio-cavernosus muscle on each side and the bulbocavernosus muscle by means of ribbon-gut. Because the ribbon-gut does not tear through the delicate muscular structures, a large percentage of the patients on whom he has operated, the vast majority now being fifty-one, have been relieved by this operation. He has modified by tightening the two leaves of the suspensory ligament, thus compressing the dorsal vein of the penis for the relief of impotence due to traumatic rupture of the urethra and



ticularly in the presence of high temperatures. The initial inflammation of the respiratory tract with propriety may be associated with the cause mentioned, provided, in fact, the paper involved was of the sulfite variety. On the other hand, the persistent manifestation in one patient scarcely may be attributed to the direct action of these vapors. The initial chemical irritation probably has been followed by an ordinary sinusitis, in which infection plays a part and which, at the present time, is none other than the highly prevalent sinus disease.

#### DANGERS OF GOMCO INTRA-UTERINE SILVER RING

To the Editor:—Will you please publish the following inquiry, omitting name? Please advise if the gomco intra-uterine silver ring is a safe contraceptive measure. If possible, please advise, first, if it is a safe procedure to leave the intra-uterine silver ring in for a year or more at a time, of course, using strict antiseptic measures in introducing it. Is it considered an efficient contraceptive method? M.D., Georgia.

ANSWER.—All intra-uterine devices are a source of danger to a woman even though they are introduced under strict antiseptic conditions into a uterus believed to be free from infection at the time. Should the woman have any type of infection, serious complications may be expected. The silver ring referred to does not prevent conception but usually makes nidation impossible. The American Medical Association Committee on Contraceptive Practices has gathered the following data from recent literature:

Many recent reports have emphasized the dangers associated with intra-uterine contraceptive devices. Not only are these appliances so inefficient that many pregnancies have been reported during their use, but they are dangerous in that severe and sometimes fatal pelvic infection follows their employment. There is also a growing conviction in Europe that their use increases the incidence of tubal pregnancy.

Recently the German medical profession has become so convinced of the harmful effect of these appliances that it has requested the appropriate governmental department to prohibit their manufacture and sale (Berlin letter, *THE JOURNAL*, Aug. 24, 1935, p. 611).

Gesenius (Berlin letter just cited) reports that several pregnancies have been observed in the Second Berlin Frauenklinik. Gummert (quoted by Warner, M. P.: Dangers of Gold Stem pessaries, with Reports of Three Cases, *M. Rec.* 142:69 [July 17] 1935) reported ninety-two pregnancies in women wearing stem pessaries, with seventy-eight abortions, 80 per cent of which were septic. Thirty-seven patients had peritonitis, seven had perforations of the uterus, and ten died.

J. H. Leunbach (Gräfenberg "Silver Ring" and Inter- and Intra-Uterine Pessaries, *J. State Med.* 40:37 [Jan.] 1932) reports four pregnancies while Gräfenberg rings were in situ and records the following results from these silver rings in the 174 other patients of his series:

- 55 rings removed:
    - 2 to increase family.
    - 3 for gonorrhea.
  - 50 for bleeding, pain, tenderness and discharge.
    - 2 patients had serious fever and acute pelvic inflammatory disease.
  - 35 rings spontaneously expelled.
  - 55 rings in place and no complaints worth mention (roentgen examination).
  - 15 rings presumably in place (no roentgen examination).
  - 7 patients with pain, bleeding and discharge (rings will have to be removed).
  - 6 patients not traced.
  - 1 patient pregnant in tube when ring was inserted.
- 174 total (45 per cent comfortable).

Vignes and Boros (Lésions consécutives à l'emploi des pessaires anticonceptionnels intra-utérins, *Gynécologie et obstétrique* 29:244 [March] 1934) quote Rust as having reported 367 cases of serious pelvic disease following the use of intra-uterine contraceptive devices and list these sequelae as follows:

- Death from generalized peritonitis or septicemia, 17 cases.
- Purulent infection of the adnexa or parametritis, 70 cases.
- Generalized peritonitis, 38 cases.
- Pelvic peritonitis, 6 cases.
- Septic abortion, the pregnancy and abortion having occurred during the time that the pessary was in place, 62 cases.
- Perforation of the uterus by the pessary, 5 cases.
- Perforation of the bladder wall, 1 case.
- Perforation into the anterior culdesac, 1 case.
- Endometritis with fever, 75 cases.
- Menorrhagia, 60 cases.
- Dysmenorrhea, 28 cases.
- Ectopic pregnancy, conception having occurred while the pessary was in situ, 4 cases.

H. O. Jones (The Cervical Pessary, a Menace to Health and Life, *THE JOURNAL*, May 14, 1932, p. 1738) has recorded more than a dozen cases of severe pelvic peritonitis and parametritis, including one case in which death from endocarditis occurred four months after insertion of the pessary. Keller (Les dangers des pessaires intra-utérins, *Gynécologie et obstétrique* 32:417 [Aug.] 1933) has seen two patients with bilateral pyosalpinx and three others with pelvic peritonitis, one of whom developed secondary generalized peritonitis and died. Gesenius (*Zentralbl. f. Gynäk.* 59:2168 [Sept. 14] 1935) collected the following data during a survey of the literature:

	Severe Damage	Deaths
Stem pessary .....	346	38
Silk pessary .....	21	2
Ring pessary .....	78	1

Glaser (Die Gefahr intrauteriner Fremdkörper, *Deutsche med. Wchschr.* 59:994 [June 30] 1933) records thirteen serious pelvic infections with one death. Approximately one half of these patients had infiltrating and exudative parametritis, while the remainder developed adnexal tumors and severe peritonitis. In every instance, prolonged treatment was required.

Many other reports are available emphasizing the dangers inherent in these devices, and the committee feels justified in indicating its complete disapproval of these methods of contraception, which are still unfortunately widely employed by the medical profession. Every one who has done much obstetric or gynecologic practice has seen patients illustrating the bad effects of these devices and their inefficiency as contraceptives.

#### SPASM OF MASSETER MUSCLE

To the Editor:—A patient is suffering from a localized tetany of the left masseter muscle. This condition has been present for a period of about two years. She is about 30 years of age, is married, and is the mother of one child. In her past history there is only one significant finding: because of a hyperthyroid condition she had a subtotal thyroidectomy about six years ago. Extensive search for any foci of infection has failed. Urinalysis is negative and the blood Wassermann reaction is negative. This condition first started with occasional spasms of the left masseter muscle and gradually became of such intensity that she chipped off portions of her back molar teeth on that side during some of these tetanic contractions. Cold, emotional excitement and especially the chewing of food seem to be the chief things that bring on the attacks. Assuming that this was probably due to a hypoparathyroid condition, I placed her on 100 units of parathyroid extract three times a week, with 60 grains (4 Gm.) of calcium gluconate and 40 grains (2.6 Gm.) of ammonium chloride one-half hour before meals three times a day. After about six weeks of this treatment I could see no improvement, and I placed her on moderate doses of chloral hydrate with potassium iodide (empirically) three times a day. This has alleviated the condition considerably. Would it be feasible to do an injection treatment of the masseter branch of the trigeminal nerve at the site at which it crosses the mandibular notch of the mandible? If it would be feasible to do this, what would be the best solution to use and how long would one expect to get results? Would there be any resulting after-effects that would nullify the good results? Please omit name. M.D., West Virginia.

ANSWER.—Since all the conservative treatments used in an attempt to relieve the spasm of the left masseter muscle adequately have failed, some operative procedure to relieve the spasm seems indicated. The most satisfactory result would be obtained from paralyzing the masseter branch of the trigeminal nerve. Since this would be a very difficult procedure by either the closed or the open alcohol injection method, a simpler method would be to inject the third division of the trigeminal nerve at the foramen ovale with procaine hydrochloride. If this relieves the spasm completely for the period of resulting anesthesia in the left lower lip and corresponding half of the tongue, the alcohol injection could be done, since the motor branch of the fifth nerve is always paralyzed in a complete injection of the third division of the trigeminal nerve. The motor paralysis following alcohol injection of the third division usually lasts from six months to one year. It is true that the patient will be subjected to a complete anesthesia of the left lower lip as well as the left half of the tongue, but there will be no interference with the ability to masticate her food properly on the right side. One way to be certain that the motor root has been paralyzed is to have the patient open her mouth. When she attempts to do this the jaw will deviate to the left.

A more permanent procedure would be to do an intracranial section of the motor root. This, however does not seem to be indicated in this particular patient. The technic of alcohol injection of the divisions of the trigeminal nerve is given in detail in *Surgery, Gynecology and Obstetrics* 61:394 (Sept.) 1935.

by Flagg (Philadelphia, J. B. Lippincott Company, 1932) and the book "Anesthesia" by Gwathmey (New York, Macmillan Company, 1924) are both valuable and practical books on general inhalation anesthesia. The best information on the technic of general anesthesia is given by Guedel in a series of articles entitled "Anesthesia: A Teaching Outline" (*Cur. Res. Anesth. & Analg.* 15:1 [Jan.-Feb.], 55 [March-April], 120 [May-June] 1936). These articles should appear in book form in about a year. There are textbooks on anesthesia in the process of preparation now that are intended to be of practical value and should be available in from eighteen months to two years. For one greatly interested in the subject of anesthesia, Harris's translation of Braun is to be recommended.

#### EFFECTS OF LONG CONTINUED USE OF EPHEDRINE

*To the Editor*—I happen to be one of the unfortunates who have hay fever and who cannot seem to get any value out of pollen extract injections, but I am fortunate enough to be able to take ephedrine in sufficient dosage to obtain complete relief without getting any of the ill effects from the drug. For three years prior to last year I used ephedrine with almost ideal results and took three-fourths grain (0.05 Gm.) three times daily without any nervous effects, and the only thing unpleasant was a slight constipation, which was easily handled. Then I was warned by some fellow physicians that I might get the same effect from that drug which the old sufferers from chronic asthma get from the long use of epinephrine; namely, arteriosclerosis. Naturally I had no desire to have anything like that and stopped the use of ephedrine except for an occasional dose to precede an operation or delivery. Please give me an opinion as to the dangers of the drug. I realize that I would be using it for only about five weeks. I might also state that it does not seem to raise my blood pressure any, and my normal pressure is never over 110 systolic and is usually lower, which is low for age 38. M.D., Kansas.

*ANSWER*—Ephedrine does not have the great blood pressure raising tendency of epinephrine and it has never been shown to produce arteriosclerosis in man.

#### MORPHINE IN CONVULSIONS OF CHILDHOOD

*To the Editor*—Is morphine contraindicated in the treatment of convulsions in children? Can death be attributed to morphine when it is used in the treatment of convulsions or when used in the control of severe attacks of bronchial asthma?

Rocco J. Martoccio, M.D., Utica, N. Y.

*ANSWER*—In view of the fact that the reflexes and spinal functions are stimulated by morphine, it is generally avoided in the treatment of convulsive seizures. It may nevertheless be a useful adjunct to other treatment when status epilepticus or violent chorea or convulsions of intracranial origin threaten life by interfering with sleep. In such conditions, infants from 6 to 12 months of age may be given 1 mg. by hypodermic injection. It is of course possible by excessive dosage of morphine to produce death. Recent studies seem to indicate that its toxicity is not unproportionately greater for infants than for adults, as was formerly believed to be the case.

#### USE OF FACE MASKS IN PREVENTION OF INFLUENZA

*To the Editor*—As you probably know, the habit is widespread in Japan of wearing a mask over the nose in days when there is an epidemic of influenza, on the theory that doing so cuts down the incidence of the disease. Is there any reliable evidence one way or the other on this point? Do the Japanese health statistics show any lower level of respiratory diseases than our own, for example?

Bruce Bliven, New York.

*ANSWER*—There is no reliable evidence at hand with respect to the effect of face masks on the incidence of influenza. It is altogether doubtful whether there are any comparable statistics that would give a reliable answer to the second question.

#### ROENTGEN ALOPECIA

*To the Editor*—My brother, now 27, was treated for ringworm of the scalp, when he was 13, by means of x-rays. He has been partially bald since. He is in good physical condition. What is the prognosis in this case and what would you advise in the way of treatment? Please omit name.

M.D., Saskatchewan.

*ANSWER*—Roentgen alopecia is permanent and is not amenable to treatment of any kind. The prognosis as far as restoration of the hair is concerned is hopeless and no treatment can be advised. It is questionable whether ringworm of the scalp should be treated with x-rays at the age of 13, as the disease clears up spontaneously at the time of puberty.

#### DEFINITION OF ACHLORHYDRIA IN ANEMIAS

*To the Editor*—Please clarify for me the terms "achlorhydria," "achylia gastrica" and "absence of free hydrochloric acid," particularly with reference to pernicious anemia. In spite of a clear definition, I have found them used interchangeably in the literature. Is there an absolute rule referable to the observation of gastric analysis in this disease? Please omit name.

M.D., Missouri.

*ANSWER*—Although the terms "achlorhydria," "absence of free hydrochloric acid" and "achylia gastrica" are frequently used interchangeably in the literature, when used correctly the two former terms are synonymous and should be used to indicate an absence of free hydrochloric acid. The term "achylia gastrica" means an absence of all the normal gastric secretions, including hydrochloric acid, rennin and pepsin and perhaps even the intrinsic factor described by Castle. This condition is occasionally but not always found to be present in pernicious anemia. Unless tests are made which will rule out the presence of these various stomach secretions and if only the finding of an absence of free hydrochloric acid is demonstrated by the customary fractional test meal, the condition should be referred to as "absence of free hydrochloric acid" or "achlorhydria."

#### ANTISYPHILITIC TREATMENT IN RHEUMATIC HEART DISEASE

*To the Editor*—What would be the plan of antisyphilitic treatment for a woman, aged 28, with a rheumatic heart and a 4+ Wassermann reaction? The duration of the condition is unknown. The heart is more of the class B or C type. Please omit name. Thank you.

M.D., New York.

*ANSWER*—Intravenous arsenicals are not advisable in such a case. The likelihood of doing good by their use is not great enough to compensate for the slight risk involved. It is better to give a saturated solution of potassium iodide, from 10 to 15 drops three times a day, and an intramuscular injection of mercury or bismuth compounds: mercuric succinimide, from 0.013 to 0.026 Gm. (one-fifth to two-fifths grain) twice a week for ten doses, to be followed possibly by sodium bismuth tartrate, 2 cc. (1.5 per cent solution) twice a day. The antisyphilitic treatment in the presence of rheumatic heart disease is on the whole not encouraging and should not be pushed if it seems to make matters worse.

#### BITTERLING TEST FOR ESTROGENIC SUBSTANCE

*To the Editor*—In Queries and Minor Notes in *THE JOURNAL*, Nov. 8, 1936, page 449, it was stated that the bitterling test has been found valuable in diagnosing ectopic pregnancy, missed abortion and placental polyp in the theory that these fish react to excess of estrogenic substance. Kleiner, Weisman and Barowsky (*THE JOURNAL*, April 13, 1935, p. 1318) showed that the test was not a test for pregnancy but that normal male and female urines might produce positive reactions. Kleiner, Weisman and Mishkind (*THE JOURNAL*, May 9, 1936, p. 1643) demonstrated that the test was really a test for male hormone and not for female hormone. Recently we have proved this point by getting reactions with minute doses of synthetic crystalline androsterone and testosterone. All these facts are reviewed and amplified in our latest publication (*Zoologica* 21:241 [part 4] 1936).

I. S. KLEINER, PH.D.  
A. I. WEISMAN, M.D.  
D. I. MISHKIND, B.S.  
New York.

#### GASTRORRHAGIA

*To the Editor*—In reading your answer to the query regarding gastrorrhagia (*THE JOURNAL*, Dec. 19, 1936, p. 2072) I was interested to see your recommendation of the use of moccasin venom. This calls to mind a case of epistaxis the cause or location of which could never be determined. Blood examinations were repeatedly negative, except for an increasing secondary anemia. No evidence of a blood dyscrasia could at any time be determined. All forms of therapy, including transfusions, were of no avail. After nineteen days with daily attacks of epistaxis the bleeding practically stopped on the first injection of 0.4 cc. of moccasin venom and completely stopped the second day on 1 cc. of the venom. In four months there has been no recurrence. I trust that you will be interested in this, as the case was apparently one of idiopathic bleeding which moccasin venom undoubtedly stopped.

WILLIAM SULLIVAN, M.D., Alhambra, Calif.

*To the Editor*—On page 2072 of *THE JOURNAL*, Dec. 19, 1936, a condition is described of which I myself have been a victim. I reported my own case at some length in the *American Journal of Digestive Diseases and Nutrition* 3:69 [March] 1936. A partial gastrectomy done under the impression that the basic lesion was a bleeding duodenal ulcer appears to have been effective, as I have had no further hematemesis over three and a half years. The tissue removed at operation was reported entirely negative by a competent pathologist.

C. D. ENFIELD, M.D., Los Angeles, Calif.

ticularly in the presence of high temperatures. The initial inflammation of the respiratory tract with propriety may be associated with the cause mentioned, provided, in fact, the paper involved was of the sulfite variety. On the other hand, the persistent manifestation in one patient scarcely may be attributed to the direct action of these vapors. The initial chemical irritation probably has been followed by an ordinary sinusitis, in which infection plays a part and which, at the present time, is none other than the highly prevalent sinus disease.

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ANSWER.—All intra-uterine devices are a source of danger to a woman even though they are introduced under strict antiseptic conditions into a uterus believed to be free from infection at the time. Should the woman have any type of infection, serious complications may be expected. The silver ring referred to does not prevent conception but usually makes nidation impossible. The American Medical Association Committee on Contraceptive Practices has gathered the following data from recent literature:

Many recent reports have emphasized the dangers associated with intra-uterine contraceptive devices. Not only are these appliances so inefficient that many pregnancies have been reported during their use, but they are dangerous in that severe and sometimes fatal pelvic infection follows their employment. There is also a growing conviction in Europe that their use increases the incidence of tubal pregnancy.

Recently the German medical profession has become so convinced of the harmful effect of these appliances that it has requested the appropriate governmental department to prohibit their manufacture and sale (Berlin letter, *THE JOURNAL*, Aug. 24, 1935, p. 611).

Gesenius (Berlin letter just cited) reports that several pregnancies have been observed in the Second Berlin Frauenklinik. Gummert (quoted by Warner, M. P.: Dangers of Gold Stem pessaries, with Reports of Three Cases, *M. Rec.* 142:69 [July 17] 1935) reported ninety-two pregnancies in women wearing stem pessaries, with seventy-eight abortions, 80 per cent of which were septic. Thirty-seven patients had peritonitis, seven had perforations of the uterus, and ten died.

J. H. Leunbach (Gräfenberg "Silver Ring" and Inter- and Intra-Uterine Pessaries, *J. State Med.* 40:37 [Jan.] 1932) reports four pregnancies while Gräfenberg rings were in situ and records the following results from these silver rings in the 174 other patients of his series:

- 55 rings removed:
    - 2 to increase family.
    - 3 for gonorrhea.
  - 50 for bleeding, pain, tenderness and discharge.
    - 2 patients had serious fever and acute pelvic inflammatory disease.
  - 35 rings spontaneously expelled.
  - 55 rings in place and no complaints worth mention (roentgen examination).
  - 15 rings presumably in place (no roentgen examination).
  - 7 patients with pain, bleeding and discharge (rings will have to be removed).
  - 6 patients not traced.
  - 1 patient pregnant in tube when ring was inserted.
- 174 total (45 per cent comfortable).

Vignes and Boros (Lésions consécutives à l'emploi des pessaires anticonceptionnels intra-utérins, *Gynécologie et obstétrique* 29:244 [March] 1934) quote Rust as having reported 367 cases of serious pelvic disease following the use of intra-uterine contraceptive devices and list these sequelae as follows:

- Death from generalized peritonitis or septicemia, 17 cases.
- Purulent infection of the adnexa or parametritis, 70 cases.
- Generalized peritonitis, 38 cases.
- Pelvic peritonitis, 6 cases.
- Septic abortion, the pregnancy and abortion having occurred during the time that the pessary was in place, 62 cases.
- Perforation of the uterus by the pessary, 5 cases.
- Perforation of the bladder wall, 1 case.
- Perforation into the anterior culdesac, 1 case.
- Endometritis with fever, 75 cases.
- Menorrhagia, 60 cases.
- Dysmenorrhea, 28 cases.
- Ectopic pregnancy, conception having occurred while the pessary was in situ, 4 cases.

H. O. Jones (The Cervical Pessary, a Menace to Health and Life, *THE JOURNAL*, May 14, 1932, p. 1738) has recorded more than a dozen cases of severe pelvic peritonitis and parametritis, including one case in which death from endocarditis occurred four months after insertion of the pessary. Keller (Les dangers des pessaires intra-utérins, *Gynécologie et obstétrique* 32:417 [Aug.] 1933) has seen two patients with bilateral pyosalpinx and three others with pelvic peritonitis, one of whom developed secondary generalized peritonitis and died. Gesenius (*Zentralbl. f. Gynäk.* 59:2168 [Sept. 14] 1935) collected the following data during a survey of the literature:

	Severe Damage	Deaths
Stem pessary .....	346	38
Silk pessary .....	21	2
Ring pessary .....	78	1

Glaser (Die Gefahr intrauteriner Fremdkörper, *Deutsche med. Wchschr.* 59:994 [June 30] 1933) records thirteen serious pelvic infections with one death. Approximately one half of these patients had infiltrating and exudative parametritis, while the remainder developed adnexal tumors and severe peritonitis. In every instance, prolonged treatment was required.

Many other reports are available emphasizing the dangers inherent in these devices, and the committee feels justified in indicating its complete disapproval of these methods of contraception, which are still unfortunately widely employed by the medical profession. Every one who has done much obstetric or gynecologic practice has seen patients illustrating the bad effects of these devices and their inefficiency as contraceptives.

#### SPASM OF MASSETER MUSCLE

To the Editor:—A patient is suffering from a localized tetany of the left masseter muscle. This condition has been present for a period of about two years. She is about 30 years of age, is married, and is the mother of one child. In her past history there is only one significant finding: because of a hyperthyroid condition she had a subtotal thyroidectomy about six years ago. Extensive search for any foci of infection has failed. Urinalysis is negative and the blood Wassermann reaction is negative. This condition first started with occasional spasms of the left masseter muscle and gradually became of such intensity that she chipped off portions of her back molar teeth on that side during some of these tetanic contractions. Cold, emotional excitement and especially the chewing of food seem to be the chief things that bring on the attacks. Assuming that this was probably due to a hypoparathyroid condition, I placed her on 100 units of parathyroid extract three times a week, with 60 grains (4 Gm.) of calcium gluconate and 40 grains (2.6 Gm.) of ammonium chloride one-half hour before meals three times a day. After about six weeks of this treatment I could see no improvement, and I placed her on moderate doses of chloral hydrate with potassium iodide (empirically) three times a day. This has alleviated the condition considerably. Would it be feasible to do an injection treatment of the masseter branch of the trigeminal nerve at the site at which it crosses the mandibular notch of the mandible? If it would be feasible to do this, what would be the best solution to use and how long would one expect to get results? Would there be any resulting after-effects that would nullify the good results? Please omit name. M.D., West Virginia.

ANSWER.—Since all the conservative treatments used in an attempt to relieve the spasm of the left masseter muscle adequately have failed, some operative procedure to relieve the spasm seems indicated. The most satisfactory result would be obtained from paralyzing the masseter branch of the trigeminal nerve. Since this would be a very difficult procedure by either the closed or the open alcohol injection method, a simpler method would be to inject the third division of the trigeminal nerve at the foramen ovale with procaine hydrochloride. If this relieves the spasm completely for the period of resulting anesthesia in the left lower lip and corresponding half of the tongue, the alcohol injection could be done, since the motor branch of the fifth nerve is always paralyzed in a complete injection of the third division of the trigeminal nerve. The motor paralysis following alcohol injection of the third division usually lasts from six months to one year. It is true that the patient will be subjected to a complete anesthesia of the left lower lip as well as the left half of the tongue, but there will be no interference with the ability to masticate her food properly on the right side. One way to be certain that the motor root has been paralyzed is to have the patient open her mouth. When she attempts to do this the jaw will deviate to the left.

A more permanent procedure would be to do an intracranial section of the motor root. This, however does not seem to be indicated in this particular patient. The technic of alcohol injection of the divisions of the trigeminal nerve is given in detail in *Surgery, Gynecology and Obstetrics* 61:394 (Sept.) 1935.

## Book Notices

**Urology.** By Edward L. Keyes, Ph.D., F.A.C.S., F.R.C.S., Professor of Urology, Cornell University Medical College, New York, and Russell S. Ferguson, A.B., M.D., Assistant Professor of Urology, Cornell University Medical College, New York. Sixth edition. Cloth. Price, \$10. Pp. 707, with 360 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

This edition carries on the tradition of the Keyes urology—an admirably written example of dogmatism. The volume is divided into eleven sections, which cover the field of urology. Urology has become such a broad subject, however, that one man's experience is insufficient to cover the field, and certainly there are sections of this textbook of urology which are very weak. One wonders just what place this will fill in the physician's library. Certainly it is too sketchy to serve as a reference book for the urologist. As a volume destined for the general practitioner, it falls down in that one of the poorest sections is that on the treatment of urinary infection. On the other hand there is too much detail, especially as concerns malignant disease, to recommend the volume for the medical student. The technic of irradiation is not complete enough to interest the radiologist. It would seem from the criticism that the book fails to serve any useful function. Such is not the case, however, as it is a most interesting volume and undoubtedly gives a sound basis for urologic practice if one realizes that certain recommended procedures are debatable; e.g., the Ombrédanne operation as the procedure of choice in hypospadias. This operation, the only one described, must certainly be followed by stricture and hair in a large proportion of cases.

Any dogmatic work is open to criticism in that when one does not agree with the statement made there is no way to check the process of reasoning by which the authors arrived at the dogma. When the authors discuss the indications for nephropexy, it is not clear what relation the  $pH$  of the urine plays. The statement is made that, if the  $pH$  is not low, nephropexy and denervation should be performed. Can one then assume that, no matter what the degree of ptosis and hydronephrosis, one should not fix the kidney if the  $pH$  is low? Transurethral prostatic resection is "an utterly unsurgical procedure . . . that provides miserable, inadequate drainage for blood clots through the urethra." One stage suprapubic prostatectomy with closure, however, the bladder being drained with a 24 F. catheter, is a recommended procedure. Needle biopsy is a safe procedure for high grade kidney neoplasms and metastatic lung tumors but is justified in testicular tumors only if immediately followed by a full erythema dose of high voltage x-rays if the biopsy should be positive.

Previous editions of this book have given references when names are mentioned. This desirable feature has been omitted, and even initials in certain common names are missing. This is bound to be confusing if one attempts to follow a subject further, especially when errors have crept in. For example, a Thompson ureteral stone extractor is described. This does not exist. The unqualified recommendation for the use of anterior pituitary-like substance in the treatment of undescended testicles is unjustified. Certainly with our present knowledge this principle must be used with caution. It can be concluded that this is a valuable book for the practicing urologist, as it is both interesting and instructive to have a man's opinion of urology after forty years' experience in its practice. That one may consider an opinion narrow on certain subjects and open to criticism does not detract from its value in the least.

**Die Krankheiten der Nieren und ableitenden Harnwege.** Von Prof. Dr. Hans Lucke. Aus der medizinischen Klinik Göttingen (Direktor: Prof. Dr. H. Strahl). Brauns. Price, 2.50 marks. Pp. 83. Leipzig: Georg Thieme, 1936.

Dr. Lucke states, in a short introduction, that this small book was published at the suggestion of the editor of the *Deutsche medizinische Wochenschrift*, in which his work first appeared. It was presented primarily for the benefit of the general practitioner as a short review. He divides the work into two parts: The bilateral homogeneous renal diseases (medullary kidneys) and the so-called surgical diseases of the kidneys. It is a comprehensive but short review, well done, and eliminating all unnecessary and irrelevant matters. First

he discusses the normal kidney, then the symptoms and signs of renal disease, especially the pathologic urinary excretions, hypertension, function and edema. Uremia, anuria, the nephroses, nephrosclerosis and congested kidney are described. Surgical disorders of the kidney are nicely and shortly pointed out, especially tumors, tuberculosis, calculus and infections. The monographic review can be recommended to student and practitioner alike, and the trained urologist as well may find it useful.

**Nostrums and Quackery and Pseudo-Medicine. Volume III.** By J. J. Cramp, M.D. With a foreword by George H. Simmons, M.D. Cloth. Price, \$1.50. Pp. 232, with illustrations. Chicago: American Medical Association, 1936.

In 1911 the first volume of *Nostrums and Quackery* came from the presses of the American Medical Association. Ten years later—in 1921—enough material had accumulated to make another book, and volume II was brought out. By 1930 more than enough material had again accumulated to make a third volume, but unfortunately the economic situation at that time made it impractical to bring out volume III. It was not until recently that it was feasible to prepare the third volume of *Nostrums and Quackery*.

Volume III differs fundamentally from the previous volumes in that it is mainly a factual record. The material that makes up this book is a condensation by the author of longer and more detailed articles that he prepared between 1921 and 1930 and published in *THE JOURNAL*, in *Hygieia*, and in the many pamphlets issued by the Bureau of Investigation.

The chapters that go to make up the book run the gamut of quackery from asthma and hay fever remedies to venereal remedies and include sections on cosmetics, food fads and nutrition nonsense. If you want to know what is in that widely advertised "diabetes cure," obesity nostrum or "stomach remedy," you will find chapters on such subjects. Here are exposures of "magic horse collars," electric belts and blankets, and a "tank treatment," "height-increasing" frauds, mail-order spectacle quackery, and numerous "rejuvenators," glandular and otherwise.

Here also are descriptions of fake liquor habit "cures," goiter necklaces, "electric shoe-plates" and preposterous "nose shapers"; the "Neurocalometer" of the chiropractic gentry, and the "electronic reactions" of Albert Abrams; William Howard Hay's "Sun-Diet" and Percy Lemon Clark's "Sanatology"; reproduced testimonials for various "cures" and the writers' death notices; the "cancer cures" of Baker, Hoxsey, Koeh and others; "beauty clays" and "hair growers," the "Spectro-Chrome Therapy" and a variety of miscellaneous fakes.

Those interested in therapeutic vagaries will find in the new *Nostrums and Quackery and Pseudo-Medicine* an invaluable reference to what's going on in the "twilight" world of medical hokum.

**Synthetische geneeskunde: Een nieuwe ziekteleer en ziektebehandeling.** Door J. L. C. Worlman, Oud-geneesheer-directeur. Paper. Price, 2.25 florins. Pp. 224. Haarlem: de Erven F. Hohn N. V., 1936.

Realizing with many other writers that medicine stands at the crossroads, the author propounds a new theory of disease and a new treatment of the patient, which aim at putting medicine on a higher level by delivering it from the clutches of analysis. He thinks that, although physicians have not yet advanced far enough to construct a synthetic medicine in all its subdivisions, for which analysis may for a time be allowed to continue furnishing the scientific foundations, it seems that it is high time that they remember the teachings of Hippocrates and discard the nosologic system, with its fiction of diseases divorced from patients, which is useless in practice. They should concern themselves with constitutions and racial studies, the laws of heredity. The unity of the living being and the interdependence of its organs, maintained by the circulation and the nervous system, lead unavoidably to a synthetic theory of disease and treatment. The individuality of the patient must lead to a new anatomy, which will take into account the physiologic variations of the various individuals, while a new clinical physiology will study the functional differences of different patients, their compensatory functions and their satisfactory treatment. Protein shock and other means for combating hyperemia will claim attention, and vaccination against cancer

ciently severe cerebral trauma may be responsible for aggravating the potential convulsive state; likewise a chronic infection at the base of the brain may influence cerebral circulation adversely and aggravate the potential convulsant type.

The treatment suggested in view of the long intervals between convulsive seizures should include routine standardization of fluid intake, diet, exercises, rest, and regulation of the bowels. The fixation of weight at a definite level is the best criterion for avoidance of cyclic states of hydration and dehydration leading to abnormal disturbance of water balance.

#### ITCHING IN HODGKIN'S DISEASE

To the Editor:—Please give me information on the treatment of itching and of cough in Hodgkin's disease. You may omit name.

M.D., Massachusetts.

ANSWER.—The treatment of pruritus and of cough in Hodgkin's disease is symptomatic if the patient has received adequate therapy with radium or x-rays.

There is no consistent relationship of the pruritus and the course of the disease. In some cases it may precede any of the characteristic symptoms and disappear as the disease progresses, while in others it appears late or persists throughout the entire clinical course. When the pruritus is associated with a true infiltration of the characteristic granulation tissue in the skin, it not infrequently responds to x-rays. For symptomatic relief of intractable pruritus, drugs that lessen the sensibility of the cutaneous nerves are often used. Phenol, menthol and camphor are either incorporated in calamine lotion or are prescribed in ointment form and applied to the parts that are affected.

The following prescriptions or their modifications are suggested:

	Gm. or Cc.
R Phenol .....	0/5
Menthol .....	1/10
Calamine lotion .....	180/0
	Gm. or Cc.
R Menthol .....	0/5
Camphor .....	1/10
Oil of sweet almond .....	2/0
Hydrous wool fat .....	25/0

Calcium chloride given intravenously has been successfully used by some men to allay persistent pruritus in Hodgkin's disease.

The cough may be a pressure symptom or actual involvement of the lung by the characteristic granulation tissue. In the former case the symptom usually abates with roentgen or radium therapy over the mediastinum, while in the latter case it is a persistent symptom and can be controlled only by drugs that depress the cough reflex.

#### EFFECTS OF NOISES ON ORGANS OF CORTI

To the Editor:—I should like to know what damage, if any, and the nature and location of the pathologic condition that might result to the ear while one is using a telephone and experiencing a sudden, sharp pistol-like report or noise, which the patient described as having shocked or stunned her and was followed immediately by subjective noises and an impairment of hearing in the ear. I have a patient who had such an experience in what she claimed was a perfectly normal ear. I saw her the next day and there was decreased bone conduction; she was unable to hear a watch on contact and heard a spoken voice at 10 feet and a loud whisper at 18 inches. There was no electrical storm present when this happened. I am anxious to know whether it is possible for the ear to be damaged by such an experience while using a telephone and, if so, the seat and nature of the pathologic change and the prognosis.

MEADE EDMUNDS, M.D., Petersburg, Va.

ANSWER.—When there is any lesion of the ear caused by loud noises, pistol shots, and so on, it is usually the organ of Corti that shows changes. A severe concussion may cause rupture of the drum membrane. In experimental animals subjected to one or two or sometimes many loud noises close to the head, histologic examination later has shown degeneration in certain portions of the organ of Corti, depending on the pitch of the noise used. In the case under discussion, it is quite likely that there is a lesion in the inner ear as shown by the decreased bone conduction and the marked change in hearing acuity. There has been a great deal of interest in this subject but practically nothing in the literature. The only reference we have been able to find is that of an article by A. Moriez (Auditory and Neurologic Disturbances Caused by Traumatizing Telephone Noises, *Rev. d'oto-neuro-ophth.* 2:171 [March] 1933). A case is cited of a man, aged 65, in whom there was considerable involvement of the perception apparatus due to noises in the telephone receiver. Telephone engineers state that ear symptoms cannot be due to any electrical shocks from the tele-

phone or the telephone lines themselves. If there is any difficulty it must arise from the noises in the telephone and not from the electric current. It is strange in view of the widespread use of telephones that the literature does not contain more citations of cases.

#### SYPHILIS OF SPINE

To the Editor:—A white man, aged 45, had generalized weakness and loss of weight. His past history was negative, as was his family history. There were no symptoms referable to any particular system of the body except for weakness and the loss of 40 pounds (18 Kg.) in the last nine months. The physical examination shows him to be fairly well nourished, with an extreme degree of jaundice, which he says is of three weeks' duration and has caused no pain. Examination reveals a rather marked kyphosis of the lumbar dorsal spine, of which the patient was unaware. There have been no digestive disturbances. The knee kicks were present and active. The pupils were normal. The examination of the urine was negative. The examination of the blood showed the Kahn reaction to be positive 4. Blood examination revealed hemoglobin 83 per cent, erythrocytes 4,840,000, color index 0.8 and leukocytes 8,500, with a differential count of polymorphonuclears, 68 per cent, lymphocytes 31 per cent and eosinophils 1 per cent. The serum bilirubin is 38 mg. per hundred cubic centimeters, with a direct Van den Bergh reaction. The x-ray examination of the spine shows what appears to the roentgenologist to be an old arthritic process with extensive fusion of the vertebrae. However, there is superimposed on this an acute disintegrative process with destruction of the bodies of the first and second lumbar vertebrae, including the intervertebral disks. The roentgenologist suspects Charcot spine. I am perplexed as to what course to pursue in the matter of treatment. Would the administration of arsenicals be likely to result in toxic hepatitis in view of the jaundice? Is intensive antisyphilitic therapy indicated? Is a laparotomy indicated? Should one suspect a malignant condition of the pancreas or of the gallbladder? Should the entire picture be attributed to syphilis? Ought I to be content to treat the man with large doses of iodides and a bismuth compound? Please advise me. Thus far he has had no antisyphilitic therapy.

M.D., New Jersey.

ANSWER.—The entire picture might be due to syphilis and could be treated by antisyphilitic measures. There is a possibility of a metastatic malignant condition. The most likely diagnosis is syphilis of the spine; that is, Charcot's spine, or gumma of the vertebrae. The patient may have a pancreatitis or hepatitis. The spine might be treated locally by means of a curved Whitman, Bradford or Herzmark frame, to be followed by a plaster cast and later a spine brace. A fusion operation might be considered.

From the general standpoint, it might be beneficial to prescribe aminoacetic acid and a high caloric diet.

#### DILATION AND CURETTAGE OF UTERUS—INDICATIONS FOR WEANING

To the Editor:—1. How soon after a pelvic operation, especially one such as dilation and curettage, should a woman be allowed to have intercourse with her husband? 2. How long is a woman kept in bed after a dilation and curettage? I understand there has been a change in the after-treatment. 3. After an instrumental delivery is it customary to keep the baby from nursing, feeding it artificially for two or three days? I have been told that this is the practice in some hospitals because of the fear of convulsions. Or is such practice limited to those suffering with mouth injuries from the forceps? 4. What diseases necessitate the cessation of nursing a baby, that is, diseases of the mother? Would an attack of pneumonia justify one in removing the baby and giving it artificial feeding?

E. L. DAVIS, M.D., Kijabe, East Africa.

ANSWER.—1. Sexual intercourse may be indulged in as soon as pelvic discomfort and inflammation subside, ordinarily after about one week.

2. The length of time a patient should be kept in bed after dilation and curettage varies greatly with the pathologic condition encountered. In a simple case two or three days should suffice.

3. It is excellent practice to give artificial feeding to all newborn babies, tiding them over the period during which there is no milk. After cesarean section or other serious surgical intervention, the mother rarely recovers sufficiently to nurse the baby during the first two or three days.

It is unnecessary to keep an instrumentally delivered baby from nursing because of the fear that it will develop convulsions. Babies injured by forceps develop convulsions despite nourishment, not because of it.

4. A tuberculous mother, or one suspected of having tuberculosis, should not nurse her baby.

A history of multiple breast abscesses after a previous childbirth is usually a contraindication to nursing. Badly inverted tender nipples often make nursing inadvisable. If a breast has been amputated, nursing from the other breast often stimulates residual islands of mammary gland tissue on the side from



rheal and rheumatic disorders. The generalized conclusions are drawn out to four pages and are repeated in Danish. A complete bibliography is one of the best parts of the entire endeavor.

**A Medical History of Sullivan County, Indiana.** By James B. Maple, M.D. Cloth. Pp. 153, with illustrations. Sullivan, Indiana: The Author, 1936.

A signal service has been performed by Dr. Maple to Sullivan County in collecting and putting into permanent form such a fund of local historical information. To perform his task has required an immense amount of work, which can be repaid only by the appreciation of those who at present and in the future value such unselfish service. The text is filled with interesting anecdotes about the men described. It is to be hoped that what Dr. Maple has written may stimulate interest in the erection of a suitable monument in Johnson Cemetery at the grave of Jane Todd Crawford, the celebrated patient on who Ephraim McDowell performed his first operation for the removal of an ovarian tumor.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

#### Accident Insurance: Death from Acute Alcoholism.—

The plaintiff was the beneficiary named in two life insurance policies issued to his wife by the defendant insurance companies. Each policy contained a clause obligating the insurer to pay double indemnity in event the insured should die "through external, violent and accidental means." The insured died of acute alcoholism after consuming an unknown quantity of a beverage consisting of alcohol and ginger ale. The insurance companies paid the face amounts due under the policies but declined to pay under the double indemnity clauses. The plaintiff thereupon sued the insurance companies. The trial court transferred to the Supreme Court of New Hampshire, without a ruling, the question of the defendants' rights to a non-suit.

At the outset, said the Supreme Court of New Hampshire, it should be noted that what the insured did she did knowingly, voluntarily and without error or mistake on her part. She drank what she intended to drink in the quantity intended, and the beverage did not, unknown to her, contain any poisonous substance. What was unforeseen, unexpected and sudden was the effect of that beverage on her. She died an accidental death but it does not necessarily follow that she can be said to have died "through external, violent and accidental means." Some courts regard the words "accidental means" and the word "accidental" as synonymous. Other courts, while recognizing that their meaning is not the same, regard that distinction as either technical and inconsequential or else as an unwise one to draw. The weight of authority is that there is a substantial difference in the meaning of the words. The Supreme Court of New Hampshire was of the opinion that the majority rule is supported by the better reason. To give the same effect, the court said, to the phrase "accidental means" as to the word "accidental" is to ignore the presence of the word "means." Words are to be ignored or regarded as surplusage only when to do otherwise would be either to render the meaning unintelligible or else to produce a result obviously at variance with a clear intention or purpose. In the present case, effect may readily be given to the word "means," and the court could perceive no reason for not giving it effect. Although the word "accidental" standing alone may refer to either cause or result, the use of the word "means" in connection with it limits its meaning to cause alone.

It follows, concluded the court, that death supervening as an unforeseen, unexpected and unusual result of acts done knowingly, voluntarily and without error of mistake as to external agencies is not a death "through external, violent and accidental means." Judgments of non-suits were therefore entered for the defendants—*McKinley v. John Hancock Mut. Life Ins. Co.; Same v. Metropolitan Life Ins. Co. (N. H.), 194 A. 593.*

**Malpractice: Negligence of Hospital Not Provable by Lay Testimony.**—The plaintiff, a child, was severely injured in an automobile accident and was brought to the defendant hospital, a corporation, for treatment. Subsequently he sued the corporation, contending that his injuries were dilatorily diagnosed and negligently treated. The jury returned a verdict for the plaintiff, which the trial court set aside. The plaintiff thereupon sought a reversal in the Supreme Court of Appeals of West Virginia of the action by the trial court.

An instruction requested by the plaintiff submitted the alleged negligence of the defendant to the jury without defining what constituted negligence in medical and surgical treatment. While this instruction was incomplete, the Supreme Court said, the error was cured by another instruction given on behalf of the defendant which correctly informed the jury concerning the degree of skill and care required of a physician and which instructed the jury that the negligence of a physician in diagnosis or treatment may be established only by proof by other physicians.

There was lay testimony that the defendant hospital corporation permitted ants to get in a suppurating sore on the plaintiff. There was no evidence, however, that the plaintiff's condition was aggravated by the ants. The incident might indicate negligence, in the opinion of the court, but whether it was negligence resulting in harm to the plaintiff required specific evidence, and there was none. Likewise, the fact that witnesses for the plaintiff observed dirt on the plaintiff's wounds did not of itself raise a presumption of actionable negligent treatment. A physician who apparently had been in charge of the plaintiff at the defendant hospital testified, without contradiction, that on the plaintiff's admission a roentgenogram was made of "the pelvis, both hip joints and the right thigh." He further testified that he noted some symptoms of arthritis later on and that "about December 4th tenderness, redness and swelling of the left hip joint was discovered." After outlining the treatment given to the plaintiff for this condition, the witness explained his failure to take a roentgenogram during that period, by saying:

He (plaintiff) had an arthritis of almost every joint of his body . . . These were sore, tender and extremely painful. . . . He was highly nervous, I would frequently give him a sedative an hour before I would undertake to dress him because of his nervousness. . . . He was just beginning to improve a little bit . . . if I had taken him to the x-ray room I could be doing him no good. It would have been only to satisfy my curiosity, which did not seem enough reason to punish the patient.

If this testimony, said the court, did not answer the plaintiff's contention with respect to dilatory diagnosis, it certainly placed the question "beyond the ken of laymen."

The court disavowed any intention of holding that no actionable negligence existed in the present case. We simply hold, the court said, that, because of the plaintiff's extraordinary injuries with their subsequent complications, negligence in treatment must be fixed by some one competent to speak instead of by conjectures by laymen. Since there was in this case no such competent evidence, the judgment of the circuit court for the defendant was affirmed.—*Frazier v. Grace Hospital, Inc. (W. Va.), 185 S. E. 415.*

## Society Proceedings

### COMING MEETINGS

- American Association of Anatomists, Toronto, Ont., March 23-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
- American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karnner, 2035 Adelbert Road, Cleveland, Ohio, Secretary.
- American Heart Association, New York, Feb. 1. Dr. H. M. Marston, 1 West 59th St., New York, Executive Secretary.
- American Orthopsychiatric Association, New York, Feb. 12-13. Dr. George S. Stevenson, 50 West 59th St., New York, Secretary.
- Annual Congress on Medical Education, Medical Literature and Hospitals, Chicago, Feb. 15-16. Dr. William D. Custer, 335 North Dearborn St., Chicago, Secretary.
- Mid-South Post-Graduate Assembly, Memphis, Tenn., Feb. 16-17. Dr. A. F. Cooper, Goodwyn Institute Building, Memphis, Tenn., Secretary.
- Pacific Coast Surgical Association, Seattle, Wash., and American Urological Association, Feb. 24-25. Dr. H. Glenn Bell, University of California Medical Center, San Francisco, Secretary.
- Southeastern Surgical Congress, Louisville, Ky., March 7-11. Dr. Benjamin T. Bradley, 472 Peachtree St. N.E., Atlanta, Ga., Secretary.

impotence in young men resulting from excessive sexual intercourse.

The operation is not suitable for older men because the condition of the muscles involved is usually not good.

#### TREATMENT OF URTICARIA

*To the Editor:*—I have a patient who is subject to an urticarial eruption on an average of about three or four times a week. I have been giving both local and symptomatic treatment, without success. The patient is getting calcium orally, ephedrine in a 1:1,000 injection and potassium citrate orally, including the treatment for digestive disorders. Because of a petit mal diagnosed by a previous physician the patient has been on phenobarbital therapy in the form of tablets. What relationship, if any, does the latter fact have (as a drug allergy) to the urticaria?

B. B. BACKLEY, M.D., Jacksonville, Ohio.

**ANSWER.**—Urticarial eruptions may be produced by drugs in the phenobarbital groups. It is essential in any scheme of treatment for the patient that this drug be interdicted. It is essential to determine whether the patient has a petit mal or a hystero-epilepsy. Urticarial eruptions of an obstinate type are often dependent on nervous or emotional factors. These factors must, of necessity, be controlled in order to obtain therapeutic success. All foci of infections, such as tonsils, gallbladder and prostate, and the ingestion of drugs in the coal tar or barbiturate groups should be ruled out.

The use of autohemotherapy by withdrawing 10 cc. of the patient's own blood and reinjecting it intramuscularly is used in the treatment of this condition. This may be given once or twice weekly. If there is no response, the antianaphylactic effect of peptone in 0.5 Gm. dose in capsules, twenty minutes before meals, should be considered. This may be combined with mercury with chalk, 0.065 or 0.13 Gm., after meals. Further therapy consists of limiting animal foods and giving *Bacillus acidophilus* by mouth.

#### COLITIS

*To the Editor:*—A woman, aged 29, who has had idiopathic ulcerative colitis for two years, at present has symptoms of nausea, soreness in the abdomen and more or less continuous diarrhea. She is taking a kaolin preparation and ferrie ammonium citrate capsules. She seems to get a recurrence every winter and it was suggested that she go south each year. Would you suggest treatment with parathyroid, viosterol and calcium to be of much value in clearing up the symptoms? What else would you suggest in order to clear up these symptoms? Please send your answer as soon as possible. Please omit name. M.D., Conn.

**ANSWER.**—Chronic ulcerative colitis is a destructive infectious disease of the large intestine which should be considered much as we do tuberculosis. A well ordered program of management continued for many months is indicated. As relapses of this disease are prone to occur in association with infections of the upper respiratory tract, a warm equable climate without extreme changes in temperature seems to have a favorable effect in many cases. These patients should receive as much sunshine, fresh air and freedom from infections of the upper respiratory tract as it is possible to give them. In some instances this implies the use of artificial sunlight. Various iron preparations have been known to aggravate the diarrhea in these individuals. The medications suggested may be a factor in the patient's gastro-intestinal upset. An occasional patient has apparently received benefit from the administration of preparations of parathyroid and calcium.

#### VACCINATION AGAINST TETANUS IN THE FRENCH ARMY

*To the Editor:*—In a recent issue of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* in the Foreign News you have a note concerning the use of vaccination against tetanus being made obligatory for every French soldier. Can you tell me where I can get more information on the type of vaccination used? Have there been any reports in French literature on the subject and are there any reprints available? I would greatly appreciate any material on the subject.

A. B. SCHWARTZ, M.D., Milwaukee.

**ANSWER.**—Since August 1936 every soldier in the French army has been obliged to be vaccinated against tetanus. Three subcutaneous injections each containing 2 cc. are given at intervals of fifteen days of a mixture containing the tetanus and diphtheria anatoxins (Ramon) as well as the antityphoid and paratyphoid vaccines. Up to December 1936, 400,000 soldiers had been given these mixed anatoxin and vaccine injections. A second injection of 2 cc. of the same mixture will be given one year later to all these soldiers. These associated vaccinations were fully discussed by Prof. G. Ramon in the first and second volume of the *Revue d'immunologie*.

#### PERSONALITY PROBLEM

*To the Editor:*—I am seeking information relative to constructive advice to be given to a young protégé of mine. The boy is 16 years of age and perfectly normal physically. He has a bright, retentive mind and is a talented guitarist. The family history is unimportant; he originates from plain, wholesome midwestern stock. The lad's difficulty seems to express itself in undue diffidence and lack of aggressiveness. He has numerous opportunities to play in semiamateur orchestras, but unless urged by an older sister to take advantage of them he seems quite indifferent and lackadaisical. I have just learned that between the ages of 5 and 7 he stammered noticeably and was found to be left handed. He since has developed ambidexterity but writes altogether with his left hand. I recall vaguely having read of this syndrome as being responsible for an inferiority complex in children. Please advise me of the titles of suitable books dealing with this situation. I should like to know of at least one book suitable for perusal by the boy himself.

M.D., Missouri.

**ANSWER.**—The personality disturbance in this patient may be related to certain early difficulties such as are indicated by the history of stammering and left-handedness. It is advised that he shall not be given books to read concerning inferiority complexes but that he see a psychiatrist who will go into the early development and life history of the patient and by a study of the individual himself attempt to find the etiologic factors in this personality difficulty. Generalizations do not help the individual case. For the inquirer's own reading "Psychopathology" by William Malamud is recommended.

#### VITAMINS AND STERILITY

*To the Editor:*—Please inform me as to the value of "wheat germ oil" in cases of sterility. The patient's husband has been examined, the cervix is patent, and several glandular extracts have been given. Kindly omit name.

M.D., Alabama.

**ANSWER.**—It is possible to diminish the breeding capacity of laboratory animals by subjecting them to various sorts of deficient diet. The absence of any vitamin will induce some diminution of fertility. On this basis one has come to recognize the value of so-called vitamin E, present in wheat germ oil.

An analysis of average mixed human diets, however, indicates that they contain an excess of all the essential vitamins over and above the basic requirements of the organism. It seems unlikely, therefore, that therapeutic administration of any principle of this sort will improve the fertility of the ordinary human being. Other lines of investigation and treatment are indicated.

#### ETIOLOGY OF THYMIC ENLARGEMENT

*To the Editor:*—A woman, aged 29, was extremely nervous and harassed by the husband during the term of pregnancy. She had a normal delivery. The child died twenty-three days later of an enlarged thymus. Would it be possible for the enlarged thymus to have been caused by the nervous and harassed condition of the mother? Kindly omit name.

M.D., Pennsylvania.

**ANSWER.**—While it is impossible to state with certainty that nervousness in the mother could not bring about an enlarged thymus in the child, this effect would seem altogether unlikely. It has been found that calves shipped with their mothers across the continent have small thymus glands. It would appear that in the trip the hardships endured in hunger, thirst and neglect result in poor nutrition in the young and atrophy of the thymus gland. In order to obtain the best extracts of the thymus gland, locally bred calves are used, animals that have been nursed by the cows in the morning and that have never been subject to hardships. Such animals usually present large, succulent glands.

In addition, it should be stated that status thymicolymphaticus occurs in infants from time to time with no known cause. This is associated with large thymus glands, spells of dyspnea, stridor and cyanosis, and often ending in sudden death. So far as can be determined, nervousness in the mother is not a contributing factor to this clinical picture observed in infants. The cause of the enlarged gland in status thymicolymphaticus is still unknown.

#### BOOKS ON ANESTHESIA

*To the Editor:*—Which in your opinion is the most practical textbook on anesthesia?

Rocco J. Martocchio, M.D., Utica, N. Y.

**ANSWER.**—For regional anesthesia, Labat's "Regional Anesthesia: Its Technic and Clinical Application" (Philadelphia, W. B. Saunders Company, 1928) is probably among the most practical, and for local infiltration anesthesia, Hertzler's "The Technic of Local Anesthesia" (St. Louis, C. V. Mosby Company, 1933) is to be recommended. "The Art of Anaesthesia"

per cent, the endothelial outnumbered the epithelial cells in only one instance, and the two types of cells were approximately equal in number in 15 per cent. It was concluded that a definite preponderance of endothelial over epithelial cells represents a glomerulitis. The highest incidence of glomerulitis was found in puerperal sepsis (52.4 per cent) and subacute bacterial endocarditis (78.9 per cent). The glomerulitis is probably due chiefly to endothelial proliferation, but the lodgment of mononuclear leukocytes in the capillaries seems to play a part of some importance. There is no anatomic basis for a diagnosis of focal glomerulonephritis except in instances of transitory glomerular bleeding not associated with symptoms of nephritis, and in cases of bacterial endocarditis.

**Lesions of Cardiac Valves in Rheumatic Fever.**—Gross and Friedberg studied the incidence and gross and microscopic appearance of lesions in the valves, valve pockets and chordae tendineae occurring in ninety-seven cases of rheumatic fever. Until comparatively recently the only gross rheumatic lesions known to occur in the heart were those due to the acute and healing stages of pericardial inflammation, the fresh and healed verrucae on the closure line and chordae tendineae insertions of the valves, the valvular deformities with the characteristic commissural agglutinations of the aortic cusps, the thickening of the chordae tendineae, the regurgitant endocardial pockets (also occurring in other conditions), the auricular endocardial lesions and, rarely, the macroscopic Aschoff bodies. To these there have been added recently the lesions at the roots of the great vessels which produce dimpling in the sinus pockets and the thickening and prominence of the subvalvular angles and ring regions. In the present study, descriptions are given of the more minute topographic changes found in the valves, including elongation of the auriculoventricular leaflets, with obliteration of their normal scalloping, the ham shaped chordae tendineae insertions, the approximation of the semilunar folds of the semilunar cusps to the free edges and their disappearance, the notching, entropion and ectropion of the semilunar cusps, the characteristic pocket lesions consisting of verrucous, polypoid and nodular formations, and the agglutinations and rounding of the auriculoventricular valve pockets with obliteration of their sharp angle. A description of the pathogenesis of these lesions, their life cycles and their incidence in the various clinical subdivisions of rheumatic fever is given.

### American Journal of Physiology, Baltimore

117: 577-726 (Dec.) 1936. Partial Index

- \*Respiratory Responses of Preadolescent Boys to Muscular Activity. E. C. Schneider and C. B. Crampton, Middletown, Conn.—p. 577.
- Experimental Analysis of Coagulant Activation. J. H. Ferguson, University, Ala.—p. 587.
- Spinal Vasomotor Reflexes Associated with Variations in Blood Pressure. C. Heymans, J. J. Bouckaert, S. Farber and F. Y. Hsu, Ghent, Belgium.—p. 619.
- Study of "Simple Disuse Atrophy" in Monkey. H. Chor and R. E. Delfart, Chicago.—p. 626.
- Relationship of Synthetic Male Hormone, Androstendion, to Protein and Energy Metabolism of Castrate Dogs, and Protein Metabolism of Normal Dogs. C. D. Kochakian and J. R. Murlin, Rochester, N. Y.—p. 642.
- Urea Clearance and Proteinuria During Exercise. A. B. Light and C. R. Warren, Lawrenceville, N. J.—p. 658.
- Concentration of Nucleated Cells in Bone Marrow of Albino Rat. G. E. Farrar Jr., Washington, D. C.—p. 662.
- Observations on Response of Spleen to Intravenous Injection of Certain Secretin Preparations, Acetylcholine and Histamine. J. Ferguson, Edmonton, Alta., A. C. Ivy and H. Greengard, Chicago.—p. 701.
- Study of Depth Temperatures in Artificial Fevers and Cooling Air Chambers, with Especial Reference to Cooling Effect of Circulating Blood. J. J. Sampson, San Francisco.—p. 708.

**Respiratory Responses to Muscular Activity.**—Schneider and Crampton gave attention to the respiratory, metabolic and pulse rate responses to graded intensities of work on the bicycle ergometer, to work pushed to fatigue and to the recovery processes after strenuous effort in boys from 9 to 13 years of age. The boys usually reported for work immediately after the close of the afternoon session of school. After a rest for fifteen or twenty minutes the exercises were begun. A linear relationship between the consumption of oxygen and load of work was not in evidence. With light load the intake of oxygen was too large and with heavy loads too small. The resting rate of consumption of oxygen increased with the growth of the boys and at the same time the delivery of

oxygen during strenuous work was augmented. During the minute volume, frequency and depth of breathing of preadolescent boys correspond to that of adults. The amount of air breathed per minute and the depth of breathing during exertion are smaller among boys than among adults, while the frequency of breathing is greater among boys. The respiratory dead space during physical exertion increases less in boys than in adults. The ventilation equivalent for oxygen is somewhat larger for boys than for men. During physical exertion the pulmonary alveolar oxygen pressure invariably rose. The oxygen debt was never large. After six months of growth the debt with a heavy load was reduced. Growth resulted in more favorable oxygen intake, in a larger lung ventilation, in a slower pulse rate and in a larger oxygen pulse, during both rest and exertion. In work carried to fatigue a steady state was ordinarily reached in all respiratory and metabolic factors; but the pulse rate, while maintaining a fairly steady state for a while, always showed some further accelerations with the onset of fatigue. In recovery the metabolism returned to the preexercise level before the pulse rate. Strenuous exertion more profoundly disturbs the circulation than the respiration and metabolism.

### American Journal of Public Health, New York

26: 1071-1154 (Nov.) 1936

- Reporting Progress. T. Parran, Washington, D. C.—p. 1071.
- Experimental Staphylococci Food Poisoning: Study of Growth of Food Poisoning Staphylococcus and Production of Enterotoxin Substrate in Bread and Meat. Florence C. Kelly and G. M. Duck, Chicago.—p. 1077.
- Importance of Supervisor in Industrial Health Program. L. D. Brick, New York.—p. 1083.
- Industrial Hygiene Activities in the United States. R. R. Sayers and J. J. Bloomfield, Washington, D. C.—p. 1087.
- Active Immunization Against Whooping Cough: Interim Report of Cleveland Experience. J. A. Doull, G. S. Shibley and J. E. McClelland, Cleveland.—p. 1097.
- Sanitation of a Large Circus. H. E. Miller, Washington, D. C.—p. 1106.
- Question of Acid and Alkali Forming Foods. J. A. Tobey, New York.—p. 1113.
- History of Typhus Fever in Louisiana. E. H. Hinman, New Orleans.—p. 1117.
- Rural Health Conservation Contest as a Factor in Rural Health Development. C. E. Buck, New York.—p. 1125.

### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

36: 575-718 (Nov.) 1936

- Planigraphy: I. Introduction and History. J. R. Andrews, Cleveland.—p. 575.
- \*Radiotherapy in Lesions About the Eye. G. E. Richards, Toronto.—p. 588.
- Roentgen Therapy of Pelvis in Treatment of Carcinoma of Cervix. H. Coutard, Paris, France.—p. 603.
- Further Observations on Radiation Therapy in Hyperthyroidism. J. F. Harris, Harrisburg, Pa., and E. Rose, Philadelphia.—p. 616.
- Five Year Cure of Mammary Carcinoma with Multiple Metastases to Bone. W. Clarkson and A. Barker, Petersburg, Va.—p. 615.
- \*Modification of Biologic Effects of Radon by Alteration of Filter Study in Radionecrosis. R. D. Wright, Melbourne, Victoria, Australia.—p. 622.
- Intensity Measurements of Radon Implants in Vivo as an Indicator of Abnormal Biologic Reaction. G. S. Sharp and R. E. Pugh Jr., Pasadena, Calif.—p. 631.
- Non-Neoplastic Tumefactive Lesions of Large Intestine: Intestine Tumefactions. H. M. Weber, Rochester, Minn.—p. 637.
- Encephalography in Non-Neoplastic Intracranial Lesions. L. J. Friedman and G. Gamsu, New York.—p. 648.
- Roentgen Signs in Hydrocephalus and Their Diagnostic Value. M. F. Kopylov, Moscow, U. S. S. R.—p. 659.
- Early Roentgen Diagnosis of Jejunal Lymphosarcoma: Report of Case. H. Greenfield, Brooklyn.—p. 674.
- Gastrojejunocolic Fistula: Case Report. S. Bruck and M. S. Jaffe, Philadelphia.—p. 678.

**Radiotherapy in Lesions About the Eye.**—Richards states that generally the eye tolerates radium rather well and that with proper precautions it may be used safely in a variety of conditions. The dangers are corneal ulcer, secondary glaucoma and cataract. Granular lids or eczema along the edges of the lids usually responds well to unfiltered roentgen radiation. Papillomas may be destroyed by single pole fulcrum radiation followed by a light dose of radium. Simple rodent ulcer of the lid and remote from the lens or either canthus may be treated by a surface application of radium or by the implantation of highly filtered needles. The obvious dangers of treating the inner canthus are destruction of the inner canthus, contraction and deformity of the lids, and interference with

# Medical Examinations and Licensure

## COMING EXAMINATIONS

### STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *The Journal*, January 23, page 324.

### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Feb. 9-11, May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written examination* will be held simultaneously in different centers of the United States and Canada in March. *Practical examination* will be given in St. Louis in April and at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the United States and Canada, March 6. *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. *Applications must be received at least sixty days prior to the examination dates.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Philadelphia, June 12. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: Philadelphia, June. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

## California Reciprocity and Endorsement Report

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports 31 physicians licensed by reciprocity and 3 physicians licensed by endorsement from Aug. 14 through Oct. 29, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of California Medical School.....	(1934)		New York
Georgetown University School of Medicine.....	(1925)		Kansas
College of Physicians and Surgeons of Chicago.....	(1906)		Illinois
Northwestern University Medical School.....	(1934)		N. Dakota
Rush Medical College.....	(1911), (1929)		Illinois
State University of Iowa College of Medicine.....	(1920), (1924), (1932), (1933)		Iowa
Tulane University of Louisiana School of Medicine.....	(1935)		Louisiana
Detroit College of Medicine and Surgery.....	(1922)		Michigan
University of Michigan Department of Medicine and Surgery.....			Oregon
University of ..			Michigan
University of ..			Minnesota
St. Louis Un ..			Missouri
Washington ..			New York
Creighton Un ..			Washington
University of ..			Nebraska,
(1927) Louisiana, (1932) Illinois			
University and Bellevue Hospital Medical College.....	(1919)		New York
University of Rochester School of Medicine.....	(1932)		New York
Ohio State University College of Medicine.....	(1935)		Ohio
University of Oregon Medical School.....	(1934), (1935, 2)		Oregon
University of Pennsylvania School of Medicine.....	(1920)		Utah
University of Tennessee College of Medicine.....	(1934)		Texas

## Georgia October Report

Mr. R. C. Coleman, joint-secretary, State Examining Boards, reports the written examination held by the Georgia State Board of Medical Examiners in Atlanta, Oct. 13-14, 1936. The examination covered 10 subjects and included 100 questions. An average of 80 per cent was required to pass. Three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Emory University School of Medicine.....	(1933)		1
University of Georgia Medical Department.....	(1932)		1
Tulane University of Louisiana School of Medicine.....	(1935)		1

Six physicians were licensed by reciprocity and 2 physicians were licensed by endorsement on October 14 and December 2. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery.....	(1911)		Illinois
University of Illinois College of Medicine.....	(1933)		Illinois
University of Michigan Department of Medicine and Surgery.....	(1906)		S. Dakota
John A. Creighton Medical College.....	(1910)		Nebraska
University of Nashville Medical Department.....	(1910)		Arkansas
University of Virginia Department of Medicine.....	(1932)		Virginia

School	LICENSED BY ENDORESEMENT	Year Grad.	Endorsement of
Rush Medical College.....			(1917) N. B. M. Ex.
Harvard University Medical School.....			(1933) N. B. M. Ex.

## Minnesota October Report

Dr. Julian F. Du Bois, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held in Minneapolis, Oct. 20-22, 1936. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Forty-seven candidates were examined, all of whom passed. Six physicians were licensed by reciprocity and 4 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School.....	(1935)		89.3,
90.2, (1936) 82.6, 86, 86, 88.3			
Rush Medical College.....	(1935)	86.3, (1936) 84.4,	90.6
State University of Iowa College of Medicine.....	(1934)		90.5
Louisiana State University Medical Center.....	(1935)		83.6
Tulane University of Louisiana School of Medicine.....	(1933)		90.1
Johns Hopkins University School of Medicine.....	(1932)		92.2,
(1936) 88.4			
Harvard University Medical School.....	(1931)	90.3, (1935)	90
University of Minnesota Medical School.....	(1934)		84.3,
91, (1935) 89.4, 91.2, (1936) 81,* 83.1,* 83.2,* 83.4,*			
86.5,* 86.5, 87.2,* 87.4,* 87.4, 88,* 88.1,* 88.3,*			
88.5,* 89*			
University of Cincinnati College of Medicine.....	(1935)		88.2
Temple University School of Medicine.....	(1935)		91.3
University of Pennsylvania School of Medicine.....	(1933)		88.3,
(1934) 92.2			
Vanderbilt University School of Medicine.....	(1933)		86.5
University of Texas School of Medicine.....	(1930)	92, (1933)	86.2
Medical College of Virginia.....	(1934)		87.5
Marquette University School of Medicine.....	(1936)		85.5
University of Manitoba Faculty of Med....	(1931)	93.2, (1935)	88.1
University of Toronto Faculty of Medicine.....	(1932)	89.2, (1933)	88.3

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Johns Hopkins University School of Medicine.....	(1921)		New York
University of Minnesota Medical School.....	(1935)		Louisiana
St. Louis University School of Medicine.....	(1935)		Missouri
Creighton University School of Medicine.....	(1935)		Nebraska
University of Nebraska College of Medicine.....	(1928)		Iowa
University of Wisconsin Medical School.....	(1933)		Missouri

School	LICENSED BY ENDORESEMENT	Year Grad.	Endorsement of
College of Medical Evangelists.....	(1936)		N. B. M. Ex.
University of Minnesota Medical School.....	(1936)		N. B. M. Ex.
University of Pennsylvania School of Medicine.....	(1933)		N. B. M. Ex.
Vanderbilt University School of Medicine.....	(1934)		N. B. M. Ex.

\* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

## Maine November Report

Dr. Adam P. Leighton, secretary, Maine Board of Registration of Medicine, reports the written examination held in Portland, Nov. 3-4, 1936. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventeen candidates were examined, all of whom passed. Four physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine.....	(1936)		85
Boston University School of Medicine.....	(1932)		84,
(1936) 79, 82, 84, 87, 88, 88			
Harvard University Medical School.....	(1932)		87
Tufts College Medical School.....	(1936)		85, 85
University of Buffalo School of Medicine.....	(1909)		80
University of Pennsylvania School of Medicine.....	(1932)		83
.....			76
.....			82
.....			82
.....			84*

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College.....	(1934)		Illinois
Johns Hopkins University School of Medicine.....	(1912)		Maryland
Harvard University Medical School.....	(1905)		New Hamp.
University of Vermont College of Medicine.....	(1935)		Vermont

\* Verification of graduation in process.

tuberculosis was apparently converted into a fulminating tuberculous bronchopneumonia following such treatment. When dementia paralytica occurs in a tuberculous individual with an old healed lesion, it may have no effect on that lesion even though vigorous antisyphilitic treatment, including fever therapy, is given. Therefore diathermy and perhaps even malarial therapy may be attempted, but the patient should be watched even more closely than usual. Since patients with dementia paralytica live for considerable periods even in the presence of pulmonary tuberculosis, it would seem that, when the mental condition of the patient permits, the usual indication for such collapse therapy as pneumothorax and phrenico-exeresis might be employed with benefit.

### Archives of Ophthalmology, Chicago

16: 919-1084 (Dec.) 1936

- "Alcohol" Amblyopia, Pellagra, Polyneuritis: Report of Ten Cases. F. D. Carroll, New York.—p. 919.  
The Tennent Chair and the Tennent Memorial Institute of Ophthalmology, Glasgow. A. J. Ballantyne, Glasgow, Scotland.—p. 927.  
Monocytic Chloroma (Reticulocytoblastoma with Monocytic Leukemia). M. E. Gump, E. G. Hester and O. W. Lohr, Ann Arbor, Mich.—p. 931.  
Deposits of Fat in Trachomatous Pannus. A. J. Bruck, Gomel, U. S. S. R.; translated by E. F. Lyon.—p. 950.  
Experimental Detachment of Retina: Treatment with Subretinal Injections of Blood Plasma. M. Thomson and H. A. Cave, London, Ont.—p. 964.  
Cortical Innervation of Ocular Movements. E. A. Spiegel, Philadelphia, and N. P. Scala, Washington, D. C.—p. 967.  
Tests for Heterophoria: A Protest. F. W. Marlow, Syracuse, N. Y.—p. 982.  
Carnosine of Ocular Tissues. A. C. Krause, Chicago.—p. 986.  
Studies in Histochemistry: X. Distribution of Vitamin C in Lens of the Eye. D. Glick and G. R. Biskind, San Francisco.—p. 990.  
Operative Treatment of Detached Retina: Principles Observed by Six Individual Operators. P. C. Jameson, Brooklyn.—p. 996.  
Biochemistry of the Lens: X. Preparation of Glutathione from Crystalline Lens. J. Bellows and L. Rosner, Chicago.—p. 1001.  
Formation of New Vessels in the Vitreous. V. Tan, Manila, Philippine Islands.—p. 1004.

"Alcohol" Amblyopia, Pellagra, Polyneuritis.—Carroll presents ten cases of the clinical syndrome variously called tobacco-alcohol, tobacco or alcohol amblyopia, which occurred in patients with the alcoholic type of pellagra or polyneuritis. Clinical entities such as pellagra and nutritional polyneuritis are relatively rare, but symptoms resulting from a deficiency in specific nutritional factors occur frequently. The alcoholic type of polyneuritis and the alcoholic type of pellagra are deficiency diseases associated with the lack of the vitamin B (B<sub>1</sub>, B<sub>2</sub>, and so on) fraction. The ten cases of "alcohol" amblyopia reported occurred in patients who had pellagra or polyneuritis or both. All these patients smoked in moderation, and all but one used only cigarettes. But they were all heavy drinkers: They consumed between 1 and 3 quarts of alcoholic liquor daily. Most of them were dipsomaniacs. In every case the diet had been inadequate.

### Colorado Medicine, Denver

33: 857-930 (Dec.) 1936

- \*Surgical Shock from Burns, Freezing and Similar Traumatic Agents. H. N. Harkins, Chicago.—p. 871.  
Essentials of Adequate Testing of Hearing. A. E. Bowers, Denver.—p. 876.  
Nephropsis. J. C. Buntin, Cheyenne, Wyo.—p. 899.

**Surgical Shock from Burns and Freezing.**—According to Harkins, correlated laboratory experiments and clinical observations indicate that unrecognized blood loss is an important factor in traumatic shock. Shock in severe burns is usually associated with a leakage of blood plasma-like fluid into the burned tissues and from the weeping burned surface. Tannic acid may be of value in decreasing this loss. Experiments indicate that leakage of plasma-like fluid in amounts heretofore unrealized is present in other conditions, of which freezing is an example. In the treatment of freezing the effects of rapid thawing and low general body temperature are to be considered as well as plasma loss. Actinic, chemical, electrical and x-ray burns, because of the nature of their production, seldom cause a type of shock similar to thermal burns, although they could theoretically do so. The injury produced by these external agents may result in a general condition of shock as well as evident local trauma. Since the fluid lost in these conditions is plasma rather than whole blood, the ideal therapy might be

plasma infusion rather than whole blood transfusion. The author has used plasma experimentally but has not tried it clinically.

### Illinois Medical Journal, Chicago

70: 493-580 (Dec.) 1936

- Etiology and Public Health Aspects of Degenerative Vascular Disease. C. E. Bell, Decatur.—p. 507.  
Fundus Changes in Hypertension and Arteriosclerosis. Katherine H. Chapman, Chicago.—p. 510.  
\*Vertigo as Syndrome in Vascular Disease. S. L. Shapiro, Chicago.—p. 512.  
Diagnosis of Peripheral Vascular Diseases. G. W. Scupham, Chicago.—p. 516.  
Cerebral Vascular Disease: Hypertensive Encephalopathy. E. W. Cannady, East St. Louis.—p. 521.  
Surgical Management of Peripheral Vascular Diseases. L. M. Zimmerman, Chicago.—p. 526.  
Atherosclerosis: Its Incidence and Some of Its Results in One Thousand Consecutive Necropsies. N. S. Davis, Chicago.—p. 533.  
The Medical Relief Program of the Illinois Emergency Relief Commission. H. P. Scott, Chicago.—p. 539.  
What Can County Secretaries Do for Organized Medicine? C. S. Skaggs, East St. Louis.—p. 544.  
Medical Economics: A Specialty. A. M. Mitchell, Terre Haute, Ind.—p. 546.  
Pectenosis and Pectenotomy in Anorectal Disease. M. G. Spizman, Chicago.—p. 552.  
Study of Foci in the Chronic Arthritic with Comments on Use of Specific Vaccines. L. J. Murphy, Chicago.—p. 557.  
Cirrhosis of Liver as Surgical Problem. G. Zechel, Chicago.—p. 560.  
New Treatment for Paralytic Ileus. M. E. Uzanski, Chicago.—p. 567.  
Treatment of Trachoma in Southern Illinois. A. F. Lenzen, La Salle.—p. 569.

**Vertigo as Syndrome in Vascular Disease.**—Shapiro lists the following as vertigo arising from disturbances of the circulatory system: 1. Vasomotor instability without evidence of structural abnormality in the blood vessels forms a group comprising a large percentage of cases in which vertigo and other eighth nerve symptoms occur. There is no doubt that this is the basis of most of the so-called cases of the Ménière syndrome. Under the heading of vertigo due to vasomotor disturbances can probably be included the prodromal vertigo of epilepsy, a large percentage of the vertigo in chronic post-concussion states and certain cases of migraine that are accompanied by transient loss of half of the field of vision and violent vestibular upsets. 2. Any blood dyscrasias from simple anemia to the leukemias may cause vertigo owing to insufficient oxygenation of the vestibular structures. In addition, leukemic deposits and degenerative changes in the internal ear are responsible. 3. In circulatory disturbances with organic changes in the blood vessels of the internal ear or brain (including hypertension) the patients are particularly apt to complain of dizziness on stooping or arising quickly. The basic reason for the symptom lies in the inability of the sclerosed vessels to adjust themselves quickly to the effects of gravity, with resultant transient anemia. Abnormally low blood pressure is a far less frequent cause of vertigo than hypertension. 4. In cardiac abnormalities either an accelerated heart, such as occurs in paroxysmal tachycardia, or a retarded one in which the apex beats do not reach the periphery may be involved. An important group of symptoms is composed of vertigo or syncope attacks combined with extrasystoles that are evident only at the apex and a slow pulse; this is the well known Stokes-Adams syndrome due to partial heart block. In cardiac cases vertigo represents the mildest form of cerebral anemia due to deficient heart action; more pronounced cases lead to transient faintness, and still more severe involvement to attacks of complete unconsciousness with or without convulsive seizures.

### Indiana State Medical Assn. Journal, Indianapolis

20: 615-690 (Dec.) 1936

- Present Day Anesthesia. L. F. Sise, Boston.—p. 615.  
Diseases of Cervix Uteri. F. L. Aldair, Chicago.—p. 621.  
\*Postoperative Thrombophlebitis. O. O. Alexander, Terre Haute.—p. 621.  
Syphilis Complicated by Pregnancy. J. E. Dalton, Indianapolis.—p. 621.  
Psychiatry in General Practice. F. S. Caprio and G. R. Tamm, Marion.—p. 633.  
The Acute Navoid. B. N. Lingeman, Crawfordsville.—p. 636.

**Postoperative Thrombophlebitis.**—Alexander believes that the use of preliminary barbiturates, opiates and spinal anesthetics is conducive to postoperative thrombus formation and that any procedure which can in any way lessen this hazard should be carried out with the greatest exactitude. A few



and blood purifying measures and nature cure methods must be rehabilitated. Synthetic thinking on the part of the physician will deliver medicine from the terrible oneness in which it has sunk during the last century as a result of purely analytic thinking and will establish it on a humanistic foundation, which will make it the leader of all sciences. The author cannot help admitting in various parts of his book that analysis has its good points, but he seems bent on not leaving any doubt that it had better be consigned to the limbo of forgotten things, that medicine would have fulfilled its object much better if it had adhered to the fundamental teachings of Hippocrates, and that physicians can do their full duty toward their patients only by following the precepts of nature cure medicine.

**Oral Hygiene and the Treatment of Parodontal Diseases.** By Russell W. Bunting, D.D.Sc., Professor of Oral Histology and Pathology in the School of Dentistry of the University of Michigan, Ann Arbor. Cloth. Price, \$2.50. Pp. 187, with 80 illustrations. Philadelphia: Lea & Febiger, 1936.

Eighty-five pages are devoted to oral hygiene, oral prophylaxis and instructions to patients. The remainder is concerned with the treatment of parodontal diseases, inclusive only of gingivitis, pyorrhea, Vincent's disease and gingival atrophy. The sections covering the last four conditions and prophylaxis are adequate and to be commended. In the first part the author digresses from his subject by discussing oral sepsis at some length, and of the chapter on pyorrhea about eight pages are of a historical character. No mention is made of the course outlines suggested by the Curriculum Survey Committee of the American Association of Dental Schools, and the text is characterized by its lack of conformity with the recommendations of this committee. These facts impose rather unelastic limits on its usefulness as a school textbook and as an inclusive guide for the practitioner. The statement on page 10 that "large and small areas of necrotic change were discovered in the bone and peridontal membrane about the apices of devitalized teeth" should be questioned. On page 96 the word "arterial" is used instead of bacterial. A critical examination of the contents discloses other minor defects of a similar character. There are two helpful bibliographies and a satisfactory index; the illustrations are excellent.

**La chirurgie du cancer du poulmon: Bases anatomo-cliniques et expérimentales. Technique opératoire.** Par O. Lambret, professeur de clinique chirurgicale, H. Malatray, chef de clinique chirurgicale, et J. Driessens, chef de laboratoire, à la Faculté de médecine de Lille. Paper. Pp. 198, with 17 illustrations. Paris: Masson & Cie, 1936.

This presents a good discussion of the subject of lung carcinoma. The first two chapters (thirty pages) deal with the diagnosis and pathologic anatomy. Then the surgical indications and experimental basis for surgery are described. There are fifty-six pages on the surgical technic, with excellent illustrations. In the sixth and seventh chapters the authors present a summary from the literature of forty cases of lung cancer treated with lobectomy and ten cases treated with pneumectomy. They present two cases of their own treated with removal of an entire lung. The book ends with a table of nineteen cases of lung carcinoma in which pneumectomy was done, and twenty pages of bibliography. The monograph is of value to surgeons engaged in thoracic surgery, which offers about the only hope of cure in early cases of lung cancer.

**Text-Book of Pathology.** By Sir Robert Muir, M.A., M.D., Sc.D., Professor of Pathology, University of Glasgow. Fourth edition. Cloth. Price, \$10. Pp. 994, with 571 illustrations. Baltimore: William Wood & Company, 1936.

This well known volume is intended primarily as a textbook for students of medicine; the subjects discussed have therefore been selected to present both the general scientific aspects of pathologic processes and those features of special pathology which are essential to the medical student in his approach to clinical medicine and surgery. About one fourth of the book deals with general pathology and the remainder with special subjects. The author in both sections makes an especial effort to correlate functional disturbances with structural changes. He is to be commended for having avoided the tendency of some authors to incorporate sections on bacteriology, parasitology and dermatology into textbooks of pathology; as a result, he has left the size of the book within convenient pro-

portions. The many illustrations are well selected and the index has been carefully prepared. Students of medicine will find this book a well balanced presentation of modern views of both general and special pathology.

**Snow on Cholera, Being a Reprint of Two Papers.** By John Snow, M.D. Together with a biographical memoir by B. W. Richardson, M.D., and an introduction by Wade Hampton Frost, M.D., Professor of Epidemiology, The Johns Hopkins School of Hygiene and Public Health. Cloth. Price, \$2.50. Pp. 191, with 3 illustrations. New York: Commonwealth Fund; London: Oxford University Press, 1936.

This book contains a reprint of two papers by John Snow, together with a biographic memoir by B. W. Richardson, M.D., and an introduction by Wade Hampton Frost, M.D., professor of epidemiology at the Johns Hopkins School of Hygiene and Public Health. Dr. Frost gives an interpretative introduction orienting the present-day reader with respect to the significance of Dr. Snow's contribution. Dr. Snow's two papers, on the Mode of Communication of Cholera and on Continuous Molecular Changes, more particularly in their relation to epidemic diseases, published in 1855 and 1853 respectively, are classics in epidemiology. His views on the mode of spread of cholera were confirmed in detail following the discovery of the specific cholera germ by Koch in 1883. The discussion of the chemistry of the blood of cholera patients and the effect of intravenous injections of saline solution in this disease, given on pages 11 to 13, are of modern interest. This book should prove a valuable asset to any library.

**Recollections of Richard Dewey, Pioneer in American Psychiatry: An Unfinished Autobiography.** Edited by Ethel L. Dewey. With an introduction by Clarence B. Farrar, M.D. Cloth. Price, \$2. Pp. 173, with illustrations. Chicago: University of Chicago Press, 1936.

These memories of a pioneer American psychiatrist were left incomplete by his death at the age of 85 and have been edited by his daughter. He describes his early life and his education just after the Civil War period. His experiences as a contract surgeon in the German army during the Franco-Prussian War are intensely interesting and alone justify acquiring the book. After his return to this country he engaged in the institutional care of the insane and was head of the State Hospital at Kankakee, Ill., from 1879 to 1893. Reforms he instituted there were widely adopted and revolutionized the care of the insane in this country. His memoirs constitute a valuable record of progress in this field.

**Leitfaden für den geburtshilflichen Operationskurs.** Von Dr. med. et Dr. art. obs. h. c. Albert Döderlein, Geheimer Rat, München. Sixteenth edition. Boards. Price, 4 marks. Pp. 245, with 175 illustrations. Leipzig: Georg Thieme, 1937.

The great popularity of this small book is attested by the fact that the present edition is the sixteenth since 1893. The book is divided into six parts. The first deals with the attitude and position of the fetus, the second is concerned with the mechanism of labor, the third takes up version and extraction, the fourth describes forceps operations, the fifth is a discussion of manual extraction of breech presentations and the sixth is devoted to destructive operations. There is an additional brief section on cesarean section and hysterectomy. One seventh of the book is devoted to destructive operations. This seems a disproportionately high allotment of space to this subject. Although the book was received for review in October 1936, the publishers have issued the book as having been copyrighted and printed in 1937. The book is clearly written and the illustrations are highly instructive.

**Clinical Studies of Endogenous Conjunctiva Affections.** By Carsten Edmund. Paper. Pp. 156. Copenhagen: NYT Nordisk Forlag: Arnold Busck, 1935.

This booklet consists of an analysis dealing with endogenous conjunctivitis, supplemented by individual cases seen in the hospitals of Copenhagen. The various forms of conjunctival troubles accompanying exudative erythema multiforme (Hebra), erythema nodosum, pemphigus, herpetiform dermatitis, and urticaria are described and compared as to the incidence and characteristics. Considerable stress is laid on the similarity between the fibromembranous forms of conjunctivitis that occur in stomatitis and in patients with phlyctenular keratoconjunctivitis that have been treated with sanocrysin. Finally are discussed the endogenous eye disturbances associated with gonorr-

harmlessness in therapeutic doses for the human system. Favorable results obtained in diabetic cases of lowering glycemia were most probably due to the activation of the glandular functions involving the production of more secretin and the stimulation of the glycogenic function of the liver, in addition to a possible "insulinoide" and the vitamins A and B. The preparation has successfully controlled 100 per cent of functional diabetes, returning blood sugar to normal or nearly normal on a liberal diet. In cases of atrophy and fibrosis of the pancreas, the true organic type, it has failed.

### New York State Journal of Medicine, New York

36: 1815-1926 (Dec. 1) 1936

- Clinical Evaluation of New Trichophyton Extract: Preliminary Report. J. J. Eller and K. A. Kazanjian, New York.—p. 1815.  
Neurologic Complications of Subacute Bacterial Endocarditis. Josephine B. Neal, H. W. Jackson and E. Appelbaum, New York.—p. 1819.  
Urethral Disease in Women: Evaluation of Present Knowledge. A. H. Paine, Rochester.—p. 1827.  
Electric Automatic Serialograph with Caset Holder. M. Einhorn, New York.—p. 1833.  
Treatment of Infected Wounds with Azochloramid. L. E. Sutton and J. Van Duyn 2d, Syracuse.—p. 1835.  
Pyoperitoneum. C. H. Goodrich, Brooklyn.—p. 1839.  
Jaundice and Anemia with Recovery in Successive New-Born Siblings. Rose F. Netter, New York.—p. 1843.  
Nephritic Syndromes Caused by Industrial Poisoning with Carbon Tetrachloride. S. Franco, Brooklyn.—p. 1847.  
Discussion of Treatment of Hay Fever, Vasomotor Rhinitis and Asthma. A. Vander Veer, New York.—p. 1854.  
Management of Early Syphilis. F. C. Combes, New York.—p. 1861.  
Successful Suture of Penetrating Stab Wound of the Heart. J. B. Stenbuck, New York.—p. 1867.  
Injection of Varicose Veins During Pregnancy. G. R. Cheatham and A. E. Peck, Endicott.—p. 1871.  
Physical Measures in Proctology. R. V. Gorsch, New York.—p. 1875.  
Present Status and Technic of Tuberculin Testing. J. K. Deegan, Albany.—p. 1883.

### Philippine Islands Med. Association Journal, Manila

16: 603-662 (Oct.) 1936

- New Nematode Parasite (*Cheilosiphura* Sp.) of the Eye of Man in the Philippines. C. M. Africa and E. Y. Garcia, Manila.—p. 603.  
\*Ide's New Coloring Test for Syphilis. M. Quisumbing, San Pablo, Laguna.—p. 609.  
Plea for Improvement in Economic Value of Man in the Philippines. S. de los Angeles, Manila.—p. 611.  
Intracranial Hemorrhage in Children: Preliminary Report. J. Albert and F. Banting, Manila.—p. 617.  
Joint Meeting of the Manila Medical Society and the Journal Club of the San Juan de Dios Hospital. J. C. Nanagas, Manila.—p. 625.

**Ide's Test for Syphilis.**—Quisumbing points out that the Ide test for syphilis can be applied (with slight variation in the procedure) to fresh or dried blood, to the spinal fluid and to the exudate obtained from the vesicles. In using fresh blood only a drop of blood, about 0.03 cc., is necessary. The blood, taken from the lobe of the ear or from the finger tip or from the vein, is placed on the concave surface of a hollow slide especially made for this purpose. A drop of 3.5 per cent saline solution is added and stirred with a corner of an ordinary object glass, and at the same time spread over the whole surface of the depression. Lastly, a drop of the Ide antigen is added. The whole mixture is shaken for three or four minutes by placing the hollow slide flat on a table and shaking forward, backward and sideways. The preparation is then ready for examination under a microscope. A positive reaction is shown by the appearance of purplish blue clumps among the red cells in the field, whereas if the reaction is negative no such change takes place and only the red corpuscles are seen. If the reaction is superpositive the purplish masses can be seen with the naked eye, but if it is weakly positive the aid of the microscope is needed. Of the 119 cases giving strongly positive Wassermann reactions, 116 gave a strong Ide reaction. Of seventeen cases giving weakly or doubtfully positive Wassermann reactions, six gave weakly or doubtfully positive Ide reactions and eleven cases failed to react. In 1,126 cases yielding negative Wassermann reactions, no positive Ide reactions were obtained.

### Public Health Reports, Washington, D. C.

51: 1-124-74 (Nov. 27) 1936

- Estimation of Health Services. J. W. M. Smith.—p. 101.  
Time Chart in Mortality from Acute Medical Suffocation Among Infants Under One Year Old in Different Geographic Regions of the United States, 1915-1935. Studies on Fatal Accidents of Children. Number Four. W. M. Gifford.—p. 114.

### Southern Medical Journal, Birmingham, Ala.

29: 1151-1256 (Dec.) 1936

- The Roentgen Ray: Facts and Fiction. F. M. Hodges, Richmond, Va.—p. 1151.  
Toxic Effect of Quinine on the Eye. S. Richardson, Jacksonville, Fla.—p. 1156.  
Laryngectomy: Improved Technic. E. A. Looper, Baltimore.—p. 1161.  
Method of Tubed Flap Formation. J. S. Davis and E. A. Kipphut, Baltimore.—p. 1169.  
Bilateral and Medial Aberrant Thyroid. H. C. Schmeisser, Memphis, Tenn.—p. 1174.  
Simple Cyst of the Liver: Report of Case. H. J. Warthen, Richmond, Va., and V. H. Griffin, Nashville, Tenn.—p. 1178.  
Development of Renal Surgery: Brief Historical Sketch. T. D. Moss, Memphis, Tenn.—p. 1181.  
Jerome Cochran: The South's First Gift to Public Health. D. L. Cannon, Montgomery, Ala.—p. 1187.  
Acquired Resistance of Fixed Tissue Cells to Chemical Injury. W. H. MacNider, Chapel Hill, N. C.—p. 1189.  
Influence of Pregnancy on Course of Heart Disease. C. S. Barrett, Boston.—p. 1194.  
Clinical Studies in Venous Pressure and Their Significance. W. G. Harrison Jr., Birmingham, Ala.—p. 1198.  
Study of Mastoid Infection in Children. M. H. Roberts, Atlanta, Ga.—p. 1207.  
\*Urinary Alkalinity in Young Children as Influenced by Diet and Disease. F. C. Neff, R. C. Fredeen, D. T. Loy and G. V. Herrick, Kansas City, Kan.—p. 1213.  
Studies in Ovulation: II. Signs of Ovulation in Women. I. F. Wharton, Baltimore.—p. 1215.  
Obstetric Hemorrhage and Its Management. S. A. Cogrove, New York.—p. 1219.  
Postoperative Evisceration in the Colored Race. F. K. Boland Jr., Atlanta, Ga.—p. 1225.  
\*Syphilis as a Problem in Immunity. A. M. Chesney, Baltimore.—p. 1230.  
Diagnosis of Venereal Diseases: Study of 4,941 Admissions to Venereal Disease Clinic. G. W. Creswell, Washington, D. C.—p. 1232.

**Urinary Alkalinity in Young Children.**—Neff and his associates state that dietary alkalinization of the urine, either alone or as an adjuvant to drugs, is feasible in acute pyelitis. Even young infants tolerate the amount of orange juice that is necessary to produce high alkalinity. An infant having acute pyuria uninfluenced by diet or drugs probably has an inaccessible and diffuse type of renal infection with sepsis. In chronic pyuria, alkalinity of the urine is the rule. Damaged renal function prevents the regulation of the acid-base equilibrium. Pyuria accompanying malformation of the urinary tract, renal calculus and infection with *Bacillus proteus* are known to be difficult to benefit permanently by diets or drugs. Acid-forming drugs or diet could not be used in one infant, but a great improvement occurred with dietary regulation and alkalinization. Experience with the feeding of five older children to whose diets base-forming juices were given showed that, with a general diet, from 8 to 16 ounces (240 to 480 cc.) of orange juice usually raises the  $pH$ . A high protein diet makes it difficult to render the urine alkaline by orange juice unless a pint or more is used, but the  $pH$  rose as high as 8.4 or more when grape juice was substituted for the orange juice.

**Syphilis as a Problem in Immunity.**—Chesney points out that the first and most important fact to understand about man's natural defensive reaction against syphilis is that it is far from being perfect. Although man's defensive reaction to syphilis is inferior to his reaction to most other infections, that reaction is by no means insignificant from the standpoint of protecting the individual. The syphilitic patient does acquire a measure of immunity or resistance against his infection. Patients who acquire syphilis and have none of the early clinical manifestations of the disease, and whose spinal fluids remain negative, likewise acquire an appreciable resistance against that infection. Such patients, who are discovered to have the disease only as a result of a routine Wassermann test, constitute a large proportion of our syphilitic population, and it may be asserted with assurance that they possess a relatively high degree of acquired resistance against the spirochete. The effectiveness of the resistance that is built up during the course of syphilis varies considerably in different individuals. The immune state engendered by syphilis is not imparted to all parts or tissues of the body alike. The precise details of the mechanism of the defensive reaction against syphilis are still unknown. Everything points against its being a humoral affair. The negative results from the study of blood and serum from syphilitic patients point to the tissues as being the seat of the immune mechanism. If human beings cannot acquire resistance

## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Anatomy, Philadelphia

60: 1:184 (Nov. 15) 1936

- Heteroplastic Transplantation of Embryonic Tissues of Rabbit and Rat. A. J. Waterman, Pittsfield, Mass.—p. 1.  
Development of Blood Supply to the Heart in Embryo Pig. H. S. Bennett, Boston.—p. 27.  
Ganglion Spirale Cochleae. Dorothy Wolff, St. Louis.—p. 55.  
Normal Development of Prostate and Seminal Vesicles of Rat with Study of Experimental Postnatal Modifications. Dorothy Price, Chicago.—p. 79.  
Cyclic Morphologic Variations in Anterior Hypophysis of Guinea-Pig. C. S. Chadwick, Nashville, Tenn.—p. 129.  
Mammalian Thymus, Particularly Thymus IV: Development in the Calf. B. F. Kingsbury, Ithaca, N. Y.—p. 149.

#### American Journal of Medical Sciences, Philadelphia

192: 745-892 (Dec.) 1936

- \*Hemophilia in the Negro. N. F. Crandall, Philadelphia.—p. 745.  
Pernicious Anemia in the Negro. R. H. Kampmeier and P. B. Cameron, New Orleans.—p. 751.  
Addison's Disease in the Negro: Report of Seven Cases. H. F. Flippin and O. N. Smith, Philadelphia.—p. 756.  
\*Hypoglycemia in Addison's Disease. J. W. Welty and H. F. Robertson, Philadelphia.—p. 760.  
Observations on Effectiveness of Protamine Insulin. R. Richardson and M. A. Bowie, Philadelphia.—p. 764.  
Nuclear Sizes in Growth Disturbances, with Especial Reference to Tumor Cell Nucleus. W. E. Ehrlich, Philadelphia.—p. 772.  
Mechanism of Inactivation of Mercurial Antiseptics by Serum, and Its Implications Regarding Possibility of Intravenous Antisepsis. Dorothea E. Smith, E. J. Czarnetzky and S. Mudd, Philadelphia.—p. 790.  
Studies on Transient Ventricular Fibrillation: IV. Observations on Clinical and Graphic Manifestations Following Revival of the Heart from Transient Ventricular Fibrillation. S. P. Schwartz, New York.—p. 808.  
Radial Artery Changes in Comparison with Those of Coronary and Other Arteries. S. W. Sappington and H. S. Cook, Philadelphia.—p. 822.  
\*Relation of Coronary Sclerosis to Symptoms and Its Distribution in 242 Fatal Cases. M. Polanco, Upper Darby, Pa.—p. 840.  
Adequate Dosage in Specific Serum Treatment of Pneumococcus Type I Pneumonia. M. Finland, Boston.—p. 849.

**Hemophilia in the Negro.**—Crandall's review of the literature failed to reveal a case of undoubted hemophilia in the Negro. The case that he reports, excepting for the family history, is typical of hemophilia. In spite of frequent nose-bleed in two brothers and a maternal uncle and grandfather, the family history cannot be interpreted as the genealogy of a hemophilic patient. The patient is a very black Negro, without any ascertainable evidence of white ancestry, presenting a history of immoderate hemorrhages from several sources since early childhood. He further showed rapid recovery following hemorrhage and had also the characteristic mischievous temperament which Bulloch and Fildes noted as being so constant that it might be regarded as almost a minor feature of the disease. He developed hemarthrosis of the left knee and joint changes typical of those found in hemophilic patients, though they are not pathognomonic. But one of the thirteen coagulation time tests was within normal limits. This one was taken during a period of active hemorrhage. The coagulation time was still markedly prolonged five months after cessation of hemorrhage. The platelet count, the tourniquet test, the clot retraction, and the Wassermann and Kahn tests were all negative. It is generally recognized that a qualitative defect of the blood platelets interfering with proper coagulation of the blood exists in hemophilia. Studies are being made calculated to prove or to disprove the existence of such a defect in the platelets of this patient.

**Hypoglycemia in Addison's Disease.**—Welty and Robertson cite two proved cases of Addison's disease that showed evidence of marked hypoglycemia with coma relieved by dex-

trose administration. In one case symptoms of the increased sugar tolerance overshadowed those of the destructive adrenal lesion and hindered the differential diagnosis. There was a relatively normal serum chloride level, which strengthens the belief that the dextrose was specific. Addison's disease should always be considered in the differential diagnosis when hypoglycemia is present. Hyperinsulinism and Simmonds' disease are perhaps the two disorders most difficult to rule out. The former can frequently be differentiated by the absence of the typical symptoms of pigmentation and hypotension. In addition, the dextrose tolerance curves of the two diseases differ rather characteristically. The six hour curve of typical hyperinsulinism tends to become progressively lower, and shock is usually observed before completion of the test; the curve of Addison's disease is relatively flat and does not decrease sharply, and shock is rare unless there are complicating factors, such as intercurrent infection or starvation, which may deplete the body dextrose supply. The dextrose tolerance curve of Simmonds' disease resembles somewhat that of Addison's disease. However, extreme cachexia, loss of sexual function and marked depression of the basal metabolic rate (with hypothermia and hypotension), together with loss of teeth and hair (axillary and pubic), are usually present, thus aiding in differentiation.

**Relation of Coronary Sclerosis to Symptoms.**—Polanco found that history of pain of cardiac origin was given in 14.9 per cent of the patients, 91.7 per cent of the instances being associated with marked sclerosis and 8.3 per cent with moderate sclerosis. No patients with mild sclerosis gave a history of pain. Dyspnea and cardiac pain were the symptoms encountered most frequently. Signs of congestive heart failure were also predominant; of the arrhythmias, auricular fibrillation was the most common and extrasystole was frequent. The anterior descending branch of the left coronary artery was the most frequent to be "markedly" involved in the sclerotic process (eighteen times). Of arteriosclerosis in other organs, the kidneys and spleen were more markedly attacked. Other organs were involved in varying degrees, showing that visceral arteriosclerosis tends to be generalized, although usually affecting the vessels of some organs more than others. The ratio of heart weight to body weight was found to be increased in 90.8 per cent of the 156 men and 91.3 per cent of the eighty-six women. The average heart weight in 149 men was 417 Gm., or 123 Gm. above normal. Of these, 84 per cent weighed more than normal. Of seventy-eight women the average weight was 387 Gm., or 137 Gm. above normal, 83.3 per cent showing definite increase of heart weight.

#### American Journal of Pathology, Boston

12: 801-966 (Nov.) 1936

- \*Early Stages of Glomerulonephritis. E. T. Bell, Minneapolis.—p. 801.  
Interplay of Cells of Hematopoietic Tissues in Rabbits Infected Experimentally with Tubercle Bacillus: Origin of Monocyte Considered. E. M. Medlar and K. T. Sasano, Mount McGregor, N. Y.—p. 825.  
\*Lesions of Cardiac Valves in Rheumatic Fever. L. Gross and C. K. Friedberg, New York.—p. 855.  
Occurrence of Tumors of Central Nervous System in Routine Autopsies. J. H. Peers, Burlington, Vt.—p. 911.  
Ultracentrifugation of Intranuclear Inclusions in Submaxillary Glands of Guinea-Pigs and Ground Moles. A. M. Lucas, St. Louis.—p. 933.

**Early Stages of Glomerulonephritis.**—Bell proposes the theory that subclinical glomerulitis differs from clinical glomerulonephritis only in intensity, making a broader approach to the etiology of glomerulonephritis available. A large group of infectious and toxic processes is concerned in the etiology of the disease. The glomerular capillaries are injured probably by various toxic substances. Sensitization to bacterial or other protein may play an important part, but it is unnecessary to assume that sensitization is essential in the development of the lesion. The cases of acute glomerulonephritis that develop within a week after the onset of an acute infection are not easily explained as a result of hypersensitiveness. A widespread sensitization to bacterial protein must be assumed if one is to explain subclinical glomerulitis on this basis. A microscopic study was made of the kidneys in 107 cases of death from accidental causes, 194 cases of death from noninfectious diseases and 564 cases of death from various infectious processes. In the 107 normal cases the glomerular epithelial cells definitely outnumbered the endothelial in 84.1

## Glasgow Medical Journal

S: 265-312 (Nov.) 1936

The Spastic Colon. D. Smith.—p. 265.  
Respiration—Cystorespiration—Viscerorespiration. A. G. Faulds.—p. 281.

## Indian Journal of Medical Research, Calcutta

2-4: 317-570 (Oct.) 1936. Partial Index

Study of Metabolism of 210 *Vibrio* Strains. R. W. Linton, B. N. Mitra and D. N. Mullick.—p. 317.  
Fermentation Reaction of *Vibrios*. J. Taylor, W. D. B. Read and S. R. Pandit.—p. 349.  
Isolation of Three New Types of Dysentery Bacteriophage: Note. N. M. Moitra.—p. 357.  
Antirabic Immunization: Notes. G. Covell, J. P. McGuire, E. D. Stephens and B. N. Lahiri.—p. 373.  
\*Studies on Typhus in Simla Hills: Part VI. Role of Human Body Louse in Transmission of Typhus. G. Covell and D. R. Mehta.—p. 389.  
Stomatitis Due to Vitamin B<sub>2</sub> Deficiency. W. R. Aykroyd and B. G. Krishnan.—p. 411.  
Studies on Vitamin A Deficiency: Part I. Xerophthalmia and Trigeminal Nerve Degeneration. M. V. Radhakrishna Rao.—p. 439.  
Cholesteremia in Normal and Diabetic Indian Subjects. J. P. Bose and U. N. De.—p. 489.  
Preservation of Coagulant Solutions of Daboia Venom. J. Taylor, S. M. K. Mallick and S. N. Ganguly.—p. 521.  
Effect of Gastric Juice and of Bile on Cyclops Infected with Guinea-Worm Larvae. S. Sundar Rao.—p. 535.  
Bionomics of *Phlebotomus Argentipes*: Part II. Breeding Sites of *Phlebotomus Argentipes* and an Attempt to Control These Insects by Antilaval Measures. R. O. A. Smith, S. Mukerjee and C. Lal.—p. 557.

**The Human Body Louse in Transmission of Typhus.**—Covell and Mehta give an account of attempts to transmit the virus of a strain of typhus, originally derived from the brains of wild rats, from monkey to monkey by means of the human body louse. Out of sixty lice that were fed on experimentally infected monkeys, three (5 per cent) showed enormous numbers of bipolar staining Rickettsiae in smears from the middle intestine. Of three monkeys on which lice from the infected batch were allowed to feed, one developed a febrile reaction and another a slight rise in agglutinins for *Proteus* OX19. A fourth monkey, into the scarified skin of which lice which had died during the experiment were rubbed, developed a febrile reaction together with a slight rise in agglutinins for *Proteus* OX19. Guinea-pigs subpassaged from this animal have shown pyrexia for several generations, but no serotol reaction.

## Indian Medical Gazette, Calcutta

71: 629-692 (Nov.) 1936

\*Facial Cellulitis: Study of Fifty-Five Cases; from February 1932 to August 1936. P. Chatterji and M. N. De.—p. 629.  
Enquiry into Outbreak of Cholera in Burma, with Especial Reference to Value of Preventive Inoculation. C. A. Bozman and E. G. Lewis.—p. 647.  
Clinical Value of Intramuscular Quinine in Fever During Puerperium in Tropical and Subtropical Countries. S. N. Hayes.—p. 651.  
Regional Variations of Leprosy, with Especial Reference to Tuberculoid Leprosy in India. H. W. Wade.—p. 653.

**Facial Cellulitis.**—From their study of fifty-five cases of facial cellulitis, Chatterji and De find that *Staphylococcus aureus* constitutes the predominating organism among the bacterial agents. The common conception that this condition is due to *Streptococcus haemolyticus* is shown to be incorrect as far as Calcutta is concerned. In the pathogenesis of the disease an early onset of virulent septicemia dominates the picture, while spreading infective thrombophlebitis constitutes the most important pathologic process in the infected and surrounding area. Extension of infection into the cavernous sinus or the meninges is not so frequent. The majority of the patients die of septicemia before the infective thrombophlebitis has time to extend inside the skull. Clinically, the signs and symptoms exhibited are those of a fulminant septicemia with well marked toxemia. Pulmonary and cardiac involvements are always of serious significance. In the matter of treatment, a policy of nonintervention should be followed as a matter of choice. Except for minor details regarding the management of the local area, attention should be concentrated on the treatment of septicemia with its accompanying toxemia. There is great need for an effective specific antiserum for combating this infection. The mortality rate in the series of cases was 89 per cent. It is extremely doubtful whether this high death rate can be altered by any form of treatment that is available at present.

## International Journal of Psycho-Analysis, London

17: 395-536 (Oct.) 1936

Genesis of Psychic Conflict in Earliest Infancy. Joan Riviere.—p. 397.  
Construction of Depression. G. Gerö.—p. 423.  
Contribution to Study of Slips of the Tongue. L. Edelberg.—p. 431.  
Some Queries on Principles of Technique. M. N. Searl.—p. 471.

## Journal of Tropical Medicine and Hygiene, London

39: 245-256 (Nov. 2) 1936

\*Bismuth in Treatment of Endemic Syphilis (Bejel). E. H. Hudson and Susan S. Crosley.—p. 245.  
Diseases of Skin in Negroes. L. J. A. Loewenthal.—p. 250.

39: 257-268 (Nov. 16) 1936

Passive Immunity in Experimental and Natural Malaria. D. Schick.—p. 257.  
Diseases of Skin in Negroes. L. J. A. Loewenthal.—p. 260.

**Bismuth Compounds in Treatment of Endemic Syphilis.**—Hudson and Crosley treated 1,000 endemically syphilitic (bejel) seminomad Bedouins with bismuth compounds in the last four years. Bejel, the name by which endemic syphilis is locally known, affects 90 per cent of the village population in the region of Deir-cz-Zor. The first manifestation of the disease is a mucocutaneous eruption, which usually disappears spontaneously within a year and is followed by a latent period of some years. Late lesions take the form of mucocutaneous relapse or gummatous ulcerations. Periostitis and bone necrosis are found in both early and late lesions. Bejel does not attack the constitution or the vital structures of the body and is not transmitted congenitally. It is impossible to treat the bejel patient in a voluntary clinic along the lines of modern anti-syphilitic therapy. In the case of an endemic syphilis such as bejel, the objective should be the eradication of the disease in the community. To gain this objective it is only necessary to control the infectiousness of the individuals with open lesions, and this can be secured with preparations of bismuth alone, at low cost, without risk to the patient, and in a time schedule adapted to the temperament of the Arab. In general, bismuth is most suitable for the capricious Bedouin patient, because if he abandons treatment early—as he often does—he has not been harmed, nor has the success of possible later treatment been prejudiced. Treatment consisted of daily intramuscular injections of bismuth in the form of sodium bismuth tartrate and bismuth salicylate. The subjects received an average total of 75 cg. of the metal in ten days. Improvement was usually immediate, and the healing effect was prolonged beyond the treatment period. Improvement was evident in 49 per cent of the patients, and 28 per cent were healed. The result of treatment was not known in 13 per cent, and 10 per cent were not changed. These results are satisfactory, considering that attendance at the clinic was entirely voluntary and treatment was paid for. The short intensive course of bismuth seldom reversed the positive Kahn reaction and often made it stronger. Occasionally, patients healed with bismuth had recurrences of bejel lesions. This not unexpected recurrence presented no difficulty, as healing was again secured with bismuth. Bismuth in the healing of open bejel lesions is as effective as the arsenicals and has two additional virtues—prolongation of effect and stimulation of the natural body defenses. Mass treatment, for which intramuscular injections of bismuth are suitable, should consist of the treatment of children to the age of 15 and of all adults with open lesions.

## Lancet, London

2: 1135-1196 (Nov. 14) 1936

Death in Addison's Disease (Functional Renal Failure). C. J. J. Dix.—p. 1135.  
Some Tumors and Ulcers of Palate and Fauces. W. Howard.—p. 1141.  
\*New Method of Treatment in Hemophilia. W. A. Temperley, A. L. Naish and G. A. Clark.—p. 1142.  
Anal Fissure. J. W. Riddick.—p. 1159.

**New Method of Treatment in Hemophilia.**—In the course of investigations unconnected with hemophilia, Temperley and his associates found that if erg white was heated and at 37 C. for several days in the presence of potassium permanganate it was possible to extract from the mixture a substance to which addition of blood in vitro under certain conditions led to the formation of a clear structureless red fluid that did not shrink like the ordinary blood clot. This substance, when injected intravenously into cats (either decalcified or calcified),

the function of the lacrimal duct. In lesions near the outer canthus with slight or no ulceration the treatment is carried out by everting the lid, shielding the whole eye and the other tissues by a suitable lead shield and applying radium either as a surface application or by the insertion of highly filtered radium needles. The details of radium treatment are determined by the individual case but take the form of a surface application, a pack applied externally or the implantation of highly filtered radium needles. In hyperplasia of the corneal epithelium the eye is cocainized and the lids are retracted and held in position by retractors. A tracing of the hyperplastic tissue is taken on transparent celluloid and transferred to a piece of lead foil, and an opening is cut in the latter as in the treatment of lesions on the skin. A piece of rubber tissue 1 mm. thick is cut to fit over the entire cornea extending down into each conjunctival sulcus, is sterilized and is placed in position. Over this and in direct contact with it is placed the lead shield, over the aperture of which the radium is applied. In the author's cases the applicators have been monel metal needles containing 10 mg. each of radium element and these have been left in contact for one hour. The treatment of an epithelioma developing on the cornea differs from the treatment of hyperplasia only in the matter of dosage, the malignant lesion requiring a heavier application. The author has treated 102 cases of malignant lesions of the lid with only three failures; all the others have been cured so far as his present records have been able to follow them.

**Modification of Effects of Radon by Filtration.**—In the tissues of fourteen dogs irradiated in corresponding areas by similar doses of primary gamma radiation, but in which the filtration was 0.55 mm. equivalent of platinum and 0.8 mm. equivalent in gold, Wright observed that a peculiar periacicular formation of hyaline tissue took place over several months in the former case. Four examples of later radionecrosis had their origin in this tissue. No evidence could be found that this death of tissue resulted from any specific action of the radiation on the vasculature. It is suggested tentatively that the essential difference in irradiated tissues from normal tissues is one of reduced number of reproduction cycles, so that in the case of the more lightly filtered radiation with a greater reproduction activity in the granulation tissue around the needle this number of cycles is "used up" more rapidly than in the case of the more highly screened radiation, in which the periacicular granulation reaction is less marked and the main change is hyalinization, not a change to less mature tissue. It is indicated that the relative avascularity of irradiated tissue is the reaction of the vessels to the altered activity of the fibrous tissue rather than the result of any constricting effect by increased intercellular substance of this tissue.

### American Review of Tuberculosis, New York

34:713-822 (Dec.) 1936

- Comparative Mortality of Patients Discharged from Tuberculosis Sanatoriums. H. E. Hilleboe, St. Paul.—p. 713.  
Tuberculosis and the Finns of Marquette County, Michigan. S. Lojaco, Marquette, Mich.—p. 725.  
Tuberculosis Mortality as an Index of Hygienic Control: Biometric Contributions to Epidemiology of Tuberculosis. G. Wolff, Berlin, Germany.—p. 734.  
\*Changes in Pulmonary Tuberculosis Following Hemoptysis: Clinical and Morphologic Types and Their Evolution. D. Reisner, New York.—p. 749.  
\*Pulmonary Tuberculosis and General Paresis. S. A. Leader, Chicago.—p. 776.  
Feasibility of Artificial Pneumothorax in Minimal Cases of Tuberculosis. G. C. Turner and L. L. Collins, Chicago.—p. 792.  
Danger Signals in Artificial Pneumothorax Therapy. W. M. MacKay, Waltham, Mass.—p. 808.

**Changes in Pulmonary Tuberculosis Following Hemoptysis.**—The clinical changes observed by Reisner suggest that the pulmonary lesions developing after hemoptysis are largely the result of an extension of the tuberculous process. They are evidently caused by aspiration of tubercle bacilli and their toxic products. The importance of the hemoptysis lies in the fact that its occurrence provides particularly favorable opportunities for acute aspiration. Aspiration is a common accompaniment of hemoptysis. However, in only a fraction of cases are demonstrable pulmonary changes found. This is evidently due to the fact that the mere aspiration of a moderate quantity of blood has no deleterious effect. The

presence of aspirated blood in the bronchial tree hardly gives rise to any demonstrable changes in the roentgenogram. The conditions created by the hemoptysis and the resulting aspiration pave the way for a spread of the tuberculous lesion, as they facilitate a sudden distribution of tubercle bacilli over wide pulmonic areas. However, clinical and roentgen follow-up studies indicate that cases showing a rapid and complete resolution of the pulmonary changes resulting from hemoptysis are rather uncommon. In the majority of instances the character of the lesions indicates an extension of the tuberculous process. The various forms of posthemoptytic complications showed wide dissimilarities of the resulting pulmonary changes. The severity and the number of hemoptyses disclosed no definite relationship to a direct influence on the extent and severity of the resulting lesions. A definite parallelism was observed between the general character of the preexisting pulmonary lesion and the subsequent behavior of the spread, which indicates that the evolution and the ultimate fate of the posthemoptytic changes are determined largely by the nature of the original disease. The severest and most progressive forms of involvement were found in patients in whom the original lesion was of the predominantly exudative-caseous character with progressive destruction. The chronic protracted course and the benign evolution of the lesions resulting from diffuse aspiration are as a rule observed in instances in which the preexisting lesion is of a corresponding character. The infective dose determines the evolution and the fate of the posthemoptytic spreads. Other factors, such as variable states of allergic response and immunity, probably have an important bearing on the evolution of the resulting changes, as they may influence the effect of the spread in a favorable or in an unfavorable manner. In a group of ninety patients, widespread changes of a distinctly progressive nature had been brought about by hemoptyses in sixty. Of these, fifty-five died during the course of observation. Death occurred in thirty-five within three months after admission to the hospital, in eight between three and six months, and in eight between six and twelve months after admission. The average duration of illness for this group, from the occurrence of the hemoptysis until the fatal termination, was five months. These mortality rates indicate the deleterious effect of the posthemoptytic spread on the subsequent course of the disease and illustrate the hazards with which their occurrence is fraught. The foremost aim must be the elimination of factors that promote the occurrence of aspiration. The ill effects of the injudicious administration of narcotics, especially morphine, are referred to. The expediency of placing the patient at complete rest in the recumbent position is questioned. It would seem more appropriate to promote expectoration and ventilation by change of posture, thereby giving the patient a better chance to counteract the effects of aspiration. Artificial pneumothorax is of value in the attempt to control the bleeding and, if employed early, may prevent an extension of the disease process in the lung, particularly in cases in which the original pulmonary lesion is of a progressive and destructive nature and in which the results of aspiration following hemoptysis are frequently of a serious character. In suitable cases the pneumothorax treatment should be continued as a curative measure.

### Pulmonary Tuberculosis and Dementia Paralytica.

Leader suggests that pulmonary tuberculosis, while not common in patients with dementia paralytica, occurs sufficiently often to warrant careful observation for this condition. Recourse should be made to all available diagnostic means, particularly the x-rays, since sputum is often unobtainable. The problem of pulmonary tuberculosis in dementia paralytica is of importance not only from the standpoint of the individual patient whose therapy will necessarily be modified by the type, extent and activity of pulmonary lesion but also from the possibility of the spread of tuberculosis to others, particularly in institutions. In most cases of the present series (twelve) the syphilitic infection preceded the tuberculosis, which is in accord with the experience of many observers. When tuberculosis occurs in a person with dementia paralytica the course is not necessarily more severe than in one who does not have dementia paralytica; it may be milder, it may pursue its usual course, but it also may be more severe. Pulmonary hemorrhages have occurred following the use of tryparsamide and tryparsamide and mercury, and in at least one instance a case of quiescent



mental acute uremia and cholemia, in comparison to that of control animals. In cases of acute liver insufficiency from infarction of the liver as induced by ligation of the hepatic artery, the administration of liver extracts results in prolonging the duration of life of the animals in comparison with that of control animals. Animals that receive the extract live longer than the controls, even in cases in which the infarction involvement of the liver parenchyma is great. The author concludes that antianemic liver extracts have an antitoxic action as well as a stimulating action on the liver parenchyma, similar to that of insulin. The functions of the parenchymal areas that are not involved in the infarction process are intensified on stimulation of the extracts. The author says that more work is needed to clarify whether the actions of the antianemic extracts are due to the antianemic factor or to some other substance contained in the extracts.

### Gazzetta Internazionale di Med. e Chir., Naples

46: 591-624 (Oct. 31) 1936

Suppurating Acute Mesenteric Lympho-Adenitis from Diplococci: Case. E. Polichetti.—p. 597.

\*Action of Prehypophyseal and Cortico-Adrenal Extracts on Glycemia in Old Persons. A. Torresini and G. Nicoletti.—p. 606.

Ovulation, Menstruation and Fertility of Women According to Modern Views. F. De Luca.—p. 611.

**Action of Prehypophyseal and Cortico-Adrenal Extracts on Glycemia in Old Persons.**—According to Torresini and Nicoletti, the extracts from the anterior lobe of the hypophysis, subcutaneously injected in normal old persons, induce hyperglycemia, whereas those from the cortex of the adrenals induce hypoglycemia. They obtained these results in eight out of ten persons. The total average of hyperglycemia was 0.24 mg. per thousand cubic centimeters of blood higher than the glycemia found before administration of the prehypophyseal extract. The total average of hypoglycemia was 0.27 mg. per thousand cubic centimeters of blood lower than the glycemia found before administration of the adrenal extract. The time of appearance of the highest figure of hyperglycemia, in the several cases, varied within thirty and 120 minutes after administration of the extract. Hyperglycemic curves followed a regular ascending and descending evolution. Three hours after the test, glycemia had returned to normal or almost normal figures. Hypoglycemia was 0.15 mg. per thousand cubic centimeters of blood lower than the glycemia that existed before the test in one of the two cases which reacted with hypoglycemia to the administration of prehypophyseal extracts. The two cases which reacted with hyperglycemia to the adrenal extracts were different from those which reacted with hypoglycemia to the prehypophyseal ones. The authors believe that the hyperglycemic reaction to adrenal extracts depends on the presence of neurosympathetic disturbances originating in insufficient circulation of certain endocrine glands. Their results, as a whole, confirm those obtained in experiments. The commercial origin of the extracts used and the number of rat units (20 or 50) in the extracts did not interfere with the results.

### Minerva Medica, Turin

2: 493-516 (Nov. 24) 1936

Hemodynamics and Permanent Slow Pulse: Cases. G. C. Dogliotti, E. Montuschi and A. Beretta.—p. 497.

\*Sensory and Cutaneous Vascular Disturbances from Accidental Intra-Arterial Injection of Arsphenamine. G. Sannicandro.—p. 505.

Genoreaction. A. Valerio.—p. 506.

### Accidental Intra-Arterial Injection of Arsphenamine.

The intra-arterial injection of arsphenamine is a rare accident. In the only case reported in the literature (Bory's case) the accident was due to the abnormal presence of the humeral artery in the place of the vein at the elbow fold. During the injection a painful spasm of the artery was produced, which was followed by anemia of the last three fingers and consequent loss of half of the hand from secondary necrosis. Bory said that arsphenamine sets up a reaction of defense in the artery with a reflex vasoconstriction and persistent spasm, which causes necrosis. Sannicandro reports a case under the same circumstances. During the arsphenamine injection into the abnormally placed humeral artery the patient experienced an intense burning and pain in the lower two thirds of the forearm. Simultaneously with the subjective phenomena, white anemic and red hyperemic plaques, both 1 cm. in diameter, appeared on the skin of the

lower two thirds of the forearm and the hand. The general symptoms were a sense of constriction about the thorax, cyanosis, diffuse intense pallor and a decrease in the number and quality of the pulse beats, which became almost imperceptible. The patient was given some injections of camphorated oil and was left to rest in bed. One hour later, all the symptoms had entirely disappeared and there were neither immediate nor late complications. In the author's case the vascular and nervous cutaneous phenomena took place simultaneously in the cutaneous capillary territory. Because of the fact that the epithelium of medium sized arteries does not react to the passage of arsphenamine in small doses, the author believes that arsphenamine induced a vasomotor reaction in the cutaneous capillaries. His statement is based on the fact that cutaneous paresthesia from vasomotor reactions of the cutaneous capillaries is associated with local changes of the color of the skin, which correspond to the involved capillary territory. According to the author, certain vasomotor reactions of the cutaneous capillaries cause direct stimulation of the ends of the peripheral nerves. Vasomotor reactions originate in circulatory disturbances with consequent liberation of tissural substances, the rôle of which in producing cutaneous paresthesia, by stimulating the ends of the peripheral nerves, is secondary to that played by the vasomotor reaction. The author accepts the classic physiology of a direct stimulation of the ends of the peripheral nerves in the production of cutaneous paresthesia.

2: 561-588 (Dec. 15) 1936

Diagnostic Value of Paul and Bunnell Reaction in Infectious Adenopathy. Lymphomonocytosis. F. Penati and R. Molfese.—p. 562.

\*Nonspecific Stimulation in Course of Active Specific Vaccination. P. Cotrufo.—p. 565.

Posttraumatic Chronic Subdural Hematoma: Case. F. Mazzini.—p. 573.

**Nonspecific Stimulation in Course of Active Specific Vaccination.**—Cotrufo studied the evolution of the processes of immunization by specific treatment following nonspecific treatment in rabbits. He found that nonspecific stimulation induced by administration of repeated injections of proteins or colloidal metals increases the defense powers of the organism. The specific reaction is more intense in animals which were subjected to nonspecific stimulation than in those which were not. Nonspecific immunization acts on specific immunization, simultaneously induced, by increasing the powers of defense of the cells that take a predominant part in the reaction to the specific bacteria. The powers of defense of agglutinins, bacteriolytic amboceptors and those related with the power of fixation of the complement increase by nonspecific stimulation in specific typhoid immunization, whereas those of reticulo-endothelial cells and phagocytes increase by nonspecific stimulation in staphylococcal immunization. Nonspecific stimulation acts by increasing the reactivity of the cells, especially the reticulo-endothelial ones, to the specific stimulation. The type of the reaction depends on the type of bacteria which causes specific stimulation. The author's results indicate that proteins injected fail to form antibodies. The latter are formed by the association of nonspecific stimulation with specific immunization.

### Medizinische Klinik, Berlin

32: 1689-1724 (Dec. 11) 1936. Partial Index

Treatment of Hepatic Cirrhoses. H. Horstner.—p. 1689.

\*Errors in Recognition of Lupus Vulgaris and Other Forms of Cutaneous Tuberculosis. J. Hämel.—p. 1692.

Diagnostic Value of Klein's Carcinoma Reaction. C. Heinz and E. Kestermann.—p. 1699.

Artificial Induction of Delivery in Case of Post-Term Pregnancy. K. Ehrhardt and Erika Henss.—p. 1700.

Circulatory System in Case of High Speeds in Airplanes. E. A. Müller.—p. 1703.

Action of Prehypophyseal Hormone on Gastric Secretion and Circulation. E. Fröhlich.—p. 1707.

**Diagnosis of Lupus Vulgaris.**—According to Hämel, lupus vulgaris is the most frequent form of cutaneous tuberculosis. The diagnosis of lupus vulgaris is based chiefly on the detection of the lupus nodules that correspond to a tubercle (conglomerate tubercle) deep inside the corium. They are readily recognized by pressing the blood from the tissues by means of a glass spatula. If this is done, yellowish brownish red spots become visible, above which the epithelium is either entirely unchanged or glossy and traversed by small folds. Another characteristic of the lupus nodules is a peculiar behavior in case of pressure with a probe. If such pressure

years ago Eugene Pool devised a method of systematic passive motion and exercise for the immediate postoperative patient. The nurse in attendance during the recovery of the patient should be instructed to massage the legs frequently until the patient recovers completely from the anesthetic. The patient should be encouraged to move his extremities early and often; the position in bed should be changed frequently during convalescence. In all probability patients may be confined to bed too long following operative procedures. They should be sitting up in a chair as soon as the attending surgeon feels that it is compatible with other factors. The abdominal dressing should not be tight, and full breathing should be encouraged in every possible manner. The use of thyroid extract, advocated by Walters on the theory that by stimulating all the vital processes along with the increase in blood pressure the stagnation of the venous flow is lessened, seems plausible unless otherwise contraindicated.

### Journal of Bacteriology, Baltimore

32: 473-588 (Nov.) 1936

- Metabolism of Various Types of Sugars by S and R Forms of *Pneumococcus*. P. Finkle, New York.—p. 473.  
Growth and Fermentation of Bacteria Near Their Minimal Temperature. M. J. Foter and O. Rahn, New York.—p. 485.  
Sugar Alcohols: VI. Utilization of Sugar Alcohols and Their Anhydrides by Various Micro-Organisms. K. P. Dozois, C. J. Carr, J. C. Krantz Jr., F. Hachtel and Frances F. Beck, Baltimore.—p. 499.  
Absorption of *Staphylococcus* Bacteriophages. M. L. Rakieten, T. L. Rakieten, Brooklyn, and S. Doff, New Haven, Conn.—p. 505.  
\*Influence of Composition of Medium on Metabolism of Some Slow-Lactose-Fermenting Bacteria of Intestinal Origin. A. D. Hershey and J. Bronfenbrenner, St. Louis.—p. 519.  
Some Chemical Factors Influencing Growth and Pigmentation of Certain Micro-Organisms. M. S. Kharasch, E. A. Conway and W. Bloom, Chicago.—p. 533.  
Studies on Hemolytic *Streptococci*: III. *Streptococcus Equi* and Related Strains. Alice C. Evans, Washington, D. C.—p. 541.  
Spontaneous Transformation of *Pneumococcus* Type V to Type II. L. A. Barnes and Eleanor C. Wight, Boston.—p. 557.  
Bacterial Growth at Constant Hydrogen Ion Concentration: Apparent Oxidation-Reduction Potential, Acid Production and Population Studies of *Lactobacillus Acidophilus* Under Anaerobic Conditions. L. G. Longworth and D. A. MacInnes, New York.—p. 567.

**Influence of Medium on Metabolism of Bacteria of Intestinal Origin.**—Hershey and Bronfenbrenner studied the metabolism of a slow-lactose-fermenting strain of the *Escherichia coli* type of bacteria and of its rapidly fermenting variant in lactose-containing synthetic mediums. Variation within the culture does not play any part in the early course of fermentation by these bacteria. The multiplication rate and the velocity of lactose fermentation are influenced markedly by the concentration of lactose in the medium. The effect on the rate of fermentation is direct, as well as dependent on changes in the rate of growth. The rate of fermentation varies with the bacterial population of the culture, while the rate of respiration is largely independent of it. The presence of sodium succinate as an accessory source of carbon does not appear to influence early lactose fermentation, except through its buffer effect on the *pH* of the culture. Succinic acid is removed from the medium more rapidly as the ratio of the concentration of succinic acid to that of lactose is increased.

### Journal of Nervous and Mental Disease, New York

84: 621-740 (Dec.) 1936

- Mental Syndrome of Corpus Callosum Tumors: Note. B. J. Alpers, Philadelphia.—p. 621.  
Depersonalization: Report of Unusual Case. A. Gordon, Philadelphia.—p. 628.  
Cerebral Hemorrhages Following Lumbar Spinal Puncture. P. G. Schube and Naomi Raskin, Boston.—p. 636.  
Trigemino-facial Cervical Reflexes. S. M. Weingrow, New York.—p. 660.  
Psychosis Associated with Glaucoma Simplex. E. F. Reaser, Huntington, W. Va.—p. 663.  
Biodynamic and Evolutional Orientation of Psychoanalysis: Smith Ely Jelliffe: His Work. A. Ramos, Bahia, Brazil, South America.—p. 667.

### Medical Annals of District of Columbia, Washington

5: 323-352 (Nov.) 1936

- Uremia. R. M. LeComte, Washington.—p. 323.  
Prefrontal Lobotomy in Agitated Depression: Report of Case. W. Freeman and J. W. Watts, Washington.—p. 326.  
Value of "Complete Change of Scene" for Nervous Patient. R. S. Cohen, Washington.—p. 329.  
Basic Clinical Factors in Evaluating Treatment and Prognosis in Hyperthyroidism. R. L. Wells, Washington.—p. 332.  
Constitutional Factors in Mental Disorders. W. Freeman, Washington.—p. 336.

### Minnesota Medicine, St. Paul

19: 759-822 (Dec.) 1936

- Conduct in Medical Practice. B. J. Gallagher, Waseca.—p. 759.  
Management of Appendicitis. E. A. Regnier, Minneapolis.—p. 762.  
Regional (Terminal) Ileitis. O. J. Hagen, Moorhead.—p. 766.  
\*Active Pulmonary Tuberculosis Without Symptoms. E. K. Geer, St. Paul.—p. 769.  
Prolonged Test of Milk and Honey Diet. M. H. Haydak, Minneapolis.—p. 774.  
Blood Transfusion. E. N. Peterson, Eveleth.—p. 776.

**Active Pulmonary Tuberculosis Without Symptoms.**—Geer discusses a type of pulmonary tuberculosis that is not the textbook picture. On the contrary, it is that illustrated by the person who feels perfectly well, presents no symptoms, may give a history of exposure to an individual known to have positive sputum, or who has been sifted out in a Mantoux survey or has been tested by his physician in the course of a routine examination. He does exhibit a positive reaction to a skin tuberculin test and is found to have an infiltration in the chest roentgenogram usually in the first or second interspace. Rarely will these people have any abnormal physical signs in the chest. Active pulmonary tuberculosis without symptoms can be detected in most instances only by a chest roentgenogram. Its course is unpredictable and therefore requires close observation by serial roentgenograms of the chest. Aside from those persons employed in institutions, students or employees of concerns who can be followed closely, the safest and best course to follow is a period of sanatorium study.

### New England Journal of Medicine, Boston

215: 953-1004 (Nov. 19) 1936

- Cardiac Pain and Its Significance. J. A. Lyon, Washington, D. C.—p. 953.  
Scheme for Treatment of Diabetes Mellitus with High Carbohydrate Low Fat Diets. J. M. Flynn, Boston.—p. 955.  
Artificial Pneumothorax in Adolescents. R. R. Little, North Wilmington, Mass.—p. 960.

215: 1005-1048 (Nov. 26) 1936

- Autonomic Pharmacology of Gastric Juices. A. Myerson, Boston; M. Rinkel, Dorchester Center, Mass., and W. Dameshek, Boston.—p. 1005.  
Fractures in the New-Born: Plea for Adequate Treatment. A. Thorne-dike Jr., Boston, and F. R. Pierce, Detroit.—p. 1013.  
Recent Advances in Treatment of Rectal Diseases by Injection Methods in Ambulatory Patients: II. Pruritus Ani. N. Steinberg, Boston.—p. 1019.  
Epidemic Puerperal Sepsis. J. T. Williams, Boston.—p. 1022.  
Home Nursing. A. Worcester, Waltham, Mass.—p. 1027.

### New Orleans Medical and Surgical Journal

89: 267-332 (Dec.) 1936

- Nutritional Deficiency "Disease." W. S. Kerlin, Shreveport, La.—p. 267.  
The Management of Abortion, with Especial Reference to Incomplete Variety. E. L. King and G. A. Mayer, New Orleans.—p. 271.  
Maternal Mortality in Louisiana. C. R. Mays, Shreveport, La.—p. 276.  
Semilunar Cartilage and the Football Knee. H. T. Simon, New Orleans.—p. 287.  
Concerning the Biopsy. W. R. Mathews, Shreveport, La.—p. 292.  
Clinical Analysis of 309 Surgical Autopsies. R. Lampert, Alexandria, La., and Elizabeth M. McFetridge, New Orleans.—p. 296.  
Chemical Burns of the Eye. O. W. Moss, Lake Charles, La.—p. 302.  
\*Introduction of New Vegetable Concentrate in Treatment of Diabetes Mellitus. E. A. Bertucci, New Orleans.—p. 306.

**Vegetable Concentrate in Treatment of Diabetes Mellitus.**—During recent investigations and researches Bertucci has found a hypoglycemic action in the common wild thistle (*Carduus*), from which a concentrate is made from the stalks and leaves by a special dehydration process involving the constant recirculation of inert gases under low temperature, free oxygen being effectively excluded, thereby preserving the vitamins. The finished product is an impalpable powder. The dosage of this finished product is from 2 to 4 Gm. three times daily in capsule or powder form half an hour before meals. Just how it acts on carbohydrate metabolism is not yet exactly known. What has been gathered so far from experiments made on dogs is that it possesses physiologic stimulant properties both to the pancreas and to the liver through the possible activation of the duodenal hormone secretin. In very large doses in animals it produced an increased flow of saliva and in still larger doses emetic properties similar to ipecac but did not produce any gastro-intestinal irritation or irritation to the mucous membranes in the lower intestine. Experiments carried on during the past two years have definitely established its absolute

than in female patients, probably because of the difference in the type of breathing in each. The impairment of the respiratory function is less pronounced in patients on the regimen of early bed leaving and administration of analgesics. Protracted stay in bed appears to be an important predisposing factor in the pathogenesis of postoperative pulmonary complications. The prophylaxis of impaired respiratory function consists of pulmonary exercises, leaving bed early and administration of analgesics during the first few postoperative days.

**Renal Tumors.**—In the last four years, forty cases of tumors of the upper urinary tract were admitted to the urologic clinic of the Regional Institute of Moscow. Thirty-seven of these involved the kidney and two the renal pelvis, while one was a primary carcinoma of the ureter. Of the thirty cases in which operation was performed, twenty-three proved on histologic study to be hypernephromas, five adenocarcinomas and, of the two cases in children, one was sarcoma and one acinous carcinoma. Mayants considers intermittent symptomless hematuria with blood clots, palpable tumor and a characteristic pyelogram the diagnostic triad of renal tumor. The pyelogram is not diagnostic in itself and should be regarded as a part of the general clinical picture. Among the important secondary manifestations the author mentions a varicocele that does not disappear in the horizontal or genupectoral positions of the body, dilatation of the superficial veins of the skin of the abdomen, the presence of metastases in the lungs, bones and other organs and an increased sedimentation reaction of the erythrocytes. Excretion of indigo by the involved kidney may be normal or much delayed. Delayed excretion by the opposite kidney is due to intoxication from the involved kidney. Cystoscopic examination in a case of papilloma of the renal pelvis may reveal the tumor projecting into the ureteral orifice, and there may be threads in the urine in the absence of a tumor of the bladder. One should likewise think of papilloma in the presence of hematuria. A cystoscopic examination in the course of hematuria is indicated unless one is certain that the bleeding proceeds from the ureter or the bladder or is due to a hemorrhagic nephritis. The possibility of a metastatic hypernephroma must be kept in mind in every instance of a pathologic fracture or bone tumor. Exploratory exposure of the kidney is justified when all the urologic methods of investigation fail to confirm the suspicion of a tumor. Diagnosis of a renal tumor constitutes an indication for nephrectomy, but immobility of the tumor, cachexia and metastases of the internal organs contraindicate it. The operative mortality, as well as the late results, are considerably influenced by the early diagnosis and treatment.

### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80: 5625-5712 (Dec. 19) 1936. Partial Index

Clinical Aspects and Therapy of Dacryostenosis and Dacryocystitis. H. J. M. Weve.—p. 5631.

\*Dislocations of Wrist Joint. E. Verschuyt.—p. 5639.

\*Connection Between Formation of Renal and Vesical Calculi and Diet. A. Polak.—p. 5648.

Changes in Calculus Formation in Urinary Tract of Albino Rats in Some Diets, Particularly Those Rich in Calcium. P. Arons and M. P. J. van der Rijst.—p. 5652.

**Dislocations of Wrist Joint.**—In his discussion of injuries of the wrist joint, Verschuyt directs especial attention to Schnek's studies. That author maintained that a constitutional anomaly, the so-called console radius, plays a part in many luxations of the wrist joint. Verschuyt searched for this anomaly in two cases of luxation fracture of de Quervain's type, which he describes in detail, and in twelve other cases of injury of the carpus. Of the two first named patients one had this anomaly, while the other had not. Regarding the other twelve cases the author says that, of six patients with fractures of the navicular bone, four had the typical console radius and one had a mild form. Moreover, a console radius was found in three cases of necrosis of the semilunar bone, in one case of fracture of the greater multangular bone and in one case of an old luxation of the semilunar bone. In view of such a high incidence of the console radius in wrist injuries, the author thinks that this constitutional anomaly does play a part in their pathogenesis. The closed reduction method of Böhler produced satisfactory results.

**Urinary Calculi and Diet.**—Polak studied the influence of diets on the formation of urinary calculi in experiments on several groups of animals. It proved possible to produce renal and vesical calculi in nearly 100 per cent of the young white rats that were kept on the so-called basic diet 11 with an addition of 3 per cent calcium carbonate. In adult white rats, young white mice and guinea-pigs no calculi were formed. The administration of 3 per cent of potassium acid phosphate instead of calcium carbonate did not produce stones, nor did the addition of 3 per cent of calcium chloride. The addition of 2 per cent of calcium carbonate likewise produced stones but 1 per cent did so only rarely. Equivalent quantities of calcium lactate also produced stones, but to a much lesser degree. It was demonstrated also that the administration of sodium bicarbonate, calcium gluconate and calcium phosphate together with calcium carbonate did not result in the formation of calculi.

### Acta Chirurgica Scandinavica, Stockholm

79: 1-190 (Dec. 9) 1936. Partial Index

\*Sacral Anesthesia. J. Hellström.—p. 1.

Prognostic Significance of Preoperative Electrocardiography and Roentgenologic Study of the Heart. J. Foged and T. Geil.—p. 35.

Vascular Disease of Upper Extremity with Abnormality of First Thoracic Rib. S. Lindgren.—p. 81.

Results of Treatment of Fractures of Olecranon. E. Laukka.—p. 93.

Papilloma of Gallbladder. G. K. Lauritzen.—p. 105.

\*Mastopathia Cystica: Its Frequency at Postmortem Examination and Possibility of Its Spontaneous Regression. S. Lindgren.—p. 119.

**Sacral Anesthesia.**—Hellström gives an account of the mode of action and distribution of sacral anesthesia and concludes that so-called low sacral anesthesia, according to Lāwen, is also largely a parasacral anesthesia. This is made evident by the author's experiments on the dead body and by clinical investigations. His own material is made up of 1,053 sacral anesthetics. In more than 900 cases he used as the anesthetic fluid 1 per cent tutocain to which epinephrine had been added. The injections have been made with the patient lying on his side. No serious complications occurred. The results were satisfactory in 87.4 per cent, fairly satisfactory in 10.1 and no anesthesia at all in 2.5. The blood pressure was studied in 100 consecutive cases. In some it was found to be increased, while in others it had fallen. The variation in the blood pressure upward or downward amounted to an average of 15 mm. The author arrives at the conclusion that sacral anesthesia is a simple, reliable and harmless method having its chief sphere of utility in endovesical and endo-ureteral examinations and operations.

**Mastopathia Cystica.**—Lindgren reviews the literature on cystic mastitis, especially with regard to prognosis and histologic appearances. Investigators who have studied specimens removed by operation for clinically observed tumors are inclined to assign to cystic mastitis a grave prognosis on account of the risk of malignant degeneration. On the other hand, authors who have clinically followed such cases diagnosed only clinically or by local excision find that carcinoma seldom develops. The comparatively few investigations on the frequency of cystic mastitis at necropsy show, with one or two exceptions, a great frequency of these changes. The author studied 120 mammary glands obtained at necropsy, the ages of the women ranging from 35 to 75 years. In some cases all the changes described as characteristic of cystic mastitis were found. He grouped his cases according to the classification of Cheate and Cutler. Cystiphorous epithelial hyperplasia was found in sixteen glands and mazoplasia in twenty-two. The rest were normal or showed simple senile involution. As many authors would probably characterize even the mazoplastic changes as cystic mastitis, the percentage frequency figures of these changes would increase further in normal women. In this material the highest frequency percentage for mazoplasia and for cystiphorous epithelial hyperplasia was found at the climacteric, but this frequency fell rapidly in the higher ages, suggesting a spontaneous regression of cystic mastitis after the menopause. The same was found to be the case in a series of tumor material of cystic mastitis but not in a series of carcinoma of the breast.

against syphilis other than by acquiring the disease itself, does antisyphilitic treatment have any effect on the resistance that would develop ordinarily in syphilitic patients as a result of their infection? And if there is any such effect, what influence should it exert on the management of such patients? The active treatment of early syphilis interferes with the orderly development of one of nature's own defensive mechanisms. Such intervention is not justified unless treatment offers something better than nature herself can offer. Persistent treatment with the proper drugs offers more than nature alone can supply. If it is not persistent, great harm may be done. Once the patient has acquired a specific resistance against the infection, treatment does not abolish the resistance and it is quite possible that it may persist long after treatment has ceased. The author is inclined to believe that it persists even after the infection has been eliminated. The evidence is that patients who have had their syphilis a long time, who are not showing any signs of the disease and whose spinal fluids are negative, have built up a fair degree of resistance to their infection and this resistance will not be overthrown at once by antisyphilitic treatment. In other words, for the patient with latent syphilis a little treatment seems to go a long way.

### Virginia Medical Monthly, Richmond

63:525-588 (Dec.) 1936

- Cardiac Asthma (Paroxysmal Cardiac Dyspnea). E. G. Scott, Lynchburg.—p. 525.  
Pulmonary Tuberculosis and Primary Carcinoma of Lung: Report of Two Cases. K. Nelson, Richmond.—p. 530.  
Some Observations on the Art of the Practice of Medicine. W. B. Marbury, Washington, D. C.—p. 536.  
Hypernephroma: Diagnosis and Report of Cases, with Lantern Slide Demonstration. L. T. Price, Richmond.—p. 541.  
Eugenic Sterilization. H. C. Henry, Petersburg.—p. 548.  
Obstetrics in General Practice: Report of 500 Cases. R. Brittain and L. F. Hobbs, Jewell Ridge.—p. 552.  
\*Procaine and Epinephrine Injection in Treatment of Sprained Ankles: Report of Cases. J. B. Kiser, Emporia.—p. 554.  
Demodex Folliculorum Infestation. W. Bickers and F. W. Shaw, Richmond.—p. 556.  
\*Importance of Alveolar Infection in Focal Infections. H. Bear, Richmond.—p. 557.  
Simple Procedure to Facilitate Slow Intravenous Injections. M. Benmosche, New York.—p. 559.  
Peace. J. S. Horsley, Richmond.—p. 560.

**Injection of Procaine and Epinephrine in Treatment of Sprained Ankles.**—Kiser used 10 cc. of a 2 per cent solution of procaine hydrochloride and 1:50,000 epinephrine solution in the treatment of seven cases of sprained ankles. The solution was infiltrated into the periarticular space. Six patients obtained immediate relief of pain and soreness, normal functional use of the joint, no recurrence of symptoms and rapid disappearance of edema. Instead of being bedridden for from one to three weeks, the patient may resume his daily work without loss of time.

### West Virginia Medical Journal, Charleston

32:489-536 (Nov.) 1936

- Hepatic Factor in Surgical Mortality. W. S. Fulton and H. R. Sauder, Wheeling.—p. 489.  
The Old Man and His Prostate. G. R. Livermore, Memphis, Tenn.—p. 496.  
Some Remarks on Cleft Palate and Harelip. H. G. Beatty, Columbus, Ohio.—p. 501.  
Founders of the West Virginia Medical Association. C. L. Holland, Fairmont.—p. 517.  
32:537-584 (Dec.) 1936  
The Present Status of Thoracic Surgery. R. B. Bailey, Wheeling.—p. 537.  
Certain Aspects of Auricular Fibrillation. G. H. Barksdale, Charleston.—p. 544.  
Abdominal Pain. M. H. Porterfield, Martinsburg.—p. 549.  
Traumatic Sacro-Iliac Syndrome. C. B. Smith, Charleston.—p. 552.  
Plea for Early Diagnosis of Pernicious Anemia. S. L. Cherry, Clarksburg.—p. 558.  
Prevention of Acute Surgical Mastoiditis. W. England, Parkersburg.—p. 560.  
Some Severe Complications of Paranasal Sinusitis. T. R. Hoge, Wheeling.—p. 564.  
Drug Eruptions. H. T. Phillips, Wheeling.—p. 568.

### Wisconsin Medical Journal, Madison

35:937-1056 (Dec.) 1936

- Conservative Management of Hydronephrosis. J. C. Sargent, Milwaukee.—p. 953.  
Imperforate Anus. S. J. Seeger, Milwaukee.—p. 960.  
Allergy Study. W. A. Mowry, Madison.—p. 968.

### FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Radiology, London

9:695-766 (Nov.) 1936

- \*Radiation-Induced Lymphopenia. D. R. Goodfellow.—p. 695.  
Protection Problems Associated with Use of a 5-Gm. Radium Unit. L. G. Grimmett and J. Read.—p. 712.  
Malignant Disease of Esophagus. F. Roberts.—p. 732.  
Nomogram for Determination of Half-Value Layers. W. Binks.—p. 743.  
Hyperostosis Frontalis Interna. T. G. I. James.—p. 750.  
Gaucher's Disease: Case. H. M. Worth.—p. 753.

**Radiation-Induced Lymphopenia.**—Goodfellow performed total and differential leukocyte counts on ten patients, taking blood before and after radium treatment from the thumb and simultaneously from the area irradiated. Only patients with ulcerating tumors were chosen (fungating carcinoma of the breast, large ulcerating cutaneous epitheliomas). As a result of gamma-ray irradiation of any considerable magnitude, the following sequence of events may take place: Many lymphocytes and other leukocytes in the circulation are damaged or destroyed, and the lymphogenic and other hematopoietic centers are damaged by secondary irradiations, with or without the action of liberated leukotoxins, and the output of lymphocytes and other leukocytes into the blood stream is diminished as a consequence. To replace the deficiency of circulating leukocytes, large numbers of circulating lymphocytes may be withdrawn from the blood stream into the bone marrow, where it is possible that they develop into other forms of white blood cells. There appears to be no evidence for concluding that the lymphopenia observed during radiation therapy is in any way connected with the round-cell infiltration to be seen in and around the area affected by neoplastic disease.

### British Medical Journal, London

2:957-1012 (Nov. 14) 1936

- Bromide Intoxication. R. F. Barbour, F. Pilkington and W. Sargent.—p. 957.  
Diabetes Mellitus in Childhood. W. W. Payne.—p. 960.  
Glioma Retinae Treated by Radon Seeds. H. B. Stallard.—p. 962.  
\*Spontaneous Surgical Emphysema in Children. A. G. Watkins.—p. 965.  
Surgical Management of High Gastric Ulcers. R. M. Walker.—p. 967.  
Diverticula of Stomach: Report of Two Cases. R. T. Payne.—p. 968.  
Late Ulnar Nerve Palsy. D. H. Sandell.—p. 969.  
Separation of Conjoined Twins. D. W. McLaren.—p. 971.

**Spontaneous Surgical Emphysema in Children.**—Watkins states that spontaneous surgical emphysema in children may be congenital, a rarity occurring at birth or shortly afterward; infective, in association with gas-forming organisms; associated with laryngeal or bronchial ulceration, as by laryngeal diphtheria or foreign body, and associated with lung diseases, especially bronchopneumonia. Three cases of the last named type are reported. Study of these cases illustrates the mechanism by which spontaneous surgical emphysema arises. An acute inflammatory lesion of the lung may be accompanied by a variable amount of interstitial emphysema. If to this damaged lung an explosive force is superadded—for example, whooping cough or sneezing—there will be a tendency for the emphysematous bullae to track toward the periphery of the lung and/or the mediastinum. This may be observed if the lung of a stillborn baby is inflated forcibly; bullae will appear at the edge of the lungs and extend along the interlobular septums. Further dissection of these bullae along mediastinal fascial planes will lead to the ultimate escape of air by rupture into the subcutaneous tissues at the root of the neck. In the majority of cases this appears first on the left side in the supraclavicular region and suggests that the path of least resistance is along the tissues around the thoracic duct. There are five available methods of treatment: subcutaneous needling, collar incision, tracheotomy, artificial pneumothorax and letting nature take its course. Needling has been practiced on several occasions but has the definite risk of sepsis. Moreover, the air is absorbed ultimately and one cannot consider this a method of choice. In view of the mechanism by which spontaneous surgical emphysema is believed to arise, the most rational treatment would appear to be collapse of the lung by an artificial pneumothorax. In the cases reported, no active measures were taken to relieve the emphysema. In each instance the air was absorbed gradually and without difficulty.

In a few states it has theoretically been a responsibility of the school medical inspector to see to it that the physical defects found were remedied as far as possible, and if parents were unable or unwilling to provide the necessary treatment it was mandatory on the medical inspector to provide such treatment. This section of the law was, however, quite generally unenforced and when in the midst of the recent depression the public welfare department took over the responsibility for medical relief as well as material relief, the legal responsibility for the correction of school children's physical defects was partially if not wholly transferred from the school authorities to the public welfare authorities.

It seems very clear therefore that our law makers have to date largely conceived of our public schools as well adapted to the health education and physical education of our young but unadapted as a whole to the carrying of any serious responsibility for the medical or the dental care of the individual pupil.

There are many things to be said in favor of this legalistic concept of the public school's health and hygiene responsibilities. Such a plan guarantees that money budgeted for educational purposes is spent for educational purposes, not medical or dental purposes; it removes for all time any grounds on which might be based the accusation that the school was engaging in the practice of medicine or dentistry and thus competing with the practicing medical and dental professions.

To this traditional concept there are, however, two fundamental objections. First, from the point of view of preventive medicine it seems the acme of foolishness to go to the expense of grouping these children for educational purposes and then to throw away completely the unparalleled opportunity that this grouping affords for the application of certain preventive medical measures. For the first five or six years of the child's life he has been living at home under the supervision of parents who may or may not have availed themselves of the preventive services of family physician or health department. School entrance brings together for the first time all the children of the community and makes easily possible for the group many preventive measures that would be difficult and expensive to provide individually. Included in the list of such preventive medical services especially adapted to the school situation are group vision testing, group hearing testing, group strength testing, group posture studies, group inspections for communicable disease, and under certain circumstances group tuberculin testing, group chest roentgenographing and group urinalysis. Second, there are too many health hazards lurking in the school regimen and environment to make it safe to delimit medical supervision in this way. To take children from their life of free play and activity in the open air and place them at age 5 or 6 in a school environment where they use their small muscles of eye and hand instead of their large muscles, where mental activity substitutes for physical activity so largely, where the benefits of fresh air and sunlight are so largely lacking and the hazards of group contact and group competition are so pronounced, is obviously an unphysiologic thing to do and the lag in the growth curve that so frequently accompanies school entrance is easily explainable. Granting that the school process as preparation for modern life must consist largely of mental training, it will be a poor service done the child if his mind is developed and only a weak or diseased

body is provided to support it. Adequate medical supervision in the public school system is an absolute essential; without it the whole system of universal education for our youth becomes a questionable asset.

#### THE HEALTH EDUCATORS' CONCEPT OF SCHOOL MEDICAL AND DENTAL SERVICE

While the legal minds have been attempting to separate and to keep separated the educational functions of the public school, and the medical and dental functions of the practicing physicians and dentists, there have been many health teachers, physicians and public health workers who were quite willing to abandon the scheme of separation and attempt to place once and for all the full responsibility for the annual health examination of every school child, to say nothing of the medical treatment of defects found, on the school authorities. Thus in the Report of the Cambridge Health Education Conference, June 23-28, 1924, of the American Child Health Association is the following recommendation regarding the physical examination of school children:

I. The aim of such an examination is to provide for every child a chance to achieve the limit of his endowed capacity for well being.

II. The function of the school physician shall be:

1. To provide guidance toward better health through education of the children.
2. To provide an examination service which (1) discovers all physical defects, diseases, incipient conditions and tendencies toward ill health among school children, and (2) finds sources for remedy.

Back of these recommendations lie the best of intentions—to protect and promote the school child's health in the most certain and direct way, and with this general intention practically all social minded persons would be in accord. The real question is the question of method. To take a homely example from the field of law, one might quite conceivably favor the simplest of trials and summary execution for a self-confessed murderer in order to do justice in the most certain and direct way and with the least expense. In the long run and with all types of cases, however, a formal trial and administration of justice through the approved legal channels has been found best to protect society and the individual. The scheme of school medical service which at first sight or in the individual case might seem to be the most certain and direct way of protecting child health might in the long run so overload the school authorities with health responsibilities and so definitely diminish the health responsibilities of the practicing physicians and dentists that the child's health and education would both eventually suffer.

Such a scheme, if it actually were to attempt discovering "all physical defects" and finding "sources for remedy," would require at the least estimate one school physician for every 500 pupils. This would mean an army of 64,000 school physicians with a corresponding number of dentists, nurses, dental hygienists and other specialists. Regimentation of two fifths of the medical and dental professions in the school health program whether under education department leadership or health department leadership, would carry with it so much danger of substituting political expediency for professional efficiency as the basis of administration that most of us would be very loath indeed to see this experiment in "state medicine" tried.



anesthetized), reduced the clotting time of the blood. Large amounts could be given intravenously without producing any signs of intravascular clotting. One of the authors had repeated intravenous injections himself at varying intervals with no ill effects. Generally a single adequate dose will protect from hemarthrosis for a period varying from four days to four weeks but will control external bleeding only for from four to twenty-four hours. A dose that is adequate has to be controlled in each patient by observation on his clotting time before and after injection. There seemed to be no tendency in thirteen hemophilic patients to intravascular clotting, however large the dose. It has in a few cases been possible, by obtaining a series of clotting time estimations at intervals after an injection, to predict fairly closely when the next hemarthrosis or bruise will occur. After its initial fall the clotting time rises at first slowly and then more rapidly. At the latter juncture an internal hemorrhage is imminent. In different patients there seems to be only a poor correlation between clotting time and bleeding tendency. It may be possible to regulate intervals of dosage by such serial estimations. In preparing the substance 40 Gm. of potassium bromide is mixed thoroughly with 200 cc. of egg white and the mixture is incubated at 37 C. for three days; 200 cc. of distilled water is added and then six volumes of 98 per cent alcohol. The mixture is filtered and from the filtrate the active material is precipitated by the addition of an equal volume of acetone; this precipitate is dissolved in water and dialyzed till free from potassium bromide, dried in vacuum at 60 C. and dissolved in a 0.9 per cent solution of potassium chloride for injection.

### Practitioner, London

137: 665-788 (Nov.) 1936

- The Big Airway. T. B. Layton.—p. 665.  
Chronic Sore Throat. E. Watson-Williams.—p. 673.  
\*Hoarseness. F. W. Watkyn-Thomas.—p. 681.  
Treatment of Nasal Catarrh and Its Sequels. W. M. Mollison.—p. 691.  
Chronic Nasal Sinusitis and Its Treatment. R. S. Stevenson.—p. 699.  
Surgical Aspects of Croup in Childhood. J. Crooks.—p. 709.  
Review of Recent Progress in Chemotherapy of Septicemia. E. C. Dodds.—p. 719.  
Heart Disease and Occupation. R. O. Moon.—p. 725.  
Tumors of Appendix. C. P. G. Wakeley.—p. 733.  
Short Account of Duke-Fingard Treatment for Diseases of Respiratory Passages. H. Fawcett, A. C. Greene and J. W. Houston.—p. 740.  
The Problem of Nutrition: Review. V. H. Mottram.—p. 747.  
Nutritive Value of British Beers. W. F. Christie.—p. 760.  
General Practice: V. Choice of House, Car and Instruments. E. Kaye Le Fleming.—p. 767.

**Hoarseness.**—Watkyn-Thomas states that hoarseness and weakness of the voice are often found together but that the conditions are different. For the voice to be produced clearly the edges of the vocal cords must be straight and sharp. If the edges of the cords cannot meet properly, the voice will be weakened or entirely lost ("complete aphonia") according to the degree of failure of approximation. If the edges of the cords are at all roughened, even by a little crusted mucus, or if the edges are not quite sharp, the voice will be hoarse. As anything which roughens the cord produces hoarseness, it is obvious how vitally important this symptom is, for "anything" includes a little mucus at one end of the scale and a carcinoma of the cord at the other. If a patient is hoarse without remission for three weeks a laryngoscopic examination must be made. Instances in which hoarseness is the predominant symptom may occur in chronic and acute catarrhal laryngitis, tertiary syphilis of the larynx, tuberculous laryngitis and new growths of the larynx.

### South African Medical Journal, Cape Town

10: 677-718 (Oct. 24) 1936

- Aesculapius and Hygeia at the Cape. P. W. Laidler.—p. 677.  
Importance of Parasites to Medical and Veterinary Science in South Africa: Animal Parasites. H. O. Mönig.—p. 689.  
The Importance of Parasites in Medical and Veterinary Science in South Africa. R. L. Girdwood.—p. 691.  
The Medicinal Springs of South Africa. M. Rindl.—p. 695.  
Bilharzia Infection in Blind Lagoons. F. G. Cawston.—p. 698.  
Food Value of Some Common Edible Leaves. L. F. Levy, D. Weintraub and F. W. Fox.—p. 699.  
Phosphatase and Its Clinical Significance. L. P. Bosman.—p. 707.  
Hookworm in Natal Natives. H. S. Osburn.—p. 710.  
Ossification of Carpal Centers in Colored Children. F. H. Dommissie and C. L. Leipoldt.—p. 713.  
Medicolegal Application of Blood Grouping with Reference to Paternity. R. Elsdon-Dew.—p. 715.

### Presse Médicale, Paris

44: 1769-1792 (Nov. 11) 1936

- Bronzed Diabetes and Adrenal Insufficiency. M. Labbé, R. Boulon and Ullmann.—p. 1769.  
\*Cystic Pneumatosis of Intestine and Spontaneous Pneumoperitoneum. M. Chiray and A. Lomon.—p. 1771.  
New Derivative of Sulfamidochrysoidin Active Against Streptococcal Infection. P. Gley and A. Girard.—p. 1775.

**Cystic Pneumatosis of Intestine.**—Chiray and Lomon discuss a case of cystic pneumatosis with associated pneumoperitoneum which they have previously reported. Cystic pneumatosis of the intestine is characterized anatomically by the existence of subserous bubbles of gas which elevate the peritoneal covering, varying from the size of a pin head to that of a nut or an egg. They are extremely numerous and give a definite aspect to the intestinal segment involved. Spontaneous recovery appears possible. The cysts contain gas and not liquid. The origin of these gaseous bubbles and of the gas which causes the distention is uncertain. Perhaps the mechanical theory is most promising. This gives some weight to the possibility that the gas is not produced at the level of the cysts or in the lymphatic system but is introduced into the lymphatic circulation because of ulceration of the mucosa. The simultaneous existence of pneumoperitoneum and of cystic pneumatosis constitutes a further argument in favor of this hypothesis. They believe that cystic pneumatosis must be considered when a patient with a previous ulcer is found to have a nonpainful and elastic abdominal distention, zones of tumefaction and painless peritoneal crepitation and when the x-ray examination reveals areas of surprising transparency resembling small vacuoles. Spontaneous pneumoperitoneum may exist with pneumatosis.

### Schweizerische medizinische Wochenschrift, Basel

66: 1281-1300 (Dec. 19) 1936

- Allergometry of Tuberculosis. F. von Gröer.—p. 1281.  
Cancerigenic Action of Earth Rays. G. Miescher and F. Schaaf.—p. 1286.  
\*New Simple Method for Counting of Platelets. K. Lenggenhager.—p. 1289.  
Differential Diagnosis of Injuries of Knee Joint. F. Jakob.—p. 1291.

**Simple Method for Counting Platelets.**—With an erythrocyte counting pipet, Lenggenhager withdraws blood from the finger in the usual manner and dilutes it with an isotonic solution (3.8 per cent) of sodium citrate up to line 101. After thorough mixing, a drop (but not the first one) is put into the erythrocyte counting chamber. The count is taken at once. The author stresses that the withdrawal of blood should not be too slow, since this might result in a partial agglutination of the platelets. He also emphasizes that the citrate solution should be sterile and should be centrifugated before each use. As the advantages of the method he stresses first its rapidity. It can be completed in from ten to fifteen minutes, because neither staining nor sedimentation needs to be awaited. Other advantages are the direct counting in the chamber, which permits the counting of the erythrocytes in the same specimen, and the great exactness of the method.

### Clinica Medica Italiana, Milan

66: 729-798 (Nov.) 1936

- \*Antitoxic Action of Liver Preparations Containing the Antianemic Factor. F. Schiappoli.—p. 729.  
Eosinophilic Pleurisy: Cases. G. G. Zolezzi.—p. 748.  
Blood and Histologic Changes from Phosphorus Chronic Poisoning and Experimental Splenectomy. R. Messina.—p. 769.  
Pneumographic Study of Thoracic Kinematics and of Vital Capacity Following Scalenotomy and Scalenophrénico-Exeresis. G. Giauni.—p. 783.

**Antitoxic Action of Liver Preparations Containing the Antianemic Factor.**—Schiappoli carried out studies to ascertain the antitoxic and antihemolytic action of liver preparations containing the antianemic factor. He was able to show that the antianemic extracts do not hinder hemolysis induced by hypotonic solutions in vitro. On the contrary, they have a direct hemolytic action. They do not have antitoxic action on exogenous toxins. They fail to cause a reaction of the type produced by the detoxicating hormone (yakitron) in exogenous acute experimental poisoning. They have antitoxic action against endogenous toxins. They give satisfactory results in grave chronic liver insufficiency, control coma in atrophic cirrhosis, and increase the duration of life of animals in experi-

might be properly geared in with the other preventive medical services of our states and communities (i. e., orthopedic services, tuberculosis services, social hygiene services, mental hygiene services, communicable disease services), this plan would almost of necessity provide that a bureau or division of school medical service be set up in each state department of health and that this bureau or division have general charge of the supervision over the school medical service.

Plan 2 would assume that the practitioners of medicine and dentistry will in time adequately provide the annual health examination. It would divide the responsibility for preventive medical services for school children between the practicing physicians and dentists on the one hand and the school on the other hand. This division of services would be worked out as follows:

1. The thoroughgoing annual medical examination and the preventive inoculations to be considered important parts of the family practitioner's "stock in trade" and as such to be frankly left in the general practitioner's hands except as outlined (6 a and b).

2. The thoroughgoing dental examination and cleansing to be considered important parts of the family dentist's "stock in trade" and as such to be frankly left in the family dentist's hands except as outlined (4 a and b, 6 a and b).

3. For each school district there is to be made available each year a school physician whose supervisory duties should be:

(a) General supervision over school efforts to control communicable diseases through exclusion of cases and observation of contacts.

(b) Prescribing exercises for and maintaining general supervision over those children needing restricted or special corrective exercises (in cooperation with the family physician).

(c) Passing on all illness excuses from physical education.

(d) Reviewing of health texts submitted for school adoption to determine the scientific accuracy of their facts.

(e) Conducting a sanitary survey of the building and grounds at least twice a year.

(f) Supervision over though not actual care of injuries to school athletes.

(g) Supervision over care of swimming pool.

(h) Supervision over effort to notify parents through notes and home visits regarding unremedied physical defects of their children and to acquaint them with all facilities available in the community for the remedying of these defects.

(i) Supervision over the responsibility for physical fitness of athletes participating in strenuous sports.

4. For each school district there is to be made available each year a school dentist or dental hygienist whose duties should be:

(a) To provide oral inspection of all children at entrance and in grades 3, 5, 7 and 10 (or in some similar sequence).

(b) To provide inspection of any children specially referred by teacher or nurse.

5. For each school district there is to be made available each year a school nurse whose duties should be:

(a) Aiding the physician in his medical inspections.

(b) Conducting limited health inspections.

(c) Notification of parents regarding physical defects.

(d) Visiting parents to urge corrections.

(e) Cooperation with social welfare agencies to obtain correction of defects in indigent families.

(f) Provision of nurse's first aid.

(g) Home visits in selected cases for checking of illness absences.

(h) Sanitary inspection of school plant weekly.

(i) Cooperation with public health authorities in obtaining examination of adults in homes of tuberculin-positive children.

6. In the school there is to be provided a limited health inspection service as follows:

(a) Health inspection by nurses and teachers annually with reference of culled cases to the school physician or dentist for further study.

(b) Medical inspection by school physicians and dentists at entrance and in third, fifth, seventh and tenth grades (or in

some similar sequence) with additional special group tests (such as audiometer hearing tests and tuberculin tests) given at strategic intervals only but planned to make a cumulative whole of the child's twelve year school medical record. (See chart.)

#### PLAN 2 PREFERABLE

Plan 2 is preferable in my opinion because it would leave the annual health examination in the hands of the general practitioners of medicine and dentistry and yet it would effectively utilize the school grouping of children for preventive medical purposes.

In favor of plan 2 also is the fact that it is in substantial agreement with the recommendations of the Subcommittee on Medical Service of the White House Conference on Child Health and Protection<sup>5</sup> and with the recommendations of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.<sup>6</sup> The summarized report of the Subcommittee on Medical Service of the general Committee on the School Child of the White House Conference stated:

The examination at school cannot be expected to be as thorough as that made by the family physician. Usually the school routine will be a partial examination—a physical inspection from a medical viewpoint. This should be done in a manner that will create a confidence in all concerned and develop a favorable attitude toward an annual examination.

If, however, the assumption is to be made that the practitioners of medicine and dentistry will in time adequately provide the thoroughgoing annual health examination, there should be valid reasons for that assumption. I would advance the following reasons:

1. Since increasing knowledge of disease brings increasing ability to prevent disease, it is only logical to expect that there will be a steadily increasing emphasis on the preventive functions of medical practice. This will very likely mean that periodic health servicing (including medical examining, preventive inoculations, and health-habit inventorying) will gradually replace a great deal of the emergency medical treatment as carried on by the medical profession today.

2. Certain of the medical colleges, as for example Yale, are frankly building their curriculum around the preventive function in the practice of medicine. When we get a new generation of physicians specifically trained to meet their preventive medical responsibilities, the outlook for real health servicing in the hands of the general practitioner will become promising indeed.

3. The lay public is becoming very rapidly aware of the fact that the medical and dental professions could if they would provide a preventive medical and dental service which would lengthen life and avoid a great deal of pain and disability. The public is already demanding this service in increasing numbers. If additional effort to create this demand were made by our insurance companies, by our official and nonofficial public health organizations, and perhaps by our state and local medical societies, this demand could quite possibly be made universal.

#### HEALTH DEPARTMENT VS. EDUCATION DEPARTMENT LEADERSHIP

In the organization of our public school system today it is generally assumed that whatever activity is to be carried on in our schools must be carried on under the

5. The School Health Program: Report of the Committee on the School Child, T. D. Wood, Chairman, White House Conference on Child Health and Protection, New York, Century Company, 1932.

6. Health Inspection of School Children: Report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, Washington, D. C., 1933.

is exerted on the epidermis covering the lupus nodule, the probe sinks into the tissue under slight bleeding, owing to the softening of the tissue by tuberculous changes. Lupus nodules may greatly resemble acne nodules or nodules of follicular rosacea, but differentiation is nevertheless possible, since in rosacea there always exists dilatation of the superficial vessels and acne vulgaris is accompanied by comedones. However, the differentiation of lupus vulgaris from syphilis, particularly from late syphilis, is often extremely difficult. This may have serious consequences for the patient, because the syphilitic process may cause as much destruction in weeks or months as lupus vulgaris does in years. Another means of differentiation is that in lupus new nodules may form within the scars in case of relapse, whereas in syphilis this is extremely rare, for here the focus usually heals in the center, while there is a constant serpinous progress on the edges. Internal treatment with potassium iodide is helpful in the differentiation: in late syphilis this treatment results in a rapid breakdown of the inflammatory changes. In the presence of tuberculosis of the internal organs, a cutaneous disorder is often regarded as of tuberculous nature. This is not justified, because the concurrence of tuberculosis of internal organs with other skin diseases is not at all rare. The differentiation between lupus vulgaris and lupus erythematoses may prove difficult. The latter is not of a tuberculous nature. The detection of lupus nodules will permit the diagnosis of lupus vulgaris, whereas lupus erythematoses is characterized by bristle-like or nail-like projections on the cutaneous scales. In taking up other forms of tuberculous skin diseases, the author points out that lupus miliaris is often mistaken for acne vulgaris or follicular rosacea but can be correctly identified by the presence of lupus nodules. In tuberculosis cutis verrucosa, however, lupus nodules are absent. This form of cutaneous tuberculosis often develops after accidental injuries. It may be mistaken for chronic pyoderma, but a prolonged tuberculosis cutis verrucosa is characterized by a sieve-like appearance of the disease focus and, whereas pyodermias yield to treatment with sulfur, mercury and so on, tuberculosis cutis verrucosa does not. Tuberculous scrofuloderm is usually readily identified.

#### Wiener klinische Wochenschrift, Vienna

49: 1513-1544 (Dec. 11) 1936. Partial Index

Alkaloids of Ergot. A. Stoll.—p. 1513.

\*Practical Significance of Sedimentation of Erythrocytes. H. Reichel.—p. 1517.

Biologic Estimation of Artificial Hyperthermia for Therapy. Alois Strasser.—p. 1522.

Further Experiences on Differentiation of Nervous System, Particularly of Vagus From Sympathetic by Chemical Means. E. O. Manoiloff.—p. 1524.

Renal Infection and Diabetes. H. Schirokauer.—p. 1526.

**Significance of Sedimentation of Erythrocytes.**—Reichel first stresses the importance and the simplicity of the sedimentation reaction and then discusses the method, emphasizing particularly the importance of the length of the test tube. Especially in case of rapid sedimentation the height of the blood column must be taken into consideration. An accelerated sedimentation is observed (1) in all inflammatory processes, (2) in case of necroses and cellular disintegration and (3) in case of parenteral resorption of protein. The author points out that the determination of the sedimentation speed is a nonspecific reaction like fever and leukocytosis. In healthy persons the sedimentation speed is never accelerated. If examination of a patient does not reveal an organic disorder, a sedimentation test should be made. If it shows acceleration, a more careful examination will reveal a cause for the acceleration. On the other hand, normal sedimentation speed is not necessarily a sign of health, for the sedimentation speed is accelerated only if the protein composition of the plasma is changed.

#### Wiener medizinische Wochenschrift, Vienna

86: 1373-1400 (Dec. 12) 1936

\*Cardiac Asthma and Bronchial Asthma. M. Weinberger.—p. 1373.

Conservative and Surgical Treatment of Goiter. F. Kaspar.—p. 1377.

Cultural-Social Conditions of Our Time and Neuroses. M. Minkowski.—p. 1379.

Silicosis. L. Teleky.—p. 1382.

**Cardiac Asthma.**—Weinberger designates as cardiac asthma an especially characteristic form of cardiac dyspnea. It differs from the ordinary dyspnea of patients with heart disease by a

sudden, paroxysmal, occasionally unfounded and often nocturnal appearance. It may occur also during the day, after work or excitement. Moreover, it may complicate an already existing cardiac dyspnea. After citing the aspects that differentiate cardiac asthma from Cheyne-Stokes respiration and from angina pectoris, the author points out that the attacks of cardiac asthma differ in duration and intensity. In the mildest forms the attack disappears after a few minutes and the patient falls asleep again, but during subsequent nights he is awakened by the same attack. Many patients fear the attack and abstain from eating in the evening, because they have experienced that a meal before retiring increases the attacks. Frequently râles can be heard over the lower parts of the lung and occasionally the signs of pulmonary edema develop. If this is the case, the attack may end fatally in persons who formerly were apparently healthy. Cardiac asthma is most frequent in patients with hypertension, atherosclerosis, nephritides, mesaortitis and myocardial disorders, whereas in valvular lesions it is less frequent. From this the author deduces that it occurs chiefly in case of insufficiency of the left side of the heart and is rarer in defects of the right side of the heart. He reviews the literature on the pathogenesis of cardiac asthma, emphasizing Straub's opinion according to which there exists in cardiac asthma a disturbance in the chemical and the reflectonervous regulation of the heart and of the peripheral circulation and that the attack may be elicited from various sites. In discussing the treatment of cardiac asthma the author points out that narcotics, particularly morphine, have often been recommended. The administration of small doses of morphine in the evening often prevents the nocturnal attacks. During the attack he advises the subcutaneous or intramuscular injection of from 1 to 2 Gm. of morphine to which from 0.5 to 1 Gm. of atropine has been added. Spasmodic remedies in the form of heat or medicaments have been recommended as substitutes for the narcotics. In pulmonary edema an intravenous injection of 40 cc. of a 40 or 50 per cent solution of dextrose is advisable. In order to improve the heart action, digitalis preparations or strophanthin may be required. Measures that reduce the nocturnal load of the circulatory apparatus on the part of the water economy (dry diet) are of prophylactic value.

#### Sovetskaya Khirurgiya, Moscow

Pp. 371-566 (No. 9) 1936. Partial Index

\*Effect of Leaving Bed Early After Operation on Respiratory Function. B. M. Khromov.—p. 389.

Intravenous Drip Infusions. A. A. Gukacyan.—p. 398.

Colloidoclastic Shock After Blood Transfusion. G. M. Gurevich.—p. 401.

Blood Transfusion Complications. E. P. Gesse and A. N. Filatov.—p. 408.

\*Renal Tumors. A. I. Mayants.—p. 486.

Plastic Method of Forming a Vagina. V. A. Astrakhanskiy.—p. 497.

**Leaving Bed Early After Operation.**—Khromov investigated the vital capacity of 250 patients subjected to an operation. The method consisted in determining the vital capacity two days before the operative intervention and daily during the postoperative period until the return of the vital capacity to normal. In 100 of the patients an appendectomy was performed, in 100 a herniotomy and in fifty various operations away from the abdominal cavity. Local anesthesia was used in all cases. There was an equal number of men and women in each group and the ages ranged from 18 to 50 years. The three operative groups were subdivided each into two subgroups. One subgroup was kept in bed for a period of six days after herniotomy and for five days after appendectomy and operations away from the abdomen. The second subgroup was subjected to the regimen of early bed leaving, in most cases on the first and at the latest on the second day. The percentage of diminution of the vital capacity in the three subgroups on the regimen of protracted stay in bed was 48, 40 and 13 for men and 36, 32 and 7 for women. The reduction of vital capacity in the subgroups subjected to the regimen of early bed leaving amounted to 35, 30 and 5 per cent for males and 20, 20 and 0 per cent for females. There were seven instances of postoperative pulmonary complications in the first group and only one in the second. The author concludes that operative intervention, particularly within the peritoneal cavity, lowers the respiratory function of the lungs and that the regimen of protracted stay in bed plays a part in it. This is more pronounced in male

Indeed, we find that when we perform Heller's test with an aqueous solution of phenolphthalein sodium we obtain a turbidity in dilutions down to 5:10,000. The turbidity thus produced is not in the form of a distinct ring, as is the case with the albumin precipitate, but rather is dispersed through the upper layer of fluid: for freshly precipitated phenolphthalein is quite readily soluble in strong nitric acid.

Robert's reagent, being more sensitive, gives a turbidity in solutions of phenolphthalein sodium down to 2.5:10,000. The turbidity disappears when the solution of phenolphthalein sodium contains only 1:10,000.

When urine is saturated with crystalline phenolphthalein, no reaction is obtained, even with Robert's test, obviously because the solution is too dilute; for urine of  $p_{H}$  7.5 does not dissolve more than 1 part per hundred thousand.

On the other hand "colloidal" phenolphthalein,<sup>3</sup> which is much more soluble than the crystalline form, when added to urine to the point of saturation does give a very definite trace of turbidity with Heller's test and a strong ring test with Robert's reagent.

For differentiation between true albuminuria and this ring test due to phenolphthalein, advantage may be taken of the fact that phenolphthalein solution when heated does not become turbid even when acetic acid is added. On cooling, a turbidity may result which disappears again on heating. As, in the presence of albuminuria, heating produces a turbidity that increases on the addition of acetic acid, the differentiation is easy.

Having thus fortified ourselves with the ability of distinguishing between true albuminuria and a possibly false reaction due to the presence of phenolphthalein, we might as well report the fact at this point that in the entire range of our 1,000 observations on urines after medicinal doses of phenolphthalein we did not encounter a single instance of a false albumin test due to phenolphthalein. This is because the total amount of phenolphthalein in the urine, both free and conjugated, never approaches the quantity necessary for the production of the phenolphthalein ring when its solution is layered over an acid reagent.

#### METHOD OF STUDY

The specimens of urine were obtained from male medical students at the University of Illinois College of Medicine and from male patients at the Cook County Hospital. Specimens from women were largely excluded because of the possibility of confusing contamination of the urine from such sources as postmenstrual discharge.

The following tests were employed as a routine on each of the urine specimens.<sup>4</sup> The standard methods described in textbooks were employed for the various albumin tests and in testing for sugar in the urine. Turbid specimens of urine were filtered until clear.

**Determination of Free Phenolphthalein in Urine.**—Ten cubic centimeters of urine was treated with 10 cc. of absolute alcohol and 1 cc. of 10 per cent sodium hydroxide. For comparison we used a standard solution in the same quantity of distilled water, alcohol and alkali, to which was added the suitable standard solution of phenolphthalein to the point of color equality. The

phenolphthalein standard may be 1 per cent, 0.1 per cent or 0.01 per cent, depending on the quantity of phenolphthalein in the specimen. The original color of the urine was compensated for by a solution of 10 cc. of urine, 10 cc. of alcohol and 1 cc. of water. A comparator block was used for evaluation of the color.

The twenty-four hour specimens of urine that were preserved with xylene were treated differently. Since phenolphthalein is somewhat more soluble in xylene than it is in urine, it was detected, if at all present, by shaking out the xylene with tenth normal sodium hydroxide volumetric solution, the phenolphthalein imparting a pink tint to the sodium hydroxide solution. Free phenolphthalein was not determined quantitatively in such twenty-four hour specimens, as the xylene of the twenty-four hour urine was not all available and the result therefore was expressed as 0, slight trace (sl. tr.) or trace (tr.).

**Determination of Conjugated Phenolphthalein in Urine.**—Five cubic centimeters of urine and 5 cc. of 10 per cent hydrochloric acid were heated on a water bath for two hours. This was shaken out with 25 cc. of ether in several portions. The combined ether portions were then shaken out with 10 cc. of tenth normal sodium hydroxide volumetric solution. The color produced was matched with that obtained with 10 cc. of tenth normal sodium hydroxide volumetric solution and a standard phenolphthalein solution (containing 0.01 Gm. in 100 cc.) to the point of color equality.

**Determination of Acidity by Folin Method.**—Twenty-five cubic centimeters of urine was placed in an Erlenmeyer flask, treated with 1 to 2 drops of 0.5 per cent phenolphthalein solution and shaken with 15 to 20 Gm. of potassium oxalate and immediately titrated with tenth normal sodium hydroxide volumetric solution with constant shaking until a pronounced pale rose color appeared. From this we calculated the number of cubic centimeters of tenth normal sodium hydroxide solution required to neutralize the total twenty-four hour quantity of urine and employed this figure in our tabulation.

#### OBSERVATIONS ON NORMAL INDIVIDUALS

Advantage was taken of the opportunity to secure the cooperation of medical students, men ranging in age from 20 to 26. In each case a preliminary specimen of urine was secured and then the subject was given a capsule containing a medicinal dose of phenolphthalein, with the direction to take it at bedtime and to secure all the urine passed during the succeeding twenty-four hours, to mix the various specimens, to measure the total quantity, and to furnish a sample of the mixed urine for testing. In order to prevent decomposition of the urine, which would interfere with the determination of its acidity, xylene was added to the specimen, and this was taken care of as described.

It would serve no good purpose to burden this report with the results of 650 observations of this kind, which were consistently negative on chemical as well as on microscopic examination of the urinary specimens both before and after the taking of phenolphthalein. An idea of the amount of labor involved in this study might be gathered from the fact that it required more than 10,000 tests of various kinds. In any one individual at least a week was permitted to elapse between succeeding observations. It might perhaps suffice to report (table 1) eight individual cases typical of the entire series. The meaning of the symbols at the head of the columns have been explained in a footnote in table 1.

3. Fantus, Bernard, and Dyniewicz, J. M.: Phenolphthalein Studies: I. Colloidal Phenolphthalein. *Am. J. Digest Dis. & Nutrition* 2:721-724 (Feb.) 1934.

4. To conserve space, the tables were omitted from the article in this publication. They will be available in the reprints.

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## AN APPROACH TO THE PROBLEM OF SCHOOL MEDICAL AND DENTAL SERVICE

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Late statistics show that in the United States there are now in operation 245,941 public schools housing 26,849,639 pupils. In these public schools \$8,000,000,000 has been invested, and to maintain this property and support the 1,055,825 teachers and other school personnel an additional \$2,000,000,000 is expended each year. Adding the private and parochial school registration figures to the public school figures gives a total of 32,031,549 children attending schools of elementary and secondary level.

In view of the fact that society has at considerable expense thus grouped our 32 million children for purposes of instruction, the question quite naturally arises: To what extent are we utilizing the school grouping of these children to improve their health and their hygiene?

To answer this question, one would naturally look first to the legal requirements set up in the various states regarding (1) school medical supervision, (2) health instruction and (3) physical education.

### LEGAL REQUIREMENTS

J. F. Rogers<sup>1</sup> reported legal requirements for school medical inspection in 1930 as follows:

In all, thirty-eight states have some kind of a statute or regulation (usually a statute) either permitting or requiring the examination of children for physical (and sometimes mental) defects. . . . Examinations are "required" annually (presumably of all pupils) in twenty states; every two years in two and every three years in one. . . . A physician is specified as examiner in five states, the county health officer in three states, while in twenty the physician is mentioned as one of the examiners. . . . In three states a nurse is apparently the only examiner . . . and in fourteen others she may participate in examinations. Examination by teachers is specified by mandatory laws of seven states though usually for specified conditions. . . . It is stated that the teacher may be one of the examiners in eleven other states. . . .

In three states examinations of children seem to be limited to those of sight and hearing; in one to sight, hearing and breathing; in one to sight, hearing, nose and throat; in one to sight, hearing, breathing and teeth; in two to dental defects; while a more general examination is specified in fifteen.

With regard to health instruction, Rogers<sup>1</sup> summarizes the various state requirements as follows:

While the requirement of instruction in the effects of alcoholic drinks and of narcotics (tobacco is mentioned in many of these

statutes) was the first intent of these laws, it was recognized that such teaching belonged as part and parcel to the larger subjects of physiology and hygiene and these more general branches are required without limitation as to content by forty states.

Concerning state requirements for physical education or big muscle activity programs, W. F. Meredith<sup>2</sup> gives the following summary:

Thirty-seven states have enacted laws relative to physical education. Of these, thirty-three make health and physical education mandatory in all or part of the schools of their states. In addition to these, two of the eleven states not having laws have established mandatory requirements.

In general, the legal requirements of the various states may be summarized as follows: Every state requires in its schools instruction with regard to the effects of alcohol and narcotics, forty states require the teaching of physiology and hygiene, thirty-three states make physical education mandatory as part of the school program, twenty states require annual physical examination and three require such examination only periodically (every two or three years).

### THE LEGALISTIC CONCEPT OF SCHOOL MEDICAL AND DENTAL SERVICE

Underlying these legal requirements is the assumption that each child has outside of his school life (1) parents to advise him and guide him with regard to his health and hygiene, (2) a family physician and a family dentist to provide periodic health servicing and medical and dental treatment and advice as necessary, (3) a health department to protect him as far as community efforts can from the hazards of communicable diseases, (4) a home in which to be taken care of in periods of minor illness, and (5) a hospital for bed care in case of major illness. Assuming the existence of these facilities in the home and the community, the responsibility of the school for the health and hygiene of the child is quite definitely limited and restricted in the minds of the legislators who drew the laws summarized in the preceding section. The intent quite definitely is to leave the major responsibility for the health and hygiene of children with the parents and the family physician, the school taking on only such health responsibilities as are almost unavoidable; i. e., examination of eyes and ears to make sure that the child's tools for learning are at least in usable condition, and such communicable disease control measures as are necessary to maintain a respectable average daily attendance and to prevent the school's becoming a "hotbed of infection" in the community. The intent on the health teaching and physical education side of the program is, however, quite definitely to accept the school's responsibility and make provision for meeting it.

1. Report: State-Wide Trends in School Hygiene and Physical Education, Circular 7, United States Department of Interior, Office of Education, Washington, D. C., February 1930, pp. 2-3.

2. Meredith, W. F.: Regulations Concerning the Acceptance of Health and Physical Education for College Entrance Credit, Norwalk, Ohio: Law Abstract Company, 1933, pp. 27-29.



mental light of known and planned intensity. In addition, the first reading in the recovery period offers valuable information concerning the ability of the subject to regenerate visual purple during exposure to the light. During the light period visual purple is being bleached and regenerated at the same time. These two processes come to an equilibrium within three minutes under the conditions of this test. Adequate vitamin A permits rapid regeneration even in the light. If the subject could regenerate visual purple as rapidly as the

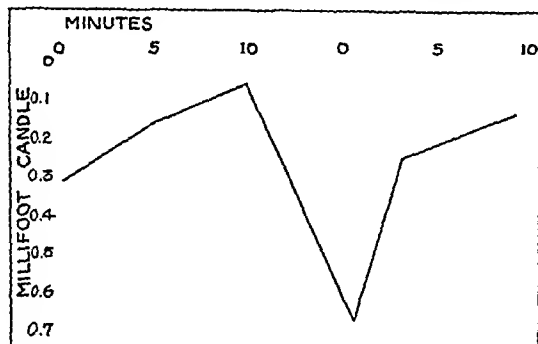


Fig. 5.—Values for a subject who is objectively night blind but who is not aware of night blindness.

light bleaches it, he should require no more light for the first reading in the recovery period than for the last reading in the foreperiod. With the light intensity used in this test no one has yet shown such rapid regeneration, though a few subjects have been encountered who had initial recovery values as low as 0.1 millifoot candle. The first reading in the recovery period represents the resultant of two effects, namely, the bleaching and regeneration of visual purple. Since the intensity of the light and the time of bleaching are the same for all subjects, the difference in this reading with different individuals is a measure of their relative rates of regeneration of visual purple during the stimulus of light. Therefore the reading assumes considerable importance in the evaluation of the results of the test.

When a large number of people are subjected to this test and the results are plotted, the different curves obtained will vary in the manner shown in figure 3. The curves of those with excellent dark adaptation approach a straight line, the degree of approach, of course, depending on the scale of plotting. Conversely, the curves of those with the poorest adaptation depart farthest from a straight line. The most significant points of departure are those of the recovery period, and of these the greatest change is found in the first reading in the recovery period. Though the change late in the recovery period is of lesser degree, it is often highly significant, especially when the final values are greater than 0.1 millifoot candle.

With curves of all degrees of departure from a straight line, an appraisal becomes necessary to determine which are normal and which are not. The appraisal is assisted by noting the type of curve given by those who have been ingesting an abundance of vitamin A. Vitamin A produces improvement in the readings in the direction of a smaller light requirement. However, they improve only to a minimum value which is relatively constant for the same individual but which varies in different individuals. It seems reasonable to consider as normal all results from those known to have had a high intake of vitamin A and who do not

have detectable uncorrected ocular defects. From the experience gained with this test up to the present and on the basis stated, we would place the upper limit of normal at 0.6 millifoot candle for the first reading in the recovery period. It is possible that the results obtained subsequent to the ingestion of an abundance of vitamin A are supernormal or high normal and that the range accepted as normal should be increased. It is certain, however, that readings should not be accepted as normal because they are average. Readings which are only slightly greater than those stated as normal are classed as borderline. Somewhat empirically we have set the upper limit of borderline at approximately 1 millifoot candle. When the first reading in the recovery period is greater than this, it is classed as subnormal.

Dark adaptation increases rapidly in the recovery period. The speed and degree of increase may be observed in the plotted curves of figure 3. Those with normal adaptation have final readings of less than 0.05 millifoot candle. The only exceptions encountered are in those instances in which the visual threshold is increased by causes other than vitamin A deficiency. Those subjects who are classed as borderline also may have final readings within the limit of 0.05 millifoot candle, or slightly more light may be required; but in either event the high point of the curve is reached less quickly than in the normal curve. In figure 4 are shown two curves which are considered borderline. One of these has its fault chiefly in the first reading of the recovery period and the other chiefly in the later readings. If either the first or the last readings were considered alone as criteria, many abnormalities would be overlooked. The entire recovery curve is considered important.

In the subnormal group are to be found all degrees of impairment of dark adaptation. Those with lesser degrees of impairment are not subjectively aware of

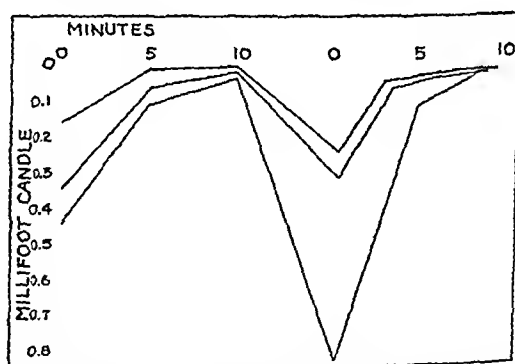


Fig. 6.—Test results showing improvement obtained in ten and sixteen days respectively with 20,000 units of carotene daily.

any difficulty, while others with very poor photometer readings recognize their abnormality. In those with subjective night blindness the first reading in the recovery period may require as much as 7, 8 or more millifoot candles, and at the end of the ten minute recovery period from 0.4 to 0.5 millifoot candle may be required. The latter values represent a state in which the subject is visually quite helpless in the outdoor darkness of night. However, some improvement is to be expected with the lapse of a longer time than the ten minute dark period of the test. A wide zone seems to exist between the curves of those whom we have classed as borderline and the curves of those who

THE PRESENT STATUS OF SCHOOL  
MEDICAL SERVICE

A sufficiently accurate picture of school medical service as it is found today is presented in a recent report of the Committee on School Health of the American Academy of Pediatrics:<sup>3</sup>

We have had the physician and the nurse in the schools long enough so that the public, the teachers, the administrative officers, and the boards of education would not do without their assistance. They want to know the physically handicapped children. They want the medically neglected child cared for. They want advice and assistance when communicable disease threatens. Any school staff which has had a little of their assistance wants more than can be supplied. This demand has led to a practice of rapid selection of children who seem to need medical care. This practice has been almost universally used for over twenty years. The need for this screening service is established, but the method of screening has been extravagant and ineffective. It has used the physicians to follow routines that are wasteful and unscientific. It has been the horrible example of the physician employed by a government agency. The physician, pressed by lay officials to see more children than he can effectively examine or appraise, obviously violates the principles laid down by the House of Delegates of the American Medical Association.<sup>4</sup> "The responsibility for the character of medical service" has not been "borne by the profession." The operation of the service has not been according to medical standards. "We have allowed the demand for seeing large numbers to lead us into hasty and dubious judgments instead of adhering to the principle that the medical profession alone can determine the adequacy and character of medical service." We have allowed the public or the school authorities to push us into attempting hasty judgments that we know were not based on sound medical standards.

This indictment of school medical examinations needs no elaborate evidence of current practice. Thousands of physicians who have tried conscientiously to render this service have testified to the hasty and unsatisfactory examinations they have been required to make. Many have given it up in disgust. Thousands more now engaged in this work are willing to give similar testimony but are unable to change the system. There is sufficient recognition of the unsatisfactory character of the medical and nursing service in the schools by educational and public health leaders to insure a cooperative response for well considered plans for improvement.

In a recent paper, Dr. Donald B. Armstrong, president of the National Health Council, stated that "the school medical program as now conducted is in general one of the least efficient of our public health procedures."

## THE FUTURE OF SCHOOL MEDICAL SERVICE

Few of us would like to see the legalistic concept of separating medical and educational services pushed to its logical conclusions. Few of us on the other hand would like to see the school completely taking over the responsibility for the medical and dental care of our school children.

Between these two extreme positions there is a middle ground on which we might build conservatively and safely. But even in building on this middle ground we must make certain assumptions and choose between two quite different plans. Back of both plan 1 and plan 2 would lie the general assumptions that:

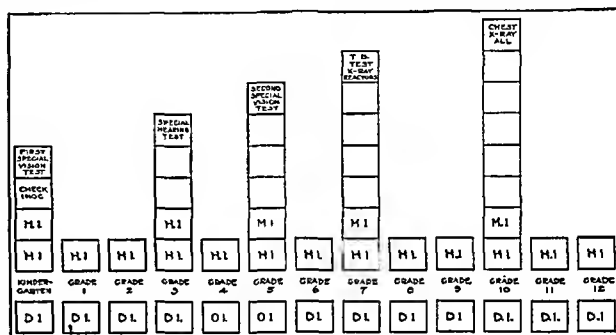
(a) All medical and dental treatment should be eliminated from the schools and left squarely in the hands of the practitioners of medicine and dentistry, with the public welfare department acting as the intermediary in indigent cases.

3. Mitchell, H. H.: Forty Years of School Medical Inspection, Report of the Committee on School Health of the American Academy of Pediatrics, J. Pediat. 7:714 (Nov.) 1935.

4. Amendments to Principles of Medical Ethics, Proceedings of the Cleveland Session, J. A. M. A. 102:2118 (June 23) 1934.

(b) All the educational phases of health work should be given due place in the school curriculum; i. e., health habit training, the inculcation of health knowledge, posture training, the development of interests and skills in the various forms of exercise and recreation, the development of an appreciation of the importance of a thoroughgoing annual medical and dental examination, of what constitutes a balanced diet, proper illumination, adequate ventilation, a normal amount of sleep and rest, and so on.

Plan 1 would assume that general practitioners of medicine and dentistry will never of their own accord and without governmental aid adequately provide for the annual health examination. It would therefore adopt the preventive part of the recommendation of the Cambridge health education conference and frankly socialize the preventive medical services, including medical and dental examination, school nursing service and general health servicing for all children during their school life just as we have socialized certain preventive medical services for our communities in our public health departments. It would allocate approximately 32,000 physicians (one to each 1,000 school children)



Suggested plan for school medical and dental inspections (plan 2):  
M. I.: Medical inspection by physicians, to include (1) eyes and lids (observation); (2) ears, canals and drums (with speculum); (3) nose (with speculum); (4) teeth and gums (without mirror); (5) throat and mouth (with tongue and depressor); (6) lymph nodes (palpation); (7) thyroid (palpation); (8) heart (auscultation and palpation of apex) before and after exercise; (9) lungs (auscultation of inspiration after deep expiration and cough, in eight spots on the chest); (10) nutrition (observation and palpation); (11) skin (observation and palpation); (12) orthopedic defects (observation); (13) posture (observation, alignment of spine to vertical surface); (14) hernia (palpation on cough); (15) feet (observation); (16) nervous system (eliciting of simple reactions and observation); (17) speech (observation).

H. I.: Health inspection by nurse or teacher, to include (1) height (height rod); (2) weight (scales); (3) visual acuity without glasses (Snellen test), right, left; (4) visual acuity with glasses if worn (Snellen test), right, left; (5) hearing acuity (watch test), left, right; (6) complaints suggestive of illness (questioning); (7) signs suggestive of illness (observation).

D. I.: Dental inspection by dentist or dental hygienist, to include (1) inspection of teeth (mirror and explorer); (2) inspection of gums (mirror and explorer).

First special vision test: Snellen and/or Ferre and Rand (Bausch & Lomb), Betz (Keystone).

Check inoculations: History of diphtheria inoculations, history of scarlet fever inoculations, history of smallpox vaccination, inspection of smallpox vaccination scar.

Special hearing test: 4a audiometer test of all, 2a audiometer test of selected cases, otologic examination of selected cases.

Second special vision test: Snellen, and/or Ferre and Rand, Betz, Ishihara color vision.

Tuberculin Test: Mantoux, intradermal; 0.10 mg. Saranac old tuberculin or 0.00002 mg. purified protein derivative; chest roentgenogram of positive reactors.

Chest roentgenogram: flat film (acetate or paper) of chest of each child not already roentgenographed within three years.

and corresponding numbers of nurses and dentists or dental hygienists to this school medical service at an annual cost of from \$5 to \$10 per child. (In but few states is even \$1 per child being spent annually on school medical service, but even an annual expenditure of \$10 is not unthinkable, especially in those states in which the annual school cost per child is something over \$100.) In order that medical leadership might be guaranteed for this army of physicians, nurses and dentists, and in order that the school medical service

poor dark adaptation is to make only the first reading in the recovery period; this procedure is not suitable for a survey but serves to find quickly a group of subnormal subjects for experimental study.

#### EXPERIMENTAL VARIATIONS OF THE TEST

Many variations of the test have been tried in the attempt to determine the most useful procedure. The bright light of the photometer has been altered in intensity by the use of 50, 75, 100, 150 and 500 watt bulbs in turn. Different periods of exposure to the bright light have been used. The distance of the eyes from the quincunx screen has been varied. Different lengths of foreperiod have been tried. The test has been conducted with the omission of the foreperiod.

It was found that illumination more brilliant than that supplied by the 100 watt bulb is frequently uncomfortable. Even the light of the 100 watt bulb is unpleasant to those who have night blindness; some normal subjects report blinking of the eyes for a period of from twenty to thirty seconds. When brilliant illumination is used, the effect is too great and the bleaching of visual purple too intense for a useful test procedure, even when the period of exposure is much shortened. As compared to the more brilliant illumination, the milder effect of the 100 watt lamp permits

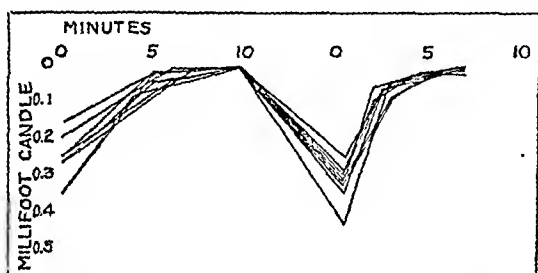


Fig. 9.—Results of repeated tests of the same normal subject.

the demonstration of a finer distinction in the difference between individuals in their ability to regenerate visual purple during the bleaching period. The 50 and 75 watt lamps do not produce as much effect as is considered desirable and most useful in the test. When the 100 watt lamp is used, the light intensity at the plane of the eyes during the test is the same as that of the test previously reported.

In varying the time of exposure to the bright light it was found that an equilibrium between degeneration and regeneration of visual purple is reached in approximately two minutes. Thus, the first reading of the recovery period is the same whether the exposure has been for three, four or five minutes and in many instances for two minutes. In order to shorten the time consumed by the test, the original five minute exposure has been shortened to three minutes. The period of three minutes rather than of two minutes was chosen in order to make certain that the critical point has been passed.

It has been found that lengthening the foreperiod beyond ten minutes does not change the results. This finding is important in those instances in which it is desired to keep subjects waiting in the dark for the test.

#### EXPERIMENTAL ERROR

With almost every biologic procedure, exact duplication of results is difficult and not always to be expected. When the same individual is tested repeatedly with the

biophotometer the curves obtained may coincide, but more often slight differences are to be observed. These differences are always greater with the first reading of the recovery period than with subsequent ones. They are greater for those with subnormal than with normal readings. Children offer more difficulties than do adults. They are easily distracted and the presence of more than one child at a time in the dark room often interferes with the test. On one occasion it was found that the waiting child was giving the answers for the child being tested. Especially when working with children under 11 or 12 years of age, more accurate results are obtained by giving a preliminary test as a trial or practice procedure in order to give the subject a general idea of what is desired. Practice not only aids in giving more consistent readings but also in some degree tends to improve them in that slightly less light is required for the end point.

It seems probable that much of the difference that is found in the first reading of the recovery period with successive tests on the same subject is to be explained on the basis of timing of the reading. The technic permits a variation of ten seconds in obtaining this reading. This variation is at a time when adaptation is occurring at a rapid rate. Despite the factors that have been mentioned, the variations in the first recovery reading are small for normal subjects. For subjects in whom adaptation is subnormal the first recovery reading tends to be more variable, but it remains subnormal.

For the final reading of the recovery period the time consumed in making the test is relatively unimportant. The variations are within a narrow range for normal subjects. The percentage of variation may be large, as for example from 0.01 to 0.03 millifoot candle as shown for the subject of figure 9, but this variation, when charted, appears small. As with the other readings of the test, the final recovery reading shows greater variation in those with subnormal adaptation, though the differences are not as great as in the first reading of the recovery period.

Figure 9 illustrates the results of successive tests of a boy of 11 years over a period of three months. This case is selected only because of the larger number of observations on the same individual. The subject was receiving a diet relatively low in vitamin A with no supplemental source of this material. Despite the variations found, the readings are within normal limits in all instances.

Occasionally are encountered bizarre curves or curves which do not conform to the expected or usual contours. Explanation for these usually is not difficult. An emotional disturbance, such as fear of the dark, causes wholly unreliable results. A desire to please, which leads to guessing or to giving hasty answers, is quickly detected. The closing of the eyes during exposure to the bright light is usually indicated by the shape of the curve. Illness or indisposition affects the results adversely. Some young children have difficulty in making a decision as to what they see and the results are not dependable. Increased experience in giving the test tends to eliminate errors from these various sources. It is believed that, when the technic is carefully followed and allowance is made for such disturbing factors as have been mentioned, the experimental error is not great enough to interfere with proper interpretation of the test results.

direct and undivided authority of properly trained and appointed school superintendents and principals. Since the child's school day contains only a definite and limited number of hours, it is argued that it would make for difficult administration to have two totally independent departments, i. e., health and education, both in full authority to make demands for that same time.

The disadvantages accruing to education department leadership are, however, as follows:

1. Superintendents and principals tend to look to physical education teachers rather than medically trained persons to head up their school health programs (largely because the former are full-time employees and have credits in education theory, administration and supervision which carry more weight with many school administrators than do medical, dental or nursing degrees). This creates a situation which is unacceptable from the medical point of view—physicians working in the schools under directors of physical education who, coming up through the fields of gymnasium instruction or athletic coaching, have no interest in and no knowledge or appreciation of the principles of preventive medicine.

2. State departments of education, instead of turning directly to their state department of health for supervision over their school medical service and thus utilizing a state supervisory staff, oftentimes already in existence for orthopedics, social hygiene, mental hygiene, communicable disease, tuberculosis, and the like, tend to set up a second supervisory staff. This is not only wasteful in its duplication but it is deplorable in that it bars the health department with its more complete organization permanently from a field of service among children grouped for the first time where it could make perhaps its greatest contribution.

If the really important matter is to keep school administrative problems simplified, we must all vote for education department leadership. If, however, the important matter is really to utilize the school grouping to give each child the best society has to offer both as to education and as to preventive medicine, certainly the advocates of health department leadership have a right to be heard.

If plan 1 should be adopted I would not hesitate to state that health department leadership for the school medical and dental service was essential in view of the size of the medical job contemplated. If plan 2 should be adopted I would still be inclined to favor health department leadership, but I would not feel that success for this plan was by any means impossible under education department leadership.

#### CONCLUSIONS

1. On the principle that "the shoemaker should stick to his last," our legislatures have more or less consistently separated medical functions from educational functions and have made but little if any place for a medical program in our schools.

2. At the other extreme are those who would gladly see our schools taking over the responsibility for the medical and dental care of the school child, examining, diagnosing and correcting defects, just as they have taken over the responsibility for the education of the child.

3. A plan is presented (plan 1) which would definitely allocate to the school but under the state department of health the preventive medical services for children of school age. This could be done at a not

prohibitive cost per pupil, but it is open to the serious objection that it would take from the general practice of medicine and dentistry a considerable part of its "stock in trade" and transfer one fifth of the medical and dental professions from general practice to regimentation and bureaucracy.

4. A plan (plan 2) is presented which would eliminate all medical and dental treatment from the schools, develop to the maximum the educational phases of health work, leave the annual medical examination and preventive inoculation in the family practitioner's hands, and set up a system of school medical supervision and limited health inspection.

5. Plan 2, in my opinion, would serve as an effective means of utilizing the school grouping of our children for improving their health and hygiene, supplementing, not substituting, for the work of the general practitioners of medicine, and without inordinately increasing the cost to the community or regimenting any large proportion of the medical profession.

## PHENOLPHTHALEIN STUDIES

### A THOUSAND DOSES OF PHENOLPHTHALEIN: URINALYSES

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AND

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Most textbooks on pharmacology and therapeutics give phenolphthalein a clean "bill of health" as far as its effect on the kidney is concerned. Thus Sollmann<sup>1</sup> states: "The kidneys are not irritated, nor are there any other systemic effects." Bastedo<sup>2</sup> says: "In extensive clinical use of the drug with frequent urine examinations there has been no albuminuria." There are, however, some textbooks on the subject which report that phenolphthalein has produced albuminuria. The literature on the subject, which will be reported on later in this article, is in a similar condition: for, while nearly all authorities on the subject find phenolphthalein harmless to the kidney, there are a few reports extant that would suggest an opposite possibility.

In consideration of the enormous consumption of phenolphthalein by our people, possibly three billion doses a year, the question whether phenolphthalein produces albuminuria or damages the kidney in any way is so important a matter of public hygiene that it seems to deserve a searching investigation. To put this question to a crucial test, the study of a thousand medicinal doses of phenolphthalein was undertaken with special scrutiny of the effect on the urine.

#### PHENOLPHTHALEIN RING TEST IN URINE

It seemed possible a priori that one might encounter a false albuminuria reaction owing to the fact that acidification precipitates phenolphthalein from its solution in alkaline fluids. Since many of the albumin tests depend on acidification, this possibility had to be ruled out.

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Because of lack of space, this article has been abbreviated here by the omission of tabular matter. The complete article appears in the authors' reprints.

1. Sollmann, Torald: *A Manual of Pharmacology*, ed. 3, Philadelphia, W. B. Saunders Company, 1926, p. 230.

2. Bastedo, W. A.: *Materia Medica, Pharmacology, Therapeutics, Prescription Writing*, ed. 2, Philadelphia, W. B. Saunders Company, 1918, p. 134.

poor dark adaptation; two gave results classed as borderline. Thus 76 per cent of the children gave normal results and 24 per cent did not. The children with poor photometric readings were given vitamin A under supervision at school. At the time this is written the children have been receiving vitamin A for a period of one month. All except three have attained normal test readings. The three who have not yet responded have had careful and expert ophthalmologic examination, and no organic cause for poor dark adaptation has been found. It is tentatively assumed that ultimate recovery will occur.

#### THE VITAMIN A REQUIREMENT

A few observations have been made in an attempt to determine the vitamin A requirement. Several children with poor dark adaptation were placed under care in the hospital metabolism ward and given a controlled and measured diet which permitted a daily intake of from 5,000 to 6,000 units of vitamin A. These children promptly improved in their adaptation ability and had normal photometric tests. On another occasion two children, 11 years of age, were placed under similar care and given a diet which permitted the daily ingestion of 3,000 units of vitamin A. The one child who had a normal test in the beginning continued normal during three months of this regimen (fig. 9). The other child, subnormal in the beginning, had approximately normal tests after two months (fig. 10). Thus for these two children it may be concluded that 3,000 units of vitamin A is adequate when the photometric test is used as the criterion. For the first diet, which contained from 5,000 to 6,000 units, the amount of vitamin A was estimated, though the food was measured. This diet simulated closely the diet regularly received by our hospital children except that it contained no concentrated source of vitamin A. For the diet that contained 3,000 units the amount of vitamin A was determined by assay. It is recognized that the group of children studied is too small to permit conclusions as to a general applicability of the observations, but nevertheless they seem of interest.

#### SUMMARY

A new photometer and a technic for its use in the determination of ability to adapt to darkness have been developed.

The intensity of the light with which the photometric readings are made is controlled by a rheostat, which is calibrated in terms of millifoot candles; this permits the results of one investigator to be compared with those of another, a procedure generally difficult for dark adaptation tests.

Evidence has been obtained for considering the test a useful means for detecting vitamin A deficiency.

Comparison of the results with the new technic with those of our formerly reported procedure shows certain defects of the old test, though the principle on which it was based seems sound.

Of twenty-three children of an orphanage eight, or 35 per cent, had abnormal test results by the new technic. A survey of a group of thirty-seven local school children showed 19 per cent to be subnormal and 5 per cent borderline. These results confirm those of the previously reported survey in that they indicate that vitamin A deficiency is more frequent than has been generally assumed.

Observations on two boys 11 years of age indicate that vitamin A in the amount of 3,000 units daily meets their requirements as judged by the photometric test.

## KETO-CHOLANIC ACIDS IN THE MEDICAL MANAGEMENT OF LOW GRADE GALLBLADDER DISEASE

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The rôle of gallbladder disease in the production of upper abdominal distress and of "dyspeptic" complaints is well recognized. Blackford and Dwyer<sup>1</sup> in 1924, reporting a series of 1,650 cases presenting gastric symptoms, found that the organic pathologic condition of the abdomen causing the "dyspepsia" involved the gallbladder in 52 per cent of the cases. Crump<sup>2</sup> in 1931, reporting a series of 1,000 routine postmortem examinations, found signs of chronic and healed cholecystitis in 300 cases. He concludes that upward of 40 per cent of the adult population have disorders of the biliary system.

Despite the widespread frequency of chronic cholecystitis, the principles of therapy are highly controversial. Judd, Crisp and Waldron<sup>3</sup> state that, according to the present conception of chronic cholecystic disease, some change in the gallbladder wall represents the seat of the trouble and that removal of the organ is the only way to eradicate the primary factor. They conclude that almost all cases, especially those presenting stones, constitute a surgical problem. The fact remains however that, according to Stanton,<sup>4</sup> in approximately one third of all operations undertaken for the relief of symptoms diagnosed as of gallbladder origin no stones are found. Furthermore, in Stanton's series of ninety stoneless cases followed for an average of three and one-half years after cholecystectomy, there was no demonstrable effect on the morbidity in 47 per cent of the cases. These figures compare favorably with those reported by other investigators.

Innumerable methods of medical management have been proposed—the Lyon duodenal drainage, the dietary regimen and others. Rehfuess and Nelson<sup>5</sup> go so far as to state that the demonstration of gallbladder disease by physical examination, cholecystogram or duodenal drainage is an indication for the low fat, low cholesterol dietary management. Magnesium sulfate as a cholagogue, vegetable cholagogues such as emodin, disinfectants supposedly eliminated in the bile such as salicylates and hexamines, and various decholesterolizing substances have all been suggested. Restriction of fats in conjunction with cathartic medication is the commonly employed form of therapy. Under such managements we have found that the patients feel better for a while, but sooner or later a recurrence of the gallbladder syndrome is ushered in after a period of loss of weight, loss of strength, and the appearance of symptoms of a markedly irritable bowel.

1. Blackford, J. M., and Dwyer, M. F.: Gastric Symptoms, with Particular Reference to Gallbladder Disease, *J. A. M. A.* 83: 412 (Aug. 9) 1924.

2. Crump, Curtis: Incidence of Gallstones and Gallbladder Disease, *Surg., Gynec. & Obst.* 53: 447 (Oct.) 1931.

3. Judd, E. S.; Crisp, N. W., and Waldron, G. W., in Christopher, Frederick: Textbook of Surgery, Philadelphia, W. B. Saunders Company, 1936, p. 1314.

4. Stanton, E. M.: The Stoneless Gallbladder, *Am. J. Surg.* 18: 246 (Nov.) 1932.

5. Rehfuess, M. E., and Nelson, G. M.: The Medical Treatment of Gallbladder Disease, Philadelphia, W. B. Saunders Company, 1935, p. 294.



In the column headed "dose," the figures refer to fractions of grams and the letters to the variety of phenolphthalein administered:

- A = Experiment with white phenolphthalein.
- B = Experiment with yellow phenolphthalein.
- C = Experiment with colloidal phenolphthalein.

It might possibly be well to explain at this point that by "white phenolphthalein" we mean the crystalline phenolphthalein described in the U. S. Pharmacopeia.

Yellow phenolphthalein is a product developed in the course of manufacture of phenolphthalein consisting of a mixture of this body with about 2 per cent of as yet unidentified colored bodies, some of which are drastically purgative. In the subsequent purification by crystallization from alcohol, these colored bodies remain in solution. Studies are in progress on the nature of these substances.

Colloidal phenolphthalein<sup>3</sup> is produced by precipitating a solution of phenolphthalein sodium by means of carbon dioxide in the presence of a protective colloid such as gelatin. This product is unstable in liquid form, but it may be secured in the form of a scale preparation by drying it in a thin layer and at a low temperature in the presence of enough acid, such as citric acid, to prevent reversion to the colored sodium salt by loss of carbon dioxide. This product is considerably more soluble than the white phenolphthalein, as is shown by the fact that it will dissolve in a solution of sodium bicarbonate ( $pH$  8.2) in which crystalline phenolphthalein is insoluble.

One may conclude as a result of these 650 observations that in all these individuals no albuminuria resulted from the doses of phenolphthalein given.

#### CASES OF ALBUMINURIA IN SUPPOSEDLY NORMAL INDIVIDUALS

The exceptions to the proposition just laid down are shown in tables 2, 3 and 4, in which we report all cases of albuminuria discovered in the course of this study on students. They may be divided into three classes:

Class 1. In one case (table 2) albuminuria was present in the morning specimen as well as in the twenty-four hour specimen, before as well as after the taking of the phenolphthalein. This is obviously an individual with a somewhat pathologic kidney, and there is no evidence that the phenolphthalein increased the damage.

Class 2. In two cases (table 3) we found albuminuria in the twenty-four hour specimen, before as well as after the taking of phenolphthalein. As these men had no albuminuria in the morning specimen, we have here evidently cases of "orthostatic albuminuria." It will be noted that the albuminuria was inconstant and that it had no relation to the taking of phenolphthalein.

Class 3. An occasional and very inconstant reaction to Robert's reagent was encountered in five cases (table 4). This was very irregular and generally occurred only once in all the various observations made in a particular individual. The fact that the other protein tests were negative stamps these reactions as due to proteose rather than to protein; in view of its inconstancy, it must be considered an adventitious admixture. It certainly had nothing whatever to do with the taking of the phenolphthalein.

It may be concluded that in not one of these instances could the albuminuria or proteosuria be ascribed to the taking of the phenolphthalein.

#### HOSPITAL CASES

To determine the reaction of sick individuals and especially of persons somewhat advanced in years, the kidneys of some of whom might presumably be more sensitive to injury, we studied a series of patients in the nose and throat service, including the Head Cancer Clinic at the Cook County Hospital, as well as of some patients in medical wards. We may summarize our observations by saying that in all 150 of these patients who had no albuminuria before the administration of phenolphthalein in doses of from 0.1 to 0.5 Gm. there was not a single case of albuminuria. It required about 4,500 tests to develop this conclusion.

A series of forty-four patients who had albuminuria before the administration of phenolphthalein was also studied, and it was found that in no instance was there any evidence of increase in the albuminuria or microscopic evidence of change in the urinary sediment excepting in one case. In this patient, who was under treatment at the hospital for renal colic and whose urine contained a trace of albumin before the phenolphthalein was given, there appeared blood and albumin in the urine together with the symptoms of renal colic the day after the dose was administered. Whether the taking of the phenolphthalein had anything to do with precipitating the kidney colic is debatable. It is certain that it had nothing to do with the formation of the stone or the appearance of the blood and albumin in the urine. It should be noted here that a case similar to this one has been reported in the literature and uncritically ascribed to a phenolphthalein reaction by Holz,<sup>5</sup> who reports his own case as follows:

Having taken, in the course of six weeks, seventeen "purgent" tablets with very satisfactory results, I took a half tablet one evening and awoke the next morning with severe pain in the left hypogastric region, which was not relieved by stormy bowel evacuation. Nausea and meteorism developed, accompanied by chills and colicky pains, accompanied by a peculiar burning pain in the left kidney region which, especially on urinating, extended into the external urinary meatus. The urine became red and showed albumin and red blood corpuscles but not casts on microscopic examination. Opium suppositories relieved the pain. There was obstipation for two days followed by an evacuation of gas and bowel movement. The albumin disappeared from the urine within six days.

This attack, which to a clinician is highly suggestive of a typical attack of renal colic, Holz ascribes to "intestinal occlusion due to irritation and inflammation of the colon with spastic contraction as well as left-sided kidney disease due to purgen poisoning," as though one kidney could be singled out for attack by a poison circulating in the blood stream.

Interesting in connection with this study are those cases that presented albuminuria before the taking of phenolphthalein and in which the urinary condition improved after the dose as indicated by the reduction in the amount of albumin in the urine and the disappearance of the albumin reaction in a number of cases. We report these examinations in table 5. From it, it is obvious that there certainly was no kidney injury in any of these cases, and, if the diminution of the albumin or its disappearance is any indication, there might have been an improvement of the condition.

In all these cases there was no evidence of kidney damage or the production of albuminuria due to the administration of phenolphthalein.

5. Holz, B.: Purgent-Vergiftung, Berlin klin. Wchnschr. 42: 931 (July 7) 1905.

pital Outpatient Department, a second group was studied in cooperation with Drs. Franklin S. Wilson and S. P. Cromer at the University of Illinois Research Hospital. Similar methods of study and treatment were employed in the two clinics. All patients were ambulatory during the study. This report deals with the results obtained in the treatment of sixty-five cases of chronic cholecystitis by the methods here described.

Four general roentgen classifications were made for the purpose of the investigation: (1) nonvisualizing gallbladders with no roentgen evidence of stones, (2) nonvisualizing gallbladders with stones, (3) normally visualizing gallbladders with stones, (4) gallbladders manifesting delayed emptying.

All patients were followed at frequent intervals by cholecystographic examination. This objective evidence, together with subjective changes, constituted the two criteria of evaluation of the results of therapy used in this investigation. The original groups were reclassified after treatment according to (1) both subjective and roentgenologic improvement, (2) subjective but no

The various dietary managements employed were those used as a routine in the clinic. The hourly feeding schedule was identical with that prescribed as a routine in the management of peptic ulcer.

RESULTS

The results of this study appear in the accompanying table. Two hundred and twenty-one gallbladder visualizations were performed on a total of 131 patients in the course of this investigation. Sixty-five patients were accepted for the series.

It will be seen that the most consistent subjective improvement occurred in those patients receiving the keto-cholanic acids. In the majority of instances the subjective improvement was found to parallel the objective improvement, as revealed by repeated cholecystographic examination. The exceptions to this general observation were those patients in whom large stones had been demonstrated. These patients manifested marked improvement subjectively, but little change could be observed roentgenologically. In some cases

Response to Various Forms of Therapy

Roentgen Classification	Results of Therapy	Types of Therapy*						
		I	II	III	IV	V	VI	VII
Nonvisualizing gallbladders, no stones	Number of patients.....	5	8	6	4	2	7	..
	Subjective improvement.....	4	8	5	3	2	3	..
	Roentgen improvement.....	3	5	6	1	1	2	..
	Both subjective and roentgen improvement.....	3	5	5	1	1	1	..
Nonvisualizing gallbladders, with stones	Number of patients.....	2	3	4	6	..	5	1
	Subjective improvement.....	1	3	4	6	..	2	1
	Roentgen improvement.....	0	2	3	0	..	0	1
	Both subjective and roentgen improvement.....	0	2	3	0	..	0	1
Normally visualizing gallbladders, with stones	Number of patients.....	..	3	1	3	1	2	..
	Subjective improvement.....	..	3	1	2	1	1	..
	Roentgen improvement.....	..	1	1	1	1	0	..
	Both subjective and roentgen improvement.....	..	1	1	1	1	0	..
Normally visualizing, but delayed emptying, no stones	Number of patients.....	..	..	..	..	2	..	..
	Subjective improvement.....	..	..	..	..	2	..	..
	Roentgen improvement.....	..	..	..	..	2	..	..
	Both subjective and roentgen improvement.....	..	..	..	..	2	..	..

\* I indicates hourly feedings and antispasmodics; II, hourly feedings and keto-cholanic acid; III, hourly feedings, keto-cholanic acid and antispasmodics; IV, bland diet and keto-cholanic acid; V, bland diet, keto-cholanic acid and antispasmodics; VI, low fat, low cholesterol diet only; VII, low fat, low cholesterol diet, keto-cholanic acid and antispasmodics.

roentgen improvement, (3) roentgen but no subjective improvement, (4) no improvement, either subjective or roentgenologic.

In order to control the study properly, seven variations in therapy were employed: (1) hourly feedings and antispasmodics, (2) hourly feedings and keto-cholanic acids, (3) hourly feedings, keto-cholanic acids and antispasmodics, (4) bland diet and keto-cholanic acids, (5) bland diet, keto-cholanic acids and antispasmodics, (6) low fat, low cholesterol diet only, (7) low fat, low cholesterol diet, keto-cholanic acids and antispasmodics.

The keto-cholanic acids<sup>15</sup> used in this experiment consisted of a mixture of 3, 7, 12 triketocholanic acid, 3, 12 diketocholanic acid, 3 keto-cholanic acid and 3, 7 diketocholanic acid. The mixture of the foregoing keto-cholanic acid contained the oxidation products of all the natural bile acids found in human bile in their normal proportions. Administration was orally in the form of 3¾ grain (0.24 Gm.) tablets. One tablet was given three times a day, making a daily dosage of 11¼ grains (0.72 Gm.). In four patients in whom no improvement in visualization was observed following sixty days of this medication, the dosage was doubled.

15. The keto-cholanic acids used in this investigation were especially prepared for us and furnished by G. D. Searle & Co., Chicago.

in which multiple small stones were reported, the roentgen report on the first examination was non-visualization. Following the dietary and keto-cholanic acid therapy, the gallbladders were found to visualize and the filling defects due to stones were noted at this time.

In a few cases in which stones were reported on the first Graham-Cole test, they were not in evidence on succeeding visualizations, following keto-cholanic acid therapy. The chief point to be emphasized, however, is the marked subjective improvement with concomitant roentgen improvement in so many cases.

No adverse results were obtained in any of the groups receiving the keto-cholanic acids. Only four patients in the series failed to improve subjectively. Three of the patients with nonvisualizing gallbladders had normally visualizing gallbladders after therapy. Interesting results were obtained with those patients who gave histories of frequent repeated attacks of typical gallbladder colic. After approximately two weeks of therapy the attacks would decrease in severity and frequency and gradually disappear.

In three instances untoward results were obtained when we began the hourly feedings of milk and cream and the keto-cholanic acids simultaneously. One patient reported increased distress with pain in the upper right

are subjectively aware that their ability to see in the dark is abnormal. This difference may be only apparent rather than real, as the complaint of night blindness usually is not stated unless the difficulty causes a serious handicap. In figure 5 are shown the results of a test of a young adult who does not have any subjective sense of night blindness yet who has been observed objectively by companions to have difficulty in keeping to a path at night which the remainder of the group could see readily. The plotted curve of this subject

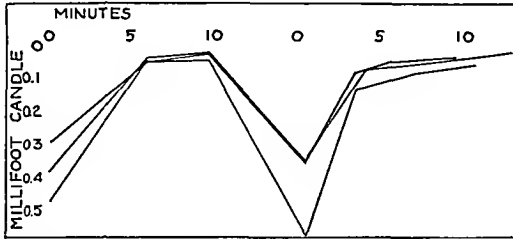


Fig. 7.—Effect of carotene administration to a subject whose original curve was classed as normal.

shows relatively greater departure from the normal in the last than in the first reading of the recovery period. Detailed ophthalmologic examination of this subject revealed nothing more than myopia, which was fully corrected with lenses.

#### THE PHOTOMETRIC TEST AS A MEASURE OF VITAMIN A DEFICIENCY

Adaptation of the normal eye to darkness depends on the ability to regenerate visual purple, which in turn is related to the presence in the retina of vitamin A or a closely related substance. Consequently, any test that shows relative or absolute capacity for dark adaptation becomes a test for vitamin A deficiency in those with potentially normal eyes. This fact is readily demonstrated by the administration of vitamin A or carotene to those with poor adaptation and no gross uncorrected visual defect. Normal adaptation has been attained repeatedly by this procedure in our study material; one instance is illustrated in figure 6. Even those with normal adaptation may show some improvement when vitamin A is administered. However, in such instances the test results soon reach a point beyond which no further improvement is to be noted. In figure 7 are shown the test results of such a subject.

In order to demonstrate adaptation changes rapidly in our studies, relatively large amounts of concentrated preparations of vitamin A or carotene have been used. When administered in excess in this manner, no difference has been noted between the effects of carotene and those of the fish liver oils. This probably may be accepted as an expected result despite implications in the literature that the vitamin D content of the fish liver oils is a factor in the improvement of dark adaptation.

It is essential to recognize that poor dark adaptation may result from causes wholly unrelated to vitamin A deficiency. In such instances adaptation can be improved by vitamin A therapy only to the extent that the subject is deficient in this vitamin. In figure 8 are shown the test results for three subjects with retinitis pigmentosa, all of whom had been ingesting vitamin A in addition to the usual diet. One of the three curves shows only a moderate divergence from the normal. This is accounted for on the basis that the degenerative

change in the retina has not yet affected the fovea in significant degree, an explanation supported by the finding of a vision of 6/6 in both eyes with correction and visual fields of from 15 to 25 degrees for a 5 mm. test object at 120 cm.

With possibly rare exceptions the ocular defects responsible for poor dark adaptation are revealed by ophthalmologic examination. These abnormalities are found with greater frequency in a medical clientele than in the general population. It is believed that, at least among children, the proportion of abnormal test results produced by causes other than vitamin A deficiency is statistically unimportant in surveys made in the general population, especially when those with obvious ocular defects are excluded.

#### BRIEF TESTS FOR RAPID SURVEYS

Shorter tests than the one described are advantageous at times, especially in large surveys when the total time consumed assumes importance. However, an abbreviated test should be employed only after considerable experience has been acquired in conducting the test in the usual manner. The foreperiod or preliminary period in the dark is considered desirable, but readings during that period are not important except as they accustom the subject to the procedure and thus permit more accurate readings later. Thus, one subject can be waiting in the dark while another is being tested. A reading should be made at the end of the foreperiod and the test continued as already described. If desired, the duration of the test may be reduced still further by decreasing the recovery period to six or seven minutes.

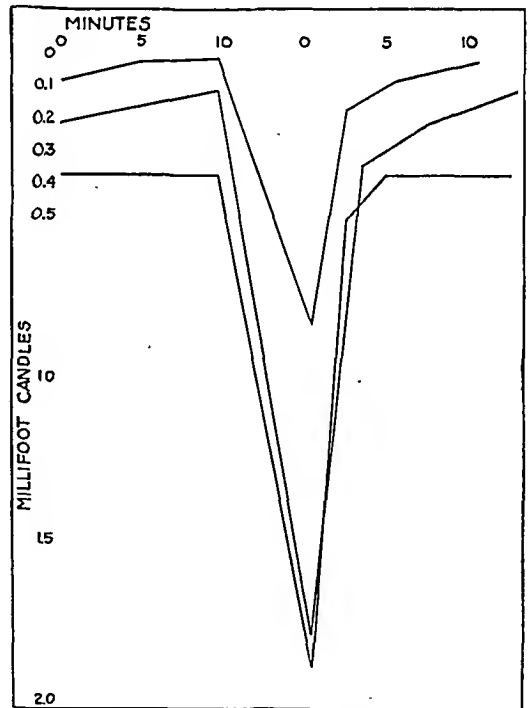


Fig. 8.—Test results of three subjects with retinitis pigmentosa.

The data thus obtained are usually sufficient to show the type of curve and the ability to regenerate visual purple. Subjects who have abnormal readings by any of these procedures should be given the longer test, but normal results usually would not be changed by the longer test. A rapid method of finding subjects with

to find any report of serial pressure readings at intervals after encephalography that would warrant an authoritative opinion as to the course of the spinal fluid pressure during the period of intense headache.

Although ordinary room air is most frequently used for encephalography, other gases have been offered as substitutes from time to time, without, however, any very definite claims of advantage. Liberson<sup>4</sup> found carbon dioxide to be absorbed too rapidly for proper visualization.

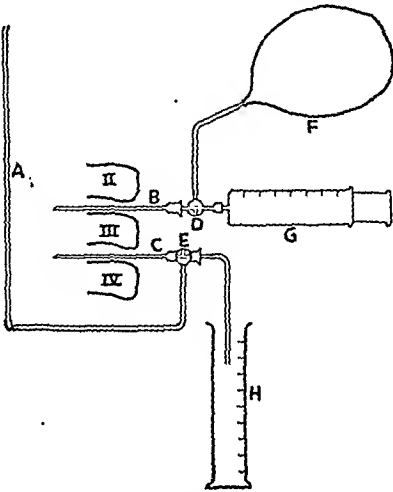


Fig. 1.—Diagram of apparatus used for encephalography. A, manometer; B, lumbar puncture needle; C, lumbar puncture needle with valve and side arm; D, three-way valve; E, valve to side arm of lower needle; F, rubber bladder filled with ethylene at atmospheric pressure; G, 50 cc. syringe; H, graduate into which spinal fluid is drained.

to gain were twofold: anesthesia or analgesia from the local action of the injected gas, and more rapid absorption of the gas. In the employment of nitrous oxide and ethylene he felt that he accomplished both of these objectives without adding to the hazards of the procedure. He has shown definitely that absorption is more rapid, as the gas disappeared from the ventricles in but one hour with nitrous oxide as compared with seven days with air. His criteria of production of analgesia are less definite, as the animals were subjected to moderate doses of morphine or amytal before the encephalography, while at best the evaluation of the amount of headache suffered by a dog must be rather difficult. Aird felt, however, that definite analgesia was produced both by nitrous oxide and by ethylene.

So favorable was the experimental trial of these two gases that in March 1934, a month after Aird's report, I did my first encephalography with nitrous oxide in man.

I have utilized as a routine two lumbar punctures for encephalography, allowing the fluid to escape into a graduated cylinder from the lower needle, which is provided with a side arm for connection with a water manometer. The upper needle is provided with a three-way valve, one arm connecting with the bore of the needle, the second with a sterile rubber bladder containing the gas to be injected, and the third with a 50 cc. syringe. By manipulation of the valve, gas may be drawn into the syringe from the gas bladder and expelled through the needle into the subarachnoid

space. My aim has been to maintain a relatively constant spinal fluid pressure rather than to attempt a volume for volume replacement. Fluid is allowed to flow out of the lower needle in 10 cc. portions, following each of which gas is injected to bring the pressure in the manometer up near the original value. This is the only feasible method in which readily soluble gases are used, since frequently in order to maintain a constant pressure it is necessary for the amount of gas injected to exceed the amount of fluid removed by as much as 50 per cent, owing to solution of the gas during the injection.

Eight encephalographies were done with nitrous oxide. The radiologic results were good in three, fair in four and poor in one. Filling of the ventricles was generally satisfactory, but so rapid was the absorption of the gas from the subarachnoid channels that they were very poorly visualized.

Since nitrous oxide was absorbed too rapidly for good radiologic results, it was decided to change to ethylene, which, as can be seen from table 1,<sup>7</sup> is only one-fifth as soluble as nitrous oxide although still seven times as soluble as air.

To date I have done thirty encephalographies with ethylene. In twenty-four of these the visualization of the ventricles and subarachnoid channels has been excellent, in five only fair and in one poor. In this case, however, a subsequent trial with air yielded no better results. A survey of 189 encephalographies done with air showed no higher percentage of satisfactory results. Because of the fairly prompt disappearance of subarachnoid ethylene, it is essential that the x-ray examination be made immediately following the injection, as a delay of as little as fifteen minutes may result

TABLE 1.—Solubility of Gases in Water at 20 Degrees Centigrade<sup>7</sup>

Air .....	0.01826
Nitrogen .....	0.0151
Oxygen .....	0.031
Nitrous oxide .....	0.67
Carbon dioxide .....	0.878
Ethylene .....	0.122

TABLE 2.—Distribution of Cases in Which Encephalography with Ethylene and Nitrous Oxide was Performed

Epilepsy .....	23
Brain tumor .....	4
Head trauma .....	3
Vascular accident .....	2
Psychosis .....	2
Narcoplepsy .....	1
Neurosyphilis .....	1
Mental deficiency .....	1
Hysteria .....	1
Total .....	38

in poor visualization. This necessity for expedition will, however, be appreciated by the patient, who consequently is returned more promptly to his bed.

The headache complained of during the injection of the gas did not, in my opinion, differ in kind or degree from that experienced by patients in whom air was injected. Naturally, no exact measure of this symptom was possible, and clinical observation was my only aid in judgment. Nevertheless, it is probable that I was

4. Liberson, F.: Use of Various Gases in Encephalography, *Am. J. M. Sc.* 185:47 (April) 1933.  
5. Zeller, O.: Acetylene Insufflation in Meningitis, *München. med. Wechschr.* 82:47 (Jan. 10) 1935.  
6. Aird, R. B.: Experimental Encephalography with Various Anesthetic Gases, *Proc. Soc. Exper. Biol. & Med.* 31:715 (March) 1934.

7. Seidell, A.: *Solubilities of Inorganic and Organic Compounds*, ed. 2, New York, D. Van Nostrand Company, Inc., 1919.

COMPARISON OF THE PRESENT TEST WITH  
ONE PREVIOUSLY REPORTED

The principle on which the previously reported test<sup>1</sup> was based is the same as that of the present test. The results of continued observation indicate that this principle is sound. Further study by means of the new photometer permits a clearer picture of the phenomena involved, and in the light of this newer information certain defects of the older test become evident.

The Birch-Hirschfeld photometer of the old test and the biophotometer of the new test have different characteristics. The Birch-Hirschfeld instrument is more complicated in that both the wedge and the diaphragm must be manipulated to make a reading. These procedures permit an exact reading within the range of the instrument, but they require an amount of time considerably greater than for a reading with the new photometer. The time required to make the first reading in the recovery period is highly important if this reading is to have significance. When the Birch-Hirschfeld readings are compared with those of the biophotometer in terms of light values, it becomes apparent that adaptation has advanced to a marked degree by the time the first reading of the recovery period is made with the Birch-Hirschfeld instrument. Thus a subject who is classed as borderline or moderately subnormal by the new test because of the first recovery reading may appear normal by the old test. This discrepancy has been observed in several instances in which the two tests were applied to the same subject. When the first recovery reading is poor by the Birch-Hirschfeld instrument, however, it is still poorer by the biophotometer. Thus the biophotometer reveals a higher proportion of moderately subnormal subjects than the Birch-Hirschfeld instrument.

When the final readings of the recovery period are obtained by the two photometers and compared in the same manner, it appears that the readings agree within the range of experimental error, since the time factor in making this reading is not so important as for preceding readings. Such differences as occur are to be explained in a large measure by the finer gradations of measurement permitted by the new than by the old photometer. The changes in the amount of transmitted light are by relatively gross steps in the Birch-Hirschfeld instrument. It has been brought out elsewhere in this publication that subjects who are classed as borderline or moderately subnormal often have final readings within the normal range, the divergence from normal being in the earlier readings. Thus dependence on the final readings alone would cause to be missed many abnormal individuals. If the final reading is poor, however, it is significant even when considered alone.

Several statements in our first publication on this subject may be interpreted as attaching importance to the amount of the difference between the first and the last readings. From the discussion of the new test in this publication it becomes obvious that the greater differences between the first and last readings of the recovery period are shown by those with subnormal adaptation.

## A REVIEW OF OUR FORMER SURVEYS

The data of our former surveys have been reviewed in the light of more recently acquired information and experience. With only two exceptions the final readings of all the children were definitely poor when the first reading was poor; in these two the final readings

were borderline. Consequently little error seems to be introduced into these data by the omission of the first readings and by consideration of only the final ones. When the distinction between normal and abnormal is rather finely made, the results are essentially identical with those which were reported. When a larger and perhaps more reasonable degree of experimental error is allowed, the proportion of children with definitely subnormal adaptation becomes 10 per cent less in each instance. For example, the 26 per cent subnormal stated for the rural group becomes 16 per cent and the proportion of borderline cases increases from 10 to 20 per cent. It is to be recognized that if these figures are acceptable at all they must be considered as minimum, because abnormality is often missed when only final readings are used as the basis of classification. Whatever incidence of vitamin A deficiency may finally be determined for the population of this country, it seems clear to us that it is greater than has been heretofore generally assumed.

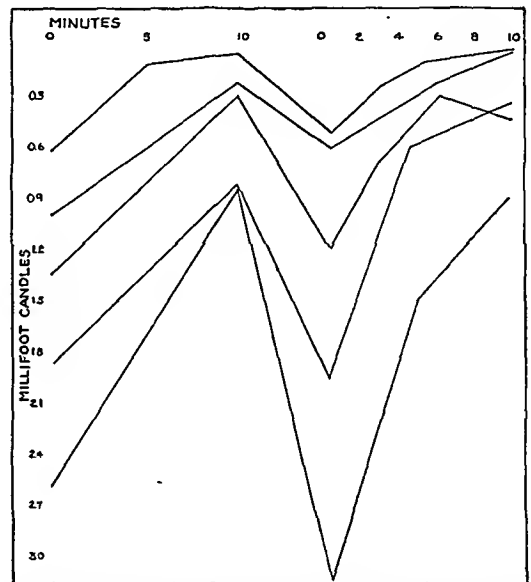


Fig. 10.—Results of successive tests of a boy who originally had a subnormal curve but whose test results became approximately normal while he was receiving a diet containing 3,000 units of vitamin A.

## SURVEYS AMONG CHILDREN

Much intensive study has been made of the new technique now being reported and several hundred children and adults have been tested, some of them many times. The objective has been the perfection of the test and a study of its usefulness. Of the many individuals tested, only two small groups can be considered as representing controlled surveys.

During the latter part of August and the early part of September 1936, while the test was being studied with orphanage children as subjects, it was applied to twenty-three children who were living together in the same cottage and who can be considered as comprising an unselected group as far as the orphanage is concerned. Of these twenty-three children eight, or 34 per cent, had subnormal test results.

In the month of October 1936, thirty-seven children of the third and fourth grades of a local school were examined. These children ranged in age from 7 to 10 years. Those who had abnormal or peculiar results were retested, the number retested being fifteen. It was found that one child had very poor and six had



## ABSTRACT OF DISCUSSION

DR. J. JAY KEEGAN, Omaha: Encephalography has become a fairly well established aid in neurologic diagnosis. However, as cited by Dr. Newman, it is a disturbing and sometimes a dangerous procedure, owing to the irritating effect of the air injected. Any improvement in technic that will reduce this reaction will be welcomed by both patient and physician and Dr. Newman's trial of ethylene gas instead of air is to be commended. Experience has taught that, in brain tumor suspects either with increased intracranial pressure or with impaired consciousness, disturbing reactions to an injection most frequently develop and complicate case management or desirable surgery. It is inadvisable to operate on these patients until they have fully recovered from the depression and temperature reaction that usually follow. There probably are two factors in the disturbing reaction of the meninges to air or other gases. One is the mechanical alteration in tension caused by the shifting and perhaps expanding air bubbles within the small meningeal spaces. This may account for some of the immediate reaction after about 20 cc. of air has entered. The second source is the irritating effect of the gas used, as evidenced by the consistently increased cerebrospinal fluid cell count. This irritation may cause immediate painful vascular spasm and later some tissue swelling. The longer the air remains, the longer will the irritation be continued; and ethylene gas, because of its more rapid absorption, appears to reduce the duration of the inflammatory reaction. Another application of such a readily absorbed gas would seem to be in ventriculography. Since encephalography carries additional hazard in cases with increased intracranial pressure and is contraindicated in cerebellar tumors, resort must be made to bilateral occipital trephine and replacement of ventricular fluid by air. The lateral ventricles in such cases usually are dilated to some degree and considerable air must be injected to visualize properly by x-rays both lateral and third ventricles. It is my impression that the reaction is due more to the disturbance of ventricular pressure rather than to the irritating effect of the gas. These patients have initial high ventricular pressure, and shock may occur from simple withdrawal of ventricular fluid. Furthermore, the suboccipital block remains and pressure recurs within six to twelve hours after the air injection, possibly in greater degree because of some tissue swelling. It has been my routine practice to tap these ventricles repeatedly after ventriculography, to permit air escape and control of the recurrent pressure. When this is done it is surprising sometimes how little immediate or subsequent reaction these patients show from ventriculography.

DR. MABEL G. MASTEN, Madison, Wis.: Since Dandy's introduction in 1919 of this most widely used procedure, modifications and improvements have been made, and every phase of the subject has been thoroughly investigated. Eight deaths (five of them brain tumors) in 3,200 encephalograms performed at the New York Neurological Institute speak eloquently for the safety and usefulness of encephalography. While many operators do not use narcosis, desiring the cooperation of the patient and depending on sedative and analgesic drugs, others prefer complete anesthesia. Waggoner and Himler advocate nitrous oxide anesthesia; ether is used at the Mayo Clinic, while Lessinger and Scarff at Bellevue and at the New York Post-Graduate Hospital are enthusiastic over tribrom-ethanol, overcoming postural difficulties of the unconscious patient by a specially designed frame. The most debatable question in encephalography has been the method of withdrawal of spinal fluid and its replacement by gas. Frequent manometric readings guide the operator in not exceeding the limits of normal intracranial pressure. A mortality of four (two in the last six months) in 1,200 encephalograms at Wisconsin compares favorably with Dyke and Davidoff's and emphasizes the safety of a simultaneous and practically a volume for volume replacement system. Whether drainage is complete or partial is a minor point. All who are active in encephalography are aware of the pressing need for improving two features: (1) the discomfort during and succeeding the procedure; (2) the shortening of the period of hospitalization. Those who employ general anesthesia have modified the first, but most experts using air have become reconciled to a three to five day recovery period. Dr. Newman brings new hope that, in the use of

ethylene, this purpose may be achieved. Scarff's results, combining the oxygen with tribrom-ethanol anesthesia, compare favorably with Dr. Newman's. While the advantages of rapid absorption of ethylene are obvious, I can see one disadvantage not mentioned by Dr. Newman. This would be the voiding of the important therapeutic application of encephalography. I consider the introduction of a rapidly absorbable gas a distinct contribution to encephalography and a further step in its simplicity.

DR. J. GRAFTON LOVE, Rochester, Minn.: I am in favor of any improvement in the technic of encephalography which will make the patient more comfortable after a procedure that is ordinarily quite painful. There is only one question I should like to ask Dr. Newman. Occasionally it has been necessary to proceed immediately with craniotomy after completing encephalography, because of the patient's condition. This condition has arisen rarely, and it has arisen in patients who have a relatively large tumor which could not be diagnosed otherwise. If we proceed immediately with craniotomy, with ethylene in the ventricular system, I am afraid we shall get into difficulty with the electrosurgical unit because of the explosive substance used.

DR. TEMPLE FAY, Philadelphia: At Temple University we have worried over the problem of preparation of the patient and the relief of headache which the patient suffers after encephalography since 1926. In our series we have had more than 700 cases. From our standpoint and the roentgenologist's standpoint we have found that to give the patient ether spoils the true definition of the cortical pathways, as apparently ether causes a rapid obliteration of the cortical pathways by swelling of the brain. We use tribrom-ethanol with a great deal of satisfaction. We have not tried ethylene. We prepare our patients twenty-four hours before the encephalogram. We administer bromide and chloral the morning of the encephalogram and during the period following the taking of the encephalogram. We have been more and more impressed during the last three years that the matter of headache and reaction is determined chiefly by the volume displaced. As Dr. Newman has stated, a rapid absorption of the ethylene simply means a more rapid replacement of volume of blood or spinal fluid in the system formerly occupied by air. We have found that the headache phenomenon is due to hyperemic stretch of the blood vessels as spinal fluid volume is withdrawn. Within the cranial cavity, the pain fibers are on the vascular tree, and the stretch mechanism can be produced in two ways: First, by withdrawing spinal fluid and allowing hyperemia or stretch of the large vessels and sinuses (diameter stretch). This headache can be immediately relieved during the encephalography, if one will introduce volumes in excess of what has been withdrawn; in other words, push out the excess blood. Second, by overdilatation of the ventricular-subarachnoid system, in which the arch of the brain stretches the vascular tree and network as the ventricles become distended and again give this pain reaction. We have given up the direct method of ventriculography in favor of the serial method when pressure is high. That is, we introduce a cannula into the ventricle, plugged with cotton, allowing spinal fluid to leak slowly out for the next six to eight hours. The tampon then is removed, and the patient is allowed to produce a spontaneous ventriculogram from the ordinary movements of the head, air being bubbled into the needle as fluid drains out, into sterile dressings. These patients show a minimum reaction of elevated temperature, headache and discomfort. We believe we have gotten away from the dangers of sudden withdrawal of spinal fluid and sudden inrush of blood to take its place. Dr. Newman's paper interestingly enough suggested that within six hours the 100 cc. of ethylene is replaced by either blood or spinal fluid, or both.

DR. HENRY W. NEWMAN, San Francisco: Dr. Keegan's suggestion that ethylene be used in ventriculography is interesting. Since I am purely a neurologist, not a neurosurgeon, opportunity for that at Stanford has not been very great. The objection which Dr. Love raised to its use in encephalography, when immediate operation might be contemplated, certainly must be borne in mind, because I would dislike to have to report the first case of an intracerebral explosion. It is not only possible

Opinions differ as to the mechanisms involved in the production of the typical syndrome of chronic gallbladder disease. Bile stasis appears to be one of the chief physiologic manifestations of inflammatory changes in the gallbladder mucosa. German clinicians especially emphasize stasis of bile as the causative factor producing the characteristic symptoms in the absence of mechanical obstruction due to the presence of stones. The recent and extensive work of Andrews and Henry<sup>6</sup> on the bacteriology of normal and diseased gallbladders supports the stagnation hypothesis. These investigators suggest that bacteria may play but a secondary rôle in gallbladder disease and that more careful study be given to the possible primary factors, which might be mechanical, vascular, toxic or chemical.

Stasis has been attributed to a variety of causes. It is believed that an inflammatory process may result in the stagnation of bile in the gallbladder or biliary passages. These changes may vary from simple catarrhal inflammation to active infection with specific organisms. Mechanical irritation due to the presence of stones may give rise to all types of inflammation of the gallbladder wall. Metabolic disturbances may produce alterations in the physical and chemical properties of bile, impeding its free flow. The sedentary life and the asthenic habitus have been considered by some as etiologic causes of muscular atonia of the gallbladder wall which impairs normal emptying.

Objectively, roentgenologic examination comprises the chief method of studying the gallbladder. There are three possible factors in general, exclusive of failures in roentgen technic, which may account for nonvisualization: (1) failure of the gallbladder to concentrate the dye, because of a pathologic condition of the wall; (2) failure of the dye to reach the gallbladder, because of obstruction of the cystic duct with calculi, and (3) the concomitant pathologic condition of the liver, resulting in the deficient secretion of bile. Regardless of which factor may be considered primary, stasis of bile would be the inevitable result.

From all available evidence, therefore, the rationale of treatment of chronic gallbladder disease should consist in eliminating bile stasis. Certainly little is accomplished toward this end by continuing the use of the almost traditionally accepted low fat dietary and cathartic management. It logically follows that, in the absence of acute mechanical obstruction or acute inflammation, a treatment designed to increase the flow of bile would mediate at least one of the causes of the difficulty.

In 1924 one of us (C. F. G. B.) began giving cream, butter and in some instances eggs, plus a diet of frequent feedings of high smooth bulk, together with antispasmodics, to patients with low grade gallbladder disease. Cooked fats or so-called greases were absolutely curtailed. The results proved satisfactory and the policy was continued. The patients who responded best were those who had previously been on the restricted unbalanced diet considered correct for gallbladder disease. Those who continued to show more severe symptoms and signs were sent to the surgical department in good general condition.

During this preliminary study, many bile salts with or without cathartics were used on control patients. These either became worse clinically than the patients given the diet plus antispasmodics or remained unchanged until we began using keto-cholanic acids three years

ago. The use of keto-cholanic acids as an adjunct to our previous dietary management was suggested by K. K. Jones<sup>7</sup> on the basis of its action in stimulating a flow of hepatic bile.

The choleretic effect<sup>8</sup> of the bile acids is now well established. Thus far, however, their usage has been confined chiefly to the laboratory, and little attempt has been made, to utilize them clinically. On the basis of their physiologic activity, various forms of bile salts have been used by Copher, Woodmansee and Moore,<sup>9</sup> Whitaker<sup>10</sup> and others in an attempt to accelerate the appearance of the gallbladder shadow in cholecystography. Graham, Copher and Moore<sup>11</sup> conclude that bile salts are not satisfactory for this purpose. More recent work by Jankelson and Altman<sup>12</sup> would indicate that the matter is still an open issue.

Of the various cholic acid derivatives employed both experimentally and clinically, the keto-cholanic acids, the oxidation products of the natural bile acids, have been shown to have the lowest toxicity.<sup>13</sup> They are apparently the only bile salt preparations that may be administered intravenously in man. The increase in the flow of liver bile following the use of this substance is claimed to be from 100 to 200 per cent.<sup>14</sup> In determining the relative toxicity of different bile salts on the gallbladder of the normal dog, Andrews and Aronsohn found that the most severe reactions resulted from the use of desoxycholic acid. Taurocholic acid, apocholic and cholic acid, and hydrolyzed bile salts produced less marked but severely toxic reactions.

We believe that the use of keto-cholanic acids in conjunction with a frequent feeding, high fat, dietary regimen achieves a twofold action. First, the direct stimulation to the flow of liver bile as obtained by the administration of keto-cholanic acids results in the increased activity of the entire biliary apparatus as well as the gallbladder. Second, the physiologic action of fat in initiating contraction and emptying of the gallbladder is obtained. Theoretically, the resulting increased flow of bile through the gallbladder should exert a mechanical flushing action and result in drainage of the biliary tract.

#### METHODS AND MATERIAL

Patients were selected for this study who had been observed and treated for upper abdominal distress for varying periods of time. All of this group underwent routine cholecystographic examination and those who showed dysfunction were accepted for the series. New patients entering the clinic during the study with symptoms referable to the gallbladder were similarly treated. In addition to the foregoing group of patients, who were seen in the gastro-intestinal clinic of St. Luke's Hos-

7. Jones, K. K.: Personal communication to the authors, January 1933.

8. Both Graham and Rehfuess and their co-workers distinguish between choleretics and cholagogues. The former term includes those substances, chiefly the bile acids, which increase the flow of bile by directly stimulating the liver to secrete more bile. The cholagogues are those substances which increase the flow of bile by inducing emptying of the gallbladder.

9. Copher, G. H.; Woodmansee, A. D., and Moore, Sherwood: Unpublished work cited in Graham, E. A.; Cole, W. H.; Copher, G. H., and Moore, Sherwood: Diseases of the Gallbladder and Bile Ducts, Philadelphia, Lea and Febiger, 1928, p. 101.

10. Whitaker, L. R.; Edson, P. J., and Sosman, M. C.: Clinical and Experimental Cholecystography, *Am. J. Roentgenol.* **14**: 495 (Dec.) 1925.

11. Graham, Cole, Copher and Moore: Diseases of the Gallbladder and Bile Ducts, p. 102.

12. Jankelson, I. R., and Altman, W. S.: Decholin Sodium in Cholecystography, *New England J. Med.* **206**: 796 (April 14) 1932.

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The fourth form of chronic gastritis, that of the postoperative stomach, offers the worst prognosis. All three forms of gastritis occur combined (fig. 5).

The general practitioner wishes to be able to make such an important diagnosis without the aid of complicated methods. Therefore we carefully surveyed 228 cases of gastritis seen at the University of Chicago. We selected fifty-three cases that showed the most marked and undeniable gastrosopic picture not combined with any other disease.

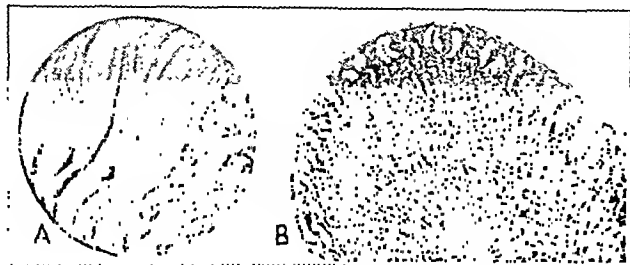


Fig. 2.—Superficial gastritis: A, gastrosopic picture reveals thick purulent secretion. B, microscopic section shows advanced cellular infiltration only of the upper layers of the mucosa.

The ages of the patients ranged from 20 to 60 years. Our statistics contradict Henning's statement that the gastritis anamnesis is a short one. The average dura-

*Relation Between X-Ray Relief Technic and Gastrosopic Picture*

X-Ray Reports	Gastrosopic Appearance
Broad folds.....	1. Hypertrophic gastritis 2. Erosive gastritis 3. Atrophic gastritis. 4. Normal picture
Normal folds.....	1. Normal mucosa 2. Hypertrophic gastritis 3. Atrophic gastritis
Small folds.....	1. Normal mucosa 2. Atrophic gastritis

tion of symptoms in our cases was five and one-half years. Hypertrophic gastritis predominated in the male, and the other forms were equally distributed. The subjective symptoms varied. Appetite was often poor but sometimes was normal. The distress was usually epigastric; in the superficial and hypertrophic form it was usually delayed; in the atrophic form it appeared from one to thirty minutes after meals. The site of the lesion (antrum or body) was of no importance. Periodicity seemed to be present in some cases of hypertrophic gastritis, but this was not as marked as in ulcer histories. Alkali gave relief in about half of the cases, but only in the superficial and hypertrophic form. Aggravation by large amounts of food or by special foods was infrequently found. Many complained of gas and belching. In all forms the intestinal function was normal.

Physical examination was usually negative. At times upper abdominal tenderness was present. One of us (R. S.) has described a tender zone (fig. 6) below and to the left of the navel, which is found only by very light palpation made slowly from the left iliac crest toward the navel. This is by far the most reliable physical sign of chronic gastritis. Gastric analysis, acidity tests, other chemical tests and the cell count of the stomach content are almost useless. All gastrosopists thought that there was an achlorhydria even in the

mildest forms of atrophic gastritis. However, we can show that free hydrochloric acid is often present. In one case of complete atrophy of the body plus superficial gastritis of the antrum we found marked hyperacidity. Increase of mucus may be found in a few cases of superficial gastritis. A marked positive urobilinogen reaction in the urine points toward a concomitant duodenitis.

X-ray relief technic, which gives such splendid results in ulcer and cancer diagnosis, is disappointing in chronic gastritis. Since Berg, the outstanding proponent of the method, has admitted this, we may omit our experiences. The accompanying table by Henning<sup>5</sup> shows well the relation between the folds of the x-ray relief technic and the gastrosopic picture. However, in cases in which polyp-like inflammatory nodes are formed, the so-called granulation relief is found. Unfortunately we have seen it in only one of 200 cases of chronic gastritis.

Gastrophotography is of little value. The best panchromatic films are not sensitive enough for this part of the spectrum.

Since there is no absolute clinical symptomatology in chronic gastritis, only gastrosopy can confirm or rule out this important disease.

#### TREATMENT

The suffering of the patient and the dangers and sequelae of chronic gastritis make careful treatment imperative. In all gastritis the therapy must consist of a bland diet in frequent, small amounts. Raw fruits and vegetables are absolutely contraindicated. For effective treatment the type of gastritis and the immediate form must be considered. In the superficial type in which it is very important to avoid the development of the atrophic form, bed rest of at least eight days and hot applications are necessary. If pus or other secretions are abundant, regular lavages are almost indispensable. In hypertrophic gastritis lifelong strict diet is necessary. If erosions are present they may be irrigated, as Henning suggests, with weak silver solution. In atrophic gastritis milk must be completely avoided. Hydrochloric acid relieves the sensation of pressure and the disagreeable taste. Parenteral liver therapy may be tried in all atrophic forms.

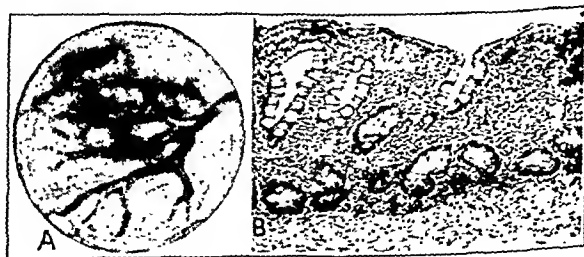


Fig. 3.—Atrophic gastritis: A, gastrosopic picture suggests thinning of mucosa, greenish gray and prominent submucosal vessels. B, microscopic section shows thinning of mucosa, absence of glands, and metaplasia. Development of goblet cells.

We shall briefly mention some important problems of chronic gastritis:

1. Gross, sometimes fatal, hemorrhages from gastritis have occurred. Perforation has not been seen.
2. Superficial gastritis is not always harmless. One of us (R. S.) observed a case in which it was followed by secondary ascending cholangitis and death.

S. Henning, N.: Ueber die Entzündung des Magens. Deutsche med. Wochenschr. 60: 1455 (Sept. 28) 1934.

quadrant, distention and the like. These symptoms subsided after changing to the bland diet. In two patients, typical attacks of colic resulted. One of these patients who was under observation at the University of Illinois reported an attack of colic two days after the combined keto-cholanic acid and hourly feeding therapy was begun. The attack was followed by a slight diarrhea, during which the patient felt some granular material in the stool. Some of the granules, varying from 2 to 4 mm. in diameter, were recovered by the patient and brought to the clinic. Examination by the pathology laboratory revealed these to be typical faceted cholesterol stones.

#### COMMENT

While we have employed cholecystography as the chief objective criterion of improvement in this investigation, we realize its limitations. The problems of roentgen interpretation and methods are almost as controversial as the status of cholecystitis. There is little doubt, however, that cholecystography is the best objective method of study that is available.<sup>16</sup>

The need for care in interpreting roentgen improvement was indicated by the work of Lahey and Jordan.<sup>17</sup> They found that in 44 per cent of a series of sixty-five cases of cholecystitis, also manifesting signs of colon irritability, the gallbladder would fill normally after from five to ten days of bowel management, whereas with the same intravenous dye technic it had previously shown an absence or an inadequate filling.

No conclusions can be drawn at this time as to the proper interpretation of the roentgen improvement in the visualization of the gallbladders of the patients receiving the keto-cholanic acids. The roentgen changes may be the result of an actual increased activity of the gallbladder due to improvement in the pathologic gallbladder wall. On the other hand, since the liver cells are directly stimulated to secrete, more bile passes through the biliary apparatus, probably because of improved mechanical flow resulting from the increased amount of bile from the liver itself. The consistent improvement manifested by the keto-cholanic acid series and the lack of improvement in the control series must be considered significant.

Regardless of the objective signs of improvement, various aspects of which are controversial, the consistent subjective improvement remains quite definite. The patients almost uniformly obtained relief not attainable on principles of gallbladder management previously laid down. Relief from "dyspeptic" distress, cessation of colic, weight gains and the like were striking.

Care must be exerted, however, in selecting patients and in carrying out the combined keto-cholanic acid and high fat dietary therapy. This form of management is distinctly contraindicated in cases of either common duct obstruction or acute cholecystitis. We recommend the gradual introduction of the management rather than beginning all measures abruptly. If, for example, a patient has been maintained on a low fat, low cholesterol dietary regimen, the same diet should be continued and the keto-cholanic acids ( $3\frac{3}{4}$  grains three times a day, after eating) begun. As the patient responds, the diet is gradually liberalized, being changed to a bland general diet and ultimately to the hourly feedings of milk and cream.

Failure to improve clinically, as manifested by continued pain, jaundice and repeated colic, after a reasonable trial period of the foregoing management definitely indicates surgical intervention. Although we have included all forms of pathologic changes termed chronic cholecystitis in this series, we have not as yet referred a single case to surgery.

#### CONCLUSIONS

We find no justification in continuing the use of low fat, low cholesterol dietary management in the treatment of low grade gallbladder disease except in a few special cases. We recommend keto-cholanic acids to stimulate the flow of hepatic bile, hourly feedings of milk and cream to stimulate emptying of the gallbladder, and antispasmodic medication. This was found to be the most effective type of therapy in our series from the standpoint of objective and subjective improvement in cases of chronic cholecystitis. We believe that this form of therapy is distinctly contraindicated in cases of common duct obstruction and acute cholecystitis.

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## ENCEPHALOGRAPHY WITH ETHYLENE

HENRY NEWMAN, M.D.

SAN FRANCISCO

The very considerable discomfort following encephalography by the lumbar route has been a potent factor in limiting the application of this diagnostic procedure. One can look for the most help from encephalography in those cases in which a suspicion rather than a certainty of intracranial disorders exists, yet one is often loath in such cases to subject the patient to the protracted and severe headache which almost invariably follows the procedure. Thus any modification of technic that will serve to lessen the unpleasantness of encephalography will be effective in increasing its scope of usefulness.

General anesthesia, either parenterally or by inhalation,<sup>1</sup> is successful in overcoming the headache incidental to the injection of the air but can have no effect on the pain of the succeeding hours and days. It has the disadvantage of masking the signs of untoward sequelae, thus preventing the prompt institution of necessary therapeutic measures.

Elsberg and Southerland<sup>2</sup> felt that there was a definite connection between the presence of air in the lateral ventricles and the third ventricle and the production of postinjection headache, although they did find a small amount of air persisting in these localities after the headache had disappeared. They believed that increased spinal fluid pressure could be ruled out as an etiologic agent, since they found the pressure to be from 2 to 12 cm. less after the injection than before. Tschugunoff,<sup>3</sup> however, found a definite increase in pressure after encephalography. I have been unable

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Read before the Section on Nervous and Mental Diseases at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

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whether it is his experience, as that of Dr. Faber, that gastritis is the cause of the achlorhydria found in many patients past middle age.

DR. GEORGE B. EUSTERMAN, Rochester, Minn.: I want to pay tribute to Dr. Schindler because of his pioneer work in the development of the modern gastroscope and in gastroscopic diagnosis. His presence here will stimulate us to renewed efforts in this important field. While I agree with Dr. MacCarty's observation that no physician should make an unequivocal diagnosis of gastritis without gastroscopic confirmation, certainly this disease entity is of primary interest to the physician; otherwise neither gastroscopists nor pathologists would have the opportunity of seeing many cases of this nature, except perhaps in those rare instances in which the clinician is also a competent gastroscopist. The present problem of most concern to physicians and surgeons, simply stated, is this: To what extent is gastritis or gastro-enteritis, especially in its chronic form, the underlying cause in those conditions frequently diagnosed as pseudo-ulcer, nervous indigestion, gastrototoxic hemorrhage, duodenitis, gastrogenic diarrhea, achylia gastrica, pseudocholecystitis and those relatively infrequent cases presenting antral defects, usually labeled scirrhus carcinoma or syphilis but without evidence of either on histologic examination of the resected tissue? The same problem applies to certain late postoperative sequelae. Certain primary and secondary types of gastritis, acute, subacute, chronic, phlegmonous, specific and perianastomotic, have long been familiar, and more is being learned each day

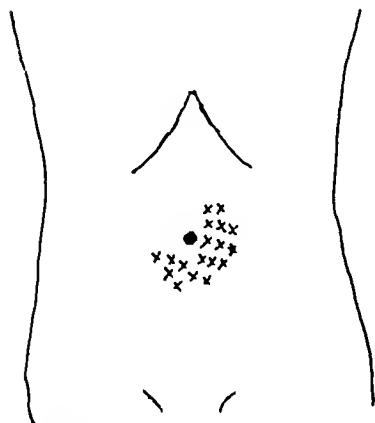


Fig. 6.—Zone of tenderness, sometimes elicited with chronic gastritis.

about the nature and extent of gastritis in association with ulcer and cancer, especially from the histologic standpoint, as it is seen here in America. I recently reported a series of ten primary forms of subacute and chronic gastritis in which the inflammatory process was sufficiently extensive to give rise to gross defects, usually antral in situation, and recognizable by the ordinary roentgenologic technic. Such defects were indistinguishable from those produced by carcinoma in particular, by syphilis, by chronic hypertrophy of the pylorus, and by gastric ulcer when associated with antral spasm. From a symptomatic standpoint the cases could be roughly divided into three types according to whether they simulated (1) cases of ulcer or cancer with irregular symptomatology, (2) cases in which the symptoms closely simulated those of ulcer, and (3) cases characterized by pain or simulating biliary colic. The question naturally arises as to how often gastric disturbances are due to patchy or diffuse inflammatory states unrecognized or misinterpreted in the absence of roentgenographic appearances and routine gastroscopic study.

DR. RUDOLF SCHINDLER, Chicago: I was glad to hear that Dr. MacCarty takes such a view of the clinician's conception of the chronic gastritis. I am afraid the work of clinicians is based on the lack of a clear definition of the normal histologic picture of the stomach of the adult, and I want to emphasize the danger of the clinical diagnosis of gastritis without gastroscopy. It is now such a common diagnosis that one can be quite sure that it is often a wrong diagnosis. That refers especially to the x-ray diagnosis. Because 50 per cent of all people with epigastric distress suffer from chronic gastritis, one would be correct in 50 per cent of all cases to "guess" the diagnosis of chronic gastritis. Therefore, on the law of averages, the roentgenologist should be correct in one half of his cases with epigastric distress, but the x-ray diagnosis is still only a "guess." The question Dr. Bloch asked about anacidity in gastritis can be answered easily. There are many cases of anacidity without gastritis and many cases with gastritis. This differentiation can be made only by the gastroscope.

## Clinical Notes, Suggestions and New Instruments

### DISLOCATION OF CERVICAL VERTEBRAE: OPERATIVE CORRECTION

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G. E. T., a man, aged 43, was admitted to the Evanston Hospital on Sept. 9, 1934, immediately after he had been thrown from a horse, striking directly on the left occipitoparietal region of his head. X-ray examination at this time showed no fracture of the cervical spine, but a slight forward dislocation of the sixth cervical vertebra on the seventh. The dislocation was readily reduced by placing the neck in extension and exerting from 3 to 4 pounds of traction on the head. He was discharged from the hospital September 20, wearing an aluminum neck-brace, which supported the head and held the neck in extension. Reexamination of the neck by x-rays three weeks later showed that the luxation had recurred and had even increased, and the patient was having considerable pain in the neck at this time. He was readmitted to the hospital October 18. Traction was applied to the head and hyperextension of the neck was obtained by placing the patient's body on two mattresses and allowing the head to hang over the edge. November 13 he was again gotten up with the neck-brace and the dislocation immediately recurred (fig. 1A). Operative correction was now decided on and three types of operations were considered: first, the bone graft; second, spinal fusion, and, third, the wiring together of the spinous processes, which had been suggested to Dr. Christopher sometime previously by Dr. Reginald H. Jackson of Madison, Wis. Dr. Ryerson saw the patient in consultation and concurred in this advice. Operation was done by Dr. Christopher November 17. The patient was anesthetized



Fig. 1.—Operative correction of dislocation of cervical vertebrae: A, dislocation of sixth cervical vertebra on the seventh; B, restoration of contour following the wiring together of the spinous processes of the sixth and seventh cervical vertebrae.

with ether and placed in the prone position. The muscles were separated from the spinous processes, and the sixth and seventh spinous processes were identified. By means of Lewin's large towel clip, holes were made in the spinous processes. In the sixth the hole was in the anterior portion, and in the seventh in the posterior portion. Strong iron "stove-pipe" wire was then passed through the holes, crossed over the posterior portion of the spinous process of the sixth cervical vertebra and (fig. 1B) tightened up with the neck extended.



able to judge the degree of discomfort of these human subjects more accurately than would have been the case with semianesthetized dogs. I must therefore state that I cannot, in man, confirm Aird's finding of definite anesthesia or analgesia produced by injection of ethylene.

After the injection, however, the condition of the patient presented a striking contrast to that seen after



Fig. 2.—Encephalogram after removal of 100 cc. of spinal fluid and replacement with approximately 150 cc. of ethylene.

the use of air. Most of the patients were quite comfortable within three or four hours, able to eat the evening meal, and in almost every instance to be up and about the following day. The average period of hospitalization following the procedure was reduced from three days when air was used to 1.85 days with ethylene, while the condition of the patients on dismissal was in general better than after the longer period with air. That this shorter period of recovery from headache is due to the more rapid absorption of ethylene seems most probable. I believe that the solubility of the gas, and not its anesthetic properties, is responsible for its advantage over air.

It is generally stated that although air in the subarachnoid space may be absorbed within twenty-four hours<sup>8</sup> ventricular air is present at least three days<sup>9</sup> and may at times be seen nine days<sup>8</sup> after the injection. I have seen a case in which twenty-one days after the injection of a large volume of air it could still be observed in the ventricular system.

Serial x-ray studies after the injection of ethylene showed the subarachnoid gas to disappear within a very short time. Although the ventricular gas was half gone within three hours, some small residue could be seen even twenty-four hours later. It is well known that any collection of gas in the body tends to come into equilibrium with the tissue gases,<sup>10</sup> so that the gas remaining this long after injection was probably composed more of nitrogen and oxygen than of ethylene.

In two cases, lumbar puncture the day after the injection showed cell counts of 1,200 and 1,400 leuko-

cytes, comparable to similar counts after air,<sup>9</sup> which would indicate that ethylene possesses no more irritating qualities than does air.

The ready solubility of ethylene raised the possibility of its being absorbed more rapidly than fluid could be formed to take its place, with resulting production of a negative cerebrospinal fluid pressure. To investigate this point, a patient was subjected to encephalography, but one needle being used to minimize leakage, and the pressure during the injection and for five hours thereafter was recorded by an aneroid manometer capable of registering both positive and negative pressures, the lumbar puncture needle being undisturbed during this time. The curve of spinal fluid pressure against time so obtained is seen in figure 3. Since during the injection the patient was sitting up, and after it he was lying down, the pressure readings, while the patient is in the sitting position, are corrected by the subtraction of 20 cm. to make them comparable to those while the patient is recumbent. Thus it is observed that the pressure dropped sharply after injection and at the end of an hour reached a negative value of 13 cm. of water. At two hours it had attained zero and subsequently rose to normal values. That such a marked change in pressure may be undesirable from the standpoint of the safety of the patient must certainly be borne in mind. I can only say that in a series of thirty-eight cases it has not been productive of serious sequelae. Nor can this freedom from untoward consequences be accounted for by selection of cases, as the wide variety of diseases in which the gas was used is evident from inspection of table 2.

A disadvantage of the use of any absorbable gas for diagnostic encephalography is the elimination of the examination on the second day, which is of value in certain cases.<sup>11</sup>

Whether encephalography with ethylene will be productive of the same therapeutic results claimed for the procedure with air, notably in post-traumatic headache, remains to be seen.

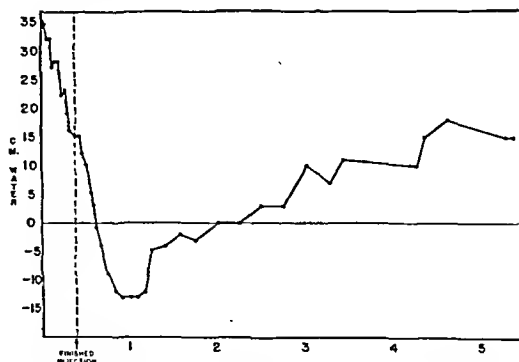


Fig. 3.—Spinal fluid pressure during and after encephalography with ethylene.

#### SUMMARY

Encephalography with ethylene has been done in thirty cases, without mortality or serious sequelae and with radiologic results equal to those obtained with air. Although the discomfort of the period of injection is not noticeably lessened, the severity and duration of the postinjection headache is markedly reduced. This advantage of ethylene over air warrants its clinical trial in a larger series of cases.

2361 Clay Street.

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The operation was done a number of times by Chipault.<sup>4</sup> Church and Eisendrath<sup>5</sup> refer to a case in which "the two spinous processes were connected by means of a very large silk ligature." In 1898 Brokaw<sup>6</sup> reported a case of fracture-dislocation of the seventh cervical vertebra in which "the segments of vertebrae were wired, and pressure and symptoms relieved." Reference to the operation is also made by Constantinesco,<sup>7</sup> Lloyd,<sup>8</sup> Speed<sup>9</sup> and Mixter and Osgood.<sup>10</sup>

### FRACTURED RIBS WITH PARADOXICAL MOTION

JOSEPH B. STENBUCK, M.D., NEW YORK

It is important in treating a patient with fractured ribs to place the least emphasis on the broken bones. If attention is focussed on the ribs, certain other more important associated injuries may be overlooked. It is wise to think of all cases of fractured ribs as possible cases of subcutaneous or concealed penetration of the chest. That is, a piece of rib at the fracture site may be as pointed and sharp as a knife and may produce any of the complications of penetrating wounds of the chest. The most important of these are pneumothorax, hemothorax and subcutaneous emphysema. These conditions may produce symptoms and death sometimes erroneously attributed to contusion of the chest with shock and collapse and should be looked for in every case of fractured ribs and corrected when necessary. Aspiration of intrapleural air, and of blood when symptoms of pressure occur, is essential. The pneumothorax apparatus in recording intrapleural pressure and in removing air when necessary is indispensable.

Strapping of the chest with adhesive plaster is an almost universal but questionable procedure. It produces some immo-

may be realized. It may be better to reserve strapping for the type of case described herewith and to depend on medication for relief of pain in the other cases.

To the list of complications of fractured ribs I add another one, the significance of which I have not seen described. It is illustrated by the case of C. L., a man aged 36, admitted to the Harlem Hospital, June 21, 1936, following an automobile accident. There were many abrasions and lacerations but the

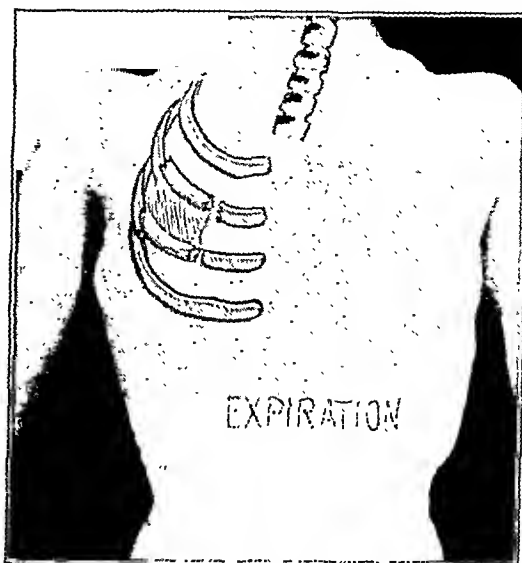


Fig. 2.—In expiration: The plaque bulges outward while the rest of the chest collapses as in normal expiration. The mediastinal structures then move to the injured side. The motion of a portion of the thoracic cage in a direction opposite to the normal is known as paradoxical motion, and its bad effect on the normally stable mediastinum is illustrated in this case. A condition of mediastinal flutter is produced resulting in cardiovascular and respiratory embarrassment. In the diagrams only a small portion of two ribs is shown. It is possible, of course, for the condition to exist involving many ribs and larger portions of ribs.

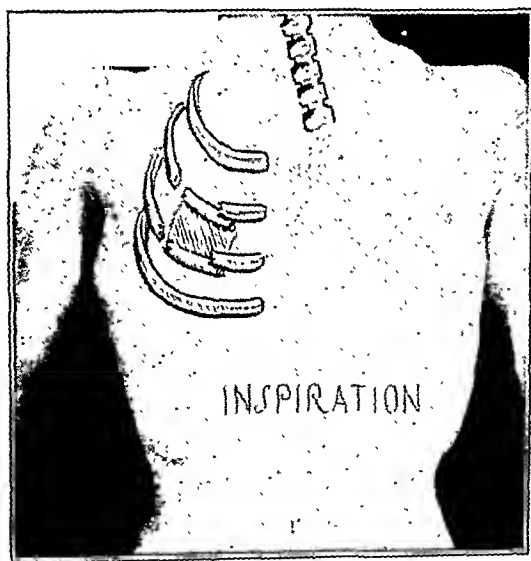


Fig. 1.—In inspiration: The plaque consisting of portions of two adjacent ribs together with the corresponding soft tissues of the chest wall are drawn inward, while the rest of the chest wall expands as in normal inspiration. This allows the mediastinum (represented diagrammatically by the trachea but including of course the heart and great vessels) to be drawn toward the opposite side of the chest.

bilization of the chest and decreases pulmonary ventilation. Since most fractures of the ribs occur in elderly persons who are prone to pulmonary infection, the importance of this factor

important injuries were multiple fractured ribs in the right side of the chest and a compound fracture of the right leg, which was amputated because of gas bacillus infection.

In the right side of the chest there was found a small area of subcutaneous emphysema and an extensive hemopneumothorax. (Later the blood became infected, requiring drainage.) In addition, in the anterolateral portion of the right side of the chest it was noted that in an area roughly 12 cm. in diameter the chest wall expanded with expiration and collapsed with inspiration in contrast to the rest of the thorax, which expanded with inspiration and collapsed with expiration in the normal manner. Palpation revealed double fractures of two adjacent ribs as indicated in the accompanying illustrations. This plaque of chest wall had lost its firm bony support and moved freely with respiration.

This phenomenon of paradoxical motion is commonly observed after extrapleural removal of ribs in thoracoplasty. In this case, although the ribs were not removed, the effect was similar in releasing a portion of the normal support of the lung. The patient was very dyspneic. This might have been due to the hemopneumothorax. However, when the chest was firmly strapped with adhesive plaster the marked dyspnea disappeared immediately. Strapping was employed for twelve days, after which it was noted that the paradoxical motion had ceased.

### SUMMARY

Cases of fractured ribs should be considered in the light of the abnormal physiologic changes or complications that may occur rather than as cases of broken bones. The most important complications are pneumothorax, hemothorax and subcutaneous emphysema. The case reported demonstrates a complication of paradoxical motion with apparent disturbance of the mediastinal vascular structures. This complication involving the mediastinum has not, to my knowledge, been previously described.

1185 Park Avenue.

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but probable that such proportions of ethylene and air, which would be explosive in nature, might well be present even as long as twelve hours after encephalography. I do not think that the types of gas which might be useful in this procedure have by any means been exhausted. The only feature that is of importance is the solubility of the gas and its lack of toxic properties. I am sure that chemists will be able to supply a gas which is as soluble as ethylene but which doesn't blow up when the radio knife is used near it. The volume for volume replacement method obviously cannot be used with ethylene, since, as I said, there is a considerable amount of the gas absorbed during the injection. Therefore it is quite possible that it is not possible to preserve volume relationships as well, and the fact that there is less headache with ethylene, in spite of that, makes me even more enthusiastic for the gas. That the gas is actually of considerable value in reducing the second type of headache, that which may well occur from the presence of gas in the brain cavities, is well borne out by our patients, who present a marked contrast to the usual very sick patients that I have encountered when air was used. I feel I am conservative in stating that it has a definite advantage in the comfort of the patient following the procedure and none whatever in the comfort of the patient during the procedure, for they are just as sick as they are with air.

## CHRONIC GASTRITIS

RUDOLF SCHINDLER, M.D.

MARIE ORTMAYER, M.D.

AND

JOHN F. RENSCHAW, M.D.

Visiting Professor of Medicine, Assistant Clinical Professor of Medicine,  
and Assistant, Department of Medicine, Respectively,  
University of Chicago  
CHICAGO

The diagnosis of chronic, nonspecific gastritis has been obsolete for thirty years. Recent histologic and gastroscopic research have shown that chronic inflammation of the stomach is very common.

Bensley, Faber,<sup>1</sup> Konjetzny<sup>2</sup> and others have made extensive contributions to the knowledge of the histology of the stomach. However, the normal histologic picture is still debatable. Specimens from healthy normal stomachs are rarely obtained because postmortem changes alter the picture, and healthy stomachs are not resected. Some workers, comparing the mucosa of infants to that of adults, believe that every adult has chronic gastritis. This is as false as saying that every adult has chronic appendicitis because microscopically there is a round cell infiltration. We believe that these minor histologic changes in the stomach are not evidence of active disease but are the normal reaction of the stomach to such stimuli as hot or cold food, infectious diseases, and the like. Such changes should not be considered a pathologic entity. It is not chronic gastritis. Severe chronic inflammation is well seen microscopically in postmortem specimens injected immediately with solution of formaldehyde, but the interpretation of surgically resected specimens is doubtful.

Clinical chronic gastritis was rediscovered with gastroscopy by the senior author in 1922.<sup>3</sup> Since then European workers have built up a voluminous literature on the subject. In contrast to histologic study, gastro-

scopy can be carried out in healthy persons as often as necessary. This has been done systematically in persons of all ages. We found the normal mucosa to be smooth, silk-like, glistening and orange red. Figure 1 shows this gastroscopic picture and a microscopic section through the most normal portion of the mucous membrane that we could find. It shows the surface epithelium, the long body glands, and the scant interstitial tissue, which is almost free of cells.

We have examined more than 2,500 patients gastroscopically, all of whom had abdominal complaints. Twenty-three per cent of this group had normal stomachs gastroscopically, as judged by the appearance of stomachs in healthy persons without evidence of any disease. About 50 per cent of this group presented mucosal changes similar to those of chronic inflammation of other mucous membranes. We saw either layers of whitish, grayish or greenish mucus or hyperemic spots similar to those observed by Beaumont 100 years ago (fig. 2). We observed that these stomachs usually healed. This picture was designated "superficial gastritis." Microscopically the cells show cloudy swelling and slight interstitial infiltration.

Some cases in this group, however, showed in later gastroscopic examinations another picture: thin greenish gray spots appeared that did not change in subsequent examinations. An "atrophic gastritis" had developed. Atrophic gastritis has been observed without a preceding superficial gastritis, for instance, in cases of pernicious anemia. Total atrophy has been observed also. The whole mucous membrane was thin and greenish gray, and protruding blood vessels were seen (fig. 3). Chester Jones and Benedict<sup>4</sup> have shown that regeneration of the mucosa is possible in cases of pernicious anemia, and we have made the same observation. Microscopically the glands are rarefied, and the mucosa is thinned. We are indebted to Dr. James B. Carey of Minneapolis for the photomicrograph of atrophy in pernicious anemia.

The third form is the "hypertrophic gastritis." It is a separate clinical entity. Gastroscopically a swollen, thickened, velvety mucous membrane is seen, often con-

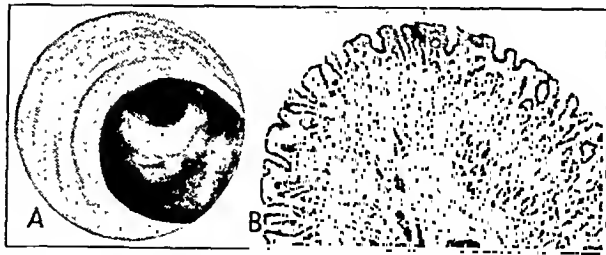


Fig. 1.—Normal stomach: A, gastroscopic picture reveals smooth glistening mucosa of antrum and lesser curvature of body. B, microscopic section through a fold consisting of mucosa, muscularis mucosae and submucosa with slight but definite interstitial cellular infiltration, which cannot be considered pathologic.

taining hemorrhages and erosions (fig. 4), often showing nodules or large nodes, creases and crevasses. The course of hypertrophic gastritis is typified by failure of the mucosa to revert to normal and sudden recurrence of symptoms even while on careful management. We observed some of these cases over many years (one patient was examined gastroscopically sixty-five times). The small erosions always heal within a week, but others may appear concurrently. No atrophy develops.

From the Department of Medicine, the University of Chicago.  
Read before the Section on Gastro-Enterology and Proctology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

1. Faber, Knud: Gastritis and Its Consequences, New York, Oxford University Press, 1935.

2. Konjetzny, G. E.: Entzündungen des Magens, in Henke, Friedrich, and Lubarsch, Otto: Handbuch der speziellen Pathologischen Anatomie und Histologie, Berlin, Julius Springer, 1928, vol. 4, part 2.

3. Schindler, Rudolf: Diagnostic Value of Gastroscopy, München. med. Wchnschr. 15: 69: 535 (April 14) 1922.

4. Jones, C. M.; Benedict, E. B., and Hampton, A. O.: Variations in the Gastric Mucosa in Pernicious Anemia, Am. J. M. Sc. 190: 596 (Nov.) 1935.

antidotes generally listed are atropine, caffeine, strychnine, camphor, cocaine, apomorphine and lobeline; but none are more than partially effective. Their value is merely accessory to treatment by repeated washing of the stomach—morphine is excreted from the blood into the stomach—plus inhalation of carbon dioxide and oxygen.

Such are the main facts and considerations with regard to the respiratory stimulants that may be administered by mouth or by subcutaneous or intravenous injection. Their importance tends to decrease in proportion as experience increasingly demonstrates the superiority of the inhalational drug that nature offers as the normal respiratory stimulant: carbon dioxide.

#### THERAPEUTIC USE OF THE RESPIRATORY GASES

Until quite recent years the general conception of the therapeutic values of oxygen and carbon dioxide were largely erroneous, and these errors still linger in textbooks.<sup>5</sup> Because a fire burns more vigorously when supplied with a higher percentage of oxygen instead of air, it was supposed that the life processes of the body must be affected similarly. In fact, on the contrary, as we now know, a normal man breathes no more vigorously and consumes no more oxygen when breathing 100 per cent oxygen than when breathing ordinary air containing only 21 per cent. Oxygen is a food, the most immediately necessary of all foods; but it is not a stimulant. After asphyxia it may even act as a respiratory depressant.

Carbon dioxide was even more completely misunderstood. It was regarded as *par excellence* the asphyxiant gas, and to have administered an inhalation containing carbon dioxide would a few years ago have been condemned as obvious malpractice. It is now known that, on the contrary, the carbon dioxide produced in the body is normally the factor that controls and stimulates respiration. When respiration has been depressed, carbon dioxide by inhalation is a most effective stimulant. It must indeed be diluted to something like physiologic concentration either with air or with oxygen. But in all such mixtures the drug that affords stimulation to respiration and the circulation is carbon dioxide; the oxygen and air are essentially diluents.

The common statement regarding carbon dioxide is that it increases the volume of breathing. In fact, however, this is only one of its effects; another of equal importance is the increased tonus that stimulation of the respiratory center by carbon dioxide induces in the thoracic muscles and diaphragm, and to some degree in all the muscles of the body. It is the tonus of the respiratory muscles that normally keeps the thorax and lungs expanded and prevents atelectasis. It is the tonus of all the muscles of the body, skeletal and visceral, that normally presses the blood on into the veins and maintains the venous return to the right side of the heart, which is a prime factor in maintaining the circulation. It is the lowered tonus of the body as a whole, rather than that of the vasomotor system, which underlies all the depressions of function after surgical operations and in acute illness, and particularly pulmonary complications and failure of the circulation.<sup>6</sup>

The first use to which inhalation of carbon dioxide was put was that of controlling respiration under anes-

thesia. Before carbon dioxide was introduced for this purpose, the combined effects of overbreathing during the excitement stage of anesthesia, plus the depression of respiration in deep anesthesia, made apnea a frequent occurrence and fatalities occasional. Preliminary morphine, otherwise advantageous, increased the tendency to early apnea, which is now prevented by means of carbon dioxide. If cyanosis occurred, the condition of anoxia disturbed the respiration of the tissues and induced a decrease of carbon dioxide and a consequent postoperative depression of vitality. Acapnia from all these causes induced a feeble respiration, which prolonged the period of emergence from anesthesia, together with nausea and gas pains. Now, on the contrary, with the aid of carbon dioxide, the competent anesthetist is able to a large extent to avoid these evils and to exert an almost complete control over respiration before, during and after anesthesia.<sup>7</sup>

Until recently, most of the postoperative pulmonary sequelae, such as patchy atelectasis and massive collapse, were supposed to be due to irritation of the lungs by the anesthetic vapor or to insufflation of infective material. The fact that these conditions frequently occur also after spinal anesthesia demonstrates the inadequacy of this explanation. The initial cause of postoperative pulmonary complications is rather to be found in the lowered tonus of the thoracic muscles, and particularly of the diaphragm, under anesthesia and during the period of postoperative depression of vitality. Any considerable decrease of tonus permits deflation of the lungs and accumulation of mucus and closure of some of the airways. A rapid absorption of the air from the occluded areas then completes the development of atelectasis. Inhalation of carbon dioxide, aided by frequent change of position, has proved to be an effective means of inducing an increase of tonus, full inflation of the lungs and the prevention, or relief, of postoperative pulmonary trouble, as well as restoration of a full circulation.<sup>8</sup>

Soon after the establishment of carbon dioxide in connection with anesthesia, the same inhalation was applied for the relief of asphyxia. Analysis of the mode of development of carbon monoxide asphyxia showed that, as soon as the victim becomes seriously short of oxygen, overbreathing develops. Acapnia is thus added to anoxia and induces a continuance of subnormal breathing even after the victim is removed from the poisonous atmosphere. Consequently in cases of severe asphyxia the administration of pure oxygen is quite ineffective as a means of resuscitation, for the gas is not adequately inhaled. The addition of carbon dioxide to the oxygen effectively counteracts this condition. Vigorous breathing is induced, the lungs are dilated and flushed with oxygen, the carbon monoxide is rapidly eliminated from the blood, muscle tonus is increased, the venous return is augmented, and the circulation is thus supported and stimulated. Post-asphyxial illness is diminished and necrotic developments in the nervous system are prevented.<sup>8</sup>

In the asphyxia of the new-born there can, of course, be no previous overbreathing. It was therefore assumed that there could be no acapnia and no ground for the use of carbon dioxide. In fact, however, experience has shown that carbon dioxide is quite as effective a means of stimulating the respiration of the nonbreath-

5. Irving, F. A.: *A Textbook of Obstetrics*, New York, Macmillan Company, 1936.

6. Henderson, Randall: *Atelectasis, Massive Collapse and Related Postoperative Conditions*, Bull. New York Acad. Med. 11: 639 (Nov.) 1935; *Depression of Muscle Tonus*, Lancet 2: 178 (July 27) 1935; also *Muscle Tonus and Anesthesia*, Current Researches in Anesthesia and Analgesia, to be published.

7. Gwathmey, J. T.: *Anesthesia*, New York, Macmillan Company, 1936.

8. Henderson, Randall, and Haggard, H. W.: *Noxious Gases and the Principles of Respiration Influencing Their Actions*, American Chemical Society, Monograph Series, New York, 1927.

3. We do not believe, as do Konjetzny, Hurst and Knud Faber, that gastric ulcer originates from chronic gastritis. A discussion of this question will follow in a later publication.

4. Atrophic gastritis may precede gastric carcinoma, as believed by many pathologists.

5. The relationship between chronic gastritis, pernicious anemia and combined cord degeneration is well known but not fully explained.

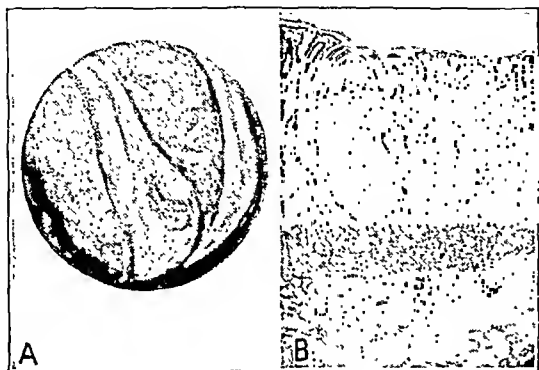


Fig. 4.—Hypertrophic gastritis: *A*, gastroscopic picture reveals swell and nodular appearance in the valleys, erosion surrounded by hemorrhagic area on central fold. *B*, microscopic section shows enlarged lymph nodes with extensive interstitial infiltration throughout entire mucosa. Proliferation of the surface epithelium.

6. Gastritis always threatens the results of gastric surgery. Gastroscopy may teach one how this may be avoided.

7. Perhaps atrophic gastritis may cause very marked psychoneurotic symptoms.

8. True vertigo may be related to gastritis.

9. Moutier finds a relationship between chronic gastritis and dermatoses.

10. Research on etiology is an important problem because little is known.

#### SUMMARY

Chronic gastritis<sup>6</sup> looms as a major problem in internal medicine. It is a very frequent and often a very severe disease. It occurs with many other diseases. The symptomatology is not absolutely characteristic. Physical examination, gastric analysis and roentgenograms are of little aid in making the diagnosis. Gastroscopy with the flexible gastroscope, which is safe and easy and causes little discomfort, is the only method permitting accurate diagnosis. It enables one to treat the patient according to the morphologic indications and possibly to avoid such dangerous consequences as cancer of the stomach.

#### ABSTRACT OF DISCUSSION

DR. WILLIAM CARPENTER MACCARTY, Rochester, Minn.: The solution of any problem rests on definitions which are universally accepted. In this particular subject of gastritis there must be cytologic, histologic, anatomic and clinical criteria before one dares talk about the subject too freely. The only persons who have any right to talk about gastritis are gastroscopists. Possibly an experimental physiologist might have a right to an opinion, but I suspect that clinicians should be careful when they talk. I like to think of acute gastritis as meaning a condition in which there is an edema, which I am sure that Dr. Schindler could see through the gastroscope. No clinician or roentgenologist can see a congestion which Dr.

Schindler can see and which I as a surgical pathologist am able to see; a necrosis, which he and I can see but which the clinician cannot see; a leukocytic infiltration which Dr. Schindler probably cannot see but which I am able to see, and the erosions which he and I can see but which the x-ray man cannot always see. That is what acute gastritis means to me. I think of a chronic gastritis with a lymphocytic infiltration and fibrosis which neither of us can see without a microscope. A hyperplasia or hypertrophy of the mucosa I am sure Dr. Schindler can see. Acute gastritis is not difficult to recognize by Dr. Schindler's method or mine, but chronic gastritis is very difficult sometimes to recognize even by direct visualization. The clinician should be among the last ones to talk about gastritis. I am glad somebody else thinks that cancers of the stomach do not all arise in chronic gastritis. I have never seen an early cancer of the stomach which I thought had its origin in a chronic gastritis, and I have never seen a small cancer of the stomach that didn't arise in association with a chronic ulcer or a polyp. I wouldn't say that cancer never arises in chronic gastritis. That is theoretically possible, and I think maybe Dr. Schindler will see it some day or I shall see it, but as yet I have not seen it. I think it is very dangerous for clinicians to talk too freely about chronic gastritis. If we talk too freely about chronic gastritis, everybody is going to have it, because I think most of us do have it.

DR. LEON BLOCH, Chicago: Dr. Knud Faber's sustained interest in the subject and gastroscopy have restored gastritis to a place as a clinical entity. From personal experience I agree with Dr. Schindler and his co-workers that neither x-rays nor gastrophotography, because of the technical difficulty of obtaining good pictures, are of value in the diagnosis of gastritis. In two of my patients, in whom x-ray examination suggested the possibility of fundal carcinoma, Dr. Schindler was able to disprove the latter diagnosis and demonstrate hypertrophy of the rugae due to gastritis. Many patients with gastritis have no symptoms whatever. Lowered gastric acidity is common in acute infectious disease. Dr. Faber ascribes hypo-acidity and gastroscopically confirmed gastritis to an infectious disease which the patient may have had and forgotten about. While Dr. Schindler can see no relationship between gastritis and ulcer, many European and American investigators are not in accord with him. Gastritis has been found in the resected part of the stomach in almost every case of a large series of patients in whom a subtotal resection was done for peptic ulcer at the

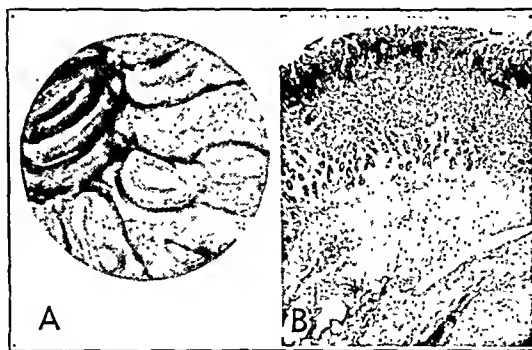


Fig. 5.—Gastritis of postoperative stomach: *A*, gastroscopic picture reveals jejunum visualized (left upper quadrant), erosions on edematous gastric folds, purulent secretion between folds. *B*, microscopic section shows thickening of submucosa with scattered areas of infiltration. Extensive infiltration of the mucosa with erosions partly covered with exudate.

Michael Reese Hospital. I can hardly believe that race or country can have any bearing on gastritis. No doubt the continued use of gastroscopy will ultimately settle the question of the association of ulcer with gastritis. Many patients who have the typical symptoms of ulcer, regularly recurrent postprandial distress, are found to have hyperacidity and no roentgenologic evidences of ulcer. Where resection or a gastro-enterostomy is performed because of the intractable symptoms and refractoriness to treatment, gastritis without ulcer has been found and relief has been obtained. I should like to ask Dr. Schindler

6. Schindler, Rudolf, and Ortmayer, Marie: Classification of Chronic Gastritis, *Arch. Int. Med.* 57: 959 (May) 1936.



## RESPIRATORY DEPRESSANTS IN LABOR

The most important effect of drugs on respiration occurs in the use—or misuse—of narcotics and hypnotics to ease the pains of labor. In varying degrees all such drugs are respiratory depressants. When administered to the mother they diffuse readily from the maternal to the fetal circulation, and with equal amounts of narcotics in the two bloods the baby is much the more strongly affected. During the early stages of labor this is of no importance. But a dosage that at the time of delivery merely quiets the mother without appreciably depressing her respiration may render the infant so apneic and lethargic that measures of resuscitation are necessary.

The hazard of loss of infant life from the administration of large doses of morphine to the mother late in labor has long been recognized. Morphine decreases the sensitivity of the respiratory center to its normal stimulus, carbon dioxide, in the new-born much more than it does in the adult. I have seen an otherwise normal baby, born of a heavily morphinized mother, that would not breathe at all on any stimulus less than an inhalation of 20 per cent of carbon dioxide, and then too feebly to survive. Less than 2 per cent of all normal babies born of undrugged mothers fail to breathe immediately.<sup>18</sup> But under some of the narcotics and hypnotics now commonly used the percentage of initial nonbreathers rises tenfold or even twenty fold. Under the best hospital conditions the large majority of these infants are successfully resuscitated. Under the less advantageous conditions of outpatient delivery a deeply narcotized baby may never breathe.

In Chicago it was found, in the recent study by the Board of Health,<sup>19</sup> that in more than half the cases in which such drugs as morphine, scopolamine and the barbiturates were used the babies were born in a deeply narcotized condition. In some cases respiration was established with great difficulty. Others died without emerging from their narcotized and asphyxiated state. When only moderate doses were given, the effect on the child was nevertheless that of diminishing his chance of living. The peril to the child was found to be especially grave when large doses of analgesics were given to abolish the pains of labor, followed by administration of solution of posterior pituitary to incite or increase them.

When only moderate doses of morphine are given, and given only in the early stages of labor, the depressant effects of the drug have largely worn off before the baby is required to breathe for itself; and even if the baby is still slightly narcotized, carbon dioxide can generally be relied on to stimulate it to breathe. But the antidotal action of carbon dioxide against the effects of some of the barbiturates is much less effective. For this reason the use of the barbiturates in obstetrics should be confined to those members of this group of drugs the action of which is comparatively brief (two or three hours), and the dosage should be such that the effect of the narcotic is virtually ended (to be replaced by an anesthetic) before the last stages of labor.

The drugs classed as narcotics, analgesics, hypnotics and anesthetics differ widely from one another in three main features. With some, the anesthetic effect is gone

in a few seconds, as with nitrous oxide and ethylene. With others it lasts on for many minutes, as with ether and chloroform. With yet others it passes off in two or three or at most four or five hours, as with codeine and morphine. With still others the narcosis may still be deep after ten or twelve or more hours, and this is particularly the case with some of the barbiturates. Obviously, if the baby is not to be born narcotized, drugs of prolonged effect should be administered only early in labor and only those of brief effect employed in the terminal stages. Even when a drugged baby breathes, it breathes weakly; and its liability to a continuance of atelectatic areas in its lungs and the development of pneumonia is much greater than in the normal child.

The second feature in which these drugs differ is their capacity to induce unconsciousness of acute pain. Some are anesthetics, others merely narcotics. Narcotics and hypnotics should be used early in labor: anesthetics only late in labor.

The third feature that in varying degree renders various drugs suitable or unsuitable for use in labor lies in their influence on respiration. Most of the volatile anesthetics, if administered in moderate amounts, tend to induce some degree of overbreathing and become depressants only when administered in excess. Most of the narcotics, on the contrary, are respiratory depressants even in small dosage and in large dosage bring respiration to a stop. With some of the latter, e. g., morphine, the effects are due merely to a decrease in the sensitivity of the respiratory center to its normal stimulus. If the narcosis is only moderately deep, it may be counteracted by concentrations of carbon dioxide above the normal. With others—notably the barbiturates—the abolition of sensitivity to carbon dioxide is so marked that some investigators who have used these drugs on animals, as well as some obstetricians who have administered them to women, have even been led to doubt whether carbon dioxide really plays a major part in the regulation of breathing. In deep barbiturate narcosis the responsiveness of the respiratory center to its normal stimulus is in fact so nearly abolished that breathing continues mainly under the influence of anoxia. Experiments on animals by Marshall and Rosenfeld<sup>20</sup> have shown that the administration of oxygen by removing this influence may even induce a fatal apnea.

A recent study<sup>18</sup> of various hypnotics in labor led its authors to "believe that morphine or any of its derivatives has no place during labor, as they distinctly delay the initial respirations of the child." On the contrary, the use of considerable dosages of the barbiturates, at least in hospitals, was approved. Yet neither experimental nor clinical evidence seems to justify a belief that for a given degree of protection of the mother from suffering the barbiturates are much less depressant of respiration in the child than is morphine. The safe rule would be that sedatives should not be administered in excess of the amount required to relieve anxiety. The behavior of the infant is the best test of safe practice. Normally its respiration develops as an increase of the respiratory movements of the fetus supported by the development also of sufficient tonus to retain each increment of lung expansion as it is gained.<sup>21</sup> If, on the contrary, any considerable percentage of

18. Irving, F. C.; Berman, Saul, and Nelson, H. B.: *The Barbiturates and Other Hypnotics in Labor*, Surg., Gynec. & Obst. 58:1 (Jan.) 1934.

19. Bundeson, H. N.; Dalms, O. A.; Fishbein, W. I., and Hamm, G. E.: *Mortality of the New-Born in Chicago During 1935*, with Special Reference to the Premature, J. A. M. A. 107:270 (July 25) 1936.

Hess, J. H.: *The Chicago City Wide Plan for the Care of Premature Infants*, *ibid.* 107:400 (Aug. 8) 1936.

20. Marshall, E. K., Jr., and Rosenfeld, Morris: *Depression of Respiration by Oxygen*, J. Pharmacol. & Exper. Therap. 57:437 (Aug.) 1936.

21. Henderson, Yandell: *How Breathing Begins at Birth*, Science, 19, to be published.

The patient made a very satisfactory convalescence and was discharged from the hospital November 28. He wore the neck-brace until December 9. When examined eighteen days later, he had no pain and was in excellent condition.

Jan. 5, 1935, however, he complained of discomfort in the neck. X-ray examination at this time showed (fig. 2a) a fracture of the sixth cervical spinous process, through the drill-hole, with a recurrence of the dislocation.

The patient was readmitted to the Evanston Hospital January 10. On the next day Dr. Ryerson, with Dr. Christopher assisting, performed the following operation: Through a median incision the muscles were carefully separated from the spinous processes and posterior surfaces by the Hibbs subperiosteal dissection, the arches of the vertebrae from the fourth cervical to the second thoracic, inclusive, being completely exposed. The broken off distal fragment of the sixth spinous process and the loop of iron wire were removed.

A new piece of iron "stove-pipe" wire was now passed beneath the arch of the sixth vertebra, between the arch and the spinal cord, emerging in the space between the sixth and the fifth arch. There was plenty of room for this maneuver without any injury to the dura. The upper end of the wire was then bent downward and passed under the base of the spinous process of the seventh vertebra, and the two ends of the wire were twisted together alongside the spinous process

aluminum neck-brace for several months and has since been entirely free from untoward symptoms.

X-ray films made Feb. 28, 1936, more than thirteen months after the fusion operation, show the anterior portion of the body of the sixth vertebra depressed so that it is in contact with the seventh (fig. 4), but the articular surfaces of the lateral joints have become firmly fused in practically normal position. The tibial bone-grafts have also been securely amalgamated with the laminae. There is therefore no danger of any further displacement.

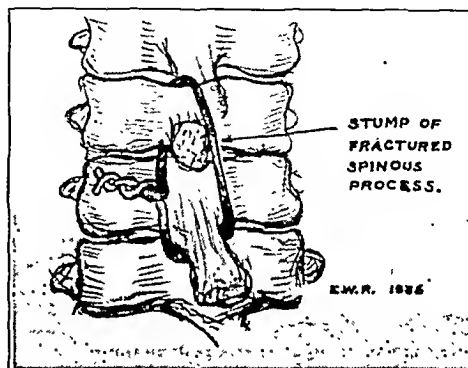


Fig. 3.—Diagram of method used.

The iron wire will not be removed unless it causes trouble, which is extremely unlikely. The patient considers himself entirely cured and has resumed his former occupation and habits. He is not conscious of any limitation of motion in his neck.

#### COMMENT

This case demonstrates the inadvisability of wiring together the cervical spinous processes through drill-holes, as they are not strong enough, when drilled, to stand the stress. It also shows that a longer period of recumbency, probably three months instead of two, is required to produce an unyielding bony fusion.

The approximation of the spinous processes by ligature is an uncommon operation. Cotton<sup>1</sup> had an almost identical case. The patient was an "iron-puddler," and the sixth and seventh cervical vertebrae were involved. Cotton laced a wire "back-stay" about the spinous processes of these vertebrae with a successful result. The operation was described by Hadra<sup>2</sup> in 1891, and W. A. Lane<sup>3</sup> in 1892, in describing a fracture dislocation of the spine, wrote: "I passed a stout silk ligature between the spinous processes of the ninth, tenth, eleventh and twelfth dorsal vertebrae, and by that means tied the tenth and eleventh spinous processes immovably together." There was at least a temporary recovery in this case.



Fig. 4.—Thirteen months after operation: slight recurrence of displacement, but solid fusion of articulations and laminae; complete functional recovery.

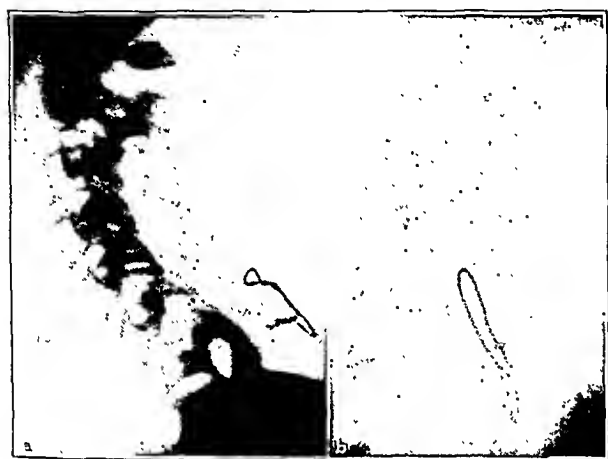


Fig. 2.—a, condition five weeks after operation: fracture of the spinous process of the sixth cervical vertebra through the drill hole. b, condition after second operation. Wire has been passed beneath the lamina of the sixth cervical vertebra and under the spinous process of the seventh cervical vertebra. Slightly retouched.

(fig. 3). The neck was extended by an assistant, and as the wire was tightened the vertebrae came easily into normal alignment and were held firmly by the strong wire.

In order to produce a bony ankylosis (fusion), thin slips of bone were cut with a rongeur from the sixth and seventh laminae and placed across the laminae, like bridges. It was not deemed safe to use the ordinary gouge and mallet in cutting these slips. The lateral articulations (true joints) between the sixth and seventh vertebrae were curetted, to cause an arthrodesis. Two pieces of cortical bone, cut from the tibia, about  $1\frac{1}{2}$  by  $\frac{3}{8}$  by  $\frac{1}{4}$  inch, were laid on the denuded sixth and seventh laminae, with several small chips. This provided a continuous mass of bone tissue, probably osteogenic, and certainly furnishing the constituents of bone production. The wound was closed in layers, and the thorax, neck and head were placed in a plaster-of-paris half-shell, which had been previously prepared.

Again the patient made a very satisfactory convalescence. Postoperative x-ray examination (fig. 2b) showed perfect replacement of the dislocation. February 13 an unsightly, depressed portion of the scar was excised under local anesthesia.

The patient was discharged from the hospital March 15, a little over two months after the fusion operation. He wore the

1. Cotton, F. J.: Personal communication to the authors; *Dislocations and Joint Fractures*, ed. 2, Philadelphia, W. B. Saunders Company, 1924.

2. Hadra, B. E.: *Wiring of the Vertebrae as a Means of Immobilization in Fractures and Pott's Disease*, Tr. Texas M. A. 23: 187, 1891; Philadelphia M. Times & Register 22: 423 (May 23) 1891.

3. Lane, W. A.: *Fracture Dislocation of Spine; Reduction; Temporary Recovery*, Lancet 2: 661, 1892.

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SATURDAY, FEBRUARY 6, 1937

## NATIONAL FOOD, DRUG AND COSMETIC LEGISLATION

Two bills<sup>1</sup> are now pending in Congress, each drafted with a view to the removal of the weaknesses inherent in the Food and Drugs Act of 1906. Each bill is designed, however, to go further and (1) to establish standards of purity for cosmetics, (2) to establish standards of truthfulness for the labeling and advertising of cosmetics and prophylactic and therapeutic devices, and (3) to establish methods of law enforcement more effective than those now authorized. Each of these bills is better calculated to protect and promote the public health and to enforce care, skill and honesty in manufacturing and merchandising than were the corresponding bills passed by the Senate and the House of Representatives in the Seventy-Fourth Congress, which failed in conference. There is, however, still much room for needed improvement.

Each bill, for instance, proposes to authorize every manufacturer and dealer in drugs who is within its purview to fix his own private standards of strength for such drugs as are defined in the United States Pharmacopeia and the National Formulary and even for such drugs as are defined in the Homeopathic Pharmacopeia of the United States. The Senate bill goes further and proposes to permit similar tampering with established standards of quality and purity as well as with the standards for potency. If either of these bills is enacted in its present form, no drug defined in any of these books of supposed authority or in any supplement to any such book is to be deemed adulterated because it differs from the standard of strength there set forth, provided only that it conforms to any standard whatever that is plainly stated on the label. How a statement on the label of a container on the shelves of a dispensing pharmacist is to afford protection to the patient for whom a physician, in reliance on his knowledge of pharmacopeial and formulary standards, prescribes any

potent drug, such as tincture of opium or tincture of nux vomica, is difficult to understand.

The standards proposed for "patent" and proprietary medicines are about as bad as the free-for-all standards for official remedies. Both bills provide that a drug which is not recognized by the United States Pharmacopeia, the Homeopathic Pharmacopeia of the United States or the National Formulary, or by any supplement to any of them, shall be deemed to be adulterated if its identity or strength differs from, or its quality or purity falls below, that which it purports or is represented to possess. But neither bill requires a manufacturer or dealer in drugs to make any representation as to just what the strength of his "patent" or proprietary medicine is. How little protection such legislation will afford the consumer of such nostrums is obvious. Manufacturers and dealers in "patent" and proprietary medicines are to be further protected, if the bill pending in the House of Representatives is enacted, for this proposes to exempt any maker or dealer of any medicine fabricated from two or more ingredients from the duty of disclosing on the label the name of each active ingredient, provided only that he has disclosed such ingredients fully and correctly to the Secretary of Agriculture. The very purpose of such legislation is to facilitate secrecy, and the fact that an invalid who resorts to self medication and ought to know what he is taking is kept in the dark seems to have been regarded as immaterial. The House of Representatives bill makes it clear that, notwithstanding such exemption from the disclosures of formulas on labels, labels must bear statements of the quantity, kind and proportion of alcohol. The phraseology leaves it extremely doubtful, however, whether barbituric acid, chloral, morphine or any other of the important group of narcotic and hypnotic drugs named in the bill, if it happens to be an active ingredient of any "patent" or proprietary medicine, must be declared on the label or whether the disclosure of its presence to the Secretary of Agriculture will not relieve the manufacturer or dealer from any such obligation.

The Senate and the House of Representatives bills contain provisions intended to regulate the sale in interstate commerce of all devices intended for use in the diagnosis, cure, mitigation, treatment or prevention of disease in man or other animals or intended to affect the structure or any function of the body. Neither bill, however, undertakes to lay down any standards of structural safety, of accuracy or of potency for any such device, nor does either provide any way in which any such standard may be established. The provisions of both bills with respect to the misbranding of devices seem inadequate, for while an effort has been made to make applicable to devices the standards of labeling that apply to drugs, the basic labeling requirement, which applies only to drugs and devices "in package form," will not be applicable to the many important diagnostic, prophylactic and therapeutic devices used by physicians

1. S. 5, introduced by Senator Sheppard of Texas, for Senator Cope-land of New York; H. R. 300, introduced by Representative Chapman of Kentucky.

## Special Article

### THE PHARMACOPEIA AND THE PHYSICIAN

### RESPIRATORY STIMULANTS AND THEIR USES

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NEW HAVEN, CONN.

*This is one of a series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.*

Normal respiration is closely coordinated with other functions, such as the liberation of energy, combustion of carbonaceous materials, consumption of oxygen, and particularly the production of carbon dioxide. Any drug that disturbs this relation of respiration to metabolism for more than a brief period seriously upsets the economy of the body. This is the fundamental consideration that must always be kept in mind in choosing and using respiratory stimulants. Only such drugs as are free from this objection are permissible.

Recognition of this limitation properly excludes many substances from use as respiratory stimulants, although they may be used for other purposes. For instance, several of the anesthetics—such as ether and nitrous oxide in the first stage of their effects—induce a large increase in the volume of breathing. This overventilation of the lungs may induce so great a decrease in the carbon dioxide content of the blood that a compensatory decrease of respiration, or even a complete standstill, follows. This tendency to apnea is manifested in the later stages of ether anesthesia, for under full etherization the action of the drug is reversed and respiration is depressed. Failure of respiration under anesthesia is thus quite as much the result of the acapnia produced by the stimulation of respiration in the first stage of anesthesia as it is of the depression that the drug induces in the later stages.<sup>1</sup>

Such respiratory stimulation without a corresponding stimulation of metabolism occurs under a wide variety of substances; e. g., small doses of cyanide and sulfide, monoiodoacetic acid and many others. Each of these drugs has, in addition to its influence on respiration, other effects also that are undesirable.

#### STIMULATION BY INCREASE OF METABOLISM

Turning then from such undesirable stimulants, one can include in the class of allowable drugs only those that act largely on and through metabolism as well as by direct stimulation of respiration itself. The outstanding member of this group—other than carbon dioxide—is caffeine, which in the form of coffee is a most valuable respiratory stimulant. That the effect of coffee is due chiefly to caffeine is demonstrated by the fact that not only the rate and depth of breathing but the general processes of metabolism as well are increased. There is an increased consumption of oxygen and increased heat production, owing probably

to the augmented tonus of the musculature of the body. All these stimulations are most marked in the first ten or fifteen minutes but wear off in the course of a few hours and may in some persons be followed by a distinct feeling of lassitude.

In this class of indirect respiratory stimulants the next most important drug is strychnine. A generation or more ago, when it was customary to prescribe a tonic for all patients who were "run down," strychnine, more commonly than any other medicine, was taken in various mixtures "three times daily, after meals." Strychnine was then regarded as a heart stimulant. Modern pharmacology however has demonstrated conclusively that strychnine has no such direct action on the heart and that its chief effects are the accentuation of the spinal reflexes and the consequent increase of muscle tonus. Yet, properly understood, this action is sufficient to constitute strychnine as having an auxiliary effect on both the heart and respiration. The tonus of the muscles of the body is a major factor in the heat production, oxygen consumption and carbon dioxide production of the body; and the amount of carbon dioxide produced determines the volume of respiration. The tonus of the musculature of the body likewise induces an intratissue pressure that plays a large part in the volume of the venous return to the right side of the heart. And as the volume of the venous return is a principal factor in the volume that the heart pumps into the arteries, muscle tonus largely determines the volume of the circulation. When muscle tonus is low, the heart action is diminished. By its influence on the motor centers in the spinal cord, strychnine increases muscle tonus, the intratissue pressure, the venous return and the efficiency of the heart.<sup>2</sup>

Far more powerful than either caffeine or strychnine as a stimulant to metabolism, and indirectly to respiration, is dinitrophenol. The hazard to health and the high liability to overdosage and death involved in the use of this drug are, however, so great that it should be regarded as essentially a poison.

In European practice lobeline—and the similar drug coramin—has found some advocates in such conditions as carbon monoxide poisoning; but its effect on respiration, although powerful, is brief, and it is a cardiac depressant. Even in Europe the use of lobeline appears now to be giving way to inhalational treatment. In America, where stimulation of respiration by inhalation of carbon dioxide is now fully established, the only condition in which lobeline has been used is asphyxia neonatorum. When injected directly into the umbilical vein, it causes a brief succession of powerful inspiratory gasps.<sup>3</sup> But its use in this condition has been challenged.

#### ANTIDOTES AGAINST RESPIRATORY DEPRESSION

Aside from the use of caffeine and strychnine in therapeutic doses to induce a prolonged moderate increase of respiration by increase of metabolism, both of these drugs and a number of others are used in much larger dosage as antidotes to counteract imminent respiratory failure due to poisoning by respiratory depressants. The depressants are commonly morphine and the barbiturates. As an antidote to the barbiturates, strychnine is particularly effective: as the barbiturates are also against strychnine.<sup>4</sup> Against morphine the

2. Henderson, Yandell; Oughterson, A. W.; Greenberg, L. A., and Searle, C. P.: Muscle Tonus and the Venous Return, *Am. J. Physiol.* 114: 261 (Jan.) 1936.

3. Wilson, R. A.: The Role of Intravenous Resuscitation in Asphyxia Neonatorum, *New York State J. Med.*, to be published.

4. Haggard, H. W., and Greenberg, L. A.: Antidotes for Strychnine Poisoning, *J. A. M. A.* 98: 1133 (April 2) 1932.

From the Laboratory of Applied Physiology, Yale University.

1. Henderson, Yandell: Fatal Apnea and the Shock Problem, *Bull. Johns Hopkins Hosp.* 21: 235 (Aug.) 1910; Acapnia and Shock: IV. Fatal Apnea After Excessive Respiration, *Am. J. Physiol.* 25: 310 (Jan.) 1910.

that must be weighed and resolved by the experience of legislators who have the matter in charge. What the public undoubtedly wants is the prompt enactment of effective legislation, followed by appropriations adequate for the effective enforcement of whatever law may be written on the statute books.

### EDUCATION OF THE PUBLIC ON SYPHILIS—A WARNING!

The Advisory Committee to the U. S. Public Health Service<sup>1</sup> has included as an important element of a program for the control of syphilis "the preparation and dissemination of educational material to the general public." Use of radio broadcasts, pamphlets, motion pictures, lectures, exhibits and the press was suggested. For the press the caution was voiced: "Brief statements from authoritative sources should be prepared for the press."

One of the foremost obstacles to the success of a campaign against syphilis is the tabu that has until recently applied to the word "syphilis." The conspiracy of silence that has prevented the dissemination of fundamental information concerning the disease to the nonmedical public has been unfortunate. The situation as to syphilis today is analogous to that of tuberculosis a generation and a half ago. Much of the progress that has been made in the control of tuberculosis is due to the widespread and constant educational publicity given to this disease. Informative publicity concerning syphilis is a valuable method, perhaps the most valuable method, of aiding in the two fundamental points of public health control efforts: (1) finding patients with syphilis and bringing them under competent medical care and (2) holding them under treatment for a long enough period to ensure the maximum result as to individual and public safety.

Informative publicity to the lay public should (a) avoid the implication of reform of public morals by legislative fiat and should stress the medical aspects of the control program, (b) be scientifically sound and accurate and (c) be prolonged over a period of many years.

Publicity as to syphilis is now becoming widespread. Until recently, except for a brief three year period, nothing about the disease, not even its name, could be forced into the public press. Within the last two years, conservative and liberal newspapers and magazines alike—the *New York Times*, *Herald Tribune* and *Daily News*, the *Chicago Tribune*, the *Baltimore Sun*, the *Washington Herald*, *Time*, the *Literary Digest*, the *Readers' Digest*, the *Ladies' Home Journal*, to mention only a few of the 125 periodicals of some 100 communities (up to Oct. 26, 1936—see *Time* for that

date)—had mentioned "syphilis" and had printed news stories, editorials or important feature articles concerning it. Now books are being published for the public and at least three leading magazines have scheduled articles for early appearance. In journalistic parlance, the subject is "hot."

Every one knows that a flood of misinformation may do more harm than good. Overemphasis on moral reform, on "social hygiene," and underemphasis on the more easily defensible medical approach are possibilities. Even more dangerous is the publication of such scientific misinformation as suggests (*Literary Digest*, Oct. 31, 1936) that syphilis may be "cured" by one inadequately studied method of treatment in three months, or by another in two weeks.

Another serious danger is the fact that the publicity gives evidence of being concentrated within too short a period. Since current public interest is greater than can be satisfied by medical accomplishment, interest may evaporate faster than it can be appeased. Those who wish to educate will have shortly said all there is to say and will have nothing new to offer, only repetition. Editors and audience alike will treat the subject as the latest fad, wearying of it as quickly as they have wearied of such other great American fads as flagpole sitting or miniature golf. It is possible, and at the present rate likely, that the syphilis control program will be talked to death.

Success in the campaign to control syphilis cannot be attained in a year or two or even in five or ten years. Success, if it comes at all, is to be measured in the same long terms as in the campaign to control tuberculosis—a generation, two generations. What is needed is not a flood of publicity for a few months or years but persistent publicity for many years. Syphilis must be kept as constantly in the public mind as tuberculosis has been kept, and for as long a time.

This is not the first American campaign to control syphilis or the first time that publicity in the press has been given to it. From 1918 to 1920 a similar effort began under almost equally favorable auspices and met with dismal failure. The immediate impetus was the protection from venereal diseases of American soldiers. Large sums of money were appropriated by Congress and the states, and a brave start was made; it collapsed completely within three years. In retrospect, the causes of the failure of this earlier effort seem clear. The first and most usually assigned cause was the withdrawal of federal and state financial support that accompanied the subsidence of war hysteria and the postwar period of retrenchment. This withdrawal of funds, however, was not due to these two factors alone but to lack of public interest and public support. Public interest and support apparently failed for more fundamental reasons: the syphilis control campaign at that time was based largely on "social hygiene" and moral reform, the American people were reacting against the

1. Vonderlehr, R. A.; Bundesen, H. N.; Moore, J. E.; Nelson, N. A.; Pelouze, P. S.; Snow, W. F.; Stokes, J. H.; Wile, U. J., and Ussilton, Lida J.: Recommendations for a Venereal Disease Program in State and Local Health Departments: Report of an Advisory Committee to the United States Public Health Service, Ven. Dis. Inform. 17:1 (Jan.) 1936.



ing or poorly breathing baby as it is for the victims of carbon monoxide. In the baby, as in the adult, a slight deficiency of oxygen at first renders the respiratory center more sensitive than normally to carbon dioxide, and this increased sensitivity to that stimulus helps the normal baby to start breathing. Under severe deficiency of oxygen, on the contrary, the sensitivity of respiration is greatly decreased, and the deeper the asphyxia at birth the greater the amount of carbon dioxide required to stimulate respiration. The carbon dioxide employed for the initial resuscitation should be of whatever strength is needed to induce respiration, but after respiration is started 7 per cent or even 5 per cent is generally sufficient.<sup>9</sup>

Even more important is the use thereafter of carbon dioxide to promote full expansion of the lungs and the establishment of vigorous breathing in premature or otherwise weak babies. For such babies the inhalation of 5 or 6 per cent carbon dioxide should be repeated several times during the first few days. The present high mortality of the first week or two of life may thus be greatly diminished.

For the woman in whom a prolonged labor and overbreathing have induced a considerable degree of acapnia, fatigue and muscular relaxation, inhalation of 5 per cent carbon dioxide in air or oxygen is helpful. It tends to restore tonus and promote effective expulsive contractions of both the uterus and the abdominal muscles.<sup>10</sup>

In the early stages of pneumonia, inhalation of carbon dioxide has been used as a means of dilating the lungs and inducing coughing, to clear them. (In the hands of Drs. Lewis Gunther and Harry H. Blond<sup>11</sup> this use of inhalation has produced promising results in shortening the disease and lowering its mortality, results which I have been privileged to see.) In fully developed pneumonia, oxygen is now often administered. The inhalation is more effective if some of the carbon dioxide exhaled by the patient is allowed to accumulate in the oxygen tent. One or two per cent is not noticed by the patient; higher percentages render him uncomfortable but probably increase the chances of recovery.<sup>12</sup>

In patients with effort angina, moderate inhalations of carbon dioxide for ten or twelve minutes two or three times a day may afford a partial substitute for physical exercise and some of the benefits of the Nauheim baths.<sup>13</sup>

Inhalation of carbon dioxide—best diluted merely with air—is an effective means of controlling persistent hiccup.<sup>14</sup>

The sufferings of morphine addicts during withdrawal of the drug may be considerably diminished by inhalation of carbon dioxide.

#### METHODS OF ADMINISTERING CARBON DIOXIDE

For the administration of carbon dioxide diluted either with oxygen or with air, several types of

inhalators are employed; each has a purpose and mode of use distinct from the others.

In anesthesia apparatus a cylinder of carbon dioxide is now generally provided and the anesthetist adjusts the mixture of this gas with oxygen, ethylene, nitrous oxide, ether, and so on, as the condition of the patient and the demands of the surgeon require.

In the inhalators used by the rescue crews of city fire and police departments<sup>15</sup> the cylinders are charged with a mixture of 7 or 8, or even 10, per cent of carbon dioxide in oxygen. The gas flows through a bag to a mask, which should be held tight on the face of the patient—usually a victim of carbon monoxide—so that the gas is inhaled without admixture of air. The valves on the mask are so arranged that there is no rebreathing whatever, and the lungs are flushed with entirely fresh gas at each breath.

For cases of asphyxia neonatorum this form of inhalator is also effective. A simpler form<sup>16</sup> is however, quite adequate. It involves merely a cylinder of the gas mixture, a needle control valve, a breathing bag and a tight fitting mask. For the new-born, rebreathing need not be avoided; indeed, it is rather desirable. A mild form of artificial respiration—to replace mouth to mouth inflation—is induced by squeezing the breathing bag intermittently, while the mask is held tight on the face, with the head of the baby in hyperextension, so as to keep the pharynx open. For severe cases of asphyxia and apnea, particularly in babies born of heavily narcotized mothers, the gas should at first be administered through a sound inserted deep into the trachea.<sup>17</sup>

For many purposes—e. g., control of hiccup, prevention of postoperative atelectasis or clearing the lungs in early pneumonia—it is not necessary to use mixtures of carbon dioxide with oxygen. Carbon dioxide alone, mixed with air as it is inhaled, is sufficient and is much less expensive.<sup>16</sup> The flow is regulated by a needle valve and measured on a water manometer, which also serves as a safety blow-off. The gas is administered by means of an open or "slotted" mask. The patient is first allowed to breathe air alone through a hole in the top of the mask or through a slot in its side. Then very gradually the gas is turned on so as to mix with the air inspired through the mask. And as respiration responds, the flow of carbon dioxide is increased until the depth of breathing is nearly or quite maximal. But the respiratory rate should not be increased.

For children threatened with bronchitis, and for premature babies subject to spells of respiratory depression and cyanosis, a small injector tent is convenient.<sup>16</sup> The volume of the gas flowing from a cylinder of carbon dioxide is regulated and measured by a needle valve and manometer and is introduced into the top of the tent through an injector, which automatically mixes it with air in a proportion of from 3 to 6 per cent of carbon dioxide. The stimulation of respiration and the circulation thus induced is much more effective in overcoming cyanosis and increasing vitality than is the inhalation of oxygen without carbon dioxide. With full respiration the blood takes up nearly as much oxygen from air as from pure oxygen. Without an adequate volume of breathing, the baby can die of asphyxia in an atmosphere of oxygen.

15. Mine Safety Appliances Company, Pittsburgh.

16. Foregger Company, New York; Ohio Chemical & Manufacturing Company, Cleveland.

17. Flagg, P. J.: The Treatment of Postnatal Asphyxia, *Am. J. Obst. & Gynec.* 21: 537 (April) 1931.

9. Henderson, Yandell: *Fundamentals of Asphyxia*, J. A. M. A. 103: 261 (July 22) 1933; *Resuscitation*, *ibid.* 103: 750 (Sept. 8), 834 (Sept. 15) 1934.

10. McConnell, W. T., and McCormack, R. L.: Carbon Dioxide and Oxygen in Obstetrics, J. A. M. A. 101: 1783 (Dec. 2) 1933. McCormack, R. M.: The Physiology of Respiration in Parturition: Results of Clinical Application, *Anesth. & Analg.* 13: 211 (Sept.-Oct.) 1934.

11. Gunther, Lewis, and Blond, H. H.: Observations on the Use of Carbon Dioxide in Early Pneumonia, *Am. J. M. Sc.*, to be published.

12. Henderson, Yandell: Reasons for the Use of Carbon Dioxide with Oxygen in the Treatment of Pneumonia, *New England J. Med.* 206: 151 (Jan. 28) 1931. Henderson, Yandell; Haggard, H. W.; Coryllos, P. N., and Birnbaum, G. L.: The Treatment of Pneumonia by Inhalation of Carbon Dioxide, *Arch. Int. Med.* 45: 72 (Jan.) 1930.

13. Henderson, Yandell: Inhalational Treatment of Angina Pectoris and Intermittent Claudication, *Am. Heart J.* 4: 548 (April) 1931.

14. Henderson, Yandell: *Resuscitation*, J. A. M. A. 83: 758 (Sept. 6) 1924.

tion mouthpiece and from the cylinders for patch tests. The collecting of these materials itself caused severe dermatitis, the edema of the face and eyelids being so extensive that the patient's left eye was completely closed. Patch tests of both the dust from the machine and the scrapings from the cylinders were strongly positive, whereas no reaction was obtained from the scrapings from the mouthpiece. No reaction to any of these substances occurred in normal control subjects. With the cooperation of the company manufacturing the machines, patch tests were made with three of the substances employed in the manufacture of the cylinders; namely, aluminum stearate, stearic acid and pine tar. All gave negative tests. The patient was advised to avoid all unnecessary contact with the dictaphone, and the machine was placed in a part of the office free from drafts and was cleaned at night. By following these precautions, the patient has remained free from symptoms for more than a year.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### CALIFORNIA

**Bills Introduced.**—S. 98 proposes to prohibit the planting, cultivating, harvesting and processing of "any flowering tops or leaves of hemp or loco weed (*cannabis sativa*) or Indian hemp" and to make a violation of the prohibition a felony. S. 118 proposes to prohibit the operation or maintenance of a clinical laboratory except under the immediate supervision and direction of a licensed clinical laboratory technologist or of a person holding a valid and unrevoked physician's and surgeon's certificate. The bill proposes to make it unlawful for any person in a clinical laboratory to make any tests or examinations requiring the application of one or more of the fundamental sciences, such as bacteriology, biochemistry, serology and parasitology, unless he possesses an unrevoked certificate, issued by the state board of health, as a qualified technician in the subject or subjects concerned with the tests or examinations, or possesses an unrevoked certificate as a clinical laboratory technologist, or is the holder of a valid unrevoked physician's and surgeon's certificate. The state board of health is authorized to license as a clinical laboratory technologist (1) any person who for more than five years has been engaged actively in the work and direction of a clinical laboratory and (2) any other person who is found to be properly qualified, by written, oral and practical examination. The board is to be authorized also to license as a clinic or laboratory technician (1) any person who for three years has actively engaged in performing tests in a clinical laboratory and (2) any other person found by it to be properly qualified, by written, oral and practical examinations. S. 121, to supplement the insurance code, proposes to authorize insurance whereby the insurer will provide medical and hospital services in case of need, to regulate the conditions under which such insurance may be written, and to require the licensing of persons writing such insurance contracts. S. 133 proposes, in the event a business and professions code is enacted by the fifty-second legislature, to repeal the existing medical practice act and to enact in its stead as chapter 5, division II, of the proposed business and professions code a comprehensive new medical practice act regulating the practice of medicine and surgery, chiropractic, midwifery and drugless healing other than chiropractic and osteopathy which are governed by initiative measures adopted in 1922. A. 644, to amend the workmen's compensation act, proposes to permit an injured employee "to select, without restraint, any one licensed to treat in any manner the type of injury which he has sustained." A. 684 proposes to authorize county or city and county boards of education to "grant health and development certificates to physicians and surgeons holding certificates issued by the California State Board of Osteopathic

Examiners." This law now authorizes the issue of such certificates only to persons holding certificates to practice medicine and surgery, issued by the California State Board of Medical Examiners.

### DELAWARE

**Society News.**—Dr. Arthur C. Morgan, Philadelphia, addressed a combined meeting of the Kent and Sussex county medical societies in Milford, December 2, on "Diagnosis and Treatment of Acute Cardiac Tragedies."—Dr. Thomas Fitz-Hugh Jr., Philadelphia, addressed the New Castle County Medical Society in Wilmington, January 19, on "Use of Prontosil and Prontylin in Hemolytic Streptococcus Infections."

### DISTRICT OF COLUMBIA

**Medical Bill in Congress.**—*Bill Introduced:* H. R. 3890, introduced by Representative Quinn, Pennsylvania, proposes to prohibit experiments on living dogs in the District of Columbia.

### IDAHO

**Bill Introduced.**—S. 33, to amend the workmen's compensation act, proposes to make compensable "such disease or infection as may arise naturally out of" the employment.

### ILLINOIS

**Forty or More Years of Service.**—The Kankakee County Medical Society observed its forty-fifth anniversary, December 11, by honoring the following members, who have completed more than forty years' practice in the county:

Dr. George W. Van Horne, Grant Park, began practice sixty-one years ago.

Dr. Eugene D. Bergeron, Kankakee, fifty-five years.  
Dr. G. M. Phelps, Kankakee, fifty years.  
Dr. Aaron S. Eshbaugh, Kankakee, fifty years.  
Dr. Stanley R. Walker, Chebanse, forty-seven years.  
Dr. John A. Brown, Kankakee, forty-three years.  
Dr. Fred C. Hamilton, Kankakee, forty-three years.  
Dr. Arthur N. House, Kankakee, forty-three years.  
Dr. Ulric A. Bedard, Kankakee, forty-two years.  
Dr. John V. Lewis, Mokenca, forty-two years.  
Dr. Charles W. Geiger, Kankakee, forty years.  
Dr. Samuel A. Worstall, Aroma Park, forty years.

All the physicians except Dr. Van Horne are still in practice. Dr. Walker was the first vice president in 1891 and is now president. Dr. Chester A. Perrodin, Kankakee, is secretary. At the anniversary meeting Dr. Leroy H. Sloan, Chicago, presented a paper entitled "Modern Docology," a tribute to the guests of honor.

### Chicago

**The Lewis Linn McArthur Lecture.**—Dr. Wingate Todd, Henry Willson Payne professor of anatomy, Western Reserve University School of Medicine, Cleveland, will deliver the thirteenth Lewis Linn McArthur Lecture of the Frank Billings Foundation, February 26. His subject will be "Objective Ratings on the Constitution; Based upon Examinations of Physical Development and Mental Expansion in the Growing Child."

**Meeting of Bacteriologists.**—A meeting of the Society of Illinois Bacteriologists was held at the Chicago Woman's Club, January 23, with the following speakers:

Dr. Oswald H. F. . . . . medicine, department of medicine, Division . . . . . University of Chicago, The Role of the . . . . . from Experimental Lobar Pneumonia.  
Dr. Sol R. Rosenthal, associate in the department of pathology, bacteriology and public health, University of Illinois College of Medicine. Cellular Response in the Host to Antigenic Substances.  
James Russell Esty, Ph.D., research director, Western branch, National Canners' Association, San Francisco, Bacteriological Problems of the Canning Industry.

### INDIANA

**Committee on Syphilis Control.**—The Indiana State Medical Association has appointed a committee on syphilis control. Dr. Floyd R. Nicholas Carter, South Bend, is chairman; other members are Drs. Minor W. Miller, Evansville, and Ernest O. Nay, Terre Haute.

**Bills Introduced.**—H. 53, to amend the workmen's compensation act, proposes, in effect, to make compensable any "disease arising out of the employment." H. 146, to amend the law requiring a physician appointed by the court in proceedings to commit allegedly feeble-minded persons to examine the person and to certify whether or not the person is afflicted with idiocy, imbecility or feeble-mindedness, proposes to require such physician to certify further whether, in his opinion, "the welfare of society and of such person would be promoted by his or her sexual sterilization." H. 147, to amend the law authorizing the sexual sterilization of inmates of state institutions who are afflicted with hereditary forms of insanity that

normally born infants begin to breathe only after an apnea and asphyxial gasps, as many now do, the drugging of the mothers is excessive.

As nitrous oxide is one of the anesthetics now commonly used in labor, attention should be drawn to Eastman's<sup>22</sup> warning that the amount of oxygen administered with the gas should be kept above 15 per cent, and that if it falls to 10 per cent or less a marked degree of fetal anoxemia may be produced and "occasionally profound asphyxia neonatorum results." Neglect of this general precaution in surgical operations under nitrous oxide has recently been shown by Courville<sup>23</sup> to result in some cases in nervous sequelae and deaths essentially like those following prolonged carbon monoxide asphyxia.

The properties of drugs desirable for use in obstetrics are in many respects different from those desirable for surgical operations. In both fields the prevention of suffering should be as complete as possible without inducing damage. But the surgeon deals with only a single patient, the obstetrician with two. And the fact is now too often overlooked that the science of pharmacology affords no means of rendering childbirth free from even the slightest discomfort or recollection in the mother, except at the price of an occasional infant life.

4 Hillhouse Avenue.

## Council on Foods.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

#### STOKELY'S FINEST TOMATO JUICE

*Manufacturer.*—Stokely Bros. & Company, Inc., Indianapolis.

*Description.*—A canned pasteurized tomato juice, seasoned with salt, retaining in large measure the original vitamin content of the tomatoes used.

*Manufacture.*—Field control and inspection of deliveries are exercised to insure the receipt of sound tomatoes, at the height of color and flavor, which are washed in troughs of running water, rolled through reel washers equipped with water sprays for thorough rinsing, sorted and trimmed on continuous belts, and the underripe and overripe fruit eliminated. The selected clean tomatoes then pass through a preheating chamber with controlled temperature conditions. The juice is extracted, without being exposed to the air, by a method which produces a juice of thin consistency retaining solid material essential for providing vitamin A. The juice passes immediately to stainless steel salting tanks and from there to the filling machines, where it is filled into enamel lined cans at a temperature between 80 and 85 C. and pasteurized for a definite period. The factory process is under laboratory control and every precaution is taken to avoid contact with air to minimize vitamin destruction.

*Analysis (submitted by manufacturer).*—Moisture 93.9%, total solids 6.1%, total ash 1.1%, salt (sodium chloride) 0.5%, fat (ether extract) 0.1%, protein (N  $\times$  6.25) 0.9%, acidity (as citric acid) 0.4%, crude fiber 0.1%, total invert sugar 2.7% and total carbohydrate (by difference) 3.5%.

22. Eastman, N. J.: Fetal Blood Studies: V. The Role of Anesthesia in the Production of Asphyxia Neonatorum, *Am. J. Obst. & Gynec.* 31: 563 (April) 1936.

23. Courville, C. B.: Asphyxia as a Consequence of Nitrous Oxide Asphyxia, *Medicine* 15: 129 (May) 1936.

*Calories.*—0.25 per gram; 7.1 per ounce.

*Vitamins.*—The use of mature tomatoes, the careful factory control, the continuous method of manufacture, and the avoidance of contact with air assure maximum retention of the normal vitamin content.

*Cloins of Manufacturer.*—This tomato juice is a good source of vitamins A and B<sub>1</sub>, and an excellent source of vitamin C. It is suitable for infant feeding and for general table use.

#### POCAHONTAS "FRESHLIKE" STRAINED UNSEASONED PRODUCTS (PEAS, CARROTS, BEETS, SPINACH, GREEN BEANS, TOMATOES, CELERY, APPLES, PRUNES, APRICOTS AND VEGETABLES WITH CEREAL AND BEEF BROTH)

*Distributor.*—H. P. Taylor Jr., Inc., Richmond, Va.

*Packer.*—The Larsen Company, Green Bay, Wis.

*Description.*—Respectively strained peas, spinach, carrots, beets, green beans, celery, tomatoes, prunes, apples, apricots and vegetables with cereal and beef broth; prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt. These products are the same as the respective accepted Larsen's vegetables and fruits (*THE JOURNAL*, Aug. 26, 1933, p. 675; Aug. 12, 1933, p. 525; Aug. 19, 1933, p. 605; July 8, 1933, p. 125; July 29, 1933, p. 366; Sept. 2, 1933, p. 779; July 1, 1933, p. 35; July 22, 1933, p. 282; Aug. 10, 1935, p. 437; July 4, 1936, p. 38; July 22, 1933, p. 283).

#### CELLU JUICE-PAK RED PITTED CHERRIES

*Distributor.*—The Chicago Dietetic Supply House, Inc., Chicago.

*Packer.*—Reynolds Preserving Company, Sturgeon Bay, Wis.

*Description.*—Processed, pitted red cherries packed in undiluted juice without added sugar.

*Manufacture.*—The manufacturing process is essentially the same as that for Cellu Juice-Pak Royal Anne Cherries (*THE JOURNAL*, Aug. 25, 1934, p. 564).

*Analysis (submitted by manufacturer).*—Moisture 84.2%, total solids 15.8%, ash 0.4%, fat (ether extract) 0.8%, protein (N  $\times$  6.25) 0.8%, sucrose 0.1%, reducing sugars as invert sugar 10.5%, crude fiber 0.2% and carbohydrates other than crude fiber (by difference) 13.6%.

*Calories.*—0.65 per gram; 18.5 per ounce.

#### SEXTON BRAND BLACK RASPBERRIES, WATER PACKED

*Manufacturer.*—John Sexton & Company, Chicago.

*Description.*—Canned black raspberries, packed in water.

*Manufacture.*—Black raspberries picked at the proper stage of maturity are inspected, mechanically washed and filled into cans. The cans are filled with water, exhausted, sealed and processed at 91 C.

*Analysis (submitted by manufacturer).*—(Analysis of entire contents including liquid): moisture 88.6%, total solids 11.4%, ash 0.23%, fat (ether extract) 1.1%, protein (N  $\times$  6.25) 1.1%, crude fiber 3.20%, carbohydrates other than crude fiber (by difference) 5.8%.

*Calories.*—0.37 per gram; 10.5 per ounce.

*Cloins of Manufacturer.*—For diets in which sweetened fruit is proscribed.

#### BERKSHIRE HILLS BRAND HAWAIIAN PINEAPPLE CRUSHED, SLICED AND TIDBITS

*Distributor.*—Butler Flour Company, Pittsfield, Mass., and Butler Coal & Grain Company, Adams, Mass.

*Packer.*—Hawaiian Pineapple Company, San Francisco.

*Description.*—Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole canned pineapple (*THE JOURNAL*, April 8, 1933, p. 1106).

## MISSOURI

**Survey of Public Health Administration.**—The U. S. Public Health Service is making a survey of public health administration in Missouri, according to the *Health Officer*. When it is completed, a report will be furnished to the governor's commission which is studying the application of the Social Security Act in the state.

**Personal.**—Dr. Curtis H. Lohr has been appointed superintendent of St. Louis County Hospital, Clayton, succeeding Dr. Edwin L. Shcahan, it is reported.—Dr. Silas Sanford recently completed fifty years of practice in Palmyra.—William R. Goodman, founder and former president of the Blood Donors Benevolent Society of Missouri, was presented with a certificate by the St. Louis Medical Society recently for "meritorious service"; the organization was formed in January 1935 and now consists of 475 members who give blood for transfusion free for persons unable to pay.—Dr. John W. Williams Jr., Springfield, has been appointed director of local health work in the Missouri State Department of Health. Dr. Williams graduated from Washington University School of Medicine in 1923 and has specialized in public health work. He was formerly health officer of Greene County and became associated with the state health department in the summer of 1936.

## NEVADA

**New Official Organ for the State Medical Society.**—The Nevada State Medical Association announces that the *Utah State Medical Journal* will henceforth be its official organ, instead of *California and Western Medicine*. The *Utah Journal* will publish the transactions of the Nevada society, news items and announcements. Dr. Horace J. Brown, Reno, secretary of the association, will act as editor.

## NEW JERSEY

**Society News.**—Dr. Howard W. Haggard, New Haven, Conn., among others, addressed the New Jersey Conference of Social Work at its annual meeting at Asbury Park, December 3-5, on "Health and Social Change."—Dr. Irving S. Wright, New York, addressed the Monmouth County Medical Society, Asbury Park, December 16, on "Peripheral Vascular Diseases of the Extremities."—Dr. Thomas K. Lewis, Camden, addressed the Salem County Medical Society, December 11, in Salem on cardiac irregularities.—Dr. Donald C. Richards, Easton, Pa., addressed the Warren County Medical Society, Washington, December 8, on obstetric anesthesia.

**Symposium on Tuberculosis.**—Bergen County Hospital, Ridgewood, presented a symposium on tuberculosis, January 19, at which the guest speakers were Drs. Robert E. Plunkett of the New York State Department of Health, Albany, on "The Essential Role of the Family Physician in the Campaign Against Tuberculosis"; James Burns Amberson Jr., New York, "Childhood Tuberculosis," and William J. Ryan, Pomona, N. Y., who opened the general discussion. Other speakers were Drs. Oddino Bernardini and Joseph Gordon of the staff on "X-Ray Versus Stethoscope" and "Pulmonary Hemorrhage" respectively. There were also presentations of cases, a pathologic exhibit, a demonstration of tuberculin testing and discussion of unusual roentgenograms.

## NEW YORK

**Bill Introduced.**—A. 260 proposes to authorize the commissioner of motor vehicles to reimburse hospitals not organized and/or operated for profit, for the cost of care rendered indigent persons suffering from motor vehicle injuries. The amount of reimbursement to such a hospital is to be limited to not more than \$6 for each day of care rendered to each indigent.

## New York City

**Dr. Held Honored.**—Colleagues and former students of Dr. Isidore W. Held, clinical professor of medicine, New York University Medical College, contributed to the *Review of Gastro-Enterology* for December in honor of his sixtieth birthday. Dr. Held is attending physician at Beth Israel Hospital, where the pathology laboratory is named in his honor.

**Meeting on Heart Disease.**—The New York Heart Association (the heart committee of the New York Tuberculosis and Health Association) will hold its annual meeting at the New York Academy of Medicine, February 9. The speakers will be Drs. John L. Caughey Jr., on "Clinic Studies of Venous Pressure"; Nathaniel T. Kwit, "The Xanthines in the Treatment of Cardiac Pain," and Janet G. Travell, "Theophylline in Experimental Myocardial Infarction."

**District Health Officers Appointed.**—Three new district health officers were assigned from a civil service list December 16: Drs. Jacob Rosenbluth, chief diagnostician of the city health department since 1928; Harold H. Mitchell, recently president of the New York State Association of School Physicians, and William F. Wild, Suffolk, Va., health officer of Suffolk and the counties of Nausemond and Isle of Wight. Dr. William C. Buntin, Staten Island, was made health officer of the Borough of Richmond.

**Dinner to Dr. Arcé.**—The New York Chapter of the Pan American Medical Association sponsored a dinner in honor of Dr. José Arcé, professor of surgery and dean of the University of Buenos Aires and dean of the Argentine chapter of the association, January 11, at the Metropolitan Club. Drs. Adolfo F. Landivar, Antonio Egues and Isidro Castillo Odena, professors of surgery at Buenos Aires, who are with Dr. Arcé on his visit to the United States, were also guests of honor. Dr. Arcé gave an address on "The Future of Pan American Medicine"; other speakers were Drs. Charles Gordon Heyd, President of the American Medical Association, James Ewing of Memorial Hospital, and Dean Lewis, Baltimore. Dr. Edward L. Kellogg, president of the New York chapter, was toastmaster.

## NORTH DAKOTA

**Bill Introduced.**—S. 67 proposes that no sales tax or other levy of any nature shall be payable on sales of equipment, medicine, drugs or supplies to any institution of public charity, including public hospitals under the control of religious or charitable societies.

## OHIO

**Home Donated for Health Museum.**—Mrs. Francis F. Prentiss, Cleveland philanthropist, has given her former residence on Euclid Avenue to house a museum of health and hygiene, which has been contemplated for some time by the Academy of Medicine of Cleveland. The building was occupied by the Huron Road Hospital for several years. The project will be administered by a nonprofit corporation to be known as "The Cleveland Museum of Health and Hygiene, Inc.," of which the incorporators are Dr. Howard Lester Taylor, Dr. Hubert C. King, Dr. James A. Doull, Mr. Howard W. Green and Mr. H. Van Y. Caldwell, executive secretary of the academy of medicine. The gift was made with two provisos, one that sufficient funds be raised to maintain the museum and that, if the association ceases to function, the property will revert to Mrs. Prentiss.

**Personal.**—Dr. Lorne W. Yule, superintendent of the Institution for the Feeble-minded, Apple Creek, has resigned because of ill health.—Dr. William E. Hudson, New Philadelphia, has been appointed superintendent of a new county sanatorium for tuberculosis shortly to be opened in Tuscarawas County, it is reported.—Dr. Carl J. Wiggers, professor of physiology, Western Reserve University School of Medicine, Cleveland, is on sabbatical leave and with Mrs. Wiggers sailed January 23 for a trip around the world.—Dr. Jesse F. Bateman, Cincinnati, assistant superintendent and clinical director of Longview State Hospital, has been appointed superintendent of Columbus State Hospital to succeed the late Dr. William H. Pritchard.—Dr. John J. Sutter, Lima, who served for many years as health officer of Allen County, was appointed health officer of Wayne County recently to succeed Dr. William G. Rhoten, Wooster, who resigned.

## OKLAHOMA

**Bill Introduced.**—S. 108 proposes to require applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology to be given by a state board of examiners in the basic sciences. This board is to consist of five members, appointed by the governor for staggered five year terms, each member to be a member of the faculty of the University of Oklahoma, Oklahoma Agricultural and Mechanical College, or some other institution of equal rank in the state and no member to be actually engaged in the practice of the healing art or any branch thereof.

## OREGON

**Bill Passed.**—H. 34 has passed the house, proposing to amend the law so as to require, as a condition precedent to the issue of a marriage license, the presentation of a physician's certificate showing that the prospective bride is free from contagious or infectious venereal disease. The law now requires such a certificate from the groom alone.

and patients, since such devices are frequently not marketed in packages. Nothing in the bill requires any such device to be marked so as to show its origin, purpose, potency or manner of use.

Both the Senate and the House bills define cosmetics as substances and preparations intended for cleansing, or altering the appearance of, or promoting the attractiveness of, the person; except that soaps are not to be regarded as cosmetics so long as they are represented as being for cleansing purposes only or make no claim to medicinal or curative qualities. Since soaps represented as having medicinal or curative qualities come clearly within the definition of drugs, any soap for which any such claim is made would seem to come within the scope of the bill as both a drug and as a cosmetic. A poisonous or deleterious substance in a cosmetic is not to be considered as an adulterant within the meaning of the law unless its presence renders the cosmetic injurious to users under the conditions of use as prescribed in the labeling or advertisements, or under such conditions as are customary and usual. In the Senate bill an effort has been made further to protect the maker and dealer in coal tar hair dyes by providing that the prohibition on potentially poisonous or deleterious substances shall not apply to such hair dyes if labeled:

"Caution—This product contains ingredients which may cause skin irritation on certain individuals and a preliminary test according to accompanying directions should first be made. This product must not be used for dyeing the eyelashes or eyebrows."

In appraising the significance of this proposed legislation so far as it relates to cosmetics, the broad statutory definition of the word "cosmetic" must be borne in mind; if soaps are excluded, every preparation intended for cleansing or altering the appearance of the person or promoting its attractiveness is a cosmetic.

The provisions of both the Senate and the House of Representatives bills with respect to the adulteration and misbranding of foods follow more or less conventional lines. Both bills propose that foods fabricated of two or more ingredients for which no definition or standard of identity has been prescribed shall be labeled so as to show the common or usual name of each such ingredient, but the House bill provides that no such disclosure need be made with respect to the ingredients of any proprietary food the ingredients of which have been fully and correctly disclosed to the Secretary of Agriculture, if the disclosure of the ingredients on the label would give to competitors information they could not otherwise obtain.

In the House bill, under the heading "Misbranded Food," are regulations governing the labeling of distilled liquors which seem to imply that requirements as to the labeling of such liquors when used as beverages may be different from the required labeling when used for medicinal purposes. Some distilled and fermented liquors come clearly within the definitions of the term "drug," since they are recognized in the U. S. Pharma-

copeia and in the National Formulary and in any case may be intended for use in the cure, mitigation, treatment or prevention of disease. The requirements of the House bill relate particularly to blended whiskies. They provide, too, that any substance that professes to be or is represented as whisky is to be regarded as misbranded if it contains alcohol derived from any source other than grain.

The provisions in both the Senate and the House bills with respect to advertising fall short of what might reasonably be expected for the promotion of public health and common honesty, but the fact that there is now an entire absence of any law that seems even remotely to control the advertising of foods, drugs, diagnostic, prophylactic and therapeutic devices, and cosmetics, sold in interstate commerce makes welcome even such protection as these bills propose. Fortunately, both bills propose to prohibit any advertisement of any drug or any device, among persons other than the medical profession, that represents it to have any therapeutic effect in the treatment of Bright's disease, cancer, tuberculosis, infantile paralysis, venereal diseases, and heart or vascular diseases.

If either of these bills should be enacted, it will be enforced by the Secretary of Agriculture. The controversies that raged while legislation of this kind was under consideration by the Seventy-Fourth Congress as to whether the advertising provisions of the law should be enforced by the Secretary of Agriculture or by the Federal Trade Commission, which was largely responsible for preventing an agreement between the Senate and the House of Representatives at the time, seems to have been resolved in these bills in favor of the Secretary of Agriculture. Both bills, however, expressly provide that nothing in them shall be construed to impair or diminish the powers of the Federal Trade Commission under existing law. This seems to be a happy solution of the difficulty. Many who appreciate highly the efforts that the Federal Trade Commission has made during years past and is still making to protect the public against fraudulent medicines and quack practices, with the limited legal authority at its command, still cannot help feeling that under the terms of the bills offered last year and under the terms of these bills a more effective enforcement will be possible if, outside of the field of unfair trade competition, enforcement is entrusted to the Secretary of Agriculture. Cooperation between the secretary and the Federal Trade Commission may be taken for granted.

Lengthy but in many respects ineffective hearings on food, drug and cosmetic bills have been given by committees of the Senate and of the House of Representatives, each acting independently of the other, during several recent sessions of Congress. It has been suggested that hearings on the pending bills be given by a joint committee of the two houses. However reasonable that suggestion may seem, it is of course one



ment of any forcible means for the correction of any deformity of the foot; "surgical treatment" as the surgical treatments of the ailments of the human foot, except amputation of the foot or toes, or the use of anesthetics other than local; and "electrical treatment" as the employment of electricity to the foot or leg by means of electrodes, machinery, rays, lamps, vibrators, or any other apparatus operated by electricity. H. 55, to amend the pharmacy practice act, proposes to authorize the board of pharmacy to license persons, not licensed pharmacists, to keep for sale and sell, in original sealed packages only, such emergency drugs, medicines and poisons as the board may from time to time designate. H. 81 proposes to require all applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology to be given by the state board of examiners in the basic sciences. The board is to consist of five members, appointed by the governor for staggered five year terms. Members of the board are to be selected because of their knowledge of the basic sciences aforesaid. Each member must be a member of the faculty of the University of Wyoming or other institution of learning of equal rank and no member of the board can be actively engaged in the practice of the healing art or any branch thereof.

### GENERAL

**Fraudulent Subscription Agent.**—Charles C. Thomas, Springfield, Ill., publisher of the *American Journal of Roentgenology and Radium Therapy*, wishes to inform the medical profession that H. H. Harvey, who is posing as a representative of that firm, is in no way connected with it. He is not authorized to accept or solicit orders for the *Journal* or any book publications.

**Changes in Status of Licensure.**—The State Board of Medical Education and Licensure of Pennsylvania reports the following action taken at a meeting December 10:

License of Dr. Walter M. Atkinson, Curwensville, revoked because of mental incapacity due to inordinate use of alcoholic liquor.

License of Dr. Isaac S. Diller, North East, Pa., revoked because of conviction of violations of narcotic laws. At the time of the conviction about five years ago, action was postponed on his promise to refrain from practice. Recently he is said to have made an effort to resume practice.

The New York State Board of Medical Examiners reports the following action at a meeting November 20:

License of Dr. Darwin Hecht, whose last known address is 1368 President Street, Brooklyn, revoked because of conviction of a felony.

License of Dr. Abraham Benjamin, whose last known address is 307 East Broadway, New York, revoked because of conviction of a felony. This was an indorsement of a license issued by the state of Michigan.

The Board of Medical Examiners of the State of Oklahoma reported the following action taken at a meeting December 9:

License of Dr. William Walter Hornsby, now of Mansfield, Ark., revoked because of violation of the narcotic laws.

The State Medical Board of the Arkansas Medical Society revoked the licenses of the following at its meeting Nov. 10, 1936:

Dr. James H. Cole, Morrilton, sentenced to serve eighteen months in a federal penitentiary by U. S. District Court.

Dr. Luther Warren Copeland, Trumann, sentenced to serve two years in a federal penitentiary.

Dr. John D. Eddy, Jerusalem, sentenced to serve two years in a federal penitentiary.

Dr. Walter L. Mason, Atkins, sentenced to serve two years in a federal penitentiary.

Dr. Matthias T. Whiekam, Blackwell, sentenced to serve eighteen months in a federal penitentiary.

**Clearing Ships at Quarantine by Radio.**—To facilitate the landing of steamship passengers in the port of New York, the U. S. Public Health Service will grant medical clearance to certain classes of regular passenger vessels by radio, effective February 1, according to the *New York Times*. The new radio system of "pratique" or medical clearance was hailed by steamship concerns as a step forward in increasing the convenience of ocean travel, it was stated, and is the most radical alteration of the country's sanitary defenses against the importation of foreign disease and pestilence since the first quarantine station was established in New York Harbor in 1758. The new system was devised and drafted by Dr. Charles V. Akin Jr., Rosebank, S. I. Ships eligible for the new medical clearance include any passenger vessel in regular service between New York and European ports, between the east and west coasts of the United States via the Panama Canal, between New York and the Panama Canal, and between New York and Bermuda and the West Indies. Vessels ineligible for this clearance are cargo vessels, vessels known or suspected of carrying quarantinable disease, vessels from ports where quarantinable disease is known or is suspected to prevail, vessels with commercial shipments of birds of the parrot family and any vessels of the eligible classification that do not carry qualified ship's surgeons familiar with quarantinable

diseases. These surgeons must be certified by the ship owners and by national health authorities where they are registered. Application for radio clearance must be made not more than twenty-four hours or less than twelve hours before its expected arrival at New York to the ship's agents or owners, who in turn get notification from the health station at quarantine. In the event that communicable disease develops on the ship after it has received clearance, the master of the ship must notify the health commissioner and hold victims of the disease in isolation pending disposition as directed by city health officers. Ships that have received clearance by radio will pass right through quarantine and go immediately to their docks. In some cases the abolition of the quarantine delay will save as much as half a day in docking ships.

**Medical Bills in Congress.**—*Changes in Status:* S. Res. 69, creating a Senate Select Committee on Government Organization, has passed the Senate. All bills and resolutions introduced in the Senate proposing legislation concerning reorganization, coordination, consolidation or abolition of units in the executive branch of the government will be referred to this committee. The committee is authorized to report to the Senate at any time by bill or otherwise its recommendations on any matters covered by the resolution. Any bill or resolution so reported is to be accorded a privileged status. H. J. Res. 81 has passed the Senate, with amendment, proposing to create a Joint Committee on Government Organization, with powers to investigate the organization and activities of the various units of the government to determine whether any such units should be coordinated, consolidated or eliminated. S. 115 has passed the Senate, proposing to add the name of Gustaf E. Lambert to those honored by the act recognizing the service rendered by Major Walter Reed in the discovery of the cause and means of transmission of yellow fever. *Bills Introduced:* H. R. 2714, introduced by Representative Tolán, California, proposes to provide employment for the blind citizens of the United States and its possessions. H. R. 3589, introduced by Representative Colmer, Mississippi, proposes to extend to contract veterinarians the benefits accorded veterans of the Spanish-American War, including the Philippine Insurrection and the China Relief Expedition. H. R. 3676, introduced by Representative Dowell, Iowa, proposes to erect a three hundred bed addition to the veterans' hospital at Des Moines, Iowa, for the treatment of general medical and surgical disabilities. H. R. 3680, introduced by Representative Pfeifer, New York, proposes to amend the Social Security Act by authorizing an appropriation of \$25,000,000 to assist states, counties, health districts, and other political subdivisions of the states in the control of venereal diseases. H. R. 3796, introduced by Representative Kvale, Minnesota, proposes to extend the privileges of compensation and hospitalization accorded to members of the American military forces to American citizens who volunteered in the French military forces and while serving in the Foreign Legion or while serving in flying status in the Lafayette Escadrille or Lafayette Flying Corps, received injuries of a permanent nature of more than a 10 per cent degree in line of duty between the dates of April 6, 1917, and Nov. 11, 1918.

## Government Services

### Pennsylvania Accredited for Tuberculosis Eradication

Federal recognition of Pennsylvania as a modified accredited area, the state having reduced bovine tuberculosis to less than 0.5 per cent, was celebrated with special ceremonies at Harrisburg, December 16. Forty-three states have now been accredited.

### Government Builds Second Narcotic Farm

The cornerstone of the United States Narcotic Farm will be laid at Fort Worth, Texas, February 13. Speakers at the ceremonies will include Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, and Miss Josephine Roche, Assistant Secretary of the Treasury, Washington, D. C. This is the second narcotic farm to be built by the U. S. Public Health Service under the jurisdiction of the division of mental hygiene. The first was opened in May 1935 at Lexington, Ky. During the first year the Lexington institution admitted 1,240 persons as patients. Of this number 283 were voluntary patients. According to the annual report of the public health service "there is no question that the treatment of narcotic addiction in a hospital has distinct advantages over the management of such cases in a correctional institution."

prohibition experiment, and the publicity was both misdirected and too concentrated. These mistakes must not be made again.

The Advisory Committee to the United States Public Health Service has recognized that there would be difficulties facing the educational campaign. "It is recognized," said the committee, "that much may be done to improve this material and to direct it more specifically to the people in need of advice. It would be of great assistance if the Public Health Service were to carry out a thorough study of public health educational programs and methods. Such a study should include the usefulness of the radio, the press, motion pictures, pamphlets and posters; lectures, exhibits, and other methods in the educational program. There is now a wealth of practical experience in the use of these media in general, but little accurate knowledge of the principles, practices and results of popular education pertaining to the venereal diseases." This study should be conducted by recognized experts in the field of publicity. Pending the result of such a study, it would be well if the publicity campaign could be more closely guided by the two most competent and appropriate medical agencies, the American Medical Association and the U. S. Public Health Service. The foundations must be built slowly, accurately and firmly. This will prevent the development of a shaky superstructure that will collapse under our feet.

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## Current Comment

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### CALCIUM AND IRON IN BLOOD FORMATION

Many of the life processes of the organism are known to be the resultants of integrated chemical reactions. The student of comparative biochemistry is likely to view these as results of the adaptations whereby evolution has taken place. Thus the orderly oxidation of fat in the body ordinarily requires the concomitant combustion of carbohydrate; the utilization of iron seems to depend, in part, on the presence of copper; the efficiency of the respiratory pigment is conditioned by the presence of inorganic salts and, without free hydrochloric acid, peptic digestion does not proceed normally. With further investigation, more relationships of this sort will be uncovered. A recent study by Orten, Smith and Mendel<sup>1</sup> has emphasized the close relationship between calcium and iron in the formation of erythrocytes and hemoglobin. With the albino rat as the experimental animal, it was shown that the characteristic and abnormal blood picture resulting from a severe restriction of inorganic salts in the food could be changed toward the normal condition by adding only calcium to the diet; likewise growth, which had ceased on the deficient ration, was resumed without the caloric intake being increased. The addition of iron at this stage was essentially without effect. If, however, iron alone was added to the salt-poor experimental ration

at the outset, it exerted a favorable effect on the blood cells for a time, apparently, according to the authors, until the available store of calcium in the skeleton had been depleted. Clinical experience abounds with instances of a close correlation between these two important elements. Frequently deficient hematopoiesis is attributed to the untoward alteration of the structure of the bone resulting from faulty calcium metabolism; a chemical explanation, as herein suggested, may not infrequently be more tenable.

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### NASAL VENTILATION IN CONTROL OF HEADACHE

One of the problems often confronting the practicing physician, according to Parkinson,<sup>1</sup> is that of long standing recurrent headache. In a proportion of the cases one can determine quickly and with considerable accuracy, he believes, whether a headache is or is not of local origin by noting the effect of thorough ventilation of the nose and the sinuses. "Local origin" he defines as arising from a known cause such as undue positive or negative pressure within a sinus or contact pressure of swollen intranasal structures. Obviously, a negative effect from ventilation is not as diagnostically reliable as a positive effect. Shrinkage of the nasal mucosa and displacement of ephedrine solution into the sinus ordinarily are easily and quickly carried out. The "lateral head-low posture" is, Parkinson believes, adequate for this purpose, because it is based on the anatomy of the region. It has the advantages of simplicity and directness and can be carried out entirely without discomfort and with little trauma. The posture mentioned has been shown to make available for displacement simultaneously all the sinuses of one side or of both sides, unless they are barred by hyperplasia or by other unshrinkable tissue. This seems like a useful and safe method of diagnosis and control of headache due to abnormalities of pressure in the accessory sinuses.

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### DICTAPHONE DUST DERMATITIS

The list of substances alleged to produce dermatitis in sensitized persons continues to increase. One of the most recent additions to the group of offending agents is dust from dictaphone cylinders.<sup>1</sup> Apparently, this is the first description of dermatitis from such a source. The subject was a man, aged 54, who was employed in a large business office in which dictaphones were used. Since the installation of the machines, about eight years ago, he had experienced intermittent attacks of dermatitis affecting the face, the back of the hands and the ankles. He had observed that his skin cleared and remained normal during a period of five months when he had been away from the office—and dictaphones. Recurrences invariably followed contact with the machines. The patient was requested to secure some dictaphone dust as well as scrapings from the composi-

1. Parkinson, S. N.: Nasal Ventilation in Diagnosis and Control of Headache, *Arch. Otolaryng.* 24: 594 (Nov.) 1936.

1. Templeton, H. J., and Allington, H. V.: Dust from Dictaphone Cylinders as a Cause of Dermatitis, *Arch. Dermat. & Syph.* 34: 828 (Nov.) 1936.

1. Orten, J. M.; Smith, A. H., and Mendel, L. B.: *J. Nutrition* 12: 373 (Oct.) 1936.

cated in the country, my early boyhood was spent in the pleasant pursuit of studying animal life in fields, lanes, ditches, ponds and hedges." He began to train for a schoolmaster, but his interest in natural history decided him to become a surgeon. In 1878, at the unusually late age of 23, he joined the Middlesex Hospital School of Medicine, but he lost no time and qualified in 1882 and gained the F.R.C.S. six years later. At the school he won a scholarship and gold medals and came under the notice of the anatomist and distinguished surgeon Mr. Henry Morris, who made him a prosector. In 1881 he was appointed demonstrator of anatomy, and his interest in comparative anatomy and pathology led to his joining the prosectorium of the Zoological Gardens. He contributed valuable papers on these subjects to the *Proceedings of the Zoological Society* and the medical journals. He described the Zoological Gardens as "a rich hunting ground for pathological spoil" and in 1886 was able to write "Since 1878 I have systematically examined the bodies of 12,000 animals from fish up to man." This work gave great breadth to his knowledge of disease. With a philosophic mind stored with facts drawn from many sources, a keen scientific imagination and a simple and lucid style, he became a fascinating teacher with tongue and pen. Take this reflection on his work at the Zoological Gardens: "My attention has always been aroused by two very opposite conditions—the paucity and, in some cases, the absence of lesions to account for death; in the other case, by extensive disease of vital organs which must have been present for a considerable time without destroying life." Referring to the theory that in the human species the erect posture is responsible for prolapse of the uterus, he pointed out that this occurred with tolerable frequency not only in domesticated mammals but in the lioness, the deer, the antelope and other animals. Similarly he found flexion of the uterus in greater degree in monkeys than in women. He concluded that there must be other causes for these conditions than the erect posture.

In 1886 he was appointed assistant surgeon to the Middlesex Hospital and in 1891 surgeon to the Chelsea Hospital for Women. He devoted himself mainly to the surgical treatment of the diseases of women, a subject in which he was one of the pioneers. Before his time gynecology was in the hands of physicians who specialized in the subject before the antiseptic system made abdominal surgery possible. He was good at diagnosis and a rapid and skilful operator. He wrote and lectured extensively. A fluent speaker, he kept his audience on the alert by quips, unexpected examples drawn from the animal kingdom and homely but telling modes of expression sometimes drawn from the Bible. In dealing with clinical subjects he had the advantage of a foundation in pathology such as no one could claim. Among subjects with which he was particularly identified were the treatment of uterine myomas, pregnancy complicated by tumors, the after-effects of operations on the female pelvic organs, and gallstones. He was the greatest authority of his day on tumors, on which his book remained the standard one for thirty years. His interest in animal life led him to travel all over the world. He always brought back new facts which he turned to good account in his writings. In Spain the bull ring attracted him and he explained how the various steps were designed to weaken the muscles of the bull's neck and finally to bring him into such a position that the matador could use the espada with deadly effect. At the Royal College of Surgeons he was Erasmus Wilson lecturer (1885-1887), Hunterian professor of comparative anatomy and surgery (1887-1889), Bradshaw lecturer (1918), Hunterian orator (1923) and president (1923-1925). He was the first president of the Association of Surgeons of Great Britain and Ireland (which was founded in 1918, mainly by the efforts of Lord Moynihan), president of the Medical Society of London (1914) and president of the Royal Society of Medicine (1920). He was appointed by the war office to

collect the large number of specimens of gunshot injuries of the great war. The collection, with valuable clinical histories, is now housed at the Royal College of Surgeons.

In addition to numerous papers, the following are his most important books and contributions to books: "Comparative Dental Pathology," "An Introduction to Pathology" (based on three Erasmus Wilson lectures delivered at the Royal College of Surgeons), "Comparative Dental Pathology," "Ligaments, Their Nature and Morphology," "Dermoids," "Surgical Diseases of the Ovaries and Tubes," "Tumors Innocent and Malignant," "Tumors and Diseases of the Jaw," "Osteology" in Morris's "Anatomy," "Essays on Hysterectomy," "Diseases of Women" (with A. E. Giles), "Gallstones and Diseases of the Bile Ducts," "Tumors" in Keen's Surgery and also in Warren and Gould's International Textbook of Surgery, "Fibroids," "Misplaced and Missing Organs," "Man and Beast in Eastern Ethiopia" and "Man and Creatures in Uganda."

## PARIS

(From Our Regular Correspondent)

Jan. 2, 1937.

### Obligatory Retirement of Medical Teachers

The Pomaret bill, which will propose the surrender of the diploma and licenses to practice not only of physicians and dentists but also of members of all liberal professions, such as architects and engineers, at the age of 65, is scheduled to be debated in the national legislature. The fight against passage of such a law has been so well organized by the medical and dental professions in France that the chief sponsor of the bill, Mr. Pomaret, has been quoted as seeing the injustice of forcing professional men to retire at the age of 65 without any compensation in the form of a government pension. The object of the sponsors of the proposed law was to relieve the congestion in the liberal professions, thus permitting recent graduates to make more rapid progress than if the higher positions were occupied by their predecessors. The opposition to the bill has assumed formidable proportions, and at present it is doubtful whether the bill will be pushed. A severe blow in a similar direction has, however, been delivered as the result of the passage of a recent law according to which professors in the medical schools will be obliged to retire at the age of 65 instead of 70 as is at present the case in France. Professors in the Institute of France, who are appointed because of their research or other contributions to the progress of the arts, will be obliged to retire at the age of 55. This law has as one of its immediate results the obligatory retirement of four of the leading teachers in the Paris Medical School, including the cardiologist Laubry, who was recently elected to this chair. Another recent law would not permit any one who has retired on a government pension after reaching the age limit to add to his income by occupying any public office or the pursuit of any business or profession. This law would apply equally to those engaged in teaching in a public institution during a portion of their time and would prevent them from accepting compensation for work done outside such a position. These socialistic proposals have aroused such a storm of indignation, including the minister of public instruction, that their enforcement has been temporarily suspended.

### Medical Control of Sickness Claims in Social Insurance

Collusion between unscrupulous physicians and the insured necessitates constant supervision, through its medical inspectors, by the disbursing bureaus of the social insurance organization. A case was referred to, in a recent letter, in which such collusion had taken place. The physician was fined and given a short jail sentence. At a recent meeting of the Associated Disbursing Bureaus, Dr. Forestier of Paris outlined how medi-

are recurrent proposes to authorize the sterilization also of inmates who are afflicted with epilepsy, or incurable primary or secondary types of feeble-mindedness.

### IOWA

**Bill Introduced.**—S. 24, to amend the workmen's compensation act, proposes to make the employer liable to furnish and pay for the surgical, medical, nursing and hospital services necessary to treat an injured employee, without limit as to time or amount.

### KENTUCKY

**Louisville Quarantined.**—Strict quarantine on the west end of Louisville, the most deeply flooded area of the city, and a modified quarantine in an area extending five miles beyond the city limits on every highway entering the city were imposed by the state board of health effective February 1 to keep down epidemics in the wake of the flood. More than 125,000 persons had received inoculations for typhoid up to January 30, and 20,000 a day were continuing to receive them. Materials for 10,000 smallpox vaccinations have also been distributed. The U. S. Public Health Service is installing typing services for pneumonia serum, and an emergency hospital with operating rooms and oxygen tents has been set up in a city high school. Dr. Robert Olesen with a group of sanitary engineers and chemists of the U. S. Public Health Service, six biologists and chemists of the New York City Department of Health and representatives of the Tennessee Valley Authority were among those who went to aid Louisville in its fight against disease. Regulations have been issued for the reoccupation of the evacuated homes, warning especially that "the occupation of damp houses, especially by children and aged persons, is conducive to respiratory ailments, rheumatic disorders and greatly reduced resistance to other illnesses."

### MAINE

**Personal.**—Dr. Herbert R. Kobes, Augusta, has been placed in charge of the maternal and child health program now being carried out by the state department of health with social security funds.

**Society News.**—Dr. Edwin H. Place, Boston, addressed the Cumberland County Medical Society in Portland, December 11, on "Prophylaxis of Contagious Diseases."—At a meeting of the Hancock County Medical Society in Ellsworth, December 16, the speakers were Drs. Raymond Van Ness Bliss, Blue Hill, on "Chronic Lead Poisoning" and Raymond E. Weymouth, Bar Harbor, "Dextrose as a Therapeutic Agent."—The speakers before the Kennebec County Medical Association in Augusta, December 17, included Drs. Howard F. Hill, Waterville; Arch H. Morrell, Augusta, and Charles B. Popplestone, Rockland, who presented a symposium on syphilis. Dr. Harold G. Tobey, Boston, addressed the Penobscot County Medical Association, December 15, on "Acute Upper Respiratory Infections." Dr. Frederick T. Hill, Waterville, president of the state association, also spoke.—Dr. Jacob Schloss, Boston, discussed "Coma in Diabetes" before the Oxford County Medical Association and members of the staff of the Rumford Community Hospital, December 17.

### MASSACHUSETTS

**Psychiatric Awards.**—The New England Society of Psychiatry at its next spring meeting will make two awards, one of \$50 and one of \$25, to the writer of the best papers completed or published during the calendar year 1936, embodying research in psychiatry by a younger worker. Physicians, psychologists, social workers or others are eligible and membership in the society is not a requisite. Writers who have once received the award are not again eligible. Seasoned writers, senior physicians, or heads of departments in which there are junior workers, while not inevitably excluded, will not generally be regarded as eligible for the awards. The work on which the papers are based should preferably have been done in New England or by workers now living in New England. Copies of articles or marked copies of journals in which the articles appeared should be sent before March 1 to the secretary of the society, Dr. Harlan L. Paine, North Grafton, Mass.

**Bills Introduced.**—S. 136 proposes to authorize the establishment and maintenance, within either Essex or Middlesex County, of an institution for the care and treatment of persons who reside within said counties and are suffering from cancer. S. 194 proposes to establish an independent board of registration in "chiropody (podiatry)" and to regulate the practice of that calling. The bill defines chiropody (podiatry) as "the external treatment of the structures of the human foot

by medical, mechanical or surgical means without the use of other than local anaesthetics." The board of registration in chiropody (podiatry) is to consist of four chiropodists and one licensed physician. H. 720 proposes that in all proceedings for the discharge of a person from an institution for the insane the person shall have the right to be examined, at his own expense, by physicians of his own choice so as to enable them to testify in such proceedings. H. 724 proposes a new workmen's compensation act. Among other things, the bill proposes that, from the date a worker is injured, he shall be furnished, free of charge to himself, adequate and reasonable medical, hospital and nursing services without limit as to time or amount, and the injured worker is to be permitted to designate the physician, nurse or hospital to care for him. H. 1060 proposes to establish a commission, to consist of one senator, three representatives and one person appointed by the governor, to investigate and study physical therapy, electro-physiology, electrotherapeutics and hydrotherapeutic technic. This commission is to investigate and study anatomy, physiology, analysis of muscle and joint motion and scientific massage and to report to the general court the results of its investigations, with recommendations, before the first Wednesday of December 1937. H. 1150 proposes to repeal the compulsory vaccination law and to provide that no person shall be required to submit to any form of vaccination or inoculation as a condition precedent to admission to any public institution of learning or to the exercise of any right, performance of any duty or enjoyment of any privilege. The bill proposes also that any physician who vaccinates an adult under guardianship or a child, without the written consent of the parent of such child or the guardian of such adult, shall be subject to a fine of \$100 or imprisonment for one year or both. H. 1151 proposes to require whoever attends, treats or is called to attend a case of induced abortion to report such case at once to the police authorities and to the appropriate medical examiner. If such a case is treated in a hospital, the superintendent or other person in charge thereof is required to make the indicated report. H. 1255, to supplement the workmen's compensation act, proposes that an injured employee shall select a physician to treat him from a list of physicians established by the department of industrial accidents. H. 1425 proposes that an applicant for a license to operate a motor vehicle furnish a certificate executed on the basis of a medical examination, showing that the applicant is physically and mentally fit and has a favorable intelligence rating.

### MINNESOTA

**Bill Introduced.**—S. 163 proposes a new optometry practice act. It defines "optometry and the practice of the profession of optometry" as "the employment of any objective or subjective means or methods for the examination, diagnosis and determination of any optical defects, deficiencies or deformities of the refractive powers of the human eye, or any visual or muscular anomalies thereof, and the prescribing or adapting of lenses, prisms, ocular exercises or any means for its correction, aid or relief thereof." The bill proposes to make it unlawful for any person not duly licensed as an optometrist to practice optometry as just defined but provides that nothing contained therein "shall be construed as prohibiting any person duly licensed to practice any profession in this state from practicing his profession under the laws of this State relative thereto." Possibly this may be construed to prevent licensed physicians from fitting eyeglasses and spectacles.

### MISSISSIPPI

**Dr. Dye Is Mayor of Clarksdale.**—Dr. Thomas M. Dye is now mayor of Clarksdale, in Coahoma County, according to the *Mississippi Doctor*. He has been secretary of the state medical association since 1917. Clarksdale has a population of 10,043.

**New Health Unit.**—A new health unit was placed in operation in Jones County January 1, with Dr. Alton R. Perry, Natchez, formerly health officer of Adams County, in charge. Dr. Charles R. Gillespie, formerly of Greenwood, acting director of Leflore County, will succeed Dr. Perry in Adams County.

**Society News.**—The East Mississippi Medical Society was addressed in Meridian, December 10, by Drs. Eugene B. Vickery, New Orleans, on "Present Day Diagnosis and Treatment of Renal Tumors"; Ray L. Rhymes Jr., Meridian, "Pediatric Surgery"; Charles F. Craig, New Orleans, "Amebiasis," and Seale Harris Jr., Birmingham, Ala., "Treatment of Cardiovascular Syphilis."—Dr. John T. Sanders, New Orleans, discussed "Diagnosis and Treatment of Carcinoma of the Uterus and Cervix" before the Tri-County Medical Society in Brookhaven, December 8.

Standards applied to individual young persons before aid is granted are political and moral reliability, scholarly capability and economic want. Assistance may take the form of a loan scheduled to mature within from one to five years or a monthly stipend may be granted. In this way the youthful graduates are assured a minimum income on which to subsist as well as the possibility of marriage. The funds are supplied from the treasury of the German Docents' Society and by the National Federation of German Universities. The latter organization has only just been disbanded. The self-help activities are to be subsidized in future by voluntary contributions. The exact rates of contribution have been established by the National Ministry of Public Instruction and they are so scaled that any one kindly disposed toward the cause may contribute his bit. This means a sacrifice on the part of some persons but in the interest of the greater number. Along with the financial aid there shall be an equitable distribution under supervision of the Reichsdozentenwerk of the available assistantships and other posts.

A comparison of the foregoing with the data on the "condition of the brain workers," which recently appeared in *Soziale Praxis*, is of particular interest. The total number of such workers is reckoned at around 608,000; this group is distributed professionally, 265,000 in technical-scientific fields, 142,000 in the arts, 99,000 in education and 102,000 in other fields of intellectual endeavor. There are in Germany today about 36,000 architects, 211,000 engineers, 13,000 chemists, 51,000 physicians, 12,000 dental physicians, 48,000 teachers of special subjects, 19,000 attorneys and 17,000 publicists. In the year 1933 there were registered at the employment offices 93,000 unemployed brain workers; by 1936 this number had been reduced to 28,500.

The retrogression in the number of the unemployed has been especially marked in the technical professions; there were in June of this year only about 7,000 unemployed technicians. In addition to this favorable outlook for the engineers there has been an increased demand for physicians. Little improvement is apparent in the condition of the legal profession; statistics show that even now 41 per cent of its members earn less than 3,000 marks yearly. Women teachers too are in a bad way. Men teachers fare slightly better despite the overcrowding in the teaching field. In 1933 there were about 29,000 unemployed artists; during the current year this number had sunk to somewhat below 19,000. Whereas 43,600 persons completed the secondary schools in 1933, only 25,850 had done so in 1936. In the summer semester of 1932 there were 18,300 new matriculants in the universities; for the winter semester 1935-1936 the corresponding figure was 9,100 matriculants, and for the summer semester of 1936 only 5,500.

## BUCHAREST

(From Our Regular Correspondent)

Dec. 4, 1936.

### Four Thousand Cases of Pellagra in One County

In the county of Gorj, 4,000 cases of pellagra have occurred in the last two months. A committee sent to this district to investigate established that the probable cause of the epidemic is the consumption of unripe maize. In this district bread is made from maize flour mixed with wheat flour, the ratio being 3:1. But maize flour is used also in cooked form. The popular dish of the peasants, called mamaliga, is made from maize flour and milk and a little cheese. While the disease generally makes its appearance during the spring months, in this case it occurred in the late summer and early fall. Another striking feature is the acute character of the onset. The rashes on the hands and feet are very painful. The county health officer hastened to the help of the unfortunate patients by distributing

large quantities of wholesome wheat flour and preparations containing vitamins. Severely affected persons were taken to hospitals, while the less severely affected were treated in their homes. Since this intervention no new cases have occurred.

### Marriage of Leprous Patients in the Rumanian Leper Camp

In the district of the Danube delta there are a number of lepers for whom the state erected a camp on the border of the village of Tichilesti, where they are kept under strict medical supervision. There are men and women of all social classes. Recently two couples appealed to the camp physician for permission to marry. In one instance a man of 26 wanted to marry a woman of 26. In the other instance a man of 36 asked the hand of a 16 year old girl. As the law does not forbid the intermarriage of leprosy patients, the doctor had to give his consent, explaining that the couples would have to remain in the camp all their life. An improvised altar was put up on the meadow adjacent to the village, and a clergyman and a registrar appeared in white coats and leather gloves; the parties did not write their signatures into the registry book, as is customary. After the short ceremony the newly married couples returned to the camp and the clergyman, the registrar and the physicians burned their white cloaks, gloves and shoes and fumigated all the witnesses.

### National Congress on Contagious Diseases

The first Rumanian Congress on Contagious Diseases was held in Craiova. M. Costinescu, minister of health, presided and all the counties of Rumania sent official delegates. Dr. Costinescu, minister of health, said that the child mortality rate in Rumania is the highest in Europe. The cause is contagious diseases. Far reaching public health innovations are necessary to check the ravages of contagious diseases. Public health organizations have to be extended to the most remote villages. Dr. Viorel Popescu emphasized the necessity of holding graduate courses to make the prophylaxis of contagious diseases more efficacious. He showed that in the rural districts the mortality rate due to contagious diseases is three times that in towns. The cause of this is neglect of the villages. At present, one physician has under his care usually thirty villages, or 20,000 to 30,000 persons. The position of the village physicians is aggravated by the small salary given them. Dr. Anastaziu urged the erection of more hospitals for contagious diseases in the rural districts, rendering possible the segregation of infectious patients. In his opinion it is the duty of the health ministry to insure that at most 10,000 persons shall have one physician, every 3,000 inhabitants shall have one relief station and every 2,000 souls shall have one nurse. The doctor and his staff shall dwell at the seat of the relief station and at the same place shall be an infirmary for epidemic cases and also an ambulance.

### The Bust of Professor Babes

A bust of the late Professor Babes, founder of the first Pasteur institute in Bucharest, was unveiled in Bucharest October 27. The bust is placed in a beautiful square, opposite the Bucharest Bacteriologic Institute. Memorial addresses were made by Professors Bacalogliu, Ciuca, Manicatide, Marinescu and Proca. At the same time the remains of Professor Babes were interred in the crypt situated in the garden of the bacteriologic institute. He died ten years ago and was buried in the Bucharest Greek Catholic cemetery.

### Meeting of the Balkan Medical Union

The Congress of the Balkan Medical Union was held this year in Istanbul, Turkey, October 7-13, and it was attended by about 200 members, chiefly from Turkey, Rumania, Yugoslavia and Greece. The main topic of discussion was the position of



**Society News.**—Dr. Charles H. Manlove, Portland, addressed the Klamath and Lake county medical societies at a special meeting, January 13, on the etiology of polycystic kidneys.—The Alumni Association of the University of Oregon Medical School will hold its next meeting March 8-10 in Portland, celebrating the fiftieth anniversary of the founding of the medical school.—Dr. Louis P. Gambee, Portland, addressed the Central Willamette Medical Society, Eugene, December 3, on intestinal obstruction.

### PENNSYLVANIA

**Bill Introduced.**—H. 255 proposes to create a chiropractic board of examination and licensure in the department of public instruction and to regulate the practice of chiropractic. Chiropractic is defined as "the examination of the human spine by observation, palpation or x-ray and the adjustment of any or all misalignments of vertebrae or adjacent bones or tissues through the use of the hands."

**Pneumonia and Venereal Disease Control Commissions Appointed.**—Dr. Maxwell Lick, Erie, president of the Medical Society of the State of Pennsylvania, has appointed a commission for the study of pneumonia control in accordance with action of the society's house of delegates at the 1936 meeting. Members are Drs. Edward L. Bortz, Philadelphia, chairman; Edward W. Bixby, Wilkes-Barre; George J. Kastlin and Clifford C. Hartman, Pittsburgh; T. Grier Miller, Henry K. Mohler and Leon H. Collins Jr., Philadelphia; Clifford W. Skinner, Meadville, and Mathew H. Sherman, Harrisburg. Dr. Lick has also appointed a commission on the control of syphilis and venereal diseases with the following members: Drs. Robert L. Gilman, Philadelphia, chairman; Daniel P. Ray, Johnstown; William B. Washabaugh, Erie; Francis M. Ginley, Scranton; Harold L. Mitchell, Pittsburgh, and James M. Henninger, Woodville.

### Philadelphia

**Death of Mr. Blakiston.**—Mr. Kenneth Mackenzie Blakiston, president of the publishing firm of P. Blakiston's Son & Company since 1898, died January 19, aged 77. Mr. Blakiston was connected with the firm for more than sixty years.

**Faculty Changes at Temple.**—Dr. Thomas Klein has been appointed professor of clinical medicine and Dr. Sherman F. Gilpin clinical professor of neurology at Temple University School of Medicine, it was recently announced. Promotions announced include the following:

Dr. Samuel B. Hadden, to be clinical professor of neurology.  
Dr. Edwin Sartain Gault, associate professor of pathology and bacteriology.  
Dr. Harry E. Bacon, assistant professor of proctology.  
Dr. Daniel J. Donnelly, assistant professor of medicine.

**University Alumni Honored.**—At Founder's Day exercises at the University of Pennsylvania, January 23, in tribute to the memory of Benjamin Franklin, Drs. George E. de Schweinitz, emeritus professor of ophthalmology, and Robert Tait McKenzie, sculptor and research professor of physical education, were among six alumni who received awards of merit. The citations, inscribed on scrolls, were presented by Luther Martin, New York, president of the General Alumni Society, which sponsored the exercises. Dr. Arthur Bruce Gill was elected director-at-large of the society.

### UTAH

**Bills Introduced.**—H. 48 proposes that all "registered physicians and surgeons recognized by the laws of the state of Utah" shall have equal privileges in treating patients in tax free hospitals. H. 55 proposes to require applicants for licenses to practice any form of the healing art, as a condition precedent to their right to be examined by their respective professional committees, to pass examinations in anatomy, physiology, pathology, bacteriology and chemistry so far as they relate to the human body or mind. Such examinations are to be given by a committee of basic science examiners, to consist of five members, all of whom must be full-time, paid professors or associate or assistant professors teaching all or part of the basic sciences enumerated and none of whom may be actively engaged in the practice of the healing art. S. 58, to amend the workmen's compensation act, proposes to add to the list of compensable occupational diseases "poisoning by benzol or nitro-hydro, hydroxy-, and amido-derivatives of benzene (dinitro-benzol, anilin, and others) or its sequelae; poisoning by carbon bisulfide or its sequelae, or any sulfide; poisoning by nitrous fumes or its sequelae; poisoning by nickel carbonyl or its sequelae."

**Report of Committee on Syphilis.**—The Utah State Medical Association recently appointed a committee to cooperate with the state board of health in a campaign against syphilis

and other venereal diseases. The committee has made a preliminary report. Among the recommendations are (1) that the state board of health furnish blank forms to physicians for reports of cases, (2) that the state furnish antisyphilitic drugs free to physicians for indigent patients and those with small incomes and (3) that physicians agree to charge patients of moderate incomes \$2 for administering intravenous drugs and \$1 for administering intramuscular drugs. The committee also recommended that Wassermann tests on pregnant women be made compulsory and that prenuptial Wassermann tests be popularized through education. To help educate the public the committee suggested that the association and the board of health appeal to physicians to disseminate information to their patients, that a group of speakers be prepared to address medical and lay assemblies, and that a full time specially prepared man be detailed from the U. S. Public Health Service to direct this work. Use of the radio, newspapers and educational institutions to help spread information was recommended. Dr. Edward S. Pomeroy is chairman of the committee, and members are Drs. John U. Giesy, Richard P. Middleton, Francis A. Goeltz, Walter G. A. Schulte, Clifford J. Pearsall and Legrand Woolley, all of Salt Lake City.

### VERMONT

**Personal.**—At the recent annual meeting of the Vermont State Medical Society Dr. James N. Jenne, Burlington, resigned from the medicolegal committee after a membership of twenty-five years.

**Bill Introduced.**—H. 23, to amend the medical practice act, proposes (1) to provide that five, instead of four, members of the board of medical examiners be nonsectarian physicians and that two members be homeopaths; (2) to eliminate the present requirement that one board member be an eclectic physician; (3) to authorize the board, in its discretion, to refuse to license applicants who are graduates of foreign universities or medical schools unless their credentials have first been passed on by the national board of medical examiners or by the Council on Medical Education of the American Medical Association; (4) to require that applicants to be licensed must pass written examinations in the subjects enumerated, with an average grade of 75, with not less than 60 in any one subject, examinations in materia medica being conducted by members of the board representing the same school as the applicant, if the applicant so requests; (5) to add gynecology to the list of subjects in which applicants are examined, and (6) to exclude from the operation of the act "the domestic administration of family remedies."

### WASHINGTON

**Bill Introduced.**—S. 62 proposes to authorize the director of licenses to appoint an examining committee in naturopathy and to regulate the practice of naturopathy. The bill nowhere attempts to define such practice or to state the scope of such a license. It provides, however, that "the intent of this act is to establish naturopathy in the state of Washington as a complete system of therapeutics consistent with the basic philosophy as recognized by the Washington State Naturopathic Association." Apparently an applicant for such a license must pass examinations in the basic sciences to be given by the examining committee in the basic sciences before the proposed naturopathic committee may examine or license him.

### WISCONSIN

**Bill Introduced.**—A. 19 proposes to prohibit any agent of a relief agency, employer, agent of an employer, or agent of an insurance company from influencing, inducing or persuading, or attempting to influence, induce or persuade, an injured or sick person to engage any particular physician or surgeon or to change from a physician or surgeon engaged for attendance on him to another. The bill, however, is not to apply "to life insurance companies in any county where a county physician is employed continuously or in any city where a city physician is employed continuously."

### WYOMING

**Bills Introduced.**—H. 27 proposes to create a board of chiropodist examiners and to regulate the practice of chiropody. The bill proposes to define "a chiropodist, also called a podiatrist . . . as one who for hire, or reward, examines, diagnoses, or treats medically, mechanically, surgically, or by electrical and manipulative means, or by bandaging and strapping the ailments of the human foot." The bill further proposes to define "medical treatment" as the local application or recommendation of any therapeutic agent or remedy for the relief of foot ailments; "mechanical treatment" as the employ-

## Deaths

**William Guilford Stearns** \* Chicago; Northwestern University Medical School, Chicago, 1893; professor of pathological anatomy and general pathology at the Northwestern University Dental School, 1894-1898, and assistant professor of mental diseases and medical jurisprudence at his alma mater, 1898-1900; lecturer of neurology at the College of Physicians and Surgeons, 1900-1902; fellow of the American College of Physicians; member of the American Psychiatric Association and the Central Neuropsychiatric Association; chairman of the section on insanity of the National Conference of Charities and Correction in 1898; served with the Medical Advisory Board No. 3E, Selective Service, as a consultant in neuropsychiatry, 1917-1919; assistant physician to the Illinois Eastern Hospital for the Insane, Kankakee, Ill., 1894-1895, pathologist, 1895-1897, and medical superintendent, 1897-1899; medical superintendent of the Oakwood and Lakeside Sanatoria, Lake Geneva, 1900-1904; medical director of the North Shore Health Resort, Winnetka, Ill., 1931-1936; aged 71; died, January 11, at his home in Evanston, Ill.

**Ernest Ellsworth Laubaugh** \* Boise, Idaho; Medico-Chirurgical College of Philadelphia, 1909; fellow of the American College of Physicians; formerly secretary of the Idaho State Medical Association; assistant demonstrator of physical diagnosis at his alma mater, 1911-1912, and assistant in the department of neurology, 1912-1913; bacteriologist to the state board of health, 1913-1917, and medical advisor to the department of public welfare, 1919-1920; served during the World War; director of laboratories, St. Luke's Hospital; chief of laboratory service, St. Alphonsus Hospital; formerly director of the clinical laboratory, Veterans Administration Facility; aged 49; died, Dec. 13, 1936, of pneumonia.

**Oscar Edwin Locken** \* Crookston, Minn.; University of Minnesota Medical School, Minneapolis, 1920; speaker of the House of Delegates of the Minnesota State Medical Association; first vice president and member of the executive committee of the Minnesota Public Health Association; formerly mayor of Crookston; at one time health officer of Crookston; past president of the Minnesota Sanitary Conference, Red River Valley Medical Society and the Minnesota League of Municipalities; president of the Sunnyston Sanatorium Commission; member of the state planning board; on the staff of the Bethesda and St. Vincent's hospitals; aged 45; died, January 18, of pneumonia.

**Herman Schwatt** \* Spivak, Colo.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; past president of the Denver Sanatorium Association; medical director and superintendent of the Sanatorium of the Jewish Consumptives' Relief Society; formerly medical director of the Workmen's Circle Sanatorium, Liberty, on the staffs of the Montefiore Hospital, New York, Montefiore Hospital Country Sanatorium, Bedford Hills, and St. Joseph's Hospital for Consumptives, New York; aged 58; died, January 7, in the Beth Israel Hospital, Denver, of influenza.

**Lewis Albert Sexton** \* Hartford, Conn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1906; past president of the American Hospital Association, the Connecticut Hospital Association and the New England Hospital Association; assistant superintendent of the Johns Hopkins Hospital, Baltimore, 1914-1917; superintendent of the Hartford Hospital from 1917 to 1936, when he became director emeritus; aged 60; died, Dec. 3, 1936, of carcinomatosis.

**William Denison Morgan**, Hartford, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1876; member of the Connecticut State Medical Society; medical director of the Phoenix Mutual Life Insurance Company; for many years honorary chairman of the executive committee of the Hartford Hospital; aged 86; died, Dec. 17, 1936, of carcinoma of the bladder, bilateral pyelonephritis and prostatic hypertrophy.

**Thomas Warren Luce** \* Portsmouth, N. H.; Medical School of Maine, Portland, 1895; past president of the New Hampshire Medical Society; fellow of the American College of Surgeons; member of the New England Surgical Society; past president of the Rockingham County Medical Society; chief surgeon to the Portsmouth Hospital and consulting surgeon to the New Hampshire Memorial Hospital, Concord; aged 66; died, Dec. 11, 1936, of endocarditis.

**Andrew Jackson Goodwin**, Wheeling, W. Va.; University of Pennsylvania School of Medicine, Philadelphia, 1915; member of the West Virginia State Medical Association; assistant

medical adviser at Cornell University, Ithaca, N. Y., 1916-1917; served during the World War; formerly on the staff of the Mayo Foundation as fellow in surgery; on the staff of the Ohio Valley General Hospital; aged 46; died, Dec. 4, 1936, of pneumonia.

**John Chase Sexton**, Rushville, Ind.; Medical College of Ohio, Cincinnati, 1882; member and past president of the Indiana State Medical Association; past president of the Rush County Medical Society; at one time professor of gastrointestinal surgery, Indiana University School of Medicine, Indianapolis; owned and operated the hospital now known as the Rushville City Hospital; aged 77; died, Dec. 28, 1936.

**Henry Van Velsor Holcomb** \* Hempstead, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1903; fellow of the American College of Surgeons; member of the surgical staff of Nassau Hospital, Mineola, Mercy Hospital, Hempstead, South Nassau Communities Hospital, Rockville Center; aged 59; died, Dec. 23, 1936, of arteriosclerotic heart disease.

**Howard Townsend Swain** \* Boston; Harvard University Medical School, Boston, 1897; fellow of the American College of Surgeons; member of the New England Pediatric Society; at one time assistant in obstetrics at his alma mater; on the staffs of the Massachusetts General Hospital and the Boston Lying-in Hospital; aged 68; died, Dec. 6, 1936.

**Arthur Charles Echternacht**, St. Louis; State University of Iowa College of Medicine, Iowa City, 1905; member of the Illinois State Medical Society and the Radiological Society of North America; director of laboratories at the Missouri Baptist and Christian hospitals; aged 57; died suddenly, Dec. 16, 1936, of coronary thrombosis.

**Henry Lord Cochran**, New York; Long Island College Hospital, Brooklyn, 1879; formerly instructor in operative surgery at his alma mater; for many years examiner for the Commercial Travelers Mutual Accident Association of America; retired colonel of the national guard; aged 81; died, Dec. 28, 1936, of paralysis agitans.

**James Claude Kessler**, Iowa City, Iowa; State University of Iowa College of Medicine, Iowa City, 1906; member of the Iowa State Medical Society; at one time assistant professor of dermatology at his alma mater; formerly on the staff of the University hospitals; aged 56; died, January 1, of cerebral hemorrhage.

**Coleman Lovejoy Hoffman**, Oak Park, Ill.; State University of Iowa College of Medicine, Iowa City, 1903; member of the Illinois State Medical Society; veteran of the Spanish-American War; aged 58; died, Dec. 17, 1936, in the West Suburban Hospital of acute nephritis, uremia and Kimmel's disease.

**Edward Hofma**, Grand Haven, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1884; formerly state senator and member of the board of education; bank president; medical officer to the Wellman expedition to the north pole; aged 77; died, Dec. 15, 1936, of arteriosclerosis.

**Elmer Llewellyn Meyers** \* Wilkes-Barre, Pa.; Jefferson Medical College of Philadelphia, 1901; fellow of the American College of Surgeons; for many years member of the city board of education; aged 72; on the staff of the Wilkes-Barre General Hospital, where he died, Dec. 17, 1936, of pulmonary embolism.

**Wayland Briggs Cunningham** \* Port Arthur, Texas; Eclectic Medical College, Cincinnati, 1928; past president of the Lincoln County (Ky.) Medical Society; member of the Kentucky State Medical Association; aged 38; died, Dec. 6, 1936, in an automobile accident at Oakdale, La.

**Eugene Howard Goodfellow**, Brooklyn; Albany (N. Y.) Medical College, 1894; served during the World War; for many years connected with the Veterans Administration; aged 66; died, Dec. 27, 1936, in the New York Polyclinic Medical School and Hospital, New York, of pneumonia.

**David Daniel Goldstein** \* New York; University of the City of New York Medical Department, 1890; fellow of the American College of Surgeons; aged 67; on the staffs of the Sydenham Hospital and Mount Sinai Hospital, where he died, Dec. 6, 1936, of streptococcal sore throat.

**William Lyman Guild**, Wayne, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1884; Chicago Homeopathic Medical College, 1892; member of the Illinois State Medical Society; surgeon to the Chicago, Aurora and Elgin Railroad; aged 77; died, Dec. 18, 1936.

**Roland Roderic Keiser** \* Mahanoy City, Pa.; Jefferson Medical College of Philadelphia, 1923; member of the city

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Jan. 2, 1937.

#### Anatomic Variations of Alimentary Tract

At the annual Congress of Radiology, held in London, an important discussion took place on anatomic variations of the alimentary tract. Sir Thomas P. Dunhill dealt with the esophagus and thoracic stomach. He reported a case of short esophagus with parietal thoracic stomach sent to him with the diagnosis of carcinoma of the esophagus and roentgenograms that were supposed to show this. He made a barium sulfate examination which showed clearly a short esophagus and thoracic stomach. He subsequently saw twenty-five similar cases. In such cases an increase took place in the amount of the stomach which gradually found its way into the thorax, and then retention of contents in the esophagus produced ulceration above the narrowed stricture, with increasing dilatation. In certain cases an esophagus of normal length herniated back into the thorax. Not many cases had been seen in England until recently, though they had been reported in the United States.

#### THE STOMACH AND DUODENUM

Dr. R. B. Myles said that anatomic variations had not yet been put in their proper compartments in the English textbooks. The J-shaped stomach might be described as normal in the average person, the transverse stomach was normally seen in the person of stocky or obese build, and the long or hyposthenic stomach was perfectly normal in a long, thin patient. Alterations in the duodenum were largely dependent on the habitus of the patient. In the most normal type of orthotonic patient the duodenal cap was placed a little above the center of the duodenal loop, and the gastrojejunal junction at about the same level as the upper angle of the duodenal cap. A duodenal diverticulum showed as a smoothly rounded sac with clear-cut borders, close to the viscus, to which it was attached by a neck. In most cases duodenal diverticula were single, but occasionally there were two or three.

#### THE APPENDIX AND COLON

Dr. S. C. Shanks said that the appendix, being vestigial, was subject to many anatomic variations in length, lumen, position and mobility. The classic appearance with a barium sulfate meal was that of a blind tube 3 or 4 inches long, from 2 to 4 mm. in caliber, and showing a gentle single or double curve. There might be marked variations. Its length might be represented by a mere thread of barium, or the caliber might be 5 or 6 mm. Muscular tone and peristalsis might cause inconstant constrictions, which should be distinguished from permanent strictures. The colon might show anomalies of length, rotation, fixation or size. Congenital malformations of the rectum and anus were not susceptible to radiographic demonstration, as the alimentary canal ended blindly. But theoretically two could be demonstrated—the rectum in the male opening into the urethra by a narrow channel through the prostate, and the rectum in the female opening into the navicular fossa behind the vaginal orifice. But he could not find any record of such demonstration.

#### THE DIAGNOSIS AND TREATMENT OF CANCER OF THE LUNG

Dr. A. C. Christie said that cancer of the lung was increasing and at necropsy was found in from 5 to 10 per cent of cases of cancer. In every case it arose in a bronchus, from the indifferent epithelium in the basal layer of the mucosa. A high rate of metastasis was typical, apparently resulting from the circulation in the lung, which was intimately con-

nected with all parts of the body. The first and most frequent symptom was persistent coughing, the next pain in the chest, the third dyspnea and the fourth hemoptysis. The most important means of diagnosis was radiologic. Until recently the prognosis was considered hopeless, but now a few cured cases had aroused hopeful expectancy. A few daring surgeons in several countries had removed the cancer. The results of radiotherapy were encouraging, but it had no place as a pre-operative measure. It could usefully be directed against the tumor through the open wound. Dr. Christie referred to a woman whom he saw in 1928 with a cancer in the right main bronchus. The chest was opened and radiation directed against the tumor. She was still alive and well. He suggested that the intrathoracic application of x-rays to the stump of the tumor might be made ideally by low voltage, soft x-rays, without damage to deeper structures.

#### The Control of the Sale of Poisons

The regulations governing the sale of poisons have been greatly tightened in recent years. The passing of the pharmacy act of 1933 and the coming into force of the poisons rules of 1935 have made a great difference. Before these became effective any one could obtain deadly poisons, and at inquests coroners deplored the ease with which fatal drugs could be bought from pharmacists. The position indeed became so dangerous that the government suggested to the Pharmaceutical Society that means should be taken to prevent the indiscriminate supply of dangerous drugs, and new administrative machinery became necessary in order that the new regulations might be brought into force. Every pharmacist's shop had to be registered. The Pharmaceutical Society appointed inspectors, and membership in the society, formerly optional, became compulsory, resulting in an increase of membership from 16,000 to nearly 23,000. Such dangerous drugs as alkaloids can now be obtained only from registered pharmacists, the purchaser must be known to the seller, and the sale must be entered in a poisons register. Barbitol and other barbiturates, which have figured in so many inquests, may no longer be supplied to the public except on a medical prescription. Poisonous substances of commercial use for the destruction of vermin and other purposes, such as arsenical compounds, barium salts, strong sulfuric acid and sodium hydroxide, can still be obtained from dealers, but these have to be registered by the local authorities. No figures have yet been published showing the benefit derived from the new regulations, but they render it much more difficult to obtain poisons for self drugging or for criminal purposes and should therefore diminish the numbers of cases of accidental, suicidal and criminal poisoning.

#### Sir John Bland-Sutton

Sir John Bland-Sutton, surgeon, anatomist, comparative anatomist, pathologist, comparative pathologist, naturalist and traveler, has died in his eighty-second year. This list shows why the *Times* remarks that the profession has lost "a type of surgeon so rare as to be produced only once or twice in a century," and it might have added "only in Britain." Other countries have of course produced their great men in all these sciences but it is their cultivation by a foremost surgeon that is peculiar. The Swiss physiologist Haller of the eighteenth century might be supposed to be an example. He was equally eminent as an anatomist and botanist but, though he lectured on surgery, he never performed an operation. The first and greatest example of the type of Bland-Sutton was "the father of scientific surgery," John Hunter, who took life itself for his study. It does not seem likely that any more men of this type will be produced, for we live in an age of increasing specialism, in which workers "know more and more about less and less."

The son of a field naturalist, he followed his father's bent and wrote in his *Introduction to Pathology* "born and edu-

## Correspondence

### A SIMPLE METHOD FOR LOOSENING STUCK SYRINGES

*To the Editor:*—Often stuck syringes are encountered and there are no special devices available to loosen them. Unless hopelessly stuck, they may easily be loosened with materials found in any physician's office. The smallest syringe at hand, a tuberculin or a 2 cc. syringe, is filled half full of water and a one-half inch hypodermic needle is attached. The needle is passed through a thickness of rubber, such as a rubber band, and then inserted firmly into the tip of the stuck syringe. Pressure is then made on the plunger of the syringe containing water, which in turn is transmitted to the stuck plunger, forcing it loose. The smaller the area of the end of the free plunger to that of the stuck plunger, the greater the hydraulic advantage obtained. Some care should be used in attempting to free badly stuck syringes by this method.

J. B. HOPKINS, M.D., Richmond, Va.  
601 State Office Building.

### REDUCING FLUIDS FOR REMOVING SILVER PIGMENTATION

*To the Editor:*—Dr. Cornbleet, in his communication published in THE JOURNAL Dec. 12, 1936, page 1989, criticizes the use of the term "reducing fluid" with reference to the mixture of potassium ferricyanide and sodium thiosulfate used in removing silver pigmentation from the skin. I have no doubt that the writer of the answer to the query which Dr. Cornbleet criticizes used the term "reducing fluid" in the same way that it was used by Dr. Lawless and myself in our articles on the subject, that is, a photographic reducing fluid, a fluid which reduces overexposed negatives. In this sense I believe Dr. Cornbleet will grant the propriety of the expression.

On the other hand, how does Dr. Cornbleet know that the mixture used, containing 1 per cent potassium ferricyanide and 6 per cent sodium thiosulfate, is an oxidizing agent in the chemical sense? Other eminent chemists confess their uncertainty on this point. The reactions in vitro are much more complicated than the formulas offered by Dr. Cornbleet. Furthermore, the reaction in the tissue are wholly unknown. We do not know the nature of the light colored form of silver deposited in the upper cutis, which turns dark on exposure to light. Until we know this and a great deal more about the effect of tissue fluids on chemical reactions in the skin, it seems to me presumptuous to give formulas.

A. W. STILLIANS, M.D., Chicago.

### SUBCUTANEOUS EMPHYSEMA IN ASTHMA

*To the Editor:*—In view of the rarity of cases of subcutaneous emphysema complicating asthma as reported by Sheldon and Robinson in THE JOURNAL, Dec. 5, 1936, an additional case report may be of interest:

S. R., a boy, aged 6, a home relief client, was seen Dec. 7, 1934, in an acute attack of asthma. He had been having paroxysms for the past year. The family history was negative for allergic disorders. The attack was relieved after exhibition of codeine, ephedrine and calcium, and the patient (because of financial conditions) was referred for study to an outpatient clinic. He was found sensitive to house dust, and desensitization was undertaken. The paroxysms diminished in frequency, and for seven months preceding the following occurrence he was free from symptoms.

Nov. 3, 1936, he had a severe attack of expiratory dyspnea. The following day I was called because swelling of the face

had appeared. Examination revealed the dyspnea, pulmonary emphysema, râles and rhonchi of a subsiding asthmatic attack. There was a pronounced swelling of the left parotid and submaxillary regions. There was palpable crepitus over these regions as well as the anterior and posterior triangles of the neck, the left axilla and the left pectoral region. In the following two days the emphysema spread to the right pectoral region. Of especial interest is swelling and tenderness of the lower gum margins, which appeared on the second day and subsided with the other signs.

With strict rest, suppression of coughing with codeine, and ephedrine, the dyspnea and emphysema gradually cleared up in the following six days.

This case corroborates the report of Sheldon and Robinson with respect to the factors of age, occurrence after an interval free from attacks, and good prognosis.

FREDERICK BRIDGE, M.D., Brooklyn.

### MYCOBACTERIUM LEPRAE

*To the Editor:*—In the abstracts from the *Medical Journal of Australia* published in THE JOURNAL January 2, page 78, the causative agent of lepra is referred to as "Mycobacterium leprae." Misspelled words are so frequently and often unintentionally introduced into medical nomenclature that they should be corrected on every occasion. The proper designation is "Mycobacterium leprae." The organism is one of the Mycobacteriaceae. Although Hansen in 1874 identified it as a bacillus, its classification by Lehmann-Neumann has been generally accepted since 1896.

FRANK C. COMBES, M.D., New York.

### GASTRIC ACIDITY AND GASTRIC ULCER

*To the Editor:*—In an editorial in THE JOURNAL, Dec. 19, 1936, the important relationship of gastric acidity to experimental ulcer in animals, as well as gastric and duodenal ulcer in man, seems to have been definitely shown. However, the statement "within wide limits the concentration of pepsin appears to be of no importance" justifies further discussion. Recent clinical observations of Vanzant, Osterberg, Alvarez and Rivers (*J. Clin. Investigation* 12:557 [May] 1933) confirmed by Mullins and Flood (*ibid.* 14:793 [Nov.] 1935) seem to indicate that peptic ulcer in man is frequently accompanied by an increase of pepsin as well as of acidity.

Animal experimentation likewise points to the probable important rôle of pepsin in the pathogenesis of ulcer. Howes, Flood and Mullins (*Surg., Gynec. & Obst.* 62:149 [Feb.] 1936) reported that operatively produced gastric defects in cats showed a greater delay in healing in those receiving pepsin with acid, as compared to those receiving acid alone. Recent experiments reported by Matzner, Windwer, Sobel and Polayes (*Proc. Soc. Exper. Biol. & Med.* 34:243 [March] 1936) and Matzner and Windwer (*Am. J. Digest. Dis. & Nutrition*, to be published) appear to indicate that pepsin in an acid medium is far more effective than hydrochloric acid alone in the experimental production of gastric ulcer in rats.

While the corrosive action of hydrochloric acid on living tissue appears to have been established, experimental evidence would seem to indicate that pepsin in an acid medium is the more important factor. Further study in the control of pepsin secretion in conjunction with that of gastric acidity should prove of interest.

MILTON J. MATZNER, M.D.  
CHARLES WINDWER, M.D.

Brooklyn.

Department of Gastro-Enterology,  
Jewish Hospital.

cal control is at present organized not only for the purpose of observation during the six months' period of indemnity for a single ailment but also from the time a case is reported to the caisses or primary disbursing bureaus. Without such a medical control it is impossible to ascertain whether the insured has been really unable to work, whether expensive pharmaceutical preparations not allowed by the caisses (disbursing bureaus) have been employed, whether laboratory examinations have been made and treatments administered which appear superfluous in the given case and, finally, whether the stay in a hospital has been unnecessarily prolonged. Frauds are frequent in social insurance and can be avoided only by strict medical control. The abuses cited apply equally to dental care, because experience has shown that the bills for such services often exceeds those asked for operations. If the control does not function in all medical and dental cases from the onset of the illness, it is impossible to follow the serious ones and suggest a treatment which may not only greatly aid the patient but also save a great deal of outlay on the part of the respective social insurance bureau. In the case of those who are more or less permanently incapacitated and who are entitled not only to an invalidity pension but also to medical care during the first five years, the latter also needs constant supervision. Only institutions that have made a contract with the social insurance authorities shall be allowed to care for this class of cases, in order to cut down the expense as much as possible without neglecting the needs of the insured.

Instead of a central caisse or collecting and disbursement bureau for each of the eighty-six departments (counties) in France, the country is divided into a smaller number of regional bureaus. Each of the latter now has its technical commission to arbitrate any dispute between the report of the medical inspector and the insured. If the latter is not satisfied with the amount allowed for the outlay for a given illness and the time granted for absence from work, the insured can appeal to the regional technical commission, which will make an examination of the claimant and decide whether the indemnity is an adequate compensation in the given case. The technical commission is composed of the medical inspector of the regional bureau, a chairman who is a physician, and a medical expert appointed by the local judge of the civil court.

#### Poliomyelitis in Paris During the Last Three Years

At the December 1 meeting of the Académie de médecine a report covering the observations of the health department of Paris and its suburbs on the incidence of poliomyelitis was made by Tanon and Besson. The main features of the spread of the disease are the part played by carriers and the occurrence of atypical and abortive cases. In 1933 there were fifty-six cases with seventeen deaths, in 1934 forty-three cases with twenty-two deaths, and in 1935 seventy-two cases with nineteen deaths. Although the incidence as a rule is higher toward the end of summer and beginning of autumn, there was a sudden increase in December 1934 and January 1935. As to the age of the patients, thirty-four were less than 3 years old, sixty-four between 3 and 8 years of age and nineteen from 21 to 32. In the case of school children they always belonged to different classes and there did not appear to be any contact between them. No two cases were found in the same flat or family. This shows that, at least in Paris, contagion does not play an important part. The patients are usually hospitalized as soon as possible.

#### Vaccination with Cultures of the Vaccinal Virus

At the December 1 meeting of the Académie de médecine Drs. Harry Plotz and René Martin reported their results in the clinical application of cultures of vaccine virus as a substitute for that obtained from cows. The vaccine virus was cultivated by means of the Li and Rivers method with the

slight modification of using 75 cc. Erlenmayer flasks in place of the "collar flasks" (as employed by Rivers) and 3 cc. of Tyrode's solution without serum. By this means a cerebral, dermal and testicular strain was cultivated, one strain reaching 152 passages. The virus remains active for rabbits but has a tendency to decrease in virulence in subsequent transplants. The culture virus was dried by the Flosdorf-Mudd apparatus and this vaccine has been used to vaccinate children in the same manner as was employed by Rivers, Ward and Rivers, and Herzberg. The first series vaccinated comprised fifty-seven children. They were vaccinated on one arm with the culture vaccine and on the other with the usual vaccine. Nineteen of the children were immune to both inoculations and showed no reaction on either arm. Of the thirty-eight positive with the usual vaccine, only nineteen were positive with the culture virus. As 0.1 cc. was injected intradermally, the authors thought that the amount of vaccine injected was insufficient. In a second series of forty-four children, 0.2 cc. was used. Of this series, twenty-one children showed "typical" reactions on both arms. Four were positive with the usual vaccine and negative with the culture virus, while four others were positive with the culture virus and negative with the usual vaccine. The other children were immune to both vaccines. The positive results obtained with the culture virus are characterized by a typical but slightly local and general reaction as well as a slight scar.

#### BERLIN

(From Our Regular Correspondent)

Dec. 21, 1936.

#### The Economic Condition of University Docents

The economic condition of the younger generation of German University instructors has never been particularly favorable unless the young assistant or docent received money from home or had some other private income. In the hope of some day succeeding to a professorial chair, these men must meanwhile carry on their academic activities while forced to live on a restricted budget. This bad economic situation cannot fail to exert its influence on both mind and character, and many a university professor may carry throughout his life the scars of these early privations. For some time a better regulation of the living conditions of the private docents has been under discussion. Remedial measures have become all the more necessary as the opportunities for making a living in the academic field have been each year more circumscribed so that in the end only the few attain the goal; namely, appointment to a professorship. Scholarly enterprise must perforce suffer from this unfortunate situation and many academicians are forced to enter side lines of professional activity. It frequently happens that the most able of these young men transfer their services to the world of industry. Speedy remedial measures are necessary if Germany is to maintain secure her world-renowned tradition of scholarship. This problem is dealt with exhaustively in the "Amtsblatt des Reichs- und Preussischen Ministeriums für Wissenschaft, Erziehung und Volksbildung." It is not encouraging for an assistant 25 or 26 years of age to earn a monthly stipend of from 80 to 200 marks, and he himself later as a docent must have at least a teaching commission if he is to earn a better income. After years of research the docent receives the title of assistant professor, but even this signifies no economic betterment. Only an appointment to the rank of full professor in ordinary or extraordinary entails relief from economic pressure. But such an appointment, it should be repeated, is reserved for the few.

As a result of the situation, the rising generation of academicians have resorted to cooperative aid. The national minister of public instruction has created a "Reichs-Dozentenwerk" or National Docents' Self Help Organization, the duty of which is to render financial assistance to needy university graduates.



the skin and never enters the follicle. The growth penetrates the hair to some degree, causing it to become brittle and often break. The growth of the fungus alone causes a yellow coloration. A bacillus or coccus-like growth added to it causes red or brownish.

For pseudochromidrosis it is necessary only to give some antiseptic, such as mercury bichloride 1:1,000 in alcohol. Dabbed on once or twice daily, it soon destroys the growth.

#### ETIOLOGY OF MISCARRIAGES

*To the Editor:*—A woman, aged 30, height 5 feet 5 inches (165 cm.), weight 110 pounds (50 Kg.), of exceedingly nervous type, has been married ten years and has no children. Numerous examinations have been repeatedly negative. Blood Wassermann tests and urinalyses have always been negative. The basal metabolic rate a year ago was minus 22. Thyroid therapy was instituted and six months later the basal metabolic rate was minus 10. The patient is still on thyroid, 2 grains (0.13 Gm.) daily. Three years ago the patient had a miscarriage at two months. Two years ago another miscarriage occurred at three months. Six months ago there was another miscarriage at three months. Both husband and wife desire children. Prostatic massage of the husband revealed a chronic prostatitis of unknown duration. It is unquestionably nongonorrheal. The husband is 30 years of age. Examination of his semen (condom specimen) shows numerous actively motile spermatozoa. Is it possible for the prostatitis to cause the miscarriages? Can the hypothyroidism alone be the disturbing element? What are the chances of carrying a pregnancy to term? Please omit name and address.

M.D., Kentucky.

**ANSWER.**—The fact that the patient does become pregnant is definitely in her favor. Without a question, the hypothyroidism in the patient and the prostatitis in the husband can be factors in the production of abortion, the former because of imbalance in the endocrine chain and the latter because of the possibility of having the spermatozoa affected and thus resulting in an improperly formed fetus. The hypothyroidism should have been adequately controlled by the use of thyroid.

The possibility of carrying the patient to term is problematic, but efforts in that direction can be made which should increase the chance for a happy termination.

Every effort should be made to clear up the prostatitis in the husband. In the event that the patient should become pregnant she must be put to bed for the first five months, with all exercise and sexual intercourse eliminated. Recent work tends to show that progesterone (corpus luteum hormone) is a valuable aid in the treatment of such patients, this hormone acting to cut down on uterine irritability and activity. Progesterone should be used in doses of 1 international unit every other day, hypodermically, for the first five months and at any time thereafter that signs of impending abortion or of premature labor present themselves.

#### CHRONIC PAROTITIS

*To the Editor:*—A 6 year old girl has had intermittent attacks of pain and swelling in the parotid glands accompanied by a temperature rise up to 102 F. every two or three months for the past two years. The condition lasts from three to twelve days and occurs most often on the right side but has been bilateral and on the left side only twice. Pus can be expressed from the duct, but smears are negative for bacteria. X-ray films and probing of the ducts have not revealed any calculi. The past history is entirely negative except for a tonsillectomy, which was done two months before the first attack. Please give me some information as to diagnosis and treatment of this condition.

JOHN H. CLARK, M.D., Vernal, Utah.

**ANSWER.**—The patient is probably afflicted with the symptom complex known as "chronic Sialodochoparotitis with recurrent subacute exacerbations." The swelling of the parotid gland or glands in this condition has a tendency to recur and may be slightly painful. It may last from several hours to several days or weeks, the gland remaining moderately enlarged between exacerbations. In some instances the swelling appears in the morning and disappears after breakfast. The salivary secretion is usually not affected, although some patients may complain of excessive discharge of pus and saliva from the affected gland. There is as a rule no febrile reaction, and the general health is apparently unaffected. The patient may learn to obtain relief by pressure over the gland with the resultant discharge of pus or saliva, or, as in the condition of "fibrinous sialodochitis," by removal of a plug of fibrin from the duct.

There is usually no apparent predisposing cause, although cases following tonsillectomy, tonsillitis and tooth extraction have been reported.

On examination during the recurrences, one finds an enlarged, firm, occasionally nodular gland, which may be slightly tender to pressure. The overlying skin generally shows no changes, but at times it has been observed to be red or even fluctuant.

The duct is not palpable unless it is stenosed or there has been a long standing fibrous sialodochitis. The duct opening and papilla may or may not be red. Pressure on the gland may cause the appearance of pus, a cylindric mass of fibrin and pus, cloudy saliva or unaltered saliva.

Therapy may be either nonsurgical or surgical in nature. Nonsurgical procedures would include dilatation of the duct and massage of the gland, general care, eradication of foci of infection, such as infected teeth, iodides, injection of mild antiseptics or irritants (as iodized poppy-seed oil or mercuriochrome) into the duct, x-rays, epinephrine, and foreign protein therapy.

Surgical procedures might indicate slitting of the duct, slitting or removal of the stenotic portion of the duct, extirpation of the auriculotemporal nerve with resultant atrophy of the gland, or removal of the gland.

A report of such a case, with complete literature, may be found in the article by Sol Londe and Mort D. Pelz (*J. Pediat.* 2:594 [May] 1933).

#### DIAGNOSIS OF CHONDROMA

*To the Editor:*—A young married woman, aged 23, and the mother of one child, aged 11 months, has an enlargement at the sternal end of the third left rib. This was noticed about four years ago as a small lump and was slightly tender to pressure. She consulted a competent Chicago surgeon, who had an x-ray examination made by a competent roentgenologist. No pathologic condition was visualized, no diagnosis was made, and nothing was done. Since that time the lump has slowly enlarged until now it is about the size of half-dollar piece (30 mm.) and is plainly visible on inspection. There is tenderness, to pressure, which varies from time to time, and also there is slight pain in this region occasionally. The enlargement is smooth; the overlying skin is attached or discolored. No cervical or axillary lymph glands are palpable. The breast tissue appears to be normal. A short time ago another surgeon was consulted, who roentgenographed the chest in this region. As before, nothing was visible. No diagnosis was made. The past history of the patient is as follows: Tonsillectomy was done when she was a child, appendectomy in 1931, gallbladder drainage in 1932, and cholecystectomy in 1933 for chronic cholecystitis. The Wassermann reaction is negative. Since the surgery mentioned her health has been good, except that in the past year she has become easily fatigued from ordinary housework. Her weight is 110 pounds (50 Kg.), but this varies between 110 and 115 pounds (52 Kg.). Her pregnancy was uneventful and delivery was normal. Please omit name.

M.D., Illinois.

**ANSWER.**—In 213 collected cases of tumors of the ribs and sternum (Parham, Lurd and Hedblom), cited by Lewis, Deau: (Heuer, G. J., and Andrus, W. De W.: Tumors and Cysts of the Thorax, in Practice of Surgery, Hagerstown, Md., W. F. Prior Company, Inc., 1930, vol. 5, chapter 5), sarcoma occurred in 131, chondroma in forty, carcinoma in twenty-four, fibroma in five, exostosis in three and gumma in one. The slow enlargement of the tumor in this case, its location, its smooth contour, and the relative absence of symptoms, lead to the conclusion that it is probably a benign chondroma. In the Mayo series, however, four cases subjected to radical operation and seven subjected to biopsy proved to be inflammatory lesions.

Accurate diagnosis can probably be made only after biopsy. Treatment for a primary tumor, whether benign or malignant, would be by excision of the sternal portion of this third rib.

#### EFFECTS OF ETHANE AND METHANE ON NASAL MUCOUS MEMBRANES

*To the Editor:*—Could you give me information regarding the effect of ethane and methane gases on the nasal mucous membranes? I have in mind a patient with a severe atrophic rhinitis who has been working in natural gas fumes for several years. I feel that the patient's work is probably deleterious to his nose. Can you give me any confirmation in this regard?

J. H. BRISTOW, M.D., Bay City, Mich.

**ANSWER.**—Ethane (C<sub>2</sub>H<sub>6</sub>) and methane (CH<sub>4</sub>) are common constituents of illuminating gas. Methane is the principal component of fire damp in coal mines. It is stated not to have any physiologic effect on man. Ethane is ordinarily not found in fire damp but has been said to be present in certain German mines. As fire damp is not known to have a direct action on man, ethane is probably harmless. One may breathe an atmosphere of methane and oxygen for a long time without apparent deleterious effects provided the amount of oxygen remains above 21 per cent. References are:

Kober, C. M., and Hayhurst, E. R.: Industrial Health, Philadelphia, P. Blakiston's Sons & Co., 1924.  
Oliver, Thomas: Dangerous Trades, London, John Murray, 1902.

Neither the rhinologic literature nor that pertaining to industrial hazards makes mention of irritating or deleterious effects of these gases on the mucous membranes of the nose.

the science of balneology in the Balkan states. Among the Rumanian physicians was Professor Gheorghiu, rector of Bucharest university. The Rumanian members read nine papers, in which they endeavored to emphasize Rumania's natural balneologic resources. Among the Yugoslavian physicians was Professor Benzis and among the Greek physicians Professor Matcovic, professor of materia medica at the University of Athens. They voted to hold the next congress at Athens in 1938.

#### Choice of Occupation by Female Medical Students in Case of War

The Bucharest war ministry sent circular blanks to all female medical students and women physicians in the country asking what occupation they would choose in case of war. The overwhelming majority of students answered that they would prefer to act as hospital nurses, while the women physicians answered that they should like to work in military hospitals as well as on the field and in the hinterland.

#### Students' Strike at Cluj University

Students of the university of Cluj Faculty of Medicine went on strike three days ago. Today a deputation of the students handed a memorandum to the dean of the faculty demanding the exclusion from the faculty of all minority students. They stated that the medical students will not appear at the lectures as long as the faculty does not withdraw the punishment of Vucu, secretary of the association of medical students, and of Dumitrescu, president of this association. The university magistrates had found these two students guilty of causing disorder in connection with the examinations for admittance to the faculty. The aim of the disturbance was to keep Jews from passing the examination. For this offense the board of the faculty sentenced both leaders to exclusion from two terms. Thereupon the rest of the medical students went on strike, and it is not at all impossible that the strike will extend also to the other faculties of Cluj University.

#### ITALY

(From Our Regular Correspondent)

Nov. 30, 1936.

#### Sanitary Regulations for Airplanes

Colonel Dr. Porru of the Istituto Medico-Legale Aeronautico of Florence, in a recent lecture considered the health measures that should be adopted in air ports and aboard airplanes for the prevention of infections, such as examining the travelers on their arrival and departure. This measure is already provided for in Italy: Physicians are on duty at the airports at all times for the purpose of making the examinations. Persons found suffering from infections are isolated in the airport hospital and later are sent by special ambulance to municipal hospitals. The speaker advised the establishment in aviation of a clean bill similar to that used in navigation. The prevention of plague, cholera, smallpox, exanthematic typhus and yellow fever is given wide attention, especially because of the fact that traffic and aviation between Europe and the countries where the diseases are frequent has increased. Prevention of yellow fever is of the utmost importance because of the frequency of the disease in Africa, the abundance of transmissive insects in that country and the increase in traffic and aviation between Europe and Africa. Yellow fever is also frequent in natives of Anglo-Egyptian Sudan, a zone of heavy traffic also. The speaker referred to work by Dr. Trolli, head physician in the Belgian Congo, who found that insects which transmit yellow fever may enter airplanes during their stay in airports and be carried in the airplane to great distances at the speed of 2,000 kilometers a day. The speaker advised such preventive measures as examination of the plane and, in certain cases,

its disinfection and also medical examination of the passengers for six consecutive days, especially if quarantine is not established at the given zone. To prevent infections, the Air International Committee of Sanitation was established in 1933. Air posts of all nations belonging to the committee should have airports in which quarantine can be applied and disinfection performed. There are now ten sanitary air posts and many other "authorized" air posts in Italy. "Authorized" air posts have not all resources that sanitary air posts have, but all work on hygiene and prevention of infections is carried on by physicians who take turns, so that their services are available at any time.

#### Personals

Prof. Rocco Iemma, vice president of the Società Internazionale di Pediatria, director of the Clinica Pediatrica of Naples University and a well known Italian pediatrician, resigned his positions because of having reached the legal age limit (70 years). Six of his pupils are regular professors, forty are free professors and twenty are directors of hospitals or foundling homes. The scientific contribution of Professor Iemma's school exceeds 900 important articles, including those on specific treatment of leishmaniasis in children, vaccine therapy in typhoid and paratyphoid, tuberculosis in children and preventive vaccination of tuberculous diseases. When Professor Iemma served thirty years as professor, homage was paid him by the collaboration of fifty-two official scientific centers. Original articles were published also in his honor by 120 scientists both in Italian and in foreign countries.

General Dr. Franchi, the head of military sanitation, has also reached the age limit, and General Lieutenant Dr. Loreto Mazzetti, professor of hygiene at the University of Rome, has been appointed to the position. Dr. Mazzetti was the head of the laboratory of chemical and clinical bacteriology of the Naples Hospital. During the war he organized the isolation hospital in Udine. He was the director of the Ospedale Militare e di Sanita della Tripolitania and later of the School of Sanitation of Florence.

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### Marriages

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THOMAS STRICKER EDDLEMAN to Miss Frances Mae Strickland, both of Charleston, S. C., in Tarboro, N. C., Nov. 12, 1936.

STANLEY EARL COPELAND, Worcester, Mass., to Miss Harriet Estelle Wentworth of Oxford, in New York, Nov. 28, 1936.

DONALD ELLISON MACGREGOR, Indianapolis, to Miss Allison Priest Arnold of Louisville, Ky., Dec. 24, 1936.

GUS WARLICK NEECE, Fort Moultrie, S. C., to Miss Mary Elizabeth Davis of Mayo, Fla., Dec. 12, 1936.

OSCAR THOMPSON WOOD JR., Philadelphia, to Miss Frances Joan Travers in Millville, N. J., Dec. 5, 1936.

HENRY GEORGE ATHA, Providence, R. I., to Miss Grace MacTavish, in Groton, Conn., Nov. 16, 1936.

WILBUR OGDEN ARNOLD to Miss Olive Edith Schell, both of West Palm Beach, Fla., Dec. 5, 1936.

JAMES HARRY BUNN JR., Baltimore, to Miss Frances Middleton of Aberdeen, Md., Nov. 26, 1936.

ELDRIDGE T. NORMAN, Linden, Ala., to Mrs. Janie T. Harrison of Montgomery, Ala., Dec. 1, 1936.

CLIFFORD F. BRODERICK, Stevens Point, Wis., to Miss Ruth Potton of Milwaukee, recently.

JULIANNA RANDOLPH TATUM, Radnor, Pa., to Mr. Harvey Chace Perry, Dec. 12, 1936.

JOHN O. BARFIELD to Miss Edith Herlong, both of Miami, Fla., Dec. 1, 1936.

JOHN L. BAUBE, New York, to Miss M. F. Robinson of Clio, Ala., Dec. 26, 1936.

GEORGE K. ARNOLD, Dallas, Texas, to Miss Mae Sue Day, Dec. 1, 1936.

## GASTRIC PSYCHONEUROSIS

*To the Editor:*—I have a case that has puzzled me and many others. A man, aged 51, was always healthy until two years ago, when he noticed inability to breathe deeply. He does not have dyspnea when working, but after meals when quiet he feels a fullness. He used to get relief on raising gas, but now he gets no relief, do what he may. He has been to many clinics. Stomach examinations reveal no organic disease of any kind, every organ appearing normal. Atropine gave some relief. Bromide and alkalis gave temporary relief. There is no pain. The patient's weight is 175 pounds (79 Kg.), height 6 feet (183 cm.). He has a strong physique. He is very nervous about himself. He says he must get relief or he will die. The attacks are worse when he is nervous and worse after a hearty meal. There seems to be neurosis of the pneumogastric nerve. He gets palpitation of the heart often. He is a dredging engineer, doing clerical work, drawing and blue prints. Motor action of the stomach is good at all times—overactive. The stools and urine are normal. There is patency of the pylorus. No obstruction exists. Could it be neuritis of the pneumogastric nerve? Do not use my name.

M.D., California.

**ANSWER.**—Physicians who have much to do with the treatment of psychoneuroses are well acquainted with the syndrome described. The patient first complains of shortness of breath, but a little questioning soon reveals the fact that the trouble does not come with exertion, and the cardiac reserve is excellent. The real trouble is that the patient has the feeling that he can't take a deep breath.

The trouble commonly comes at times when the patient is quiet and perhaps in bed. In many cases, as in this one, the patient also has a cardiac neurosis with palpitation. Or in many cases he goes to the gastro-enterologist to get relief because of air swallowing or some other form of gastrointestinal neurosis.

So far as is known there is no organic basis for this trouble and it usually disappears as soon as the patient can be convinced that it is purely an annoyance without any danger whatever. The patient can be assured that no one ever died of this or came to any bad end.

At times it might help to give some bromides, but the main reliance should be placed on reassurance and on getting the patient to see the true nature of his trouble. Rather typical of these cases is the man's statement that he must get relief or he will die. Once such people are convinced that the symptom is of no importance, they lose interest in it. The more the patient goes to physicians, the worse he is likely to be.

DIFFERENTIAL DIAGNOSIS OF DISEASE  
OF NERVOUS SYSTEM

*To the Editor:*—A woman, aged 34, suffers from profound tiredness, a feeling of sand under the skin of the finger tips, tingling underneath the tongue, and modified similar sensations in the soles of the feet and in the toes. She is well nourished and examination gives generally negative results except for the following: The blood pressure is 100 systolic, 60 diastolic. The knee jerk and the biceps and triceps reflexes are absent. There is a suggestive Romberg sign. The Wassermann reaction is negative, as are also sensations of pain and touch. The blood picture is as follows: hemoglobin, 68 per cent; white blood cells, 5,100; red blood cells, 4,740,000; polymorphonuclears, 29 per cent; lymphocytes, 66 per cent; mononuclears, 5 per cent; color index, 0.72. The red cells are pale and show variation in size and shape. What could be the possibilities in such a picture? Please omit name.

M.D., Maryland.

**ANSWER.**—These data are insufficient for a diagnosis. The low blood pressure and high lymphocyte count may mean some endocrine disorder. If all tendon reflexes are absent, one might think of tabes or multiple neuritis. If the pupils do not react to light, the spinal fluid should be examined. In spite of the normal blood count, a diagnosis of combined cord degeneration would be suggested in case there is no free hydrochloric acid in the stomach contents. A gastric analysis after a test meal is strongly recommended.

## ADAMS-STOKES SYNDROME

*To the Editor:*—In Queries and Minor Notes in THE JOURNAL, Aug. 15, 1936, "Tobacco and Heart Disease," should not Stokes-Adams syndrome be considered with a pulse of 56? Please omit name.

M.D., Illinois.

**ANSWER.**—The possibility of an attack of the Adams-Stokes syndrome in this case is remote. However, it should be thought of in every instance of syncope not readily explained. The points against its occurrence here are, first, the fact that the pulse was reported to have been very slow at any time (a rate of 56 is frequently found normally); second, the fact that the electrocardiogram showed apparently no evidence of delayed auriculoventricular conduction when it was taken shortly after this attack; and, third, the great infrequency of the Adams-

Stokes syndrome as a cause of syncope. It is a possible but rare coincidence to have paroxysmal heart block responsible for syncope in a person who shows no electrocardiographic evidence of heart block between attacks.

## PHOBIA AND NEURITIS

*To the Editor:*—I have under my care at present a white man, aged 49, married, a merchant, who has been complaining of a tingling and burning sensation over the hypothenar eminence of both hands since January 1936. He states that the symptoms first started with a burning sensation under the fingernails of both hands associated with brittle, longitudinally grooved nails, which broke off easily. The sensation of the tingling often involves the ulnar half of the little fingers and the tip of all the other fingers. At times the fingers feel drawn, as if they had been soaked in hot water for some time. Since the onset of the symptoms, the patient has complained also of excessive salivation, which leaves a salty taste. The past history is essentially negative except for a tonsillectomy and adenoidectomy, and also incision and drainage of a perianal abscess in January 1936. Laboratory work including urine, blood count and the Wassermann test all give clinically negative results. The blood pressure is 120 systolic, 85 diastolic. Physical examination, with the exception of a well defined reddening over both hypothenar eminences, shows no evidence of any defect. One thing that I failed to mention in the past history was the fact that the patient developed a phobia of having a barber apply a razor to his face or neck. This fear began about three years ago without there being any given cause or reason. Since this phobia set in the patient states that he has never really felt right. I would appreciate any information, advice or procedures that you can offer me in reaching a diagnosis and treatment for relief of the symptoms. Kindly omit name and address.

M.D., Pennsylvania.

**ANSWER.**—The phobia of having a barber shave him is a matter for detailed psychiatric study, during which the factors individual to the patient and having a possible relation to his fears must be worked out. The tingling and redness of the ulnar surfaces of the hands suggest an occupational type of neuritis. It may be that the patient performs some routine maneuver which implicates the ulnar nerve at the wrist or even at the elbow.

## EXCITED STATES IN INSANITY

*To the Editor:*—My colleagues and I, working in a medical hospital under state supervision, have frequently been troubled by the problem as to what medication to use in the control of patients who are exceedingly active either because of a manic condition or because of the extreme agitation of involutional psychosis. We were astounded to learn that the effective intravenous dose of one recommended medication was \$1.40. Of course, economy is a primary consideration and we would be very glad if you would give us your idea of an effective agent which would be inexpensive and would lend itself to oral, intramuscular or intravenous use. A medication of prolonged action, low toxicity and lending itself to easy administration would be of tremendous value in this type of work. There is such a welter of medicaments put out by various firms that it is difficult to choose wisely and your assistance would be greatly appreciated.

WILLIAM K. McCANDLISH, M.D., Trenton, N. J.

**ANSWER.**—An economical and efficient treatment of excited states in the insane is to give 15 cc. or more of paraldehyde in olive oil or liquid petrolatum oil by rectum. Pure paraldehyde may be given in 4 cc. doses intravenously, but the injection must be given very cautiously in the course of four or five minutes, and only by a physician. A combination of scopolamine hydrobromide and morphine hypodermically is usually effective. For extreme outbreaks of fury and violence a hypodermic injection of apomorphine is most effective, and the disagreeable after-effect is likely to make a prolonged impression on the patient.

## ETIOLOGY AND PROPHYLAXIS OF ROUND SHOULDERS

*To the Editor:*—A 7 year old boy, in excellent physical condition, more robust and vigorous than the average for his age, and with a negative past history, is gradually developing a tendency to sit round shouldered. The father is quite round shouldered (but can pull himself erect) both sitting and walking; the father's father and grandfather had the same habitual postural defect. The father is worried and I would greatly like to help him. Your suggestions will be greatly appreciated. If published, please omit name.

M.D., Illinois.

**ANSWER.**—A 7 year old boy in excellent physical condition whose father and grandfather had round shoulders ought to have a complete physical examination. There should be roentgenograms made of the whole spine to discover whether or not there are any disturbances in the formation or development of the vertebral bodies.

Round shoulders may be a result of eye and ear disturbances; also disturbances in the upper respiratory tract such as enlarged adenoids or tonsils, bad postural habits, and muscular imbalance. Round shoulders follow fatigue subsequent to long continued illnesses. They are also seen in cases of chronic foot strain.

board of health; on the staff of the Locust Mountain State Hospital, Shenandoah; aged 37; died, Dec. 3, 1936, in the Jefferson Hospital, Philadelphia.

**Genous Sanders Hodges**, Marianna, Fla., Atlanta (Ga.) School of Medicine, 1912; member of the Florida Medical Association; served during the World War; county physician; formerly on the staff of the Baltzell Hospital; aged 54; died, Dec. 9, 1936, of pneumonia.

**Harry Hubbard**, Tiltonsville, Ohio; College of Physicians and Surgeons, Baltimore, 1899; formerly member of the state legislature of West Virginia; aged 63; on the staff of the Martins Ferry (Ohio) Hospital, where he died, Dec. 11, 1936, of coronary occlusion.

**Otto Vernon Greene** • Bethel, Vt.; Baltimore Medical College, 1903; for many years health officer and town physician of Bethel; member of the staff of the Gifford Memorial Hospital, Randolph; aged 56; died, Dec. 6, 1936, of cerebral hemorrhage.

**Joseph C. Higdon**, Belzoni, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1896; member of the Mississippi State Medical Association; aged 69; died, Dec. 12, 1936, in the Baptist Hospital, Memphis, Tenn.

**Edward Homer Kinsman**, Toronto, Ont., Canada; University of Western Ontario Medical School, London, 1931; member of the American Psychiatric Association; on the staff of the Ontario Hospital; aged 37; died, Nov. 29, 1936.

**Samuel D. Donovan**, Dewey, Ill.; St. Louis College of Physicians and Surgeons, 1905; member of the Illinois State Medical Society; aged 53; on the staff of the Mercy Hospital, Urbana, where he died, Dec. 9, 1936, of carcinoma.

**Vincent Tibbals Lathbury** • Augusta, Maine; Boston University School of Medicine, 1904; on the staff of the Augusta General Hospital; aged 57; died, Dec. 12, 1936, at Freeport, as the result of an automobile accident.

**Virgil Alderson Fleenor**, Mount Airy, N. C.; University of Tennessee College of Medicine, Memphis, 1934; aged 28; died, Dec. 13, 1936, in the Anson Sanatorium, Wadesboro, of injuries received in an automobile accident.

**Frederick H. Ehinger**, Ebenezer, N. Y.; University of Buffalo School of Medicine, 1886; member of the Medical Society of the State of New York; aged 74; died, Dec. 14, 1936, in the Mercy Hospital, Buffalo, of uremia.

**Ronald Foley MacDonald Jr.**, Antigonish, N. S., Canada; University of Pennsylvania School of Medicine, Philadelphia, 1910; member of the board of governors of St. Francis Xavier University; aged 53; died, Dec. 17, 1936.

**Jonas Albert Henry** • Pleasantville, N. J.; Howard University College of Medicine, Washington, D. C., 1931; aged 33; died, Dec. 3, 1936, in the Atlantic City (N. J.) Hospital, of acute bronchitis and chronic nephritis.

**Michael Francis Grier**, Philadelphia; Eastern University School of Medicine, Baltimore, 1913; formerly on the staff of the Farview (Pa.) State Hospital and the Eastern State Penitentiary; aged 55; died, Dec. 17, 1936.

**George Frederick Pierce**, Chicago; Trinity Medical College, Toronto, Ont., Canada, 1895; on the staff of the Garfield Park Hospital; aged 70; died, January 2, of arteriosclerosis, diabetes and gangrene of the left foot.

**Maurice M. Jacobs** • Philadelphia; Universitatea din Bucuresti Facultatea de Medicina, Rumania, 1903; University of Pennsylvania Department of Medicine, Philadelphia, 1905; aged 60; died, Dec. 27, 1936.

**Lawrence Pears Crawford**, Quincy, Mass.; Rush Medical College, Chicago, 1904; member of the Massachusetts Medical Society; aged 61; died, Dec. 11, 1936, in the Faulkner Hospital, Boston, of cor pulmonale.

**William D. Fulkerson**, Huntington Park, Calif.; Missouri Medical College, St. Louis, 1893; formerly a practitioner in Trenton, Mo.; aged 74; died, Nov. 26, 1936, of coronary thrombosis and arteriosclerosis.

**John Michael Murphy**, Chicago; Jenner Medical College, Chicago, 1914; for many years city health inspector and at one time head of the department; aged 51; died, Dec. 30, 1936, of chronic myocarditis.

**John Laeey Quinn Lauer**, Elida, Ohio; Medical College of Indiana, Indianapolis, 1890; mayor of Elida; aged 68; died, Dec. 4, 1936, in the Memorial Hospital, Lima, of influenzal meningo-encephalitis.

**Horace Guion Willson**, Los Angeles; University of Maryland School of Medicine, Baltimore, 1902; served during the World War; aged 61; died, Nov. 24, 1936, in Winslow, Ariz., of heart disease.

**Austin Flint Wood**, Parksley, Va.; University College of Medicine, Richmond, 1898; member of the Medical Society of Virginia; aged 56; died, Nov. 28, 1936, of myocarditis and arteriosclerosis.

**Herman Tobias Wolff** • Yonkers, N. Y.; Baltimore Medical College, 1900; on the staffs of St. John's, St. Joseph's and the Yonkers General hospitals; aged 58; died suddenly, Nov. 25, 1936.

**Joseph Garceau**, Shawinigan Falls, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1899; aged 65; died, Nov. 8, 1936.

**John Hall Lilly**, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; aged 50; died suddenly, Dec. 2, 1936.

**Tracy Farnam**, East Lyme, Conn.; Columbia University College of Physicians and Surgeons, New York, 1913; served during the World War; aged 57; died, Dec. 29, 1936, in New York.

**Alexander N. Caron**, St. Pascal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1901; aged 67; died, Nov. 29, 1936.

**William August Bryant**, San Anselmo, Calif.; Cooper Medical College, San Francisco, 1884; aged 74; died, Nov. 12, 1936, of coronary occlusion, arteriosclerosis and chronic nephritis.

**Lawrence Hull Bradley**, Saratoga, Calif.; Hahnemann Medical College and Hospital, Chicago, 1880; aged 78; died, Nov. 11, 1936, of chronic myocarditis and arteriosclerosis.

**Walter Edwin Coppedge**, Alturas, Calif.; Barnes Medical College, St. Louis, 1898; connected with the Indian Service; health officer of Alturas; aged 65; died, Nov. 4, 1936.

**Sylvester Forshay McKeen** • Brookline, Mass.; Harvard University Medical School, Boston, 1896; aged 63; died, Nov. 29, 1936, of cerebral embolus and coronary occlusion.

**Charles Alfred Dutton**, Detroit; Detroit College of Medicine, 1897; member of the Michigan State Medical Society; aged 65; died, Dec. 17, 1936, of cerebral thrombosis.

**William Lowry Freeman**, Tacoma, Wash.; Missouri Medical College, St. Louis, 1882; Hering Medical College, Chicago; aged 80; died, Nov. 17, 1936, of arteriosclerosis.

**John Oscar Cummings**, New Rochelle, N. Y.; Howard University College of Medicine, Washington, D. C., 1930; aged 40; died, Dec. 12, 1936, of lobar pneumonia.

**Frederick Dracass**, St. Petersburg, Fla.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; aged 89; died, Dec. 3, 1936, of arteriosclerosis.

**George Steven**, Byron, Minn.; Rush Medical College, Chicago, 1903; member of the Minnesota State Medical Association; aged 57; died, Nov. 15, 1936.

**George H. Woods** • Pine Grove Mills, Pa.; Jefferson Medical College of Philadelphia, 1875; aged 84; died, Nov. 23, 1936, of cardiac decompensation.

**William Washington Mathis**, Taylor, Miss.; Memphis (Tenn.) Hospital Medical College, 1887; aged 84; died, Nov. 30, 1936, of chronic nephritis.

**Alvin Jackson Rogers**, Los Angeles; College of Physicians and Surgeons, Keokuk, Iowa, 1881; aged 85; died, Nov. 23, 1936, of coronary sclerosis.

**Lewis Rutherford Morris**, New York; Bellevue Hospital Medical College, New York, 1884; aged 74; died, Dec. 9, 1936, of cerebral hemorrhage.

**Wilton Fields Lefavor**, St. Louis; Western Homeopathic College, Cleveland, 1870; aged 90; died, Dec. 9, 1936, of angina pectoris.

**Edwin M. Emrick**, Shamokin, Pa.; Jefferson Medical College of Philadelphia, 1878; aged 81; died, Dec. 5, 1936, of senility.

**Wylie E. Oldham**, Calico Rock, Ark.; College of Physicians and Surgeons, Baltimore, 1885; aged 76; died, Nov. 19, 1936.

**Julia Egbert Hoover**, Cleveland; Cleveland Homeopathic Medical College, Cleveland, 1899; aged 70; died, Dec. 4, 1936.

**Harry Lewis Pelle**, Louisville, Ky.; Louisville and Hospital Medical College, 1908; aged 50; died, Nov. 19, 1936.

**Henry Oscar Marcum**, St. Charles, Ark. (licensed in Arkansas in 1903); aged 67; died, Nov. 22, 1936.

## OPACITY OF CORNEA IN DOGS

To the Editor:—Patients brought to me their pet dog, after having visited a number of veterinarians without success, because of a haziness of the cornea of both eyes. This haziness would come and go without incident, but it now has become apparently permanent. The right eye is least affected, but the left is completely grayish white and the poor animal cannot get about. I advised them to put him on a milk and vegetable diet with beef bones and cod liver oil capsules, but no improvement has resulted. Several other dogs of the same litter have been similarly afflicted and that raises the question of heredity, about which my knowledge is very meager so far as dogs are concerned. Can you give me any information on this subject? Please omit name.

M.D., Pennsylvania.

ANSWER.—Corneal opacities in dogs are usually due to the traumatism of running through bushes, by which the cornea receives repeated scratches and develops a rather dense scar formation. In the case of the correspondent's dog, apparently a different type of opacity is present. Similar conditions have been observed in laboratory animals both as a congenital defect and as the result of the use of various kinds of drugs, especially large doses of the salicylates and cinchophen. The only treatment that would offer any prospects of success is a liberal diet including plenty of vitamin A, which has already apparently been done, and the avoidance of any drug that might possibly be causing the opacity.

## BED REST IN HEART DISEASE

To the Editor:—In my practice I find patients beyond 60 years of age incapacitated by chronic myocardial disease. Their functional capacity, according to the heart committee of the New York Tuberculosis and Health Association, has been thus classified: 1. Patients with organic heart disease, able to carry on ordinary physical activity without discomfort. 2. Patients with organic heart disease, unable to carry on ordinary physical activity without discomfort. (a) Activity slightly limited. (b) Activity greatly limited. 3. Patients with organic heart disease and with symptoms or signs of heart disease when at rest, unable to carry on any physical activity without discomfort. Following this classification, could you inform me in a general way how long these patients should remain in bed? Should they be allowed to get out of bed as soon as possible or should they be kept in bed for a long time? (Please specify number of weeks or months.) Does too much bed rest cause more degeneration of the heart muscle after a certain amount of rest? Please omit name.

M.D., Missouri.

ANSWER.—There is no possible way in which one might formulate even a general rule for such cases, even those in group 3. It is entirely a matter of judgment in each case. Rest in bed may be harmful in some cases, and supervised or directed exertion may be beneficial.

## INVOLUTIONAL DEPRESSION AT MENOPAUSE

To the Editor:—I would appreciate some diagnostic suggestions with regard to the following case: A woman, aged 42, is sleepy and tired in spite of adequate sleep. She came to me first in June 1934, complaining of irregularity in menstrual periods, irritability, tiredness, insomnia and loss of weight (10 pounds, or 4.5 Kg., in six months). An x-ray examination of the lung was negative at this time. The heart was normal. The blood pressure was 128 systolic, 80 diastolic. There was some pain and tenderness in the region of the appendix. The blood count was normal. No past serious illness had occurred. For the past two months she has been very sleepy at all times. This condition has not changed. No other symptoms exist and the physical examination remains negative.

M.D., New York.

ANSWER.—The symptoms described seem to fit into the category of an involutional depression with the corresponding loss of weight that so frequently accompanies this condition. Women at the menopause frequently undergo depressions with insomnia, loss of appetite, loss of weight, and irritability. Lately success has been reported by the use of theelin injections, which substitute for the deficient ovarian secretion. The details are given in articles by Werner and his colleagues.

## TRAUMA AND TUBERCULOSIS OF TESTIS

To the Editor:—A man, aged 32, was employed as a wire puller and last January, while pulling a copper bar weighing 300 pounds, was hurt on the testicles. A tuberculous epididymitis and a vesiculitis developed. An old tuberculous condition of the lung became active and later developed into a progressive military tuberculosis. The previous history of the patient is that five years ago he had a tuberculous lesion of one lung, which was cured. Is there, in your opinion, a causal relation between the trauma and the military tuberculosis? Please omit name.

M.D., New York.

ANSWER.—It would be difficult to state positively that there was a causal relation between the trauma and the military tuberculosis. All know, only too well, that the same thing may occur in a patient who has not been exposed to trauma.

## Medical Examinations and Licensure

## COMING EXAMINATIONS

## STATE AND TERRITORIAL BOARDS

- ALABAMA: Montgomery, June 29-July 1. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.
- ALASKA: Juneau, March 2. Sec., Dr. W. W. Council, Juneau.
- ARKANSAS: Medical (Regular). Little Rock, May 11-12. Sec., Dr. A. S. Buchanan, Prescott. Medical (Eclectic). Little Rock, May 11. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.
- CALIFORNIA: Los Angeles, Feb. 8-11. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.
- CONNECTICUT: Basic Science. New Haven, Feb. 13. Prerequisite to license examination. Address State Board of Healing Arts, 1895 Yale Station, New Haven. Medical (Homoeopathic). Derby, Feb. 13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. Medical (Regular). Hartford, March 9-10. Endorsement. Hartford, March 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.
- DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.
- FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.
- IDAHO: Boise, April 6. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.
- ILLINOIS: Chicago, April 6-8. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.
- INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.
- KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.
- MAINE: Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.
- MARYLAND: Medical (Regular). Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. Medical (Homoeopathic). Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.
- MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.
- MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.
- MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.
- NEW HAMPSHIRE: Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.
- NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.
- NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.
- NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.
- OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.
- OREGON: Basic Science. Portland, March 20. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.
- PURTO RICO: San Juan, March 2. Sec., Dr. O. Costa Mandry, Box 536, San Juan.
- VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.
- VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28 1/2 Franklin Road, Roanoke.
- WEST VIRGINIA: Charleston, March 1. Sec., Public Health Council, Dr. Arthur E. McClure, State Capitol, Charleston.
- WISCONSIN: Basic Science. Madison, April 3. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS  
SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, January 30, page 419.

## Mississippi November Report

Dr. R. N. Whitfield, assistant secretary, Mississippi State Board of Health, reports 5 physicians licensed by reciprocity and 2 physicians licensed by endorsement at the meeting held in Jackson on Nov. 28, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Jenner Medical College, Chicago.....	(1905)		Illinois
Tulane University of Louisiana School of Medicine..	(1934),		
(1935) Louisiana			
University of Tennessee College of Medicine..	(1931), (1934)		Tennessee
School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Colorado School of Medicine.....	(1934)		N.B.M.Ex.
Washington University School of Medicine.....	(1928)		N.B.M.Ex.

## Iowa December Examination

Mr. H. W. Greff, director, Division of Licensure and Registration, reports the written examination held in Des Moines, Dec. 1-3, 1936. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### FOOD VALUE OF EGGS

*To the Editor:*—Eggnogs as a source of extra nourishment for patients run into a lot of money by virtue of the cost of eggs. Some textbooks say that raw eggs have little or no food value and are mainly of use as a cathartic and also state that eggs are most assimilable when thoroughly cooked. Will you please give me the present opinion on the food value of raw eggs and mention any articles to which one might refer.

WALTER M. PANPHILON, M.D., Willard, N. Y.

ANSWER.—The analysis of a whole hen's egg reveals that it contains 13.4 per cent of protein and 10.5 per cent of fat. Hence an average egg weighing 50 Gm. presents 6.78 Gm. of protein and 5.2 Gm. of fat, totaling 75 calories. The mineral constituents of a whole egg are as follows: calcium 68, phosphorus 224, iron 2.52, copper 0.23, magnesium 0.03, chlorine 106, chlorine as sodium chloride 175. The iodine content in parts per billion as established in Ohio on the raw basis is 108 per egg. The vitamin value is as follows: vitamin A, excellent; vitamin B, poor to good; vitamin C, questionably negative; vitamin G, excellent, vitamin D, good. (Bridges Milton: Food and Beverage Analyses, Philadelphia, Lea & Febiger, 1935.) The digestibility of the egg protein and fat has been subjected to much buffeting, but it is well established today that the caloric yield to the human being of raw and soft-cooked eggs is close to the analytic observations.

### PAINFUL BREAST

*To the Editor:*—A white woman, aged 26, who has a child 3 years of age, complains of pain in the right breast and occipital headache. The breast is normal, without inflammation, lumps or swelling. The past history is negative. The breast is well developed and seems to be the same as the left. Physical examination is negative with the exception of slight tenderness in the right lower quadrant of the abdomen and the pelvis (possibly appendix and ovary). What is the probable cause of the pain in the breast and what treatment is recommended? Is it possible for ovarian disease to cause this breast and head pain? Please omit name.

M.D., Kansas.

ANSWER.—There are two possible causes for the pain in the case described. The first is psychic; the second has to do with actual changes in the breast frequently associated with ovarian disturbances. The presence or absence of psychic factors should be established by a careful history. Many patients harboring the fear of cancer complain of painful breasts. The other condition, which is commonly known as "chronic mastitis" but which is actually caused either by an edema of the tissues or by an actual hyperplasia of the ducts and acini or perhaps by a combination of the two, it is difficult to correct. Support of a pendulous breast is of some assistance.

When the cause is mainly psychic, assurance that the patient is not suffering from cancer and that the pain is not related to cancer is of great assistance.

### PERSISTENT SORE THROAT

*To the Editor:*—I have a patient, a World War veteran, who for the past two months has had a pronounced soreness of the left side of his throat. His tonsils have been removed and there are no tags left which could cause this condition. Examination of the throat reveals nothing except that the entire throat is red and congested. There is no enlargement of the cervical glands of the neck, and the vocal cords appear normal. Two weeks ago he had an infected tooth removed but the rest of the teeth appear normal, although they have not been roentgenographed. The patient is worried for fear that he may have the beginning of a malignant condition. How can I relieve his mind on this point? Is there any test for such a condition? What might be the cause of the continuous soreness on one side of the throat while the other side is free from symptoms? Please omit name.

M.D., Michigan.

ANSWER.—It is not stated whether the infected tooth that was removed was on the side on which the throat now is involved, but since the "soreness" was present some time before the dental extraction it does not seem reasonable to ascribe it to the infected tooth. It is possible that a few small deep glands (provided the tooth was on the same side as the inflamed throat) might have been present prior to the extraction and

be a contributing cause to the painful condition. There is a possibility that some neoplasm in its early stage may be present high in the nasopharynx on the affected side or in the pyriform sinus lateral to the larynx. In a word, the patient must be very carefully examined so far as the posterior portion of his nose, his nasopharynx, the beginning of the esophagus, the larynx and the pyriform sinus regions are concerned. Should all these factors, namely, the mouth and other structures named, be eliminated, there is a possibility that some form of neurosis may be present. Perhaps a mild sedative internally and the use of ice pellets in the mouth may have a mitigating action on the "soreness," but a throat examination is most essential.

### HEMOPTYSIS AFTER EVULSION OF PHRENIC NERVE

*To the Editor:*—I have followed up 399 cases of phrenic evulsion during the last three years, 187 on the right right and 212 on the left side. In one case of evulsion of the right phrenic nerve and in seventeen cases of evulsion of the left phrenic nerve, rather severe hemoptysis occurred after the operation, usually in the second week, although most of the patients gave no history of having spit blood at any time previously. Why should phrenic evulsion on the left side lead to hemoptysis? In three cases, in which artificial pneumothorax had been tried and failed prior to the phrenic evulsion, it was induced after the operation to control the bleeding, with success. Is it that the phrenic evulsion released some adhesions and made both the hemoptysis and the induction of artificial pneumothorax possible? If so, why should it happen only on the left side? I shall be thankful for your explanation and for any references, as I could not find any. Please omit name.

M.D., India.

ANSWER.—Hemoptysis following evulsion of the phrenic nerve has not been reported as a frequent occurrence, although attention has been called to it by a number of physicians. The number of cases reported that occur within a week or so following the operation is hardly enough to remove the occurrence from the realm of coincidence. Approximately 35 to 50 per cent of patients with clinical pulmonary tuberculosis have hemoptysis at some time during the course of their disease without any surgery being performed. The phrenic nerve is in apposition with the pleura as it courses through the thorax on each side. Therefore, with involvement of the mediastinal pleura and subjacent lung, adhesions may form. If the nerve sheath becomes adherent, it is possible through tension to produce injury to the adjacent tuberculous lung tissue sufficiently extensive to result in hemoptysis.

Brunner (*Therap. d. Gegenw.* 65:488 [Nov.] 1924) has suggested that in some cases hemoptysis following evulsion of the phrenic nerve may be due to passive congestion of the lung which occurs with the elevation of the diaphragm. At present there is no explanation as to why hemoptysis should have occurred more frequently when the operation was performed on the left side. It is not unusual to make several unsuccessful attempts at artificial pneumothorax to be followed by a successful one. It seems more probable that the success in three cases in which artificial pneumothorax was induced after phrenic evulsion was due to the site of puncture of the parietal pleura rather than to the release of adhesions due to evulsion of the phrenic nerve.

### COLORED SWEAT, OR CHROMIDROSIS

*To the Editor:*—What is the cause of a greenish yellow stain to the vest by perspiration; especially that of the axilla and thorax? Sal soda is used in washing the garments.

H. A. HASKELL, M.D., Windsor, Calif.

ANSWER.—The staining from sweat may be genuine colored sweat, chromidrosis, or pseudochromidrosis. The first condition is rare, occurring usually in neurotic women, the sweat being brown, blue or reddish. Clapton and recently Cole saw green sweat in workers in copper. Blue sweat is usually colorless on appearing at the skin surface and then turns blue, supposedly by oxidation of indican. Genuine chromidrosis is hard to prove, for simulation is often practiced. Spring covered the suspected area with collodion. When the colored sweat reappeared under the collodion, he was assured that the case was a real chromidrosis.

The treatment of chromidrosis depends on finding the cause, which, except in the cases cited of copper workers, is difficult. The female sex, constipation and a neurotic temperament, the etiology usually given, can hardly be called helpful.

Much commoner is pseudochromidrosis, in which the sweat is colored by a growth on the hair of the chest, pubes, inner side of the thigh, the backs of the hands, the axilla, or other portions of the skin. This growth consists of a fungus, *Trichomyces palmellina* or *T. nodosa*, which forms a glucic mass encasing the hair as a cuff or as nodes on it. This does not form near

whether the increased needs of the rapidly growing child were recognized. The diets obviously were low in milk (less than a pint a day per child), succulent vegetables, fruits and protein; only half of the protein was of animal origin. In view of the American investigations, which are quoted, it seems probable that their incidence of dental improvement might have been still more noteworthy if the basic diets had been more in accordance with the requirements for good nutrition as recognized in this country. Several facts point to the conclusion that the vitamin D served to aid in completing a deficient dietary; in addition to its beneficial effect on the teeth, its use was associated with lessened incidence and severity of colds, similar effects on chilblains (which constitute a source of considerable discomfort in the institutions where the studies were made), and in the general appearance of vitality of the children receiving the vitamin as a supplement.

The experiments seem adequately controlled, the results convincing. While students of nutrition have already accepted the premise the committee has established, the authors point out that the British dental profession has failed to admit its validity.

**Chemical Procedures for Clinical Laboratories.** By Marjorie R. Mattlee, A.B., Sc.M., Assistant Professor of Clinical Pathology, New York Post Graduate Medical School of Columbia University. Cloth. Price, \$6.50. Pp. 520, with 92 illustrations. Philadelphia: Lea & Febiger, 1936.

Written almost entirely from the point of view of the more advanced laboratory technician, this book nevertheless incorporates sufficient clinical data to make it interesting to practitioners. It systematically outlines sections on chemical analysis of blood, urine and gastro-intestinal, cerebrospinal and other biologic fluids. Its thoroughness is exemplified by such short but factually rich chapters as those on amniotic hydrocele and seminal fluids. A large appendix contains valuable information on the preparation of many standard solutions—a necessary adjunct to successful laboratory work. Highly interesting to the clinician should be the many tables, graphs and illustrations. The bibliography, though brief, is comprehensive and satisfactory. The clarity of the text is best appreciated in the descriptions of laboratory procedures, which are accompanied by simple drawings. The clinical discussions are appreciably amplified by diagrams which rarely tend to be dogmatic. Occasional clinical shortcomings, as, for example, failure to mention the relationship of the lecithin cholesterol ratio to water balance (as in epilepsy) are easily forgiven because of the excellence in detailing methods of analysis and the pitfalls therein for the unwary. The work is excellent for technicians with a more thorough background, clinicians and clinical laboratories.

**Röntgenatlas der Erkrankungen des Herzens und der Gefässe: Ein Leitfaden für Ärzte.** Von Dr. W. Brednow, Oberarzt der medizinischen Universitäts-Klinik Göttingen. Paper. Price, 10.50 marks. Pp. 155, with 87 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1936.

This is a nicely gotten up atlas of cardiac and vascular diseases, published in atlas form with excellent reproductions of roentgenograms and some nice photographs of modeled specimens of heart lesions. The illustrations include some roentgen kymograms. The normal and the diseased heart are fully illustrated, including insufficiency of the heart muscle and the various valvular and congenital lesions, with a chapter on aortic and peripheral blood vessel disease. It is a valuable publication for radiologists and others interested in heart lesions.

**Atlas der Blutkrankheiten.** Von Dr. Karl Schiepl, Chefarzt des Deutschen Krankenhauses in Konstantinopel, und Dr. Albert Alder, Chefarzt der medizinischen Abteilung des Kantonsplatzs Aarau. Third edition. Half-leather. Price, 50 marks. Pp. 190, with 119 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1936.

This is truly an atlas. The pictures, though highly idealized, are yet sufficiently realistic. The text is badly neglected, and well so, for the reader is certain to neglect it also. It is the illustrations which catch the eye and hold its gaze. They are simple, beautifully colored and attractively arranged but often overcrowded. The authors lay no claim to thoroughness. They state early and clearly that this is an elementary introduction to hematology and refer the reader to other works for descriptive literature. The monophylitic-diphylitic controversy is carefully evaded by merely mentioning the two points of view and apparently siding with neither. The sole purpose is to portray to a beginning student what he could see through his microscope when focused on the usual blood or marrow smear. There is a

short beginning section devoted to simple collecting, staining and technics. This is followed by illustrations of normal and abnormal blood. The classification of disease is based on pathology rather than on etiology and is therefore somewhat confusing. For those who choose to read the text, the simple language offers no obstacles. Students and general practitioners will find this atlas useful.

**One Hour of Medical History. Volume V.** By Benjamin Spector, M.D. Boards. Price, \$2. Pp. 153, with illustrations. Boston: Tufts College Medical School, 1936.

This is the fifth of a series of booklets describing the medical-historical pageants that have become a feature of Tufts College Medical School, where the author has by this means stimulated a real interest in medical history. The present book is largely devoted to the colonial period in American medicine.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Health Insurance: Insanity Attributed to Influenza.**—The defendant insurance company agreed to pay the insured certain specified benefits in event he became disabled from disease. No benefits were payable for disability resulting from insanity. The insured had attacks of influenza in January, April and July 1929, and the insurance company paid him benefits on these occasions. On July 19, 1929, the insured was found praying on the streets and was taken into custody by the police. The following day an insanity inquisition was had, as the result of which the insured was declared insane and committed to an institution. For the disability attributed to the insanity, the company refused to pay benefits. The plaintiff, as guardian for the insured, sued to recover the benefits, contending that the policy covered disability attributed to insanity in case the insanity resulted from a disease covered by the policy. The trial court dismissed the action and the plaintiff appealed to the Supreme Court of Utah.

In excluding from the policy any loss of time or disability resulting from insanity, said the Supreme Court, the policy did not in any manner limit the word "insanity" to any particular type or kind arising from any particular cause. It did not indicate that insanity caused by or resulting from a disease contracted during the policy period was within the policy, but that insanity from congenital, accidental or other causes was outside its operation. The language of the policy taken in its ordinary meaning permits no recovery, in the opinion of the court, for loss or disability because of insanity, whatever the cause of the insanity may have been. The contract of insurance therefore precludes the plaintiff from recovering for disability or loss of time due to the insanity of the insured. The judgment of the trial court was consequently affirmed.—*Moss v. Mutual Ben. Health & Accident Assn. (Utah)*, 56 P. (2d) 1351.

**Compensation of Physicians: Oral Promise by Daughter to Pay for Services Rendered Father.**—The plaintiff, a physician, answered an emergency call from an unknown source to attend a man severely injured in an automobile accident. When he arrived at the scene of the accident, a daughter of the injured man requested him, according to the evidence, to "do everything you can under the sun to see this man is taken care of . . . and what the charges are . . . I will pay for it." The plaintiff did treat the injured man until the following morning, when his services were discontinued at the request of the daughter. The injured man died several days later from the effects of the injury. The plaintiff attempted first to collect his fees from the estate of the deceased. Being unsuccessful, he, about a year after the accident, began sending bills to the deceased's widow. Finally, about a year and a half after the accident, the plaintiff instituted the present suit against the defendant, the daughter of the deceased. The trial court directed a verdict for the defendant and the plaintiff sought a reversal in the Supreme Court of Vermont.

## CHRONIC GONORRHEA

To the Editor:—I have a patient who had gonorrhea three years ago. He states that he was well after treatment of three months, which included sounds, but shreds always persisted. Five weeks ago he commenced to notice a morning drop. My examination revealed a mild prostatitis (from 20 to 25 pus cells to the high power field). The prostate was normal to palpation, but the seminal vesicles were palpable. The urethra did not show strictures or infiltrations. The two glass test revealed numerous shreds in the first glass, but the second was entirely clear. Microscopic examination of the shreds revealed many pus cells but no gonococcus organisms after many repetitions. Treatment has been biweekly seminal vesicle prostatic massages for four weeks with irrigations, and at the present time the prostatic secretion contains only about 8 to 10 pus cells per high power field. After four weeks of massages (last week) I started with a 28 sound and had no difficulty, but after the sound the shreds have increased. The morning drop has never diminished. Irrigations were even stopped in the belief that there was over-treatment. Further treatment will be larger sounds gradually once a week with continued biweekly massages for two more months. Will the morning drop disappear with the advent of the sounds? What will be the fate of the shreds? The man has persisted in drinking and indulgence in sexual intercourse but has not infected any one. Irrigations have been with potassium permanganate 1:8,000 and strong protein silver 2 per cent. Any suggestions, as soon as possible, will be appreciated. Please omit name.

M.D., Illinois.

ANSWER.—The morning drop in itself is of little significance as it is a sign of urethral irritation. In many cases this irritation consists of vigorous daily stripping of the urethra in search of a morning drop, which may only be a drop of mucus which is the normal secretion of the urethra. If any doubt as to the presence of gonococci remains in the mind of either the doctor or the patient, cultures after the method of McLeod (*J. Path. & Bact.* 39:221 [July] 1934) as modified by Thompson (*Am. J. Clin. Path.* 5:313 [July] 1935) are highly reliable.

Urinary shreds are of little significance. They are probably in this case casts of prostatic ducts and may persist for many years. Sometimes if the prostatic ducts are saucerized after the method of Thompson and Cook (*THE JOURNAL*, March 9, 1935, p. 805) the shreds will disappear.

In this case all treatment can be stopped and the patient instructed to refrain from stripping the urethra and from alcohol. If symptoms persist, a urethroscopic examination should be done. The amount of prostatitis should be rechecked in two months.

## TUBERCULOSIS IN DOMESTIC ANIMALS

To the Editor:—Are dogs and cats susceptible to tuberculosis? If so, might the disease in either of these animals take a chronic pulmonary form with cough and the expectoration of sputum containing tubercle bacilli? Please omit name and address.

M.D., Colorado.

ANSWER.—Dogs and cats contract tuberculosis from both the human and the bovine type of tubercle bacilli. However, the dog manifests a strong resistance against the avian type of tubercle bacillus, as shown by the extensive experiments of Feldman (*J. Am. Vet. M. A.* 76:399 [March] 1930; *Am. J. Path.* 7:147 [March] 1931). He introduced tubercle bacilli of the avian type by various methods, such as inoculation and feeding of tuberculous chickens, into the bodies of fifty-four dogs. At the end of a year in those animals which had been inoculated intraperitoneally or intrabronchially there could be found no evidence of tuberculosis. Of ten dogs with tubercle bacilli introduced directly into the blood stream, one developed tuberculosis. Among thirty dogs fed on tuberculous material, microscopic lesions suggestive of tuberculosis were found in only a few. It was only when tubercle bacilli of the avian type were introduced directly into the cerebral tissues that all animals developed tuberculous lesions that were fatal.

In Europe, tuberculosis caused by the human and bovine types of tubercle bacilli is estimated to be present in as many as 5 per cent of the dogs. Petit (*Rec. de méd. vet.*, 1900, pp. 342, 405; 1901, pp. 5, 85, 162; *Presse méd.*, Aug. 12, 1925, p. 1082) reported that from 1900 to 1904 in France tuberculosis among dogs increased from 4.57 per cent to 9.11 per cent. Douville (*Rev. gén. de méd. vet.*, May 1, 1914) found approximately 4 per cent of the dogs tuberculous and points out that race and age of dogs has no influence on the disease. However, he calls attention to the sources of infection, such as public drinking places and cafés, where tuberculous persons expectorate on the floors and the dogs consume the sputum. In fact, among 100 tuberculous dogs, fifty-one belonged to the proprietors of such places, while twenty-three had for a long time been in contact with persons suffering from tuberculosis. Douville has pointed out that approximately 1 per cent of the cats of large cities are suffering from tuberculosis. In dogs the human type of tubercle

bacillus is found more frequently than the bovine type, whereas in cats the bovine type is more frequently seen, probably because of their greater consumption of milk.

In this country not many figures are available, but in one group of postmortem examinations, consisting of 1,548 dogs, tuberculosis was found in approximately 1 per cent. The lungs are frequently attacked and this, of course, makes the tuberculous dog or cat an unsafe associate for both adults and children.

## TREATMENT OF CONGENITAL SYPHILIS

To the Editor:—I have under my care and treatment a patient (divorced) who has 4 plus Kolmer, Wassermann and Kline reactions. A blood test of her 10 year old boy gave Kolmer and Wassermann negative reactions but a 2 plus positive Kline reaction. What prognosis can I give the mother and what would be the best treatment? Please omit name.

M.D., Minnesota.

ANSWER.—Even though the child's mother has syphilis, a single 2 plus Kline reaction is not sufficient evidence on which to base a diagnosis of congenital syphilis. Not only should the blood tests be repeated, but other procedures such as the Kahn and Hinton technics should be employed as a check against the sensitive Kline technic. It is possible for a child with congenital syphilis to reach the age of 10 without manifesting any evidence of the disease except a weakly positive flocculation test. On the other hand, it would seem unwise as well as definitely unwarranted to make a diagnosis of congenital syphilis on such slim evidence as is presented by this patient. If, on repetition, the tests are found to be positive, the child should be treated by being given a series of courses of arsphenamine or neoarsphenamine and a bismuth preparation. If the spinal fluid is found to be negative, the prognosis is more favorable. It does not seem advisable to attempt to outline in this limited space a complete course of treatment for a child with congenital syphilis, and for such information the inquirer is referred to one of the newly published textbooks, such as the one by Stokes or the volume more recently prepared by Moore.

## URINATION DURING INTERCOURSE

To the Editor:—A healthy woman, aged 26 (nulliparous) complains of inability to retain urine when having intercourse with her husband. This is true even when the bladder has been recently emptied. The sensation is quite pleasurable at the time of micturition. Is this unusual or pathologic? Please omit name and address.

M.D., Massachusetts.

ANSWER.—The condition is unusual and pathologic. It is necessary to examine the urethra, as at times there are polypi or other abnormal conditions, so that the pressure of the penis against this part during connection gives the impulse to urination. It must be noted that the urethra in the female is an important source of erotic sensation, for which reason girls and women who masturbate often do so by sticking a hairpin, pencil or similar object into the urethra. In case nothing pathologic (even a mere congestion) is found in the urethra or bladder neck, the condition must be considered a neurosis and treated accordingly.

## ELECTROTHERAPY FOR CORNEAL ULCERS

To the Editor:—Please indicate the status of electrotherapy with reference to corneal ulcers, mentioning the type of apparatus used in electrocoagulation, fulguration, cauterization or what not.

LUCIEN BROWN, M.D., Gadsden, Ala.

ANSWER.—The following procedures of electrotherapy have gained fairly universal recognition among ophthalmologists for use in corneal ulcers:

Ionization with a solution of zinc salt under 1.5 to 3 milliamperes of current has been most favorably reported on and in some clinics is standard practice. Any standard apparatus is used. Ionization with atropine sulfate is also used in case of poor pupillary dilatation.

Cauterization of a corneal ulcer is a standard procedure. Any cautery tip that can be brought to a cherry red heat by electrical means will suffice. Cauterization or, rather, baking with a lower degree of regulated heat over a longer period of time, such as with the Shahan thermophore, is an accepted measure.

Cauterization with diathermy is too dangerous a procedure. Short wave diathermy for the localized elevation of temperature is an accepted method that has proved satisfactory. Any good short wave diathermy apparatus or induction apparatus will suffice.

Fulguration is too dangerous.

plained of when the pressure reaches 100 mm. of water. Amyl nitrite and glyceryl trinitrate relieve the intraductal pressure produced by morphine.

Dilaudid, pantopon (a mixture of opium and alkaloids) and codeine produce effects similar to morphine. Glyceryl trinitrate  $\frac{1}{100}$  grain (0.00065 Gm.), the variety for hypodermic use, placed under the tongue, after a period of three minutes reduces intrabiliary pressure and relieves biliary colic. If the pain has been brought on by morphine, the glyceryl trinitrate relieves it for one hour. Theophylline with ethylene diamine, when given intravenously, relaxes spasm of the sphincter of Oddi.

Drugs believed to increase the activity of smooth muscle of the gastro-intestinal tract, such as acetylcholine, physostigmine and ergotamine tartrate, did not produce demonstrable spasm or relaxation of the sphincter of Oddi. The drugs commonly believed to have a relaxing effect on smooth muscle, such as atropine, scopolamine, papaverine hydrochloride and calcium chloride, as well as drugs known to have a relaxing action on blood vessels, such as alcohol, histamine and muscle adenosine phosphate, did not produce evidence of relaxation of the sphincter of Oddi nor did they produce spasm.

#### DISCUSSION

DR. K. K. CHEN, Indianapolis: May I ask the authors whether they tried papaverine?

DR. L. N. KATZ, Chicago: Did the authors note any correlation between the threshold of the pain response to pressure and the clinical composition of the bile present in the gallbladder? Did they note whether there was any correlation between the threshold of the pain on pressure and the presence of inflammatory processes in the gallbladder? Such variability might be expected since one is dealing here with sense organs that are responsive to threshold stimuli. The threshold might therefore be modified by clinical agents or inflammatory processes.

DR. P. K. KNOEFEL, Louisville, Ky.: Can pantopon produce the same effect as morphine?

DR. G. O. BROWN, St. Louis: What about dilaudid?

DR. CLYDE LEEPER, Cleveland: Is there any relation between pain of such origin and cardiac pain since both are relieved by glyceryl trinitrate? I should like to ask about the distribution of this pain and whether it simulates cardiac pain.

DR. ARTHUR MIRSKY, Chicago: I should like to ask whether a spasm of the sphincter is observed sufficiently long to produce an obstruction of bile and jaundice.

DR. WALTER WALTERS, Rochester, Minn.: Replying to the question relative to the effect of papaverine, pantopon and dilaudid on the sphincter of Oddi: In the cases which we have studied papaverine has had no effect on the relaxation of the sphincter of Oddi, while dilaudid, pantopon and codeine produced effects similar to those of morphine. Replying to the question as to differentiation between the attacks of pain attributable to coronary disease and those attributable to spasm of the sphincter of Oddi, it can be stated that in the cases in which we carried out these studies of intraductal pressure we have demonstrated not alone by studies of pressure but also by roentgenologic visualization of the common bile duct that pain occurs when there is a spasm of the sphincter which increases the pressure within the common bile duct and fills many of the finer radicles of the intrahepatic ducts. This was demonstrated in one of the illustrations which we presented. With the administration of amyl nitrite and glyceryl trinitrate, spasm of the sphincter decreases and fluid can be seen to leave the common duct and enter the duodenum with the resulting decrease in intraductal pressure. This, I think, is definite evidence that the pain in these cases has been the result of spasm of the sphincter of Oddi or of the lower end of the duct and not the result of cardiac disease. I do not know of any case in which spasmodic obstruction of the sphincter unassociated with other lesions of the duct or pancreas has produced jaundice.

#### Recovery from Extensive Cirrhosis of Liver

DRS. JESSE L. BOLLMAN and ALBERT M. SNELL, Rochester, Minn.: Cirrhosis of the liver was produced in experimental animals by carbon tetrachloride. When ascites of sufficient degree to require frequent paracentesis was present, biopsy disclosed extreme degrees of cirrhosis. Daily intravenous injections

of dextrose and repeated paracentesis over periods of several weeks were followed by diminution of the volume of ascitic fluid and improvement in the condition of the animals. Functional tests and biopsy of the liver indicate restoration of that origin to a practically normal state. Histories of patients who have portal cirrhosis and who give evidence of marked clinical improvement following similar treatment are presented. The clinical and experimental results indicate that the long continued intravenous administration of dextrose may bring about regeneration of the liver in some instances even after ascites and definite hepatic insufficiency have developed.

#### DISCUSSION

DR. SAMUEL SOSKIN, Chicago: My own results concerning the value of dextrose in such conditions agree most thoroughly with the results reported by the authors. I should like to ask what type of diet their animals were fed during the period in which they were being intoxicated and their livers were deteriorating.

DR. ROBERT W. KEETON, Chicago: What was the daily dose of dextrose in this patient?

DR. WALTER L. PALMER, Chicago: I should like to ask whether or not the authors think it is necessary to give intravenous dextrose provided the patient is able to take dextrose by mouth. I am aware that many of these patients are not able to take dextrose by mouth for a number of days. It may be worth while to recall the story told by Dr. Joseph L. Miller of a patient who came to the Cook County Hospital twenty years ago with slight jaundice and ascites. One night the patient had a vision in which an angel came and advised him to eat a pound of sugar a day. He ate a pound a day and he got well. Twenty years later the ascites recurred.

DR. GEORGE E. WAKERLIN, Louisville, Ky.: Were blood studies made on these dogs? Is there any advantage in giving carbon tetrachloride by inhalation rather than by mouth?

DR. LOUIS LEITER, Chicago: Would the administration of dextrose be considered a specific measure for the regeneration of liver cells or for the purpose of furnishing calories to animals or persons not able to eat?

DR. JESSE L. BOLLMAN, Rochester, Minn.: With reference to Dr. Wakerlin's question concerning the diet of our animals and about the method of carbon tetrachloride administration, the following may be said: In these experiments the animals were maintained on a diet completely adequate for their basal requirement with an addition of carbohydrate to cover their energy needs. In other experiments we have succeeded in producing cirrhosis on diets rich in fat or diets rich in protein. However, under such circumstances the administration of carbon tetrachloride frequently produces extensive acute necrosis of the liver with fatal termination. Cirrhosis develops as a result of frequent breakdown and repair. The damage to the liver must be sufficient to stimulate cellular regeneration and at the same time remain sublethal, so that the process may be repeated many times. The advantage of administering carbon tetrachloride by inhalation is that by producing anesthesia for a definite period of time we have standardized one physiologic effect of the drug and the effects on the liver seem to be more comparable. When the drug is given by mouth, the extent of the lesions of the liver vary greatly. I think that the variations are due to differences in the rate of absorption which we have been unable to overcome. Blood studies of cirrhotic animals at the stage of ascites formation show that there is a decrease in the serum albumin and usually some increase in the serum globulin. A macrocytic type of anemia is frequently, although not always, found to be present at this time.

DR. ALBERT M. SNELL, Rochester, Minn.: In answer to Dr. Keeton's question, we gave from 100 to 200 Gm. of dextrose daily. Dr. Palmer and Dr. Leiter raise the question whether the same effects could not be obtained by dietary means alone. This is doubtful, since a patient in this condition could hardly take a sufficiently high carbohydrate diet to accomplish much; this is as true of the dog with experimental cirrhosis as it is of patients with comparable conditions. Perhaps the maintenance of a sufficient intake of calories and fluid is all that is necessary, although on the whole it seems that dextrose given intravenously does have some specific value.

## PERIOSTITIS AND OSTEOMYELITIS

*To the Editor:*—A man, aged 40, had a severe contusion over the left tibia about twenty years ago. A periostitis developed and the leg was incised and the bone scraped. This was repeated several times until healing took place. At the present time the slightest bump to this area causes a breakdown of the tissue, which will not heal readily. Small pieces of bone protrude through the wound and bone has to be removed. His last injury was in December, and the wounds still drain a serous material. His general condition is good and x-ray examination of the bone shows no evidence of destruction. Any suggestions as to what is taking place and some means of helping to heal the injured areas will be deeply appreciated. Please omit name.

M.D., Ohio.

**ANSWER.**—The history of this patient, aged 40, with an injury involving the tibia of twenty years' duration, complicated by periostitis, repeated breaking down of the wound on slight injury, and several operations, is not unusual. Frequently following periostitis and osteomyelitis the tissues over the shin are left so thin and the vascular supply is so deficient that they permit breaking down of the scar tissue on the slightest provocation. When these injuries are more severe and infection is present, fragments of bone may be discharged. In long standing cases of this type it is always well to exclude syphilis. Occasionally ulcers develop and when present for long periods may become malignant (epithelioma).

It would be advisable for the patient to wear some form of a guard to protect the leg from injury. Surgical treatment, in an effort to transplant healthy skin in the affected area, is of value in giving such patients relief.

## OSTEO-ARTHRITIS

*To the Editor:*—A white man, aged 60, robust, had an automobile accident in which he turned over in the car. Sometime later he complained of some pains in his back. This occurred about fifteen years ago. About ten years ago he had a peritonsillar abscess, which was promptly drained. Two years ago he had malaria, at which time he had a temperature of 104 and complained of severe pains in his back. Since then he has complained more or less of these. The last two weeks he has suffered severe pains on moving and I advised him to have an x-ray examination of his lumbar spine. This revealed marked osteo-arthritis of the lumbar and thoracic spine, spur formation with bridging and a beginning ankylosing spondylitis, and a phlebolith on the left but no opaque stones in the biliary tract. Kindly omit name.

M.D., Tennessee.

**ANSWER.**—Trauma may be a factor in the development of osteo-arthritis. Focal infection, while rarely of primary etiologic importance, may be a contributory factor. After spur formation with bridging and beginning ankylosis, complete anatomic or functional recovery cannot be hoped for. Rest, either complete as in a cast or partial as obtained by ambulatory support, may be expected to add to the patient's comfort, while activity tends to aggravate the symptoms. From four to six weeks' rest in bed either in a plaster cast or on a Bradford frame is advisable if the patient will agree to it. This should be followed by the application of a good back brace, which maintains the spine in the best possible position for function so that if or when ankylosis does occur, deformity may at least be minimized. Heat and massage may be soothing, but salicylates are of little value as a rule. Vaccine injections or solutions containing sulfur compounds or gold salts offer little hope for correcting or alleviating a situation in which osseous changes have become as marked as those described.

## BLOOD TRANSFUSION IN INFANCY

*To the Editor:*—Kindly send me information as to the site of injection usually preferred in a blood transfusion in an infant 3 weeks of age; also the site most frequently used in an infant, and whether the median basilic or cephalic vein is ever or rarely used for a blood transfusion in an infant 3 weeks old. Is the median basilic vein in a 3 weeks old infant large enough to admit a 20 gage needle for a blood transfusion? If this is to be published, kindly withhold name.

M.D., New York.

**ANSWER.**—The veins most frequently used for blood transfusion in a 3 weeks old infant are those of the arm, ankle and scalp, and the external jugular vein. The longitudinal sinus has also been used for intravenous injections. The sites most frequently used when the needle is inserted without exposing the vein by incision are the veins in the cubital fossae, the external jugulars and the scalp veins. If incision and exposure of the vein are abused, an ankle vein, preferably the saphena magna, which may be found just anterior to the internal malleolus, is the site of preference.

Number 18 or 20 gage needles are recommended, though for small veins a needle as small as gage 26 may be used successfully. As a 3 weeks old infant may vary in weight from 5 to 10 pounds (2.3 to 4.5 Kg.) with correspondingly smaller or larger veins, it would be necessary to judge the gage of the needle for each individual case.

## CORRECTION OF FACIAL DEFECT

*To the Editor:*—A young woman has a rather unsightly hollow on her forehead just above the root of the nose between the eyebrows. An experimental injection of about 1 cc. of saline solution subcutaneously makes a marked improvement in her appearance. Can you advise me of anything that might be injected to remain permanently? I thought of heavy mineral oil, of wax, and of making a small incision through the eyebrow and inserting a little silver plate. Can you help me?

M.D., British Columbia.

**ANSWER.**—The introduction of any foreign material for cosmetic correction is unsound and dangerous. This is particularly true of so-called fillers that contain a paraffin base.

The correction of this defect may be simply and permanently accomplished with a dermal graft. A three-eighths inch incision is made along the upper mesial line of the eyebrow and the skin over the defect undermined. The required bit of skin may be removed from the abdomen, prepared in the usual manner and introduced through this small incision. A pressure bandage is applied for several days.

## ROSACEA-LIKE TUBERCULID

*To the Editor:*—I have been troubled with a pustular eruption on the alae of the nose for the past four years. Small pustules appear on either side every five to seven days. It has been diagnosed as a seborrheic dermatitis by several dermatologists. Salicylic acid ointments, sulfur ointments, solution of sulfurated lime, lotio alba, vaccine, ultraviolet rays and ten doses of x-rays were given with little effect. The x-ray treatment was given by competent men at the University of Illinois Research Hospital about two years ago with the purpose of atrophying the seborrheic glands. Are there any suggestions which you may offer? Do you think it is worth while to have another series of x-rays to atrophy the glands? There is a pitting present with some rosacea. I would appreciate any suggestion which you might offer. Kindly omit name.

M.D., Washington.

**ANSWER.**—From the statement made that there are pustules, together with pitting and some rosacea, it would seem appropriate to consider the possibility of the rosacea-like tuberculid. This condition is resistant to the ordinary treatment outlined for seborrheic dermatitis, the diagnosis offered in this case. Roentgen rays given to the extent of producing atrophy of the glands would make undesirable changes in the skin and its vessels. Further suggestions about the treatment without more definite information as to the exact condition would not be of value.

## LOSS OF PUBIC HAIR

*To the Editor:*—Will you kindly advise me as to the cause, prognosis and treatment for loss of pubic hair? The patient is a white man, aged 32, apparently healthy. Onset occurred seven years ago, with practically total loss of the pubic hair at present. There is no history of venereal disease. The Wassermann reaction is negative. The distribution of hair elsewhere is normal, with a heavy growth on the face and scalp. The patient was a very heavy cigar smoker for years. He is somewhat obese, with no definite abnormalities as to the distribution of fat. Glandular therapy both orally and parenterally has been unsuccessful; pituitary, thyroid and orchic substance has been used. X-ray examination of the sella turcica reveals a slight narrowing (if any) with no bony erosion. Please omit name and address.

M.D., New York.

**ANSWER.**—Without information as to the onset and course of this alopecia, the distribution of the remaining hair, and the presence or absence of scars or inflammatory areas, a diagnosis is impossible.

If scars are present, tertiary syphilis is most likely, in spite of the negative serologic reaction at present. If the skin is apparently normal in texture and color, alopecia arcata is most likely. The only way to arrive at a diagnosis is an expert examination. Consultation with a dermatologist is advised.

## SCARIFICATION WITH COAL DUST

*To the Editor:*—In this region, where there is a lot of coal mining, the traumatic abrasions and lacerations caused by injuries with coal result in quite prominent blue scarification. These scars, when occurring on the exposed parts of the body, result in quite serious complications from a cosmetic and compensation standpoint. What is the most effective means of treating such injuries with a view to preventing these pigmented scars? What is the best treatment of these scars after they have formed? Kindly omit name.

M.D., Pennsylvania.

**ANSWER.**—Abrasions and lacerations caused by coal or other types of carbon should be curetted thoroughly before sutures are inserted or the wound allowed to heal. The disfiguring areas of carbon deposit not removed at the time of the injury are most satisfactorily removed by plastic surgery. A few of them may be removed by tattooing first with 50 per cent tannic acid solution and then with silver nitrate. It requires some time for the resulting eschar to separate, leaving in successful cases a white superficial scar.



DR. G. K. FENN, Chicago: I should like to ask Dr. Myers why he gives his single dose of protamine zinc insulin at 7 o'clock in the morning when the maximum hypoglycemia occurs about twenty-two hours later. If the patient is to have a hypoglycemic reaction it would seem desirable to have it while he is awake.

DR. GORDON B. MYERS, Detroit: With reference to Dr. Rickett's discussion, we have also increased the dose of protamine zinc insulin in the presence of acute infection of the upper respiratory tract. It has sometimes been necessary to give a small dose of regular insulin in the morning as a supplement. With reference to Dr. Fenn's question, our choice of a 7 a. m. injection time for protamine zinc insulin was based on a trial conducted on five patients. These five patients received a single daily dose successively at 7 a. m. and 6, 8 and 11 p. m. The blood sugar was best controlled when the injection was given at 7 a. m. It was fairly well controlled by a single dose at 11 p. m. but poorly controlled with injections at 6 or 8 p. m.

DR. RANDALL G. SPRAGUE, Rochester, Minn.: We found it true that the requirement of protamine insulin is increased in the presence of infection; however, it is impossible to say that the increase is out of proportion to that which is observed when regular insulin is used alone. Probably the best procedure in the presence of infection is to leave the dose of protamine insulin unchanged and to meet the increased requirement by additions of regular insulin. With regard to the use of protamine insulin alone in diabetic acidosis, Dr. Rabinowitch has reported good results with the zinc preparation in two cases. Probably such a practice should not yet be adopted generally because it may be very dangerous owing to the slow insulin action. We have used protamine insulin as a supplement to regular insulin in the treatment of acidosis, and we have the impression that it may facilitate control of the condition; however, for the present we feel that the chief reliance should be placed on regular insulin.

#### Observations on "Prediabetes"

DR. HUGO R. RONY, Chicago: Twenty cases of obesity associated with "prediabetes"—very low sugar tolerance—were observed in the clinic for from one to nine years. During this time repeated dextrose tolerance tests were made following varied dietary regimens. The purpose of this study was (a) to find out when and under what conditions diabetes would develop in such cases and (b) to observe the effect of certain dietary factors on the sugar tolerance in this syndrome.

(a) None of the patients developed diabetes. The dextrose tolerance increased in the majority of cases, including some in which the weight remained the same and one in which the weight increased. Persistent decrease of dextrose tolerance was not observed in any case. Accordingly, direct observation does not support the current idea that low sugar tolerance in obesity is a precursor to diabetes.

(b) Obese persons with low dextrose tolerance respond to low carbohydrate diet or fasting with immediate increase of dextrose tolerance; high carbohydrate diet promptly depresses the dextrose tolerance. This is the opposite of what is known to occur in normal persons. Evidence is presented suggesting that this difference between obese and normal persons is due to the capacity of the fat depots to absorb large amounts of dextrose from the blood when dextrose is ingested after a period of undernutrition.

#### DISCUSSION

DR. ELMER L. SEYRINGHAUS, Madison, Wis.: I should like to ask Dr. Rony whether he will state his definition of prediabetes. According to the conventional sugar tolerance tests, these cases he has illustrated would be diagnosed as diabetes and would be classified as of the nonprogressive type. Perhaps the definition he is using will clarify the problem.

DR. HUGO R. RONY, Chicago: The most important point in the diagnosis of diabetes is, according to Joslin, the elevation of the fasting blood sugar. In a number of our cases the fasting blood sugar was below 120 mg. per hundred cubic centimeters; in no case was it above 140 mg. Furthermore, these cases showed no clinical signs or symptoms of diabetes, such as spontaneous loss of weight, polydipsia or polyuria. The term "prediabetes" has been recommended by some authors because they thought that these patients eventually develop

manifest diabetes—a belief which is not supported by actual observation. The underlying metabolic disturbance in such cases is probably quite different from that which is manifested by clinical diabetes.

#### "Insulin Resistance" and Related Conditions

DRS. SAMUEL SOSKIN, M. DAVID ALLWEISS and I. ARTHUR MIRSKY, Chicago: While the decreased carbohydrate tolerance in toxic conditions has often been ascribed to pancreatic injury, the relative ineffectiveness of administered insulin under the same conditions suggests some other organ or tissue as the site of the toxic disturbance. Our recent studies, in experimentally toxic dogs, have shown that the liver is the chief organ involved. The hepatic disturbance consists of two distinct phases: (1) impairment of the homeostatic blood sugar regulating mechanism and (2) a decreased ability to store glycogen of endogenous origin. This work offers a clinically useful conception of "insulin resistance," "insulin sensitivity" and certain cases of so-called hyperinsulinism. It also offers a rational approach to the therapy of these conditions.

#### DISCUSSION

DR. CECIL STRIKER, Cincinnati: I should like to ask whether any of these dogs developed diabetes in the presence of cirrhosis of the liver.

DR. ADOLPH SACHS, Omaha: I should like to ask whether Dr. Soskin has had any experience with insulin resistance in cases of hemochromatosis and, if so, does he think that the amount of liver damage bears any relationship to the insulin resistance?

DR. WALTER L. PALMER, Chicago: I should like to ask how much direct evidence of liver damage there is in these patients who are insulin resistant.

DR. W. A. THOMAS, Chicago: It is interesting to note in a study of the toxemias of pregnancy in the early stages in which there is likely to be a glycosuria that there is evidence of liver damage. In the last trimester, in which the toxemias are more severe, there will be low blood sugar and lowered liver function. So there are two stages of irritability of the liver.

DR. SAMUEL SOSKIN, Chicago: With regard to what might be called "toxic diabetes" as opposed to true diabetes, it is difficult to distinguish clinically between the two, in the present state of our knowledge. The liver is the effector organ in diabetes of whatever origin. The end results are therefore very similar. In the analogy in which I compared the homeostatic liver mechanism to a thermostat-furnace mechanism, I pointed out that anything which would prevent the thermostat from responding to a rise in room temperature would allow an overaction of the furnace and would lead to a rise in room temperature. Likewise any disturbance, whether toxic or hormonal, which prevents the liver from responding normally to a hyperglycemia may result in a similar diabetic state. There are certain things, such as the presence of other evidence of liver dysfunction, which help in the diagnosis of a "toxic diabetes." We have observed cases in which there was such evidence, as shown by jaundice and abnormal responses to liver function tests. As to the relation of hemochromatosis to insulin resistance: what one finds in any form of liver damage depends on the degree of damage present. We have previously described a characteristic cycle of events as regards the dextrose tolerance curve in a progressive toxic liver injury. In today's communication we have shown that the same cycle of events occurs as regards the response to insulin administration, once the factor of endogenous glycogen formation has been taken into account. Thus any isolated test of carbohydrate tolerance or insulin sensitivity is difficult to interpret. One must know something of the course of events. It is important to consider the duration of the condition and the presence of other evidence of liver damage. For example, we showed the records of toxic animals, in which the dextrose tolerance curves and the response to injected insulin became quite normal. This did not mean that these animals were improving, for they were obviously getting worse and eventually died. A similar occurrence has been reported in patients with diabetes and liver cirrhosis, in whom the diabetes subsided as the cirrhosis progressed toward a fatal termination.

(To be continued)

o pass. Seven candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School.....	(1936)		82.9*
University of Minnesota Medical School.....	(1936)		86.8
St. Louis University School of Medicine.....	(1936)		86.3*
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....	(1935)		88†
Philipps-Universität Medizinische Fakultät, Marburg.....	(1934)		81.5*
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau.....	(1922)		80.6†
Universität Basel Medizinische Fakultät.....	(1935)		84.8†

\* License has not been issued.

† Verification of graduation in process. License has not been issued.

## Book Notices

**Dental Pharmacology and Therapeutics.** By J. R. Blayney, B.S., D.D.S., M.S., Professor of Dental Pathology and Therapeutics, University of Illinois College of Dentistry. Second edition. Cloth. Price, \$4. Pp. 340, with 25 illustrations. St. Louis: C. V. Mosby Company, 1936.

This edition has been required principally by the publication of the United States Pharmacopeia XI. The text is divided into three parts and considerable orderliness and system prevail throughout. Part I covers such general considerations as the principle of action of drugs, methods of administration, prescription writing, tables of solubilities, and average doses. The author recommends the use of English exclusively in prescription writing, his only deviation from this being the employment of some common Latin abbreviations. The book, therefore, contains no section on medical Latin. Following each main division in part I the author presents a number of problems which add much to the value of this work to the student. Part II is devoted to the consideration of drugs. These are arranged according to their chief dental uses, but the usual pharmacologic grouping has been largely maintained. The study of each important group is introduced by a discussion of such topics as mode of action and standardization of efficiency. These preliminary statements are in many instances rather extensive and interestingly presented and give valuable information. Of special value in this section are many excellent illustrations. The author does not attempt to present the extensive discussion of pharmacology which is necessary for the physician and in considering those drugs which are little used. For example, in the discussion of diuretics, dextrose and the mercurials are not even mentioned. It might be suggested that he has been a little dogmatic at times in apparently presenting, as established facts, theories that are still controversial. More moderation might also have been shown in the handling of other phases of his subject. For example, in outlining the danger of the barbiturates he states that when any of these are used daily "we may expect to find skin eruptions, injury to the kidneys, ataxia or aphasia." Practical experience in the long continued use of phenobarbital in such conditions as epilepsy does not justify this statement. Part III contains a well selected series of laboratory exercises which should be of much interest and value to the dental student. The printing is good and it is a relief to find the large type and liberal spacing which lend themselves to easy reading. Considered as a whole, this is an excellent presentation of the subject for the purpose for which the volume is intended. It naturally contains much that would be of interest to the practitioner in medicine and, as it is comparatively small, it would serve as a useful review to those physicians who have not the time or inclination to undertake a more extensive treatise.

**Being Born.** By Frances Bruce Strain. Cloth. Price, \$1.50. Pp. 144, with illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

This is a book to arouse enthusiasm. It tells everything that a young person could wish to know about sex. It uses correct scientific terminology. It is devoid of emotionalism and sentimentality. It is clear and concise. The "road maps" showing the routes by which the ovum and the sperm make the necessary contact are diagrammatic, clear and easily followed. The photographs showing the similarity of various species in the early fetal stage and the serial photographs of the human fetus in various developmental stages are excellent, as are the window

silhouettes showing the gravid uterus in its relationship to the mother's body. The use of animals to illustrate certain points is interesting because the author reverses the usual order. Instead of describing the procreation processes of amebas, fish, frogs, turtles, birds, mammals and finally man, she starts right in and talks about her principal topic, using the animals as illustrative and comparative sidelights. The method is effective. Especially valuable is the chapter on heredity, out of which comes so easily the next step, the lesson of continence and monogamy. There is no preaching in this book, and therein lies its power. While it is unemotional and scientific, it is not cold, but friendly and personal. Lovely photographs of statues showing the beautiful nude body of a young boy and of a young girl have been chosen with extraordinarily good taste to express the beauty and grace of the body with a fine candor which subtly enhances the spirit of the text. The introduction, written for parents, is separate; parents are advised to remove this and the jacket and to give the book as a gift of which the owner may be proud. Throughout, the work shows profound thought, meticulous care, and a sympathetic understanding of youth as well as of the psychology of the learning process. Altogether, it is an admirable work.

**The Influence of Diet on Caries in Children's Teeth (Final Report).** By The Committee for the Investigation of Dental Disease (Assisted by Alan Deverall and Mabel Reynolds). Medical Research Council, Special Report Series, No. 211. Paper. Price, 2s. Pp. 137, with 8 illustrations. London: His Majesty's Stationery Office, 1936.

The report summarizes the conclusions of the Committee on Dental Disease, appointed by the British Medical Research Council to test the validity of the theory, based on Mellanby's earlier work, that the nutritional condition of the body is a dominant factor in determining the structure of teeth and their resistance to decay. Specifically, the study was confined to the effect on the incidence of dental decay of the administration of vitamin D, in the form of either cod liver oil or viosterol. The children studied were inmates of three orphanages in the vicinity of Birmingham. About 250 children were included in the survey; one study continued over a period of three years, another for two and one-half years. In addition to detailed dental records, data were obtained as to the level of general health and bony deformities such as are produced by rickets. The dental examination included the study of the surface structure of the teeth, caries, alignment and occlusion, and condition of the gums. Activity of caries was gaged from the "texture" of the exposed dentin; if soft enough to permit entry of the exploring line in any degree, activity was designated. As supplements to the "basic diet," the following were offered daily to each child, a different supplement being used in each of the three orphanages: (1) from 1 to 1½ ounces of syrup; (2) from 1 to 1½ tablespoonfuls of olive oil; (3) from 1 to 1½ tablespoonfuls of cod liver oil. The exact amount of each was proportional to the age of the child. In the second survey, half of the group receiving olive oil received oil containing viosterol. The cod liver oil had a vitamin D equivalence of from 15 to 150 international units per cubic centimeter, the usual variations being from 50 to 100; the viosterol solution, given in volume equivalent to that of cod liver oil, contained about 625 units per cubic centimeter. A subsidiary third study on the effect of added vitamin D on the structure of the teeth of young children failed in its objective because of difficulties in administration. The data are analyzed in great detail, due regard being given to possible secondary factors in the studies. In summary, the following statement expresses the committee's interpretation of the results observed: "The investigations described in this report show conclusively that a relatively high vitamin D content of the food can do much to diminish the incidence of caries if the vitamin is given during the development of the teeth; that a beneficial effect may be obtained if the vitamin is given at a fairly late stage of development; and that even when it is given after the eruption of the teeth, the onset and spread of caries is delayed."

It is interesting to analyze the nature of the basic diets used in the three orphanages, since the authors state that "the diets . . . are satisfactory according to accepted standards and are certainly better than the diets obtainable by the majority of the children . . . of the community." The data are offered in terms of allowance per "man" daily, with no reference to

reviewed merely presented their cases briefly without discussing the phenomenon at any length. The authors had the opportunity to observe a patient in whom bilateral zoster developed while he was in the hospital for cutaneous, osseous and pulmonary tuberculosis. The study gives no reason to doubt the theory that herpes zoster is caused by a virus. Among the possible predisposing factors may be listed "rheumatism and heart disease," syphilis, malaria or ingestion of quinine, neurosyphilis, acute arsenic poisoning, diphtheria or administration of diphtheria antitoxin, sunburn and tuberculosis of the spine. In the majority of cases no such factors could be found. The old theory that bilateral zoster is usually associated with syphilis or with the administration of arsenic is not supported by the series reviewed. A relationship between bilateral herpes zoster and varicella could not be established in any case. The severity of the eruption and of the subjective symptoms was no greater in patients with bilateral than in those with unilateral zoster. Recovery from bilateral zoster is about as rapid as that from unilateral zona. Persistent scarring has been noted in a number of instances, as in the present case. Recurrences were abnormally frequent, two cases of recurrence being noted in this small series. An eruption of scattered vesicles on the trunk and extremities was present in the authors' patient. As a rule mild leukocytosis is noted in the blood, the increase in the number of leukocytes being most marked in the percentage of polymorphonuclear leukocytes. The Wassermann reaction of the spinal fluid was reported to be normal in all the cases in which the fluid was examined. The present patient is the only one in the series in whom roentgenologic examination of the vertebrae revealed gross abnormalities. While herpes zoster usually presents a characteristic picture, confusion of the bilateral type with herpes simplex is apt to occur. This is especially true in cases of extensive eruptions of the latter. Other conditions that may cause difficulty in diagnosis include generalized herpes, varicella and dermatitis venenata.

### Archives of Neurology and Psychiatry, Chicago

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- Epidemic Encephalitis (St. Louis Type) in Toledo, Ohio. K. Löwenberg, Ann Arbor, Mich., and T. Zbinden, Toledo, Ohio.—p. 1155.
- \*Subacute Combined Degeneration of Spinal Cord in Pernicious Anemia: Results of Treatment in Seventy-Four Consecutive Cases with Certain Clinical Observations. H. H. Hyland and R. F. Farquharson, Toronto.—p. 1166.
- Electric Potentials of the Brain in Certain Types of Mental Deficiency. G. Kreezer, Vineland, N. J.—p. 1206.
- Action Potentials of the Brain in Normal Persons and in Normal States of Cerebral Activity. H. Davis and Pauline A. Davis, Boston.—p. 1214.
- Electro-Encephalogram in Diagnosis and in Localization of Epileptic Seizures. F. A. Gibbs, W. G. Lennox and Erna L. Gibbs, Boston.—p. 1225.
- Effect on Electro-Encephalogram of Drugs and Conditions Which Influence Seizures. W. G. Lennox, F. A. Gibbs and Erna L. Gibbs, Boston.—p. 1236.
- Vasomotor Tonus of Denervated Artery: Control of Sympathetomized Blood Vessels by Sympathomimetic Hormones and Its Relation to Surgical Treatment of Patients with Raynaud's Disease. J. C. White, A. M. Okelberry and G. P. Whitelaw, Boston.—p. 1251.
- Histologic Studies of the Brain in Cases of Fatal Injury to the Head: VI. Cyto-Architectonic Alterations. C. W. Rand and C. B. Courville, Los Angeles.—p. 1277.
- Primary Myopathies: Report of Thirty-Six Cases and Review of Literature. S. Hurwitz, San Francisco.—p. 1294.
- Graduated Jugular Compression with Manometric Tracings of Spinal Fluid Pressure. W. T. Grant and W. V. Cone, Montreal.—p. 1317.
- Sickle Cell Anemia as Cause of Cerebral Vascular Disease. R. H. Kampmeier, Nashville, Tenn.—p. 1323.

**Degeneration of Spinal Cord in Pernicious Anemia.**—Hyland and Farquharson report the results of treatment in seventy-four persons with pernicious anemia associated with definite subacute combined degeneration of the spinal cord who were admitted consecutively to the public wards of the Toronto General Hospital between June 1926 and June 1933. Eight patients were moribund on admission to the hospital and died within a few days. The remaining sixty-six patients were treated with large amounts of liver preparations and prolonged rest. During a period of from four to twelve months in the hospital and subsequent observation in a follow-up clinic, forty-one showed marked and sixteen moderate improvement, while the condition remained stationary in nine. In no case was there real progression of the neurologic lesion. Improvement was maintained in all cases in which therapy was maintained as

directed. The most important factor in treatment is the administration of large amounts of liver preparation, the dose recommended being at least twice that required to bring about a prompt remission in a patient with anemia. Intramuscular therapy is the method of choice. The best results are obtained when the patient is kept at rest in bed during the early months of treatment. The level of hemoglobin is not a satisfactory index of the adequacy of liver therapy. Subacute combined degeneration may develop and progress while a patient takes sufficient liver to prevent the development of definite anemia. The relief of the various symptoms and signs of subacute combined degeneration is due to an improvement in function of the fiber tracts of the cord. The tendency to segmental distribution of the impairment indicates an origin in the spinal cord. Under adequate liver therapy a definite change in the pathologic picture occurs. All signs of active degeneration disappear, leaving an apparently healed lesion. Associated with this change there is great symptomatic improvement in the majority of cases. By administration of liver therapy in adequate amount, subacute combined degeneration can be prevented, its progression completely arrested and great improvement obtained, especially in cases of short duration. It is important that treatment be continued for prolonged periods before concluding that no improvement will occur.

### Canadian Medical Association Journal, Montreal

35:593-708 (Dec.) 1936

- Radiologic Treatment of Cancer 1929-1935: V. Carcinoma of the Tongue. G. E. Richards, Toronto.—p. 593.
- Id.: VI. Intra-Oral Lesions (Except the Tongue). G. E. Richards, Toronto.—p. 599.
- \*Endometrial Hyperplasia: Clinical Entity. E. M. Blair, Vancouver, B. C.—p. 603.
- Hemorrhagic Encephalitis from Neoarsphenamine in Pregnancy: Report of Case with Unusual Widespread Vascular Paralysis. F. E. Cormia, Montreal.—p. 610.
- Effect of Estrogenic Hormones on Nasal Mucosa: Their Role in Naso-sexual Relationship, and Their Significance in Clinical Rhinology. H. Mortimer, R. P. Wright and J. B. Collip, Montreal.—p. 615.
- \*Heparin and Vascular Occlusion. D. W. G. Murray, L. B. Jaques, T. S. Perrett and C. H. Best, Toronto.—p. 621.
- Menorrhagia and Its Modern Treatment. E. Shute, London, Ont.—p. 622.
- Serum Therapy. C. E. Dolman, Toronto.—p. 628.
- Some of the Newer Drugs. V. E. Henderson, Toronto.—p. 636.
- Volvulus of the Small Intestine. J. C. Luke, Montreal.—p. 640.
- Roentgen Radiation Treatment of Chronic Cough Occurring During Childhood. C. Liebman, Montreal.—p. 643.
- Treatment of Infantile Scurvy with Ascorbic Acid: Preliminary Report. P. Letondal, Montreal.—p. 646.
- Streptococcal Meningitis: Report of Eight Cases: Two Recoveries. F. T. Cadham, Winnipeg, Man.—p. 648.
- Essential Thrombocytopenic Purpura Haemorrhagica: Report of Six Operative Cases. C. G. Geggie, Edmonton, Alta.—p. 651.
- Erythrocyte Count and Hemoglobin Percentage in Blood of Adult Males in Saskatchewan. J. Fiddes and C. Witney, Saskatoon, Sask.—p. 654.
- Some New Thoracic Surgical Instruments. N. Bethune, Montreal.—p. 656.

**Endometrial Hyperplasia.**—Blair believes that the subject of endometrial hyperplasia is so interlocked with fibromyomas that any discussion of the former from a clinical standpoint without including the latter is incomplete. There were eighty-three hysterectomies for fibromyomas in the Vancouver General Hospital in 1934. Of these, sixty-seven showed definite hyperplasia of the endometrium. Such a uniform finding of hyperplasia among fibroid uteri is no coincidence. Indeed, there seems to be a close relationship between these two groups of cases. Each is a group of bleeding uteri in nearly every case; each has the same sort of bleeding surface in the majority of cases—a hyperplastic endometrium; each appears at about the same time in life, and each is treated in the same radical way. In other words, are fibromyomas of the uterus as well as endometrial hyperplasia caused by hypersecretion of estrogen? Fibroids seem to appear with the tide of civilization, and with them march hand in hand the spread of pelvic infection. When the surface of the ovary becomes so affected that the follicle cannot rupture, there is a gradual increase in estrogen in the circulation with no progestin to act as a buffer. Then appears the primary overstimulation of the endometrium, endometrial hyperplasia, and the ultimate overstimulation of the myometrium, with gradual fibroid formation. Fibromyomas are seen only in the human race; even the higher apes are said to be relatively immune. Also a number of the organisms which attack mucous membranes, particularly the gonococcus,

The defendant's relations with her father, said the Supreme Court, were such that she was not liable for the plaintiff's services unless she became so by reason of what she said or did. The rule is well established that a person who merely calls a physician to render services to another is not liable therefor in the absence of an express agreement, unless the person is legally bound to furnish such services. The defendant in this case did, according to the evidence, promise to pay for the services and ordinarily, said the court, this promise might make an entirely different case for the plaintiff. It showed not only that the defendant requested the services but also that she made a direct promise to pay for them. Such a promise is not collateral or secondary, but primary and original. It is not a promise to pay the debt of another but is a promise to pay the debt of the promisor and does not have to be in writing to be valid. But, said the court, when the defendant made the promise, the plaintiff was at liberty to accept or reject it. He could, if he chose, treat the injured man on his own credit. He could not, however, hold both the injured man and the defendant liable for his fees. If he gave credit to the injured man, he could not collect from the defendant, even though she had tendered an engagement direct in form. The defendant's sole obligation could not be treated by the plaintiff as a joint obligation without her concurrence. If the plaintiff gave any credit to the injured man, he elected to accept the defendant's engagement as collateral to that of the injured man. The plaintiff did, the court pointed out, make his original charges against the injured man and it must be assumed that he did so because he considered the injured man responsible for his fees. Having given credit to the injured man, the plaintiff may not, the court concluded, collect from the defendant. The judgment of the trial court was therefore affirmed.—*Lawrence v. Anderson (Vt.)*, 184 A. 689.

**Compensation of Physicians: Liability for Fees of Expert Witness.**—The plaintiff, a physician, sued to recover for the value of services rendered in giving expert testimony at the trial of an action brought by the defendant for personal injuries. The trial court held that the evidence did not support the plaintiff's claim and withdrew the case from the jury. The supreme court of New Jersey, on appeal, held that an attorney has implied authority to obligate his client to pay the fee of an expert witness called by him, and reversed the judgment of the trial court withdrawing the case from the jury. (*Klein v. Boylan*, 115 N. J. Law, 295, 179 A. 638; abstr. THE JOURNAL, Feb. 29, 1936, p. 735.)

The case was tried a second time, again resulting in a judgment for the defendant. The plaintiff appealed to the supreme court of New Jersey, apparently contending that the trial court erred in charging the jury that, if the plaintiff was employed by the defendant's attorney acting in his own behalf and for his own benefit, the verdict should be for the defendant. There was no evidence, said the supreme court, justifying the trial court in thus charging the jury. The evidence was clear that the plaintiff looked to the defendant for payment, and there was no intimation that the attorney obligated himself personally with respect to the fees of the expert witness. It was therefore prejudicial error to submit this issue to the jury. The judgment of the trial court was consequently reversed.—*Klein v. Boylan (N. J.)*, 184 A. 736.

**Autopsies: Liability for Unauthorized Autopsy.**—The wrongful dissection of a dead body, said the Supreme Court of Oklahoma, is regarded as a wilful and intentional wrong against the person entitled to the possession and control of the body for burial, and a recovery may be had for the mental anguish resulting from such a mutilation. The decided cases generally treat the unauthorized dissection as an interference with a legal right. This legal right is the right to have immediate possession of the body in its condition at the time of death, and control for burial. A petition, therefore, which alleges the right to a body, a refusal to deliver up the body on demand, and the performance of an unauthorized and wrongful autopsy thereon while it is withheld, states a cause of action for damages for the interference with legal rights, and mental anguish is a proper element of such damages.—*McPosey v. Sisters of the Sorrowful Mother et al. (Okla.)*, 57 P. (2d) 617.

## Society Proceedings

### COMING MEETINGS

American Association of Anatomists, Toronto, Ont., March 25-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.  
American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.  
American Orthopsychiatric Association, New York, Feb. 18-20. Dr. George S. Stevenson, 50 West 50th St., New York, Secretary.  
Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15-16. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.  
Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.  
Mid-South Post-Graduate Assembly, Memphis, Tenn., Feb. 16-19. Dr. A. F. Cooper, Goodwyn Institute Building, Memphis, Tenn., Secretary.  
Pacific Coast Surgical Association, Seattle, Wash., and Victoria, B. C., Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.  
Southeastern Surgical Congress, Louisville, Ky., March 8-10. Dr. Benjamin T. Beasley, 478 Peachtree St. N.E., Atlanta, Ga., Secretary.

### CENTRAL SOCIETY FOR CLINICAL RESEARCH

Ninth Annual Meeting, Held in Chicago, Nov. 6 and 7, 1936

The President, DR. FRED M. SMITH, Iowa City, in the Chair

#### Duodenal Ulcer: Roentgenologic Demonstration of the Crater

DRS. FREDERIC E. TEMPLETON and THEODORE E. HEINZ, Chicago: This report has to do with about 350 cases of duodenal ulcer studied with especial reference to the roentgenologic demonstration of the crater and its clinical importance. In three fourths of the cases with clinical evidence of activity a definite crater was seen. In no instance was a crater found in a patient who gave an old ulcer story and who had no clinical evidence of activity at the time of the roentgenologic examination. The difficulty involved in the differentiation of true craters and "pseudocraters" is discussed. The clinical value of the roentgenologic demonstration of the crater as regards diagnosis, prognosis and therapy is emphasized.

#### Influence of Certain Drugs in Relation to Biliary Pain—Variations in Intrabiliary Pressure

DRS. WALTMAN WALTERS, JOHN M. MCGOWAN and WINFIELD L. BUTSCH, Rochester, Minn: Changes in pressure in the common bile duct have been studied in a group of cases in which operation had been performed for lesions of the biliary tract and in which, as a part of the operation, the common bile duct had been opened and explored, and the incision in it closed around a T tube. By studying changes in pressure in the common bile duct and correlating the various phases of pressure with roentgenograms, we have been able to demonstrate that attacks of biliary colic are associated with increase of pressure in the common bile duct from 0 or 20 mm. of water up to 200 and even 300 mm. of water; the increase results from spasm of the sphincter of Oddi preventing the bile entering freely into the duodenum. When a substance opaque to x-rays is employed, fluoroscopic and roentgenographic examinations reveal the spasm of the lower portion of the common bile duct or the sphincter of Oddi, with abnormal filling and distention of the intrahepatic ducts, during the height of the pain. Inhalation of amyl nitrite or sublingual administration of  $\frac{1}{100}$  grain (0.00065 Gm.) of glyceryl trinitrate reduces intrabiliary pressure and relieves biliary colic, and roentgenograms give evidence of release of the spasm of the lower end of the duct and of the sphincter of Oddi. Patients who experience pain following administration of morphine belong to the group of those who suffer from the so-called postcholecystectomy syndrome.

In more than twenty cases studied twelve days after removal of the gallbladder and exploration and drainage by T tube of the common duct, morphine one-sixth grain (0.01 Gm.) given subcutaneously has produced increase in pressure in the common bile duct, from 0 or 20 mm. of water up to 200 and even 300 mm. of water. Pressure begins from two to five minutes after injection of morphine and rises at a variable speed. In some cases rises in pressure are accompanied by typical attacks of biliary colic and frequently by nausea. Severe pain is com-

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permitting transient bacteremias from the bacterial reservoirs of the body. Administration of specific immune serum, the phenomenon of bacterial dissociation and errors in technic of culturing played a definite but minor part in these differences. Postmortem autolysis of the tissues tends to destroy the more sensitive pathogenic bacteria, provided the time interval between death and postmortem examination is more than twelve hours.

### Journal of Lab. and Clinical Medicine, St. Louis

22: 221-328 (Dec.) 1936

- Experiments on Maintenance of Mineral Density in the Skeleton. Y. A. Venar and T. W. Todd, Cleveland.—p. 221.
- \*Granulocytopenic Fractions of Yellow Bone Marrow. J. Zichis, Detroit.—p. 231.
- Comparison of Direct versus Indirect Method of Estimating Lipid Composition of Red Blood Cells. E. M. Boyd, Kingston, Ont.—p. 237.
- Blood Cholesterol and Manic Depressive Psychosis. P. G. Schube, Boston.—p. 240.
- Albuminuria Solaris. A. Galambos and W. Mittelman, New York.—p. 246.
- Juvenile Diabetes Mellitus: Study of Insulin-like Reactions Unrelated to Hypoglycemia. H. M. Feinblatt, Brooklyn; assisted by E. A. Ferguson.—p. 249.
- Idiopathic Amyloid Disease of the Heart. A. J. Kerwin, Toronto.—p. 255.
- Observations on Normal Emptying Time of Stomach of Dog, Using a Mixed Meal. E. J. Van Liere, G. Crisler and I. A. Wiles, Morgantown, W. Va.—p. 261.
- Bactericidal and Bacteriostatic Properties of Diothane Solutions. E. G. Gerwe and R. Y. Gottschall, Cincinnati.—p. 263.
- Possible Importance of Mediums Causing Surface and Subsurface Growth of Pathogenic Fungi to Diagnosis and Treatment of Disease. J. W. Williams, Boston.—p. 268.
- Quantity of Iodine in Thyroid Gland of Rabbit and Influence Thereon of Diet of Cabbage. A. W. Downs, Edmonton, Alta.—p. 270.
- Pollen Content of Air of San Diego, Calif. C. L. Stealy, San Diego, Calif., with technical assistance of Helen McMichael.—p. 273.
- Variations in Blood Cholesterol of Man Over a Time Period. P. G. Schube, Boston.—p. 280.
- Studies in Bacteriophage: III. Significance of Tests for Inhibition of Bacteriophage Phenomenon by Human Serum. Helen Zaytzeff-Jern and F. L. Meleney, New York.—p. 284.
- The Doctor as a Scholar. E. Podolsky, Brooklyn.—p. 290.

### Granulocytopenic Fractions of Yellow Bone Marrow.

—Zichis isolated fractions that appear to have granulocytopenic properties by saponifying yellow bone marrow with alcoholic potassium hydroxide at room temperature. The active fractions were isolated by separation with distilled water and by petroleum benzin extraction. The former method affords a comparatively simple means of separation. However, by the latter method it is possible to obtain the fraction in a more concentrated form. In addition, the preparation isolated by the first method is active when administered orally, and the other preparation is active when administered intramuscularly to rabbits in which a condition of granulocytopenia was produced experimentally. Although a very highly active concentrate was prepared, it will be necessary to conduct further studies on the purification and concentration before any suggestion of chemical composition can be made. A modification of the method employed by Dennis was used to produce granulocytopenic conditions in rabbits and rats. This proved to be satisfactory. Although the condition obtained by this procedure may not be identical with that in human beings, it affords a convenient laboratory method of demonstrating the granulocytopenic activity of concentrates of yellow bone marrow.

### Kansas Medical Society Journal, Topeka

37: 485-526 (Dec.) 1936

- Injection Method of Treatment for Hernia. A. J. Weber, Milwaukee.—p. 485.
- Primary Renal Neoplasm, Running a Febrile Course and Terminating in Fatal Hemorrhage Following Erosion of Coronary Vein of Stomach: Case. W. L. Butler and P. E. Craig, Stafford.—p. 488.
- Brain Abscess: Clinicopathologic Résumé and Report of One Case. H. N. Roback, Topeka, and J. N. Sherman, Chanute.—p. 492.
- \*Surgical Treatment of Injuries to Peripheral Nerves. A. W. Adson, Rochester, Minn.—p. 497.

### Surgical Treatment of Injuries to Peripheral Nerves.—

Adson asserts that the surgical treatment of injuries of the peripheral nerves is governed by the physiopathologic phenomena of degeneration and regeneration of these nerves. The character of the injury, whether it is contusion of a nerve, compression of a nerve by a blood clot or callus, a clean cut section or extensive laceration resulting in loss of nerve tissue or in avulsion of a nerve, more or less determines the type of

surgical operation that is indicated. The degree of paralysis and the interval between the time of the injury and the repair are important factors in selecting the operative procedures and in determining the indications for operation. The ideal operative measures are neurolysis of nerves which are partially paralyzed as a result of constriction and end-to-end suture following removal of the neuromas. Suturing should be performed in the first six months following the injury; interrupted silk sutures should be placed in the epineurium, without tension. Prevention of undue traction on the suture line and gentle massage of the paralyzed muscles during the period of recovery are essential to successful regeneration.

### Laryngoscope, St. Louis

46: 815-898 (Nov.) 1936

- Labyrinth Reactions and Their Clinical Importance. A. A. Cinelli, New York.—p. 815.
- Practical Points on Submucous Septum Resection: Pitfalls and Corrections. A. F. Laszlo, New York.—p. 840.
- Diagnostic and Prognostic Value of Antrum-Irrigated Pus. L. R. Effler, Toledo, Ohio.—p. 848.
- Elliott Treatment of Sinus Disease. F. L. Bryant, Minneapolis.—p. 853.
- Foreign Body in Bronchus Simulating Carcinoma: Report of Case. B. Welt and S. Weinstein, Brooklyn.—p. 865.
- Pneumography. D. C. Baker Jr., Philadelphia.—p. 873.
- Lingual Thyroid. L. T. Buckman, Wilkes-Barre, Pa.—p. 878.

### Maine Medical Journal, Portland

27: 235-252 (Dec.) 1936

- Recent Advances in Therapy of Addison's Disease. S. R. Webber, Calais.—p. 235.
- Tetanus. H. E. Small, Fort Fairfield.—p. 237.
- X-Ray Diagnosis of Malignant Tumors. F. B. Ames, Bangor.—p. 239.
- Discussion of Cancer Symposium. E. C. Cutler, Boston.—p. 242.

### New England Journal of Medicine, Boston

215: 1049-1098 (Dec. 3) 1936

- Thyroid Adenomas and Their Clinical Complications, with Especial Reference to Discrete Adenoma. H. M. Clute and H. L. Albright, Boston.—p. 1049.
- Foreign Bodies in Air and Food Passages: Report of Nine Recent Cases. C. I. Johnson and C. F. Ferguson, Boston.—p. 1054.
- Value of Histologic Differentiation of Basal Cell Carcinomas. S. Warren, Olive Gates and P. W. Butterfield, Boston.—p. 1060.
- Prostigmene Test in Myasthenia Gravis: II. H. R. Viets, Boston, and R. S. Mitchell, Glen Falls, N. Y.—p. 1064.
- \*Treatment of Delirium Tremens with Sodium Evipal. P. Sperber, Providence, R. I.—p. 1065.
- The Management of Patients with Varicose Veins. E. T. Whitney and P. A. Consales, Boston.—p. 1068.

**Treatment of Delirium Tremens.**—Sperber points out that the sodium salt of *n*-methyl-cyclohexenylmethyl malonylurea immediately after intravenous injection in ordinary therapeutic doses aborted the attack in three typical cases of delirium tremens. The patients fell asleep for a period of from two to four hours, at the end of which they awoke for a brief interval and then returned to a deep sleep, the latter being the usual reaction following the natural ending of an attack of delirium tremens. On awaking, all were fully oriented and had no recollection of the attack. At no time was there a recurrence of symptoms. The observations suggest that the drug may be a specific remedy for delirium tremens, and this small series of cases is reported in the hope that its true value will be determined by others. Its possible value as a preventive in the pre-delirium state and as an abortifacient in acute alcoholic psychosis is suggested.

### New Jersey Medical Society Journal, Trenton

32: 679-756 (Dec.) 1936

- Tumors of Reticulo-Endothelial System: Medical Aspect. R. J. Mullin, Newark.—p. 685.
- Id.: Infections and Tumors of Reticulo-Endothelial System. H. C. Barkhorn, Newark.—p. 687.
- Id.: Bone Changes in Morbid Processes of Cytoplasmic Reticulum. N. J. Furst, Newark.—p. 690.
- Id.: Tumors of Mediastinum Arising from Reticulo-Endothelial System Roentgenologically Considered. W. G. Herrman, Asbury Park.—p. 693.
- Id.: Treatment of Tumors of Reticulo-Endothelial System. I. I. Kaplan, New York.—p. 696.
- Id.: Morbid Processes of Cytoplasmic Reticulum. W. Antopol, Newark.—p. 701.
- Bone Marrow in Leukemia. A. Yaguda, Newark.—p. 705.
- The Two-Stage Principle in Thyroid Surgery. M. Fellman, Jersey City.—p. 712.



### The Function of the Small Intestine

DRS. LORIN D. WHITTAKER and J. ARNOLD BARGEN, Rochester, Minn.: This report is a part of an investigation of the function of the small intestine of human beings who have had stomas made in the terminal portion of the ileum, with or without an associated colectomy. Patients were studied as late as five and a half years after ileostomy. Repeated quantitative determinations of chemical constituents of the blood were carried out. There was consistently seen a moderate decrease in the values only for calcium in the serum following ileostomy. The values returned to normal at the end of one month and remained normal. The effect of ileostomy on the caliber of the terminal portion of the ileum was studied roentgenologically, at reoperation and at necropsy. A definite dilatation of the terminal portion of the ileum was found. There was no evidence, however, that the amount of dilatation present was sufficient to compensate volumetrically for the excluded colonic reservoir. The motor activity was studied by means of intestinal tracings to determine what part intestinal motility might play in the reduction in activity of the ileac stoma and in the thickening of the discharge that occurs following ileostomy. There was no fundamental change from normal in motor activity through the prolonged postoperative period of observation. The changes in activity of the ileac stoma and in consistency of the discharge cannot be ascribed to changes in motor activity.

### Alterations in the Respiratory Tract from Aspirated Vomitus

DRS. CARL W. APFELBACH and OSCAR O. CHRISTIANSON, Chicago: In moribund individuals, in the presence of dilatation of the gastro-intestinal tract and under the influence of general anesthesia, flooding of the respiratory tract with vomitus leads to acute alterations that have not been described and recognized anatomically and clinically to a degree proportionate to the frequency of occurrence. Hemolysis, hemorrhage, edema, acute emphysema and necrosis are the characteristic changes. Abscess and gangrene from aspirated foreign material are excluded from the discussion. Clinically acute dilatation of the heart, pulmonary embolism, coronary thrombosis and acute pulmonary edema are the usual interpretations. The characteristic alterations have been reproduced in dogs by injecting material from dilated stomachs into the trachea. The frequency of this complication has been reduced at the Presbyterian Hospital by an increase in aspiration of the stomach when dilatation is diagnosed. Even though it usually occurs in moribund conditions, it occasionally is the major complication causing death.

### DISCUSSION

DR. M. W. BINGER, Rochester, Minn.: In 1926 and 1927 Dr. Wilder and I made a study of postoperative pneumonia in a series of 300 cases. We thought these were practically all aspiration pneumonias. Cultures were made from the sputum and practically all were hemolytic streptococci. There were some cases in which food was present in the trachea, probably because of regurgitation from the stomach and aspiration in the lung. I think this is important in surgical complications.

DR. CARL W. APFELBACH, Chicago: This condition may occur during labor, but during the last eight years we did not observe aspiration of vomitus in labor. I should have mentioned that Dr. Balfour emphasized the importance of pulmonary aspiration of vomitus as a complication of gastro-enterostomy and other operations on the stomach. It is a well recognized condition pathologically but has appeared in textbooks on pathology only occasionally, and the clinical textbooks do not give it importance that is proportional to its frequency.

### Comparative Effects of Protamine, Crystalline and Regular Insulin on Blood Sugar

DRS. GORDON B. MYERS and FRANK S. PERKIN, Detroit: The comparative effects of uniform doses of protamine insulin, crystalline insulin and regular insulin at 7:40 a. m. and 6 p. m. on the blood sugar before breakfast and three hours after each meal were studied in a group of ten diabetic patients. From the parallelism in the curves on regular and crystalline insulin, it would appear that there is little if any difference in their action when used in the manner prescribed. The duration of the hypoglycemic effect of protamine insulin was considerably greater than that of crystalline or regular insulin.

The comparative effects of single doses of protamine zinc, protamine calcium and plain protamine insulin at 7 a. m. daily were studied in ten patients with severe diabetes. The results with protamine zinc insulin were much superior to those with any of the other preparations. The average fasting level of 0.069 per cent would indicate that its hypoglycemic effect exceeds twenty-four hours. The group was better controlled on a single dose of protamine zinc insulin averaging 44 units than on an average of 3.3 doses of regular insulin daily totaling 60 units. Severe reactions have occurred between midnight and 5 a. m., from seventeen to twenty-two hours after the administration of protamine zinc insulin. They can usually be prevented by a small bedtime feeding.

Protamine zinc insulin was used successfully as a supplement to regular insulin in the treatment of diabetic coma. One patient who had required twenty doses of regular insulin totaling 300 units in her first attack of diabetic coma was brought out of a second attack of similar depth by a single dose of 100 units of protamine zinc insulin supplemented by two doses of regular insulin amounting to 70 units.

### Insulin with Prolonged Action

DRS. RANDALL G. SPRAGUE and EDWARD H. RYNEARSON, Rochester, Minn.: Comparative studies of the duration of the hypoglycemic effect of various preparations of insulin were made on young patients having severe diabetes of long standing. The observations show that the precipitation of insulin with protamines, as performed by Hagedorn, results in marked slowing and prolongation of its action. The addition of soluble zinc salts in small amounts to protamine insulin apparently causes a further slowing of its action, while calcium has the opposite effect. Crystalline insulin containing small amounts of zinc (insulin-zinc) as prepared by Sahyun, acts for only a slightly longer period than regular insulin. The gradual production of hypoglycemia by slowly acting insulin is attended by milder early symptoms than are observed in the hypoglycemia produced by regular insulin, although the late symptoms may be equally severe. The clinical management of severe diabetes is improved and simplified by the use of protamine insulin supplemented by small doses of regular insulin.

### DISCUSSION ON INSULIN

DR. HENRY T. RICKETTS, Chicago: It is interesting in connection with the discussion of zinc that Rabinowitch has shown quite clearly that the addition of zinc to regular insulin in large amounts may so delay the action of insulin as to inhibit it completely for from six to nine hours; so there seems to be no question that zinc is the factor largely responsible for the delayed action of zinc protamine and insulin zinc. As to the toxicity of zinc, Rabinowitch has been able to produce no evidence of this from available data. I should like to ask Dr. Myers and Dr. Sprague if they have observed any patients on protamine insulin during acute infections. We have had three patients at Billings with mild infections of the upper respiratory tract on protamine in whom it was necessary to increase the amount of insulin. This seems to be quite out of line with former experience with regular insulin.

DR. MOSES BARRON, Minneapolis: This work with protamine insulin will probably prove to be almost as great an advance in the treatment of diabetes as the introduction of insulin in the first place was over the preinsulin treatment. The second paper showed how zinc insulin seems to have a more prolonged as well as more intense action than the plain protamine insulin. I recently had a patient in whom that was brought out. This patient had severe diabetes with an infection of the upper respiratory tract and a large abscess in the lung. The patient had to be given massive doses, from 70 to 100 units of protamine insulin daily. She also had to be given some plain insulin in the morning in order to eliminate glycosuria in the latter part of the forenoon. When given zinc insulin she seemed to be under good control. When this was changed to the plain protamine insulin she would at once develop a severe glycosuria, and later when she would be put back again on the zinc insulin she would often develop severe hypoglycemic reactions about 2 or 3 o'clock in the morning with severe convulsive seizures. Just one more point about the treatment of acidosis in diabetic coma: I believe that at no time should protamine insulin be given alone, since the action would be too slow and the patient's life would then be endangered.

## Texas State Journal of Medicine, Fort Worth

32: 509-574 (Dec.) 1936

- Pathology of Carcinoma of Colon and Rectum. J. L. Goforth, Dallas.—p. 514.
- Roentgen-Ray Diagnosis in Carcinoma of Colon and Rectum. C. F. Crain, Corpus Christi.—p. 517.
- Clinical Aspects of Carcinoma of Rectum. H. T. Hayes and H. B. Burr, Houston.—p. 519.
- Evaluation of Roentgen and Radium Therapy in Treatment of Malignant Disease of Rectum. E. T. Leddy, Rochester, Minn.—p. 523.
- Roentgen Ray Studies of Cirrhosis of Liver. C. L. Martin, Dallas.—p. 527.
- Cirrhosis of Liver: Clinical Considerations. J. C. Barton, San Antonio.—p. 529.
- Meeting the Requirements for Proper Nutrition in Infancy. J. G. Young, Dallas.—p. 531.
- Gynecologic Symptom Complex in Relation to Personality Problems. W. R. Houston, Austin.—p. 534.
- Experience with Fever Therapy in a State Hospital. C. H. Standifer, Austin.—p. 537.
- Ear, Nose and Throat Problems in Tuberculosis. W. E. Vandever, El Paso.—p. 539.
- Eye Injuries. J. H. Carter, Beaumont.—p. 542.
- Glomus Tumor. A. G. Schoch and H. S. Aronson, Dallas.—p. 545.
- Thrombo-Angiitis Obliterans in Negroid: Case. G. W. Parson, Texarkana.—p. 546.
- Undulant Fever and Its Relation to Public Health. F. B. Green, Lufkin.—p. 549.
- Relative Values in Public Health Work. E. O. Chimene, Austin.—p. 551.

**Undulant Fever and the Public Health.**—Green believes that prevention and control measures of undulant fever depend primarily on the ability of the practicing physician to recognize the disease, as 90 per cent of these cases are diagnosed as malaria, typhoid and paratyphoid. The author has had numerous interviews with persons who have suffered undulating febrile attacks, muscular rheumatism, arthritis and orchitis for months before receiving a proper diagnosis through a laboratory blood test. Secondly it depends on health officials and veterinarians, who should be charged with the responsibility of blood testing all cows and goats supplying milk for human consumption and the elimination of all reactor animals through segregation or destruction, preferably destruction. In areas in which the disease is prevalent or known to exist, the blood test should have precedence over the test for tuberculosis. Until the source of the infection is determined, all milk should be boiled or pasteurized. Human beings having the disease should be treated on the same principles as laid down for typhoid. General sanitary measures should be enforced. Suppression of flies and mosquitoes, allaying of dust and promotion of cleanliness should not be neglected.

## United States Naval Med. Bulletin, Washington, D. C.

34: 431-618 (Oct.) 1936

- The Posttraumatic Abdomen: Diaphragmatic Hernia as Sequel of War Injuries. L. W. Johnson.—p. 431.
- Ventral Hernia as Sequel of Traumatic Abdomen. F. R. Hook.—p. 440.
- Repair of Inguinal Hernia. G. G. Herman.—p. 452.
- Medical Department of U. S. S. "Ranger." G. C. Rhoades.—p. 456.
- Narcolepsy: Report of Three Cases. H. O. Cozby.—p. 471.
- Observations on Chromatoid Bodies in Cysts of *Endamoeba histolytica*. E. G. Hakansson, with technical assistance of J. F. Buckner and H. A. Down.—p. 478.
- Teratoma of the Testicle: General Considerations and Case Report. M. J. Aston.—p. 492.
- Vinethene Anesthesia. J. Connolly and R. E. Baker.—p. 499.
- Pelvic Surgery and Gynecology. J. L. Schwartz.—p. 507.
- Anomalies of Development of the Lumbar Spine. I. E. Stowe.—p. 514.
- Phrenic Exeresis. H. V. Hughes.—p. 519.
- \*The Nodal Triangle. R. A. Nolan.—p. 523.
- Phenyl Mercuric Nitrate in Treatment of Otitis Externa and of the Dermatomyctoses. F. C. Greaves.—p. 527.
- Dangers of Prosthesis for Aviation Personnel. J. L. Brown.—p. 532.
- Ear Symptoms Incidental to Sudden Altitude Changes and the Factor of Overclosure of the Mandible. G. E. Willhelmy.—p. 533.

**The Nodal Triangle.**—Nolan points out that the nodal triangle, an abnormal finding observed in lymphatic influenza, or so-called glandular fever, is easily elicited by gentle, digital palpation, the palpating fingers running along the vessel's course on the surface. The condition when elicited is definite. Sacculated nodes ranging from the size of a pea to that of a bean are in linear arrangement converging at the inner aspect of the knee joint but never below this point. These lymphatic dilatations or sacculations take on temporarily the nature of a lymphangioma or fibroma. They lie in the subcutaneous tissue just below the corium; the skin is normal in appearance and shows no local signs of inflammation over nodal triangular

lines. By palpating over these sacculations with pressure, pain is elicited along the nodal chain. The sign is considered of extreme importance for purposes of early differentiation, as a possible explanation for muscular asthenia, and as another check in establishing the fact that the organism or virus causing influenza in some juvenile epidemics has a specific action on the lymphatic system of the body, thereby producing a train of signs and symptoms. When the patient shows by the blood count and other studies an atypical picture of so-called glandular fever and the cervical, axillary and inguinal adenopathy is apparently normal, this sign in the lower extremities will furnish the evidence demonstrating adenomatosis in an anatomic location rarely if ever looked for. Its presence is apparently due to a mechanical irritation (muscle squeeze) during the prodromal or acute introductory stage of the influenza virus affecting the lymphatic system.

## Yale Journal of Biology and Medicine, New Haven

9: 1-136 (Oct.) 1936

- Medical Expert Testimony. T. P. Murdock, Meriden, Conn.—p. 1.
- Studies in the Pathology of Vascular Disease. Elizabeth M. Ramsey, Washington, D. C.; D. W. Gaiser, Spokane, Wash.; G. A. Carden Jr., New York; P. M. LeCompte and R. Tennant, New Haven, Conn.—p. 13.
- Vacuum Tube Microvoltmeter for Measurement of Bio-Electric Phenomena. H. S. Burr, C. T. Lane and L. F. Nims, New Haven, Conn.—p. 65.
- \*Pulmonary Cysts: Review of Subject, with Case Report. A. W. Oughterson and M. Taffel, New Haven, Conn.—p. 77.
- Somatic Agglutinin and Immunity in Mouse Typhoid. W. M. Hale, New Haven, Conn.—p. 101.
- Dental Changes in Rats Consuming a Diet Poor in Inorganic Salts. S. S. Arnim, Miriam F. Clarke, B. G. Anderson and A. H. Smith, New Haven, Conn.—p. 117.
- Date of Organization of Litchfield County Medical Association. W. R. Steiner, Hartford, Conn.—p. 127.

9: 137-198 (Dec.) 1936

- The First Published Attack on Perkinism: Anonymous Eighteenth Century Poetic Satire. H. W. Haggard, New Haven, Conn.—p. 137.
- Bio-Electric Phenomena Associated with Menstruation. H. S. Burr and L. K. Musselman, New Haven, Conn.—p. 155.
- Injection Treatment of Hernia. D. C. Patterson, Bridgeport, Conn.—p. 159.
- Osmotic Exchanges in the Blood: Preliminary Report. J. P. Peters, A. J. Eisenman and P. M. Hald, New Haven, Conn.—p. 167.
- Carcinolytic Action and Erythrocyte Sedimentation. G. H. Smith and Florence Mack, New Haven, Conn.—p. 173.
- Changes in Molar Teeth and Their Supporting Structures of Rats Following Extraction of Upper Right First and Second Molars. D. G. Anderson, A. H. Smith, S. S. Arnim and Aline U. Orten, New Haven, Conn.—p. 189.

**Pulmonary Cysts.**—Oughterson and Taffel believe that cysts which are filled with fluid and are indistinguishable from intrathoracic neoplasms should be explored and, if possible, removed. Infected cysts which present the same symptoms as those of chronic lung abscess or infected bronchiectasis are subject to the same principles of treatment as those of the so-called chronic nonspecific pulmonary suppuration. The treatment of large infected peripheral cysts is similar to that of chronic encapsulated empyemas with communicating bronchopleural fistulas. Adequate drainage must be instituted. After the infection subsides, cauterization of the bronchial orifices with closure of the wound by muscle pedicle grafts may be carried out. If the cysts are too large to be obliterated in this way, the lobe containing them may be resected. It is believed that pulmonary cysts, like those of the other parenchymatous organs of the body, do not all arise as a result of a single common mechanism but are congenital, inflammatory, mechanical or neoplastic in origin. The clinical manifestations are protean, and the correct diagnosis is frequently made only at operation or at necropsy. The authors used a new therapeutic procedure in their patient suffering from a tension pneumothorax with multiple, large air cysts in the right middle and lower lobes. The bronchial openings communicating with the cysts were made so large and numerous that air could not be withdrawn rapidly enough through a needle. An open thoracotomy was performed, at which time the walls between the cysts were divided and a shrunken upper lobe was disclosed. High negative pressure served to collapse the cysts completely and to expand the upper lobe until it filled the hemithorax. This negative pressure was maintained until the lung became adherent. Physical examination, as well as roentgenograms, revealed normal lung fields two years after the operation. There has been no recurrence of symptoms.

## Current Medical Literature

### AMERICAN

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#### Alabama Medical Association Journal, Montgomery

6: 189-220 (Dec.) 1936

- Surgery of the Prostate. E. Burns, New Orleans.—p. 189.  
William Crawford Gorgas; His Contribution to Civilization. J. N. Baker, Montgomery.—p. 192.  
Eczema from the Pediatrician's Standpoint. J. Signorelli, New Orleans.—p. 197.  
New Attack on the Tuberculosis Problem. W. P. Dearing, Montgomery.—p. 201.  
Effect of Pregnancy on Upper Urinary Tract. J. P. Robertson, Birmingham.—p. 204.

#### American J. Obstetrics and Gynecology, St. Louis

32: 911-1102 (Dec.) 1936. Partial Index

- Pyelitis in Toxemias of Pregnancy. J. P. Peters, P. H. Laviates and H. M. Zimmerman, New Haven, Conn.—p. 911.  
\*Blood and Plasma Volume Changes in Eclampsia. W. J. Dieckmann, Chicago.—p. 927.  
Blood Lipids in Preeclampsia. E. M. Boyd, Kingston, Ont.—p. 937.  
Therapeutic Abortion by Means of X-Ray. M. D. Mayer, W. Harris and S. Wimpfheimer, New York.—p. 945.  
Biologic Test for Diagnosis of Intra-Uterine Fetal Death. G. H. Rezek, Chicago.—p. 976.  
Critical Study of Low Cervical and Classic Cesarean Section Operations. F. H. Falls, Chicago.—p. 989.  
Tumors of Ovary: Study of 1,101 Cases of Operations for Ovarian Tumor. P. Bernstein, New York.—p. 1023.  
Menstrual Bleeding After Corpus Luteum Excision, Followed by Estrin or Progestin Therapy: Report of Thirteen Cases. H. Wiesbader, E. T. Engle and P. E. Smith, New York.—p. 1039.  
Comparative Study of Pelvic Temperatures Under Various Therapeutic Procedures. H. C. Ingraham, New York.—p. 1048.  
\*Fatal Air Embolism on Eighth Day of Puerperium. J. K. Quigley and I. A. Gáspár, Rochester, N. Y.—p. 1054.  
Full Term Pregnancy Complicated by an Acute Intestinal Obstruction and False Labor Pains. J. Casagrande, Brooklyn.—p. 1058.  
Lithopedion. S. A. Osheroff, Omaha.—p. 1064.  
Pregnancy After Removal of Both Ovaries. W. A. Scott, Toronto.—p. 1067.

**Blood Volume Changes in Eclampsia.**—Through the study of the constituents in the blood and urine of toxemic patients Dieckmann found that a concentration of the blood, which may be relative (below the average for the period of pregnancy) or absolute (less than the normal for the nonpregnant patient), occurs in eclampsia. This concentration can be demonstrated by blood and plasma volume determinations, but it is best demonstrated by serial determinations of hemoglobin, cell volume or serum protein concentration. The change in concentration of these substances is not always parallel, but the direction of change is usually the same. A concentration of the blood and plasma is not the cause of the eclampsia, but it is intimately associated with the convulsions, coma, oliguria and the various cerebral, visual and gastro-intestinal symptoms. A blood dilution is associated with clinical improvement as determined by a diuresis, cessation of the convulsion, return to consciousness and decrease in temperature and pulse. Death occurred in three patients in whom a permanent blood dilution could not be maintained. Since the exact cause of eclampsia is unknown and a concentration of the blood occurs which may be so marked as to be incompatible with life, treatment that will dilute the blood should be instituted. If the case is mild, almost any type of treatment is efficacious. If the case is severe, treatment that comprises control of the convulsion, dilution of the blood and relatively early delivery must be instituted.

**Fatal Air Embolism on Eighth Day of Puerperium.**—In their case of fatal air embolism, which occurred on the eighth day post partum, Quigley and Gáspár found that the cause of death was due to air embolism by way of opened uterine sinuses and retained small pieces of decidual tissue with hemorrhage.

There evidently had been some bleeding from the placental site due to the retained small particles of decidual tissue. Blood clots were formed not only around the retained small pieces of decidual tissue but also in numerous uterine veins just beneath this area. As the patient went into the knee-chest posture, the lower pole of this blood clot became separated from the uterine wall and several large veins became opened. At first hemorrhage occurred, suddenly followed by the suction of air into these gaping veins in sufficient quantity to block the pulmonary artery and the right side of the heart.

#### American Journal of Orthopsychiatry, Menasha, Wis.

6: 477-662 (Oct.) 1936

- Mobility and Delinquency. J. Stuart, Berkeley, Calif.—p. 486.  
Comparison of Difficulty of Items for Intellectually Normal Children and Mental Defectives on Goodenough Drawing Test. Judith Israelite, New York.—p. 494.  
Observations and Results of Therapeutics of Problem Children in a Dependency Institution. C. P. Oberndorf, S. Z. Orgel and Julia Goldman, New York.—p. 538.  
\*Gonadal Disturbances in Behavior Problems. M. Molitch and S. Poliakoff, Jamesburg, N. J.—p. 553.  
Spontaneous Reactions to Personality Inventory. R. R. Willoughby and Mary Elizabeth Morse, Providence, R. I.—p. 562.  
Further Study of Maternal Rejection. H. W. Newell, Baltimore.—p. 576.  
Economic Security and Children's Attitudes to Parents. H. Meltzer, St. Louis.—p. 590.  
Follow-Up Method in Child Guidance Work: Report on Method of Follow Up Used at the Child Guidance Home. Florence M. Rosenthal and Gertrude D. Pinsky, Cincinnati.—p. 609.  
Application of Psychoanalytic Methods to Study of Mental Retardation. Leona Chidester and K. A. Menninger, Topeka, Kan.—p. 616.  
Recreational Therapy in Prepsychotics. G. J. Rich, Milwaukee.—p. 626.  
Some Experimental Contributions to Psychology and Psychopathology of Stutterers. E. Ingebrechtsen, Lysaker, Oslo, Norway.—p. 630.

**Gonadal Disturbances in Behavior Problems.**—Molitch and Poliakoff observed eighty-one boys with gonadal disturbances from the standpoint of diagnosis, mental level, school achievement, behavior, personality and treatment. Except for those with delayed secondary sexual development, gonadal disturbances are not of frequent occurrence in boys with behavior problems. Boys with deficient gonadal function tend to be brighter than the control group. The children with hypergonadism are below the average of the control group. The school attendance and achievement were not much different from that of the control group, but the boys with undescended testes were the most serious school behavior problems. The offenses causing commitment consisted essentially of truancy and stealing. This is equally true for the control group, but the boys with hypogonadism were particularly noted in the stealing category. Sexual offenses were quite rare, and occurred only in one boy with hypergonadism. The boys with gonadal dysfunctions were found to be unstable, immature and infantile. The children with undescended testes were the most unstable, but the entire group were less deviated than children with dyspituatarism. Within the institution the boys with gonadal disturbances were making a good school adjustment but were among the retarded from the standpoint of conduct and work. Eleven boys with undescended testes were treated with the gonadotropic factor from the urine of pregnancy, with excellent results in seven cases.

#### Archives of Dermatology and Syphilology, Chicago

34: 935-1100 (Dec.) 1936

- Atopic Dermatitis (Disseminated Neurodermatitis) of Young Adults: Analysis of Precipitating Factors in 101 Cases and Report of Ten Cases with Associated Juvenile Cataract. L. A. Brunsting, Rochester, Minn.—p. 935.  
Cutaneous Action of Radium in Presence of Constant Suction. W. M. Millar, Cincinnati.—p. 958.  
Effect of Irradiation and Irradiation Plus Sensitization on Yeastlike Fungi and Related Organisms. Paulina Gomez-Vega, Bogota, Colombia, South America.—p. 961.  
Superficial Epitheliomatosis. W. A. Rosenberg, Chicago.—p. 973.  
Atrophoderma Reticulatum. L. H. Winer, Minneapolis.—p. 980.  
\*Bilateral Herpes Zoster Complicating Cutaneous, Osseous and Pulmonary Tuberculosis. E. Epstein and H. P. Jacobson, Los Angeles.—p. 989.  
Hemangio-Endothelioma. S. E. Sweitzer and L. H. Winer, Minneapolis.—p. 997.  
Eczema Vaccinatum. J. W. Tedder, New Orleans.—p. 1008.

**Bilateral Herpes Zoster Complicating Tuberculosis.**—Epstein and Jacobson reviewed the literature and found reports of only forty-six instances of bilateral zoster. The articles

valve cusps in the hearts of five infants up to 6 months of age. The small dark red nodules projected on the atrial aspects of the cusps a short distance from their edges. They varied in size from 0.2 to 1 mm. in diameter, and the elevations produced were smooth with no external opening visible. The authors support the view of Haushalter and Thiry that blood cysts originate from the blood in the heart cavity that has been pressed into a valve cusp. In embryonic hearts the traction of the chordae tendineae tends to produce furrows or undulations in the delicately meshed fibrous structure which has not yet become differentiated into special layers in the cusp, and this is especially marked on the ventricular aspect. If fusion of the edges of these furrows occurs, there are formed localized blood cysts which become incorporated in the substance of the cusp. On serially sectioning the cusps, fusion of the edges of the furrows was seen to be taking place leading to the formation of tunnels of variable size. As the result of traction and pressure, these become enclosed spaces which may eventually appear as swellings on the atrial aspect of the cusp. Each cyst had a complete endothelial wall surrounding it, and those which presented on the atrial aspect of the cusps acquired an additional layer of atrial endothelium on their projecting surfaces. Blood cysts do not appear to have any pathologic significance and are a common anatomic observation in the valves of the new-born and infants in the first few months of life.

### Journal of Mental Science, London

82: 475-700 (Sept.) 1936

- The Law and the Present Position of Psychiatry. M. A. Collins.—p. 478.  
Manic-Depressive Psychosis: Melancholia: Prognostic Study and Case Material. A. Lewis.—p. 488.  
Prognosis of Depressions of Later Life. E. W. Anderson.—p. 559.  
Hyperglycemic Index as an Aid to Prognosis. P. K. McCowan.—p. 589.  
Chronic Mania. K. Cameron.—p. 592.  
Therapeutic Attempts in Manic-Depressive Psychosis. H. Tomasson.—p. 595.  
Prolonged Narcosis in Manic-Depressive Psychosis. T. J. Hennelly.—p. 608.  
Treatment of Mania. D. N. Parfitt.—p. 615.  
Effect of Benzedrine on Depressive States. E. Guttmann.—p. 618.  
Inheritance of Manic-Depressive Insanity and Its Relation to Mental Defect. E. Slater.—p. 626.  
Mental Deficiency and Manic-Depressive Insanity. A. G. Duncan.—p. 635.  
Irritability as Symptom in Manic-Depressive Psychoses. W. Mayer-Gross.—p. 648.  
Simple Psychologic Data in Melancholia. A. Guirldham.—p. 649.  
Psychopathology and Periodicity: Note. S. M. Coleman.—p. 654.  
Contribution to Psychopathology of Mania. I. Skottowe.—p. 656.

### Lancet, London

2: 1197-1252 (Nov. 21) 1936

- British Dysenteric Infections. A. F. Hurst and F. A. Knott.—p. 1197.  
\*Optic Atrophy as Presenting Sign in Pernicious Anemia. H. Cohen.—p. 1202.  
Uveoparotitis. G. E. Lewis, R. Raines and D. S. Stewart.—p. 1204.  
Simultaneous Bilateral Artificial Pneumothorax. M. Myers and T. H. Parkman.—p. 1207.  
Acute Phlegmonous Appendicitis Produced by Intravenous Administration of Histamine. H. Selye.—p. 1210.  
Bee Venom in Rheumatic Disorders. F. S. Mackenna.—p. 1212.

**Optic Atrophy in Pernicious Anemia.**—Cohen believes that the lesions caused by loss of function followed by degeneration of nerve elements and their resulting symptoms might precede by a considerable period the clinical manifestations of pernicious anemia, and at first the effects would appear to be temporary and amenable to treatment. But, if left untreated, the pathologic changes progress to irreparable and complete neuron degeneration. The two cases of optic atrophy presented show that clinical examination cannot determine the proportion of temporary to permanent changes responsible for the visual loss, for the resulting symptoms and signs of the two are identical. It is in this sense that the term "optic atrophy" is applied to the pathologic change responsible for the visual disturbances described, and the cases demonstrate that this type of optic atrophy can precede other neurologic and blood changes in pernicious anemia. The diagnosis of pernicious anemia can be determined by the age of the patient (middle age) at the onset of optic atrophy, the steady deterioration in visual acuity before treatment is commenced and the considerable improvement that immediately follows the adequate parenteral administration of liver extract. Of the many cases

of unexplained optic atrophy a few human beings can be spared the tragedy of progressive blindness if an unmasked pernicious anemia is recognized early as the cause of failing vision and adequate treatment given. The knowledge that failing vision due to optic atrophy might be the presenting symptom in pernicious anemia will doubtless facilitate its recognition at an early stage.

### South African Medical Journal, Cape Town

10: 719-762 (Nov. 14) 1936

- Preventable Mortality and Morbidity in Anesthesia. H. Grant-Whyte.—p. 721.  
"Knoppie-Spider" Antivenene. M. H. Finlayson.—p. 735.  
Coordination of Effort in Tuberculosis Control in South Africa. D. P. Marais.—p. 736.

### Chinese Medical Journal, Peiping

50: 1013-1152 (Aug.) 1936

- Serum Electrolytes and Mineral Metabolism in Case of Addison's Disease, with Observations on Use of Suprarenal Cortical Extract (Eschatin). S. K. Chou, K. C. Chen, S. H. Liu and S. S. Faog.—p. 1013.  
Tuberculosis of Cervix Uteri. S. Lin.—p. 1025.  
Studies on Resistance of Leishman-Donovan Bodies to Various Physical, Chemical and Biologic Agents: Part I. Resistance of Leishman-Donovan Bodies to Certain Physical Agents, Namely, X-Ray, Heating, Chilling and Drying. H. L. Chung.—p. 1039.

50: 1153-1322 (Sept.) 1936

- Chronic Myelogenous Leukemia in Association with Lymphosarcomatosis and Transient Diabetes Insipidus. C. S. Yang.—p. 1153.  
Treatment of Old Dislocation of Shoulder. C. M. Meng and L. J. Miltner.—p. 1161.  
Caesarean Section in Treatment of Placenta Praevia in China: Analysis of 181 Cases. E. Eno.—p. 1173.  
Studies on Development of Spirochaeta Recurrentis in Body Louse: Preliminary Report. H. L. Chung and L. C. Feng.—p. 1181.  
Studies on Development of Spirochaeta Duttoni in Ornithodoros Moubata: Preliminary Report. L. C. Feng and H. L. Chung.—p. 1185.  
\*Rhythmic Movements Within Red Blood Corpuscles: Previously Unobserved Phenomenon (Preliminary Report). C. E. Forkner, Lily S. Zia and C. T. Teng.—p. 1191.

### Rhythmic Movements Within Red Blood Corpuscles.

Two years ago, while studying a fresh specimen of human blood by means of the supravital technic, Forkner and his co-workers observed that practically all red blood corpuscles exhibited peculiar movements within or on the surface of the cells. The phenomenon has been demonstrated repeatedly. The phenomenon is present in the red corpuscles of normal individuals and in patients suffering from a variety of diseases. It may be seen easily in fresh blood films made by allowing a coverslip, on the surface of which is a fresh drop of blood, to fall on a glass slide, the coverslip then being rimmed with petrolatum. The movements are best seen with an oil immersion lens and a 10× eyepiece in an area at which the cells are not too much compressed. They appear more clearly with binocular vision but are seen also with an ordinary monocular microscope of standard type. Rather intense illumination is necessary. Three types of movements of or within the cells may be observed: (1) a coarse jiggling of the corpuscles, (2) an irregular but more or less constant rate of pulsation of the borders of the corpuscles and (3) an intense, exceedingly rapid and apparently rhythmic activity within the cells themselves. The activity may represent a mechanism of molecular streaming whereby the molecules circulate within the cell at a rapid rate. If this is true, it is a solution for a problem which is of some importance in the physiologic activity of the erythrocyte. The mechanism of rapid oxidation and reduction of hemoglobin within erythrocytes may be intimately related to the very intense and rapid activity within the cells themselves. Such a mechanism would explain at once how erythrocytes are able to act so efficiently.

### Japanese Journal of Experimental Medicine, Tokyo

14: 457-534 (Oct. 20) 1936

- Immunity Against Syphilis: II. Spirochetic Capacity of Syphilitic Serum. T. Tani and K. Ogiuti.—p. 457.  
Id.: III. Parabiosis Experiments with Rabbits. T. Tani and S. Aikawa.—p. 465.  
Influence of Parenteral Inoculation of Lymph Gland and Other Organ Cell Constituents on Lipase Content of Intestinal Fluid. H. Kata.—p. 483.  
In Vitro Culture of Rabies Virus. K. Kanazawa.—p. 519.  
Experimental Studies on Lymphogranuloma Inguinale. Y. Satani and J. Sano.—p. 523.

are active only in man. Infection is the only cause of endometrial hyperplasia or fibromyomas, but any entity that inhibits ovulation may cause it, and pelvic infection is a common one. Attention should be drawn more toward the ovary and less toward the uterus in a search for the cause of the trouble. Preliminary biopsy of the endometrium should have a greater place in the preoperative calculations than heretofore. Thorough endometrial biopsy (curettage) and the artificial menopause should have a greater place in the treatment of selected cases than is generally practiced. Supplementary endocrine therapy should continue to attract the profession in the hope that it may eventually prove satisfactory.

**Heparin and Vascular Occlusion.**—Murray and his associates studied the influence of heparin in the prevention of the occlusion of traumatized veins in dogs. The evidence indicates that no occlusion occurs while heparin is being injected intravenously and if its administration is continued for a sufficient length of time healing of the intima takes place and there is a greatly reduced tendency for the vessel to occlude when injection is discontinued. Heparin also effectively prevents the vascular occlusion that follows the administration of sodium ricinoleate. Heparin may be injected intra-arterially in an extremity at such a rate that the blood flowing through the limb is definitely affected, while much less effect on the blood as a whole is produced (regional heparinization). The remarks on the effects of heparin refer only to the results of general heparinization. To secure this general effect, heparin is injected intravenously and the blood throughout the body is rendered incoagulable to a degree that depends on the amount of heparin injected. The cruder preparations of heparin had definite toxic effects in dogs, while the more highly purified material (70 units per milligram) has produced remarkably little disturbance. A substance effective in the prevention of vascular occlusion in animals due to mechanical or chemical causes deserves a clinical trial, provided it can be shown that doses effective in delaying coagulation of the blood have no deleterious results. The effects of the administration of purified heparin to patients was studied in May 1935 and a detailed report of the clinical experience is to be presented.

### Canadian Public Health Journal, Toronto

27: 367-420 (Aug.) 1936

- Recent Outbreak of Hemorrhagic Smallpox in British Columbia. J. W. McIntosh, E. D. Carder and C. E. Dolman, Vancouver, B. C.—p. 367.  
Complement Fixation Reaction in Variola. J. Craigie and F. O. Wishart, Toronto.—p. 371.  
Progress in Public Health in Canada. C. G. Power.—p. 380.  
Methods of Teaching Psychiatric Nursing and Mental Hygiene. E. R. Dick, Toronto.—p. 385.  
Staphylococcal Infections of Bovine Udder. R. Gwatkin, S. Hadwen, Toronto, and H. M. LeGard, Weston.—p. 391.

### Iowa State Medical Society Journal, Des Moines

26: 665-720 (Dec.) 1936

- Chronic Mastoiditis and Its Therapy. S. J. Kopetzky, New York.—p. 665.  
\*Intra-Ocular Lesions Associated with Pregnancy and Their Prognostic Significance. D. O. Bovenmyer, Ottumwa.—p. 670.  
Syphilis versus Carcinoma of Stomach: Thorium Dioxide Injection: Case Report. A. M. Gordon, Des Moines.—p. 674.  
Orthoptic Treatment of Squint. R. E. Russell and H. O. Gardner, Waterloo.—p. 676.  
Developmental Anomaly of the Male Genitalia. L. M. Folkers, Iowa City.—p. 681.  
Demonstrating Calcified Valve Leaflets by X-Ray in a Patient with Aortic Stenosis. G. R. McCutchan, Council Bluffs, and M. C. Andersen, Omaha.—p. 682.

**Intra-Ocular Lesions Associated with Pregnancy.**—Bovenmyer declares that in the toxic pregnant woman the slightest disturbance referable to the eyes, a mere dimness or inconsiderable blurring of vision, is a danger signal. Control of the eyegrounds of the toxic patient may give timely warning of a threatened catastrophe. Retinitis occurring in a pregnant woman may be connected with a chronic nephritis present before pregnancy, or it may be an expression of a toxemia of pregnancy that may or may not be giving rise to a concomitant pregnancy nephritis. The prognosis for life and health in the pregnant woman with retinitis will depend largely on whether or not there is a chronic nephritis. Because of the greater danger from a retinitis that has developed on the basis of a nephritis antedating pregnancy, it is important to find, if possible, some

indications in the eyegrounds to distinguish between the types of retinitis. The presence of sclerotic arteries denotes a previous nephritis with an accompanying hypertension, and their absence denotes, though less positively, that the retinitis is gestative. Radially disposed streaks of exudate, the star figure, are looked on as originating from a preexisting renal disease. The view accepted by the majority seems to be that the prospects of return of good vision are favorable, with certain exceptions or qualifications, such as that the chances are hardly favorable if there are changes in the macular region or if there is retinal detachment or papilloretinitis. Symptoms pointing to intra-ocular involvement and eyeground changes, showing that the toxins have attacked the retina and optic nerve, present to the physician the grave responsibility of deciding whether or not prompt emptying of the uterus is indicated to save the mother's life or to preserve her future health or vision. The preeclamptic woman and the woman with pernicious vomiting of pregnancy should have the eyegrounds controlled frequently with the ophthalmoscope. Ocular complications are of serious import in pernicious vomiting; Stander regards the appearance of hemorrhagic retinitis in pernicious vomiting as an absolute indication for immediate termination of the pregnancy. Instead of attacking the peripheral nervous system, as in retinitis, the toxins of pregnancy may attack the central nervous system in the visual center. Here belong those cases of eclampsia with and without convulsions, with amaurosis, in which there are no changes in the eyegrounds or at most a fleeting edema of the papilla. The visual disturbances may be caused by insult to the cortex. Toxic amaurosis, Bruce says, is one of the most valuable signs of an impending eclampsia. In cases of disease of the optic nerve in pregnancy, a hypophyseal origin of the disturbance should be suspected. Definite tumor symptoms need not be present; to save the sight, the continuing hyperplasia must be checked by emptying the uterus.

### Journal of Infectious Diseases, Chicago

59: 225-350 (Nov.-Dec.) 1936

- Slow Lactose-Fermenting Bacteria Pathogenic for Young Chicks. K. H. Lewis and E. R. Hitchner, Orono, Maine.—p. 225.  
Epizootic Streptococcal Myocarditis in Guinea-Pigs. M. Viola Rae, Toronto.—p. 236.  
Dissociation of Bacteria Granulosis. R. W. Harrison, St. Louis.—p. 244.  
Influence of Rachitogenic and Antirachitogenic Diets on Incidence of Spontaneous Infections in Albino Rats. Juanita Thompson, New York.—p. 253.  
Mucin as an Aid in Experimental Production of Lobar Pneumonia. W. J. Nungester and L. F. Jourdonais, Chicago.—p. 258.  
Antigenic Polysaccharide Fraction of *Ascaris Lumbricoides* (from Hog). D. H. Campbell, Chicago.—p. 266.  
Comparison of Efficiency of Phenol, Liquor Cresolis, Formaldehyde, Sodium Hypochlorite and Sodium Hydroxide Against *Eberthella Typhi* at Various Temperatures. E. C. McCulloch and Stella Costigan, Philadelphia.—p. 281.  
Pathogenicity of *Brucella Abortus* for White Mice. A. Ber, Warsaw, Poland.—p. 285.  
Modified Technic for Agglutination in *Brucella* Infection. C. R. Donham and C. P. Fitch, St. Paul.—p. 287.  
\*Comparative Values of Clinical and Postmortem Blood Cultures. C. G. Burn and D. F. Harvey, New Haven, Conn.—p. 296.  
Pathogenesis and Fate of Tubercle Produced by Dissociated Variants of Tubercle Bacilli. W. H. Oatway Jr. and W. Steenken Jr., Trudeau, N. Y.—p. 306.  
Haemophilus Pertussis on Chocolate Brown Agar. J. A. Toomey, W. S. Takacs and Katherine Ranta, Cleveland.—p. 326.  
Nature of Bacterial-Specific Intradermal Antiserum Reaction. L. Foshay, Cincinnati.—p. 330.  
Elicitation of Specific Phage from Autoclaved (Lifeless) Material: Studies in Bacterial Metabolism: CVII. A. I. Kendall, Chicago.—p. 340.

**Clinical and Postmortem Blood Cultures.**—Burn and Harvey obtained clinical and postmortem blood cultures from 212 individuals, 147 of which were positive and sixty-five were negative for bacterial growth. Agreement between both blood cultures occurred in 125 of the 212 cases and disagreed in eighty-seven. Contaminants were responsible for the discrepancies in twenty-two. The greatest discrepancy was due to the presence of negative cultures in seventy-three of the individuals. Sixty-five of these were in the clinical cultures and only eight at necropsy. The most important factor responsible for the negative clinical cultures in these studies was the time at which the last clinical culture was taken with relation to the death of the individual. Other influences were those controlling bacterial invasion into the blood stream, the development of mixed infections in the tissues and anatomic injuries to mucosal linings



evolution of tuberculosis in young children, in children who have had tuberculosis for a short time on development of measles and in children who are suffering from acute tuberculosis, regardless of age. As a rule, acute tuberculosis complicated by measles evolves toward disseminated miliary tuberculosis or tuberculous meningitis. Stimulation, reactivation and aggravation of tuberculosis in measles is due to dysergia and enanthemic changes of the respiratory tract in the course of measles. Reactivation and reagravation of tuberculosis take place within a period no longer than a year after measles. Any late change in the evolution of the former cannot be related to the latter. The reactivation of tuberculosis following measles can be prevented by administering serum from convalescents. The latter is especially indicated in all children with secondary allergy or sensitivity to tuberculosis as well as in children exposed to a reinfection and in those under the age of 5 years.

### Prensa Médica Argentina, Buenos Aires

23: 2767-2814 (Dec. 16) 1936

Local Anesthesia in Appendectomy: Results in Two Thousand Operations. R. A. Marotta and F. M. Bustos.—p. 2767.

Hermaphroditism: Cases. O. L. Bottaro and O. E. Arrillaga.—p. 2771.

\*Vaginal Trichomoniasis. E. Nicholson nad A. G. Peralta Ramos Jr.—p. 2782.

Syndrome of Radicular Neuritis with Albuminocytologic Dissociation in Cerebrospinal Fluid (Guillain-Barre); Sequel of Left Cubital Neuritis; Associated Extrapyramidal Symptoms; Case. B. B. Spota and A. J. Alurralde.—p. 2787.

Lithiasis of Common Bile Duct: Clinical and Therapeutic Study. V. Suarez.—p. 2791.

Gonococcal Filtrate ("Gonofil") in Treatment of Gonorrhea. A. Garfunkel and J. C. Aranibar Uriburu.—p. 2800.

**Vaginal Trichomoniasis.**—Nicholson and Peralta Ramos state that *Trichomonas vaginalis* plays an important part in the etiology of persistent refractory vaginal discharge. Trichomoniasis is frequent. The authors found it in 31 per cent of the cases examined in a gynecologic clinic in which the patients suffered from persistent vaginal discharge. It is more frequent in colored than in white women, especially in those who do not follow hygienic habits. The infection may be acquired by contagion in public baths in stagnant water and by using personal belongings of patients suffering from the infection. The authors failed to find any case acquired through sexual relations. Trichomoniasis should be considered a nosologic entity, as it gives a definite pathologic picture, and the phenomena developed in the course of the infection are characteristic of the latter. For diagnostic purposes the authors used the fresh drop method, in which the drop is stained with a saturated solution of brilliant cresyl blue in a physiologic solution. In six groups of patients the authors used the following methods of treatment: (1) painting of the vagina with a 5 per cent solution of mercurochrome every other day and later on every third day, (2) embrocations of petrolatum with quinine sulfate every other day, (3) daily douches with a 1:1,000 solution of mercury bichloride followed by an application of a 5 per cent solution of boric acid every other day, (4) a daily alkaline douche and two tablets of chiniofon (taken deep in the vagina by the patient), (5) two or three pills daily of an arsenic derivative and (6) daily vaginal painting with a 1:1,000 solution of mercury bichloride followed by an application of a 5 per cent solution of boric acid. Complete cure was obtained in all cases in from thirty to ninety days. The most resistant types are cystic trichomonal infections. The treatments with mercury bichloride and the arsenical preparation gave the most rapid and satisfactory results with permanent cure of the infection.

### Rev. de Parasitologia, Clinica y Laboratorio, Havana

2: 561-657 (July-Aug.) 1936. Partial Index

Interpretation of Dilution Test of Renal Function. G. González.—p. 585.

Intestinal Parasitism in Natives of Tiscornia Village. J. M. Bolaños, P. Kouri and V. Anido.—p. 601.

\*Lamblasis: Importance and Treatment. J. Echemendia.—p. 611.

Gastro-Enteropathy Due to Plasmodium Praecox: Cases. G. A. Jiménez and M. Benavides.—p. 621.

Hymenolepis Diminuta in Human Beings: Case. J. Feroselle Bacardi and A. Portuondo del Pino.—p. 629.

**Treatment of Lamblasis.**—Echemendia considers lamblasis of importance, especially because of the digestive and general disturbances it causes. In many cases the digestive

disturbances are etiologically misinterpreted and an erroneous treatment is given. The clinical picture consists of intestinal dyspepsia associated with enteritis and mucomembranous enterocolitis or rectocolitis, which frequently are of a dysenteriform type. There are pneumatosis, colicky pains and sometimes infection of the biliary tract. Identifying the parasite in the feces, after administration of a cholagogic saline purgative, or in the mucus of the duodenal secretion obtained by catheterization during stimulation of the gallbladder, is of importance. Lamblasis is a stubborn infection from a therapeutic point of view. The author reports satisfactory results from the administration of hydrochloric acid to adults and lactic acid to children, alternating with the parasiticide treatment. The latter consists in the administration of trivalent or pentavalent arsenicals for adults, chiniofon for children and an iodine-quinoline preparation in intolerant cases due to liver insufficiency. As a rule, four or five alternate acid and parasiticide treatments are required to control the infection. Discontinuation of the treatments is determined by negative results of coprologic examinations obtained on three consecutive examinations. The author is experimenting with some other parasitocides, the use of which is too recent to permit conclusions. According to the author, lamblasis should be given especial attention in the zone of Chaparra, because many cases of gastroduodenal disturbances in children of that region originate in lamblasis.

2: 659-752 (Sept.-Oct.) 1936. Partial Index

Tuberculous Otitis Media Secondarily Infected: Case with Recovery. V. C. Cabrera Calderín.—p. 685.

\*Ileocecal Intussusception Associated with Peritonitis from Ascariasis and Trichocephalosis: Case. F. Sala Penisello, J. A. Jiménez and A. Guernica.—p. 693.

Sellek-Frade Meinicke Modified Test Compared to Müller Conglobation Second Test in Congenital Syphilis in Children. A. Sellek Azzi and A. del Frade.—p. 705.

Diphtheritic Prostatitis: Case. M. Segurola Alberdi and A. Curbelo Hernández.—p. 725.

**Intussusception from Ascariasis and Trichocephalosis.**—Sala Penisello and his collaborators say that the ileocecal is the most frequent type of pathologic intussusception. Ileocecal intussusception is rare. The authors' patient, aged 2, showed a grave clinical picture, consisting of colic pain, colic disturbances and symptoms of acute appendicitis. Necropsy revealed peritonitis and ileocecal intussusception caused by ascariasis and trichocephalosis. The authors say that ascariasis alone or in association with trichocephalosis may produce colic disturbances and grave symptoms of acute appendicitis in children. It is necessary, therefore, to make fecal examinations as soon as the symptoms appear. In children suffering from intestinal parasitism it is found that 6.57 per cent is caused by ascarids, 52.74 per cent by Trichocephalus and 14.12 per cent by both parasites. In the authors' case the formation of eosinophils at the site of intussusception was verified by the study of histologic preparations. According to the authors, intussusception depends on a local factor which simultaneously stimulates peristalsis and antiperistalsis in two contiguous intestinal segments of different calibers. They believe that ileocecal intussusception in their case originated in associated alterations of antiperistalsis of the large intestine and peristalsis of the small intestine due to chronic inflammation of the enterocolic muscular layer.

### Klinische Wochenschrift, Berlin

15: 1865-1904 (Dec. 19) 1936. Partial Index

\*Clinical and Epidemiologic Significance of Types of Diphtheria Bacillus. M. Gundel.—p. 1871.

Antibodies Against Lipoid Hormones. R. Brandt and Helene Goldhammer.—p. 1875.

\*Central Position of Liver in Purine Metabolism and Its Significance for Pathogenesis of Gout. F. Chrometzka.—p. 1877.

Problem of Agranulocytosis After Medication with Aminopyrine. W. Rüther.—p. 1881.

Wheat Germ Oil (Vitamin E) in Treatment of Habitual Abortion. P. Vogt-Möller.—p. 1883.

Vitamin C in Therapy of Whooping Cough. T. Otani.—p. 1884.

**Significance of Types of Diphtheria Bacillus.**—Gundel examined approximately 10,000 strains of diphtheria bacilli (from 2,058 patients) in order to determine the type and its relation to the clinical and epidemiologic aspects. In 954 of

## Northwest Medicine, Seattle

35:441-490 (Dec.) 1936

- Use of Apple and Apple Products in Treatment of Summer Diarrheas and Dysenteries. I. A. Manville, Elizabeth M. Bradway and Avoca S. McMinis, Portland, Ore.—p. 441.
- \*Therapeutic and Preoperative Actions of Raw Apple Pulp. J. E. Bittner Jr., Yakima, Wash.—p. 445.
- Legalized Blackmail, the Malpractice Racket. W. Kelton, Seattle.—p. 449.
- Petrous Tip Abscess. H. V. Adix Jr., Portland, Ore.—p. 455.
- Calified Fibromyoma of Uterus Simulating Large Vesical Calculus. A. H. Peacock, Seattle.—p. 456.

**Actions of Raw Apple Pulp.**—About five years ago Bittner began using the apple treatment in all adults and children suffering from intestinal infections. In 946 patients less than 10 years of age in whom severe diarrhea was a symptom there was only one death under apple therapy. In this case meningeal symptoms were present at the time treatment was started. Previous conceptions regarding the action of apple pulp on the intestinal tract must be revised entirely. The accepted theory that bulk and roughage are irritating to the intestine and stimulate peristalsis must be excepted in the case of apples, as the action of this bulk on the intestinal tract is soothing and decidedly constipating even to the highly inflamed and irritated intestine of young infants suffering from severe dysentery. There are definite rules that must be followed if the best results are to be obtained. The apples must be eaten on an empty stomach, they must be finely chewed, they must have sufficient time to leave the stomach before being mixed with other foods, foods of high protein content seriously minimize the effect of the apple and in seriously acute cases will absolutely neutralize the beneficial effects expected, and cooking temperature greatly impairs the therapeutic value of apples. It is the author's belief that the action of apple pulp is not one of a germicidal nature but that it is entirely one of absorption of the toxic effects of bacterial invasion. He believes that the only effect apple pulp has on the intestinal flora is that of removing exotoxic products of bacterial growth, thereby relieving the system from the absorption of these products and allowing the blood stream defenses to concentrate directly on the bacterial invasion. In other words, the action is similar to the drainage of an abscess.

## Oklahoma State Medical Assn. Journal, McAlester

29:425-468 (Dec.) 1936

- General Discussion of Fractures of the Spine. D. H. O'Donoghue, Oklahoma City.—p. 425.
- Unpadded, Direct or Skin Plaster-of-Paris Cast in Treatment of Long Bone Fractures. R. G. Jacobs, Enid.—p. 431.
- \*Giant Cell Tumors of Bone with Specific Reference to Parathyroidism. G. L. Goodman, Yukon.—p. 434.
- Importance of Heat in Gynecologic Therapeutics. K. J. Wilson, Oklahoma City.—p. 440.
- Infections and Burns. T. McElroy, Ponca City.—p. 443.
- Congenital Cysts. D. D. Paulus, Oklahoma City.—p. 447.

**Giant-Cell Tumors of Bone and Parathyroidism.**—Goodman believes that two factors must be concerned in the development of a giant-cell tumor. It is readily seen that, because hyperparathyroidism exists, a giant-cell tumor does not necessarily follow, and that an injury alone does not always produce a giant-cell tumor. However, an injury in addition to hyperparathyroidism will probably produce such a tumor. These two factors produce a giant-cell tumor because the bone is already rarefied and the injury causes a hemorrhage in that space. The hemorrhage organizes and forms granulation tissue. This tissue proliferates and so continues as "proud flesh" or as granulation tissue does on certain occasions on the surface. The granulation tissue presses on the walls and they expand, and, when bone is being destroyed, giant cells are always present. The giant cells are probably nothing but a group of the tumor cells grouped together, the better to digest the bone. The idea that giant-cell tumors are simply granulation tissue modified by confined hemorrhage is supported by the facts that (1) the two are similar in appearance microscopically and macroscopically, (2) both respond to cauterization, (3) irradiation will slow or completely inhibit the growth of either, (4) operative removal in either case will result in a cure and (5) both have a tendency to recur if treated indifferently.

## Pennsylvania Medical Journal, Harrisburg

40:167-248 (Dec.) 1936

- Present Status of Endocrinology in Its Relation to the Child. R. G. Hoskins, Boston.—p. 167.
- Psychology of Deafness. K. M. Day, Pittsburgh.—p. 177.
- Distribution of Blindness in Pennsylvania. A. Cowan, Philadelphia, and Bernice C. English, Harrisburg.—p. 180.
- Control of the Mentally Unfit. C. H. Henninger, Pittsburgh.—p. 184.
- Contributions of Physiologic Laboratory to Clinical Medicine. E. Lodbolz, Philadelphia.—p. 189.

## Philippine Journal of Science, Manila

59:455-604 (April) 1936. Partial Index

- Effect of Filtration on Sanitary Quality of Water of Metropolitan Water District. P. I. de Jesus and J. M. Ramos, Manila.—p. 455.
- Physicochemical Factors in Anopheline Ecology: I. Studies on Nitrogen. P. I. de Jesus, Manila.—p. 473.
- Is Vitamin B<sub>2</sub> the Accelerating Factor in Fermentation of Sugar by Propionic Acid Organisms? V. G. Lava, R. Ross and K. C. Blanchard.—p. 493.
- Observations on Life Cycle of *Gnathostoma Spinigerum*. C. M. Africa, P. G. Refuerzo and E. Y. Garcia, Manila.—p. 513.

60:1-98 (May) 1936. Partial Index

- Extract from Silkworm Pupae: Useful Substitute for Meat Extract in Preparation of Bacteriologic Culture Mediums. M. Nukada, Omori, Tokyo, Japan.—p. 11.
- Dirofilaria immitis* Leidy and Its Culicine Intermediate Hosts in Manila, I. F. del Rosario, Manila.—p. 45.

## Public Health Reports, Washington, D. C.

51:1675-1706 (Dec. 4) 1936

- Sickness Among Male Industrial Employees During Second Quarter and First Half of 1936. D. K. Brundage.—p. 1675.
- Physiologic Response of Peritoneal Tissue to Certain Industrial and Pure Mineral Dusts. J. W. Miller and R. R. Sayers.—p. 1677.
- \*Glutathione and Malignant Growth. C. Voegtlin, J. M. Johnson and J. W. Thompson.—p. 1689.

**Glutathione and Malignant Growth.**—Voegtlin and his associates found that it is possible by means of a diet deficient in cystine (and presumably methionine) to cause a marked slowing or even a cessation of the growth of a typical neoplasm (spontaneous mammary carcinoma). The same diet inhibits normal growth of young mice. Following a period of inhibited tumor growth, the administration of either cystine or glutathione causes a marked stimulation of tumor growth. A similar increase in the growth rate of young mice is produced by the cystine supplement. Dyer and du Vigneaud (1936) reported that the growth of normal rats on a cystine deficient diet is accelerated by the oral or subcutaneous administration of glutathione. It would seem, therefore, that with respect to the growth-stimulating response to cystine or to glutathione there is no essential difference between normal growth of young mice and rats and the growth of the spontaneous mammary carcinoma. It is believed that progressive neoplastic growth requires a sufficient supply of cystine (or cysteine) for the synthesis of tumor proteins. Since glutathione occurs not only in normal but also in malignant tissues, it would seem also that the growing tumor must be supplied with glutathione or its constituent amino acids, particularly cystine (or cysteine). Evidence is accumulating which indicates that the proliferation of this typical malignant tumor can be inhibited by diets deficient in certain essential amino acids or peptides. It remains to be seen whether other types of malignant tumors, especially those induced by carcinogenic substances, behave similarly.

## Puerto Rico J. Pub. Health &amp; Trop. Med., San Juan

12:1-168 (Sept.) 1936

- Recurrent Tropical Lymphangitis, with Especial Reference to Streptococcal Infection. P. Morales Otero, San Juan.—p. 1.
- Biologic Characteristics of Hemolytic Streptococci Isolated in Puerto Rico. P. Morales Otero and A. Pomales Lebrón, San Juan.—p. 3.
- Dick's Test in Puerto Ricans. R. Ruiz Nazario and P. Morales Otero, San Juan.—p. 34.
- Immunologic Response of Cases of Recurrent Tropical Lymphangitis to Hemolytic Streptococci and Their Products. P. Morales Otero and A. Pomales Lebrón, San Juan.—p. 43.
- Clinical Findings in 139 Cases of Recurrent Tropical Lymphangitis. J. Suárez, San Juan.—p. 81.
- Treatment of Recurrent Tropical Lymphangitis, with Especial Reference to Therapeutic Value of Streptococcus Vaccines and Filtrates. J. A. Pons, San Juan.—p. 114.

sepsis with metastatic pyemic foci, while ten patients presented a picture of sepsis without localization. Of the latter group seven died and three recovered; of the former, one died and fifteen recovered. Necropsies of the eight fatal cases revealed that all belonged to the irreversible type of sepsis which does not recover under any form of treatment. The beneficial effect of small blood transfusions suggested that the effect was that of stimulation rather than of substitution of the blood volume. The author believes that the stimulating effect is related to the phenomenon of colloidoclasia. He therefore resorted to the use of incompatible blood because it makes the phenomenon of colloidoclasia more pronounced. The maximal dose was 30 cc., introduced once in five days. The maximal dose for heterogenous (goat) blood was 6 cc. The reaction, which took place from one and one-half to two minutes after infusion, was characterized by redness of the face followed by pallor and moderate cyanosis of the face and lips, sweating of the forehead, pains in the back and in the extremities and increased respiration, accompanied sometimes by coughing and occasionally by vomiting and by acceleration of the pulse (from 120 to 130 a minute). This reaction was followed from ten to fifteen minutes later by a chill and a rise of temperature. The reaction reached its height in from one to one and a half hours and gradually subsided in about six hours. Four of the fatal cases failed to react. The author demonstrated that hemolysis begins as early as five minutes after the transfusion and lasts for from twenty to twenty-five minutes. The mortality rate of 30 per cent is quite low for this type of sepsis. Transfusions of compatible blood were practiced in the course of the treatment in order to check the developing anemia.

#### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80: 5713-5764 (Dec. 26) 1936. Partial Index

- Polycythemia Rubra. W. A. Boekelman.—p. 5717.  
 \*Irregularities of Pulse in Pulmonary Tumors. A. W. C. G. Kamerling and C. L. C. van Nieuwenhuizen.—p. 5726.  
 Changes in Moods and Psychoses in Women Connected with Elimination of Hormones. A. M. Meerloo.—p. 5730.

**Irregularities of Pulse in Pulmonary Tumors.**—Among thirty-six patients with pulmonary tumors, Kamerling and van Nieuwenhuizen found eight with irregularities of the pulse. Auricular fibrillation was observed in six, paroxysmal sinus tachycardia in one and paroxysmal ventricular tachycardia in another. Since these irregularities sometimes occur as the first symptom of bronchial carcinoma, they are of a diagnostic and prognostic importance. In accordance with the observations of other investigators on the origin of paroxysmal tachycardia in animal experiments and in man, the authors regard vasal and sympathetic irritation as the cause of the symptom in patients with pulmonary tumors. Distinct signs of sympathetic stimulation (exophthalmos and dilated pupils) were found in some cases and necropsy disclosed a damaged vagus nerve in a few instances. These observations afford clinical confirmation of the extracardiac genesis of a number of arrhythmias found experimentally.

#### Acta Medica Scandinavica, Stockholm

90: 405-603 (Dec. 19) 1936. Partial Index

- Clinical Contribution to Knowledge on Morbus Wilson-Westphal-Strümpell (Hepatolenticular Degeneration). R. Lemming.—p. 405.  
 \*Changed Physical Properties of Plasma Proteins in Nephrosis. M. C. Ehrström.—p. 427.  
 Gastric Cancer and Pernicious Anemia in Same Patient. I. Vartiainen.—p. 445.  
 \*Influence of Body Posture on Heart Minute Volume. H. E. Nielsen.—p. 456.  
 \*Uremia Due to Dehydration. L. Meyler.—p. 475.  
 Sugar Output of Liver Under Normal Conditions. H. Heller.—p. 489.  
 Bone Marrow in Hemolytic Icterus, with a Contribution to Question of Nature of Megaloblasts. G. Tötterman.—p. 527.

**Plasma Proteins in Nephrosis.**—Ehrström shows that, if an aqueous solution of congo red is shaken with carbon and centrifugated or filtered, total discoloration takes place; but if a plasma is colored with congo red in vivo or in vitro, it cannot be discolored in the aforementioned manner. To be sure, there is some discoloration and the various plasmas behave in different ways. Plasma from persons with normal kidneys, which is free from protein changes and which has been colored in vivo, loses 20 per cent of the coloring matter, and, if colored in vitro, loses 8 per cent of its coloring matter. In contradistinction to this, the plasma of patients with various nephropathies

and more or less severe albuminuria loses 37 and 57 per cent, respectively, of the coloring matter. If the globulin fraction is withdrawn from the plasma, the discoloration tendency still differs and is even more pronounced than in the whole plasma, the discoloration amounting to from 40 to 55 per cent in persons with normal kidneys and to from 60 to 100 per cent in patients with nephropathies. The degree of discoloration is not dependent on the quantitative ratio of the plasma proteins, the withdrawal of the globulin, the albumin: globulin quotient, the cholesterol content, the rest nitrogen, the morphologic composition of the blood, the sedimentation reaction or the tendency to edema. The coloring matter that is excreted in the urine after intravenous administration is bound to the urinary protein. The discoloration of the plasma is not proportionate to the degree of albuminuria. The increased discoloration (reduced absorption capacity) of the plasma of patients with severe albuminuria explains why the intravenous congo red test (according to the method of Bennhold) is positive in these cases in spite of the slight elimination of the coloring matter in the urine. In some cases the discoloration of the plasma in vitro may be increased in spite of the fact that the intravenous congo red test gives normal values.

#### Influence of Body Posture on Heart Minute Volume.

—In a number of postural experiments, Nielsen watched the behavior of the circulation. He found that in healthy persons the minute volume of the heart is approximately 10 per cent larger in the recumbent than in the sitting position. The corresponding beat volume was 20 per cent larger. In tests on three patients with heart disease, the minute volumes were on the average 20 per cent larger in the recumbent than in the sitting position. On the basis of these results the author considers it probable that the aforementioned changes in the cardiac minute volume during postural changes may play a part in the development of orthopnea and of cardiac asthma.

**Uremia Due to Dehydration.**—Meyler demonstrates that an extrarenal uremia may develop as the result of dehydration. This form of uremia arises because dehydration leads to toxic protein destruction. The nitrogenous end products cannot be excreted sufficiently because there is a more or less marked oliguria and because the renal function is impaired under the influence of the lack of fluid and of the hypotension. The author describes several cases of uremia due to dehydration which could be cured by abundant supply of fluid. Under the influence of this large fluid intake the toxic protein destruction disappears, the diuresis increases and the renal function improves. The improvement of the renal function manifests itself by an increase in the maximal concentration. When the sodium chloride content of the blood had increased the author generally used a 5 per cent dextrose solution for subcutaneous administration. When the sodium chloride is at a normal level or slightly increased, it is better to use physiologic solution of sodium chloride. If dextrose solution is given in these cases the dilution of the blood may cause a fall in the sodium chloride content, which may have a harmful effect. A case is described of a male subject who was extremely dehydrated as the result of diabetic polyuria. This case shows great resemblance to the experiments of the Mackays, who made rabbits uremic by producing extreme dehydration with injections of dextrose solution. In gastric hemorrhage this form of uremia will develop because loss of blood means loss of fluid, and sometimes, in a severe gastric hemorrhage, no supply of fluid is allowed for days. Moreover, it is emphasized that in uremia due to lack of salt there is always a marked dehydration, which plays an important part in producing uremia. Lack of salt leads to protein destruction. Dehydration has the same effect; moreover, it causes oliguria. These factors together lead to uremia.

#### CORRECTION

**Riboflavin Instead of Acriflavine.**—In the abstract of the article by Verzár and Laszt (*Nature* 138:844 [Nov. 14] 1936) in *THE JOURNAL*, January 23, page 338, "acriflavine hydrochloride" should read "riboflavin" (or "lactoflavine"), and "acriflavine phosphoric acid" should read "riboflavin phosphoric acid." This error arose through the use by the authors of the term "flavin," which word, spelled with a final e, has long been represented in medical literature as a synonym for the antiseptic acriflavine.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Anaesthesia, Manchester

13: 141-192 (July) 1936

Ether Convulsions. A. S. Hoseason.—p. 142.  
Cause and Prevention of So-Called Ether Convulsions. R. V. Hudson.—p. 148.

\*Sequels of Anesthesia. G. Kaye.—p. 157.  
Modern Treatment by Hypnotics and Basal Narcosis. H. Weese.—p. 177.

14: 1-44 (Oct.) 1936

Gas-Air Analgesia. R. J. Minnitt.—p. 3.  
Modern Treatment by Hypnotics and Basal Narcosis. H. Weese.—p. 8.  
This Mysterious *pu*. W. N. Kemp.—p. 23.

**Sequels of Anesthesia.**—This series includes 2,520 administrations of inhalation anesthetics, personally given or supervised by Kaye in the period from February 1931 to December 1935. Rather more than half of the administrations were performed in hospital practice and the rest in private practice. There were no fatalities on the operating table. One fatal case of pulmonary congestion following entry of vomitus into the lungs was directly attributed to the anesthetic. Two cases of fatal respiratory sequels might perhaps have been averted by a different anesthetic technic. No other postoperative deaths were attributed to the anesthetic. In Australia the "standard" anesthetic is ether, and the gaseous anesthetics are reserved mainly for the less good "anesthetic risks." The choice of anesthetic seldom erred in respect to safety at the time of operation, but it occasionally did so with respect to subsequent respiratory sequels. The incidence of postanesthetic vomiting was investigated in 1,295 cases. The lesser vomiting after gaseous anesthetics as compared with ether was very apparent. The superiority of gaseous anesthetics was manifested in the "no vomiting" and "slight vomiting" classes, and the ratio of moderately severe or severe vomiting was much the same whether gas or ether was employed. Figures indicate the great superiority of gaseous anesthetics over ether in each type of operation, so far as the milder degrees of vomiting were concerned. The more severe grades had much the same incidence, independent of the anesthetic used, a fact which may suggest that certain individuals, for biochemical or physical reasons, are prone to severe vomiting regardless of the anesthetic used. There were fifteen cases of respiratory sequels (bronchitis and pneumonia): three due to a faulty choice of anesthetic, four to technical errors and seven to various causes. The number of cases of postoperative psychosis in the present series was not recorded but was probably five or six. The onset usually occurred several days after operation and bore no apparent relationship to the anesthetic technic. The author has an impression that permanent psychotic changes are encountered rather frequently after the operation of prostatectomy. One patient in the series suffered from corneal abrasion. He had struggled during the induction stage and either received a splash of ether in the eye or, more probably, was injured by the gauze face cover.

## British Journal of Dermatology and Syphilis, London

48: 527-592 (Nov.) 1936

Control of Syphilis: Critical Examination of Some of Its Problems. J. H. Stokes.—p. 527.

\*Pathogenesis of Hysterical Skin Affections. H. Haxthausen.—p. 563.  
Alpha and Beta Ray Therapy in Dermatology. S. Lomholt.—p. 567.

**Pathogenesis of Hysterical Skin Disorders.**—Haxthausen submitted eight patients with pathomimia to experimental exposure of their skin to mechanical rubbing, Rumpel-Leede's test, ultraviolet irradiation, freezing with carbon dioxide snow and the pricking into the skin of a drop of 1 per cent solution of morphine and 30 per cent solution of silver nitrate. The reactions induced thereby were compared with those following similar experiments conducted on healthy controls. The eight cases of pathomimia presented lesions of varying types, mainly excoriations and ulcerations. Common to them all, however, was their typical artificial stamp. In no single instance, with any one of the tests employed, did there occur a reaction to be distinguished qualitatively from corresponding responses in normal persons. Nor was it possible in any case to demonstrate abnormally severe or particularly persistent reactions. In

patients with pathomimia the skin reacted in every way exactly as a normal skin toward the irritants used. Therefore, no ground can be deduced for the supposition of a particularly increased responsive capacity on the part of the skin of patients with pathomimia. With regard to the question of the pathogenesis of these cutaneous disturbances, it would seem reasonable to cast the deciding vote in favor of the psychic changes and to interpret the pathomimic lesions as being determined by influences of a morbid nature acting on a skin reacting alone in a normal manner toward the actual irritative effect. The intensity, however, with which the traumatization is conducted may be dependent on the hypalgesia or analgesia observed so frequently in these patients.

## British Journal of Radiology, London

9: 767-838 (Dec.) 1936

Physics and Radiology. J. A. Crowther.—p. 767.  
Right-Sided Aortic Arch (Situs Inversus Arcus Aortae). D. E. Bedford and J. Parkinson.—p. 776.

Radical X-Ray Treatment of Malignancy in Larynx and Pharynx. J. H. D. Webster.—p. 799.

\*Variation of Doses Adjacent to Certain Arrangements of Intra-Uterine Radon Tubes. T. H. Oddie.—p. 805.

Basophilic Hyperpituitarism. J. F. Bromley.—p. 818.

Spacing of Radiation According to Variation in Radiosensitivity. J. C. Mottram.—p. 824.

**Doses of Intra-Uterine Radon Tubes.**—Oddie shows that in different methods of treatment of carcinoma of the cervix uteri the ureters may be in danger, to varying extents, of receiving a dose appreciably greater than the minimal dose applied to the area treated. A satisfactory procedure is to have the dose at the ureters only from 75 to 80 per cent of the minimal dose in the region. This is obtainable by a critical choice of the strength and geometric distribution of the various component active lengths employed in the treatment. The adjustments required to effect this reduction in the dose on the ureters necessitate a general reduction of the doses received at most of the points inside the region treated, but the minimal dose in the region may still be maintained at an adequate value to destroy the malignant cells. Since all the other points inside the region receive, in any case, doses considerably in excess of the minimum, this reduction should not result in any loss of efficiency in the treatment. The method is suitable for use with radon, as containers are constructed to the required lengths and linear strengths. However, if radium is used the choice of suitable strength and size is limited. The radiation field from an arrangement of radon tubes can be altered to provide dosages adequate for treatment in the growth and still protect adjacent normal tissue from excessive irradiation.

## British Medical Journal, London

2: 1013-1066 (Nov. 21) 1936

Present Status of Cyclopropane. R. M. Waters.—p. 1013.

Acute Rheumatic Meningitis. G. Bourne.—p. 1017.

Abnormal and Temperamental Worker. T. M. Ling.—p. 1019.

Electrotherapy and Its Future. W. J. Turrell.—p. 1022.

Reduction of Sick Wastage After Athletic Injuries. R. S. Woods.—p. 1026.

Incidence of Monilethrix. J. G. Tomkinson.—p. 1027.

## Journal of Anatomy, London

71: 1-160 (Oct.) 1936

Termination of Ascending Tracts in Thalamus of Macaque Monkey. W. E. Le Gros Clark.—p. 7.

Sheep's Neopallium: Study of Its Development and Interpretation of Its Convulsions. R. Anthony and J. de Grzybowski.—p. 41.

Intra-Epidermal Nerve Endings. H. H. Woollard.—p. 54.

Endocranial Casts of Ehrhingsdorf and Homo Soloensis Skulls. C. U. A. Kappers.—p. 61.

Existence of Abdominal Vagal Paraganglions in Adult Mouse. N. Goormaghtigh.—p. 77.

Secreting Area of Glomerulus. M. H. Book.—p. 91.

Innervation of Periodontal Membrane. W. Lewinsky and D. Stewart.—p. 98.

Uterine Vein Entries in Rabbit. K. J. Franklin and A. D. McLachlin.—p. 103.

External Configuration of Cerebral Hemispheres of Chimpanzee. A. E. Walker and J. F. Fulton.—p. 105.

\*Blood Cysts in Human Cardiac Valves. D. R. Dow and W. F. Harper.—p. 117.

**Blood Cysts in Cardiac Valves.**—During their investigation of the vascularity of seven human cardiac valves, Dow and Harper observed small dark red nodules on many of the

disease, be it "measles pneumonia," streptococcic "influenza" pneumonia or anaerobic pneumonitis; if bronchiectasis is a concomitant lesion or a sequel, the original disease was bronchopneumonia and the bronchiectasis has developed as the result of a series of pathologic events, originating in a bronchial lesion.

Once clinical symptomatic bronchiectasis has been established, pathologic examination of the bronchial tree reveals it to be the site of a chronic and subchronic bronchial and peribronchial inflammation. The mucosa of the dilated bronchi is either hypertrophic or atrophic. The epithelium may be intact, may have undergone mucoid degeneration or desquamation or may be replaced by stratified low cuboid, nonciliated or flat cells. The areas of hypertrophy may show a mucosa that is thickened, polypoid, infiltrated, velvety, granular or villous. The cellular infiltration involves not only the submucosa but also the deeper layers of the wall. This cellular infiltration is very dense and extends through the bronchial wall into the immediate peribronchial area. It is predominantly lymphocytic. This pathologic feature perhaps has an important bearing, as before mentioned, on the effect of radiation in chronic

observed over a period of many months at least and were known to have a chronic lesion with sustained high level of expectoration without spontaneous remissions. All the patients were rigorously investigated by means of bronchography and bronchoscopy, and the diagnosis of chronic bronchiectasis was thereby clearly established. The majority of the patients had been variously and unsuccessfully treated by bronchoscopic drainage and lavage, phrenic nerve operations and pneumothorax. They were treated finally by roentgen therapy as a last resort. The alternative in these patients was radical operative intervention such as lobectomy or pneumonectomy.

(a) *Diagnosis.*—It is of great importance to point out that chronic bronchiectasis is a diagnosis of exclusion. The term bronchiectasis, unless qualified, means a state of the bronchi—not a disease in the strict sense of the word. The diagnosis of bronchiectasis must be considered as incomplete and inaccurate unless one is able to diagnose the location of the disease (i. e., what lobe or lobes are involved) and the size and distribution of the dilatations. But of paramount importance it is necessary to ascertain the presence or absence of

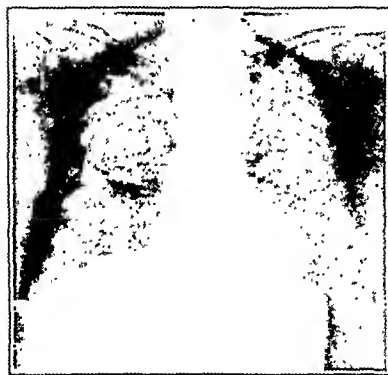


Fig. 1.—Status after pneumonotomy for chronic lung abscess of right upper lobe and establishment of bronchocutaneous fistulas. Expectoration, from 8 to 12 ounces, with profuse, foul purulent drainage through fistulas.



Fig. 2.—Bronchogram showing dilated bronchi contiguous to drained chronic putrid lung abscess of right upper lobe.



Fig. 3.—Bronchogram showing status after roentgen therapy with reduction of expectoration from 12 ounces (foul) to 2 ounces (odorless) and very marked decrease in drainage. Showing constriction of previously dilated bronchi of right upper lobe. This result has been maintained for a follow-up period of three years.

bronchiectasis. The cellular infiltrated mucosa may have been changed to fibrous tissue and atrophy of the mucous glands, elastic tissue and cartilage may have occurred. The diseased wall may have been finally transformed into a thin fibrous, chronic inflammatory membrane. Usually atrophic and hypertrophic changes occur together.<sup>7</sup>

#### THE CLINICAL APPLICATION OF ROENTGEN THERAPY

Based on the foregoing outlined concepts of the action of roentgen radiation on the chronic inflammatory bronchial and peribronchial lesions and the mucus secreting bronchial epithelium, roentgen therapy in large dosage was instituted in a series of cases of chronic secreting bronchiectasis. No acute cases or cases with recent onset were treated. It is of considerable importance to be certain that a patient is not suffering from an ordinary superimposed acute infection of the upper respiratory tract which is making otherwise "dry" dilatations "wet." It is well known that bronchiectasis may be characterized by spontaneous remissions and exacerbations with seasonal variations. Therefore all the patients subjected to treatment were previously

various local features such as pulmonary tuberculosis, pulmonary abscess, bronchial foreign body, bronchial adenoma and bronchial carcinoma. The diagnosis cannot be made on the clinical history alone, suggestive as this may be. A clinical picture suggestive of bronchiectasis must always be substantiated by comprehensive positive bronchography and bronchoscopy. The bronchogram must be bilateral and map out the main branches on both sides. Bronchoscopy must enable one to rule out the presence of foreign body and new growth and permit one to observe which bronchi are discharging and are the sources of expectoration.

It is necessary to point out here that the important therapeutic consideration is not the bronchial dilatation but whether it is "wet" or "dry." Our use of roentgen therapy is not directed to cause morphologic alterations of the dilated bronchial tree but is directed to render a "wet" bronchiectasis "dry"; to cause an arrest of the symptom of expectoration, which, when copious and foul, makes the patient an abhorrence to himself. It is well known that extensive "dry" bronchiectasis can be present for many years without attracting attention clinically. The disproportion between the clinical symptoms and the bronchial dilatation in such "dry" cases may be striking.

7. Graham, E. A.; Singer, J. J., and Ballou, H. C.: *Surgical Diseases of the Chest*, Philadelphia, Lea & Febiger, 1935, pp. 575-682.



# **Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris**

52: 1447-1530 (Nov. 23) 1936. Partial Index

- Fulminating Hemoptyses. R. Even.—p. 1487.
- \*Pleural Form of Granulitis. R. Even.—p. 1489.
- Diagnosis of Kala-Azar by Ganglionic Puncture. P. Giraud, Montus, Sardon and Gaubert.—p. 1493.
- Paroxysmal Arterial Hypertension in Case of Permanent Slow Pulse. Costedoat.—p. 1509.

**Pleural Form of Miliary Tuberculosis.**—Even states that the classic description of a pleural form of miliary tuberculosis credited to Empis is false, since the latter never described the clinical picture quoted and could not have done so since it does not exist. Even describes three cases of this condition and states retrospectively that the condition is probably more common than is generally realized. The condition is observed most frequently in adolescents and young adults. It is characterized clinically sometimes by rapid onset and sometimes by gradual development. There is a proved effect on the general state of the body contrasting markedly with the discrete nature of functional manifestations. The clinical and x-ray signs show a pleural effusion, either unilateral or bilateral and of relatively insignificant nature. Evolution toward death occurs in a few months, which may or may not be hastened by pericardial, peritoneal or meningeal complications. Anatomically the granulations are disposed most commonly on the serosa and the viscera and less in the lungs.

## **Paris Médical**

2: 313-344 (Nov. 7) 1936

- Diseases of Children in 1936: Annual Review. P. Lereboullet and F. Saint-Girons.—p. 313.
- Normal Diction and Pathologic Diction. Mme. Suzanne Borel-Maisonny.—p. 327.
- Pneumothorax of the New-Born. M. Péhu.—p. 335.
- \*Remarks on Insulin Treatment of Periodic Vomiting Associated with Acetonemia. M. Lelong.—p. 341.

**Insulin Treatment of Periodic Vomiting.**—Since the effectiveness of insulin in the treatment of diabetic acidosis became well known, it seemed reasonable to attempt its use in periodic vomiting of infancy accompanied by acetonemia. Many contradictory opinions with regard to the rationale of this procedure have been reported, and Lelong briefly reviews some of these opinions. The coincidence of periods of vomiting with a state of acidosis has already been proved. However, this is not accompanied by any other signs of diabetes. Furthermore, there is an initial hypoglycemia, which fact would definitely contraindicate insulin during the initial phase of a vomiting crisis. However, hyperglycemia generally develops secondarily. These facts indicate that insulin should be given only in the prolonged phase of periodic vomiting and that insulin is contraindicated at the onset because of the initial hypoglycemic shock. The technic is not yet standardized. He believes that at present insulin therapy can be considered only as adjuvant to dextrose therapy.

## **Presse Médicale, Paris**

44: 1793-1864 (Nov 14) 1936. Partial Index

- Primary Suppurative Cancers of Lung. E. Sergent, R. Kourilsky, Turiaf and Pauchard.—p. 1793.
- \*Experimental Action of Streptococcal Toxin on Neurovegetative System. P. Gastinel, M. Conte and J. Delarue.—p. 1806.
- Gastric Hemorrhages and Their Endoscopic Control. P. Chevallier and F. Moutier.—p. 1814.
- \*Generalized Osteoplastic Form of Prostatic Cancer Metastases. L. Van Bogaert, G. Van Cauteren and H. J. Scherer.—p. 1816.
- \*Erythroplasia. A. Touraine and G. Solente.—p. 1830.
- Pathogenesis of Cerebral Hemorrhage. J. Lhermitte.—p. 1843.

**Action of Streptococcal Toxin on Neurovegetative System.**—While recognizing the differences that must exist between the action of streptococcal toxins on the human body and on experimental animals, Gastinel and his co-workers report a study based largely on the guinea-pig. It is difficult to keep an active streptococcal toxin, since its activity is lost rapidly on storage. It is also noteworthy that marked differences of susceptibility exist between individual guinea-pigs. The method employed by the authors was the direct injection of scarlatinal toxin into the sympathetic trunk at various levels. Many were made into the left splanchnic nerve at its subdiaphragmatic emergence. The symptoms subsequently observed could be

grouped into an almost uniform scheme. After the injection the animals had a chill, followed five or ten minutes later by urine containing albumin, frequently accompanied by hematuria. The intestines of animals killed a few hours after a concentrated injection contained small amounts of albuminous and bloody mucus. During the subsequent days the animals became emaciated and often about the fourth or fifth day died suddenly if handled. Necropsy showed a striking diffuse red tint in the abdominal cavity. Vasodilatation was marked. Gastric lesions, purpuric spots, hemorrhagic erosions and infarcts were common. Similar pictures were found when other areas of the vegetative system were injected. At first glance these experimental results seem far removed from human scarlatina, but the action of the toxin on the sympathetic nervous system determines symptoms in the animal which are frequently found in scarlet fever and especially in its severe forms. The dominating modification seems to be the manifest electivity of the erythrotoxic toxin for the vegetative nervous system.

**Prostatic Cancer Metastases.**—Van Bogaert and his collaborators report an observation on a 44 year old man characterized clinically by pelvic and juxtaepelvic pains coming on by crises, which were especially severe at night. The disease progressed by exacerbations with fever and rapidly affected the general condition, causing anemia and loss of weight. From the biologic point of view there was a normal blood calcium and phosphorus, a low blood lipid level and a considerable increase in the blood phosphatase. The diagnosis, confirmed by microscopic study, was scirrhus carcinoma of the prostate invading the base of the bladder and causing metastases to all parts of the skeleton. The curious part of the case was the generalized osteoplastic reaction caused by the metastases. The most obvious explanation in the case reported is based on the increased phosphatase of the blood, which attained from eight to ten times its normal volume. The authors concluded that the osteoplastic form of prostatic metastasis is a subacute disease causing a rapid loss of weight and strength and sometimes febrile and painful symptoms. The roentgenograms produced can give rise to some therapeutic difficulty since the osteoplastic form is quite rare.

**Erythroplasia.**—Erythroplasia has been defined as a chronic disorder characterized by the appearance and persistence of red plaques, not painful or only slightly sensitive, accompanied by a slight infiltration of the exposed mucosa. Touraine and Solente review this subject. Ninety-two observations of the disease have been recorded, fifty-seven of them under the name "erythroplasia." The condition has apparently been observed in nearly all countries. It was found in fifty-eight men and twenty-eight women. It seems mostly to be a disease of the second part of life. In three instances it developed on a scar following trauma. The part played by syphilis seems to be important. Kraurosis and leukoplakia have been occasionally found coexisting. The site of predilection is the genital zone, and the disorder is much rarer in other mucous areas. In the majority of instances it is characterized by a single plaque which develops slowly and insidiously and passes unnoticed until there is a slight local itching. The flat, slightly raised and infiltrated surface of the lesion can usually be readily identified. It develops with extreme slowness first by simple hyperplasia and later by metaplasia. A malignant development always occurs eventually. The treatment of choice is electrocoagulation or the thermocautery. Recurrence must be guarded against.

## **Pediatria, Naples**

44: 1041-1108 (Dec. 1) 1936

- \*Relation Between Measles and Tuberculosis. N. Carrara.—p. 1041.
- Lipoid Therapy and Lipolytic Ferments in Blood Serum. L. Franzini.—p. 1086.
- Presence of "Fleming's Lysin" in Human and Other Mammals' Milk. F. Martillotti.—p. 1097.

**Relation Between Measles and Tuberculosis.**—Carrara made a study of 1,470 children hospitalized in a pediatric clinic in connection with the problem of the relations between measles and tuberculosis. Measles does not predispose the organism to the development of tuberculosis. The rate of stimulation of latent foci and reactivation of healed tuberculous foci is low (11.2 per cent) except in children under the age of 5 years, in whom it is high. Measles has an unfavorable influence on the

lations and ulcerations. The exacerbations of symptoms during roentgen therapy possibly may increase this tendency. Five of our patients bled noticeably during treatment. "Radiation sickness" may be experienced that requires symptomatic treatment. The secondary anemia that may occur is combated with large doses of iron. Aggravation of symptoms and "radiation sickness" may necessitate protraction of treatment beyond three months. It is only after approximately three fourths of the treatment has been finished that noticeable improvement begins to take place. This is gradual and progressive, signalized by decrease in cough and foul expectoration. This improvement progresses

results. We are nevertheless including these partially treated patients in our series to give a full picture of our total experience to date.

The improvement that has been obtained in chronic bronchiectasis as the result of roentgen therapy, while moderate in some instances, has been so striking and remarkable in others as to render patients practically cough and sputum free.

It is perhaps necessary to emphasize here that the only criterion of improvement that we have employed is decrease in expectoration. It is the sole intention of the therapy to render a secreting "wet" bronchiectasis "dry"; i. e., to secure a symptomatic clinical cessation

TABLE 1.—Chronic Bronchiectasis Secondary to Chronic (Operated) Anaerobic Lung Abscess

Case	Lobes Involved	Duration of Symptoms	Expecto-ration in Ounces	Drainage	Technic of Treatment and Its Duration			Result on Expectoration and Drainage	
					Fields	Roent-gens	Days		
1	Right upper lobe, right lower lobe	3 yrs.	6-8	Profuse	5 ×	1,500	97	2 oz. odorless sputum, less cough	
2	Right upper lobe, right middle lobe, right lower lobe	7 yrs.	4-7	Profuse	3 × 3 ×	1,200 800	30	6 oz. sputum, moderate drainage, no change in condition	
3	Left lower lobe	1 mo.	1½-3	Fistula bleeding	3 ×	1,200	30	No expectoration or cough, fistula closed	
4	Right upper lobe, right lower lobe	1 yr.	½-1½	Bleeding fistula	5 × 2 ×	800 400	40	Closed wound, slight bleeding, cough, expectoration	
5	Right upper lobe	2 yrs.	10-14	Profuse	3 ×	1,500	180	1-3 oz. sputum, slight drainage	
6	Right lower lobe	1½ yrs.	1-5	Profuse	3 × 3 × 5 × 5 ×	800 675 500 2,000	26 180	No drainage, cough, or expectoration	
7	Right upper lobe	8 mos.	None	Profuse	3 ×	1,300	33	Closed wound, no cough	
8	Left upper lobe, left lower lobe	½ yr.	.....	Moderate	3 ×	900	30	No cough, closed wound	
9	Right upper lobe	½ yr.	4	Profuse	3 ×	1,350	90	No expectoration, slight drainage	
10	Right upper lobe, right middle lobe, right lower lobe	4 yrs.	4	Moderate	3 ×	1,550	90	Death 3 months after treatment; only right lower lobe treated; cause of death unknown	
11	Left upper lobe	4 yrs.	2-4	Moderate	3 × 3 ×	800 1,200	40 30	No change in symptoms	
12	Right lower lobe	6 yrs.	4	Profuse	3 ×	1,200	30	1-2 oz. sputum with bleeding; cured with excision of bronchial adenoma, right main bronchus	
13	Right upper lobe	4 yrs.	5-7	Moderate	3 × 3 ×	800 1,150	120 90	No change in symptoms, another course of therapy now being given	
14	Right upper lobe	2 yrs.	.....	Moderate	3 × 3 ×	800 800	30 60	No change in symptoms	
								Number	Per Cent
Greatly Improved.....								7	50
Moderately Improved.....								2	14
Unimproved.....								4	28
Deaths.....								1	7
Total.....								14	

steadily from week to week and continues for a period of at least four months after cessation of treatment, with gradual diminution of symptoms amounting in some cases to practical abolition of cough and expectoration.

#### COMMENT ON RESULTS

Our statistical summary of results must be considered tentative in the sense that it is based on a relatively small number of cases (thirty). A numerical presentation at the present time can be but an approximation of the figures that will be registered when a much larger number of cases have been treated. The cases in this series were consecutive and unselected and represent our total experience to date. Several of the patients now reported as but "moderately" improved or "unimproved" have not yet received full treatment to the entire known area of secreting bronchiectasis or have received but one course of therapy with but partial

of the main presenting features of the disease; namely, expectoration and cough. Those patients who have obtained great improvement in expectoration and cough and had experienced hemoptyses and episodes of pneumonia in the past have been free from these attacks and episodes subsequent to treatment. Clubbing of the digits has surprisingly subsided in a number of cases that have been improved. Unfortunately, this regression of clubbing cannot be demonstrated photographically at present as it was unexpected, and photographs of the hands of the patients in this series prior to therapy were not taken. Such photographs of hands are now being taken in the oncoming series of patients and will be presented at a later date.

Those patients who have responded to roentgen therapy have sustained their improvement during their entire follow-up examination to date, in some cases consisting of a period of over two years. During this

the 2,058 cases he was able to obtain information about the clinical course. A tabular report of the relationship between the type of bacillus and the clinical course indicates that in the district in which the author's studies were made 46 per cent of the cases with the grave type of the diphtheria bacillus took a mild course. In the mild and intermediate type of cases the mild forms of diphtheria amounted to 57 and 50 per cent, respectively. Of the cases with the grave type thirteen took a severe course compared to 5 per cent in the mild type and 6 per cent in the intermediate type. However, in sixty diphtheria fatalities, fifty-four cases were found to have the grave type of diphtheria bacillus and the remaining ones the intermediate type, the mild type being found in none of the fatal cases. The type differentiation has no therapeutic significance. It would be useless to give larger doses of serum in case of infection with the grave type than in the others. The decisive factor in the treatment is the time of administration of the serum. The frequency of the three types of diphtheria bacilli differs in different years and regions. With increasing duration of an epidemic, which frequently begins with one type, other types may appear and change the epidemiologic picture. There is no difference in the epidemiologic significance of the various types as regards the bacillus carrier, the ratio of grave to mild types being about the same in bacillus carriers as in diphtheria patients. The types of diphtheria bacillus are characterized by a high degree of constancy. If a different type appears in a patient, it is not the result of a change in type but rather of the new invasion of another type.

**Liver in Pathogenesis of Gout.**—Chrometzka discusses the various theories on the pathogenesis of gout. On account of the central position of the liver in the purine metabolism, he investigated how this metabolism would be changed following experimental impairment of the liver by the intravenous injection of india ink. By systematic injection for long periods, it proved possible to produce a fat cirrhosis of the liver in animals. In proportion to the impairment of the liver, the purine metabolism became impaired in that the animals gradually lost the capacity to oxidize uric acid. Necropsy revealed as the cause of this severe metabolic disturbance not only a cirrhosis of the liver but also a cirrhosis of the spleen and the adrenals, numerous uric acid concretions in the renal pelvis and uric acid needles in the punctate of a shoulder joint. After a detailed description of the histologic aspects, the author discusses the problem whether disturbances of the purine metabolism can be observed in hepatic diseases of human subjects and whether anatomic or functional disturbances of the liver can be demonstrated in persons with gout. He gives affirmative answers to both questions.

### Medizinische Welt, Berlin

10: 1793-1828 (Dec. 12) 1936. Partial Index

Disturbances of Function of Adrenal Cortex and Their Treatment. S. Thaddeu.—p. 1793.

Metabolic Actions and Dietetic Treatment of Nontuberculous Pulmonary Disturbances. E. Grafe.—p. 1797.

Appendicitis and Blood Picture. K. H. Lange.—p. 1801.

\*Koilonychia (Spoon Nails). H. Rosegger.—p. 1803.

Criticism of Pneumothorax Therapy of Pulmonary Tuberculosis. F. Koester.—p. 1805.

\*Reflex of Differential Diagnostic Significance in Delirium Tremens. H. Schabelitz.—p. 1808.

**Spoon Nails.**—Rosegger shows that koilonychia (spoon nails) gained diagnostic importance when several authors called attention to the fact that this disorder concurs with a certain type of anemia; namely, achylic chloranemia. The abnormally concave nails appear contracted in the center and the edges are more or less turned up. The free edge of the nail is often extremely sharp, corresponding to the general thinning of the nail. Occasionally the free edge appears as if gnawed on. The usually lusterless spoon nails have a tendency to spontaneous tearing or lamellar splitting. These ungual changes do not always involve all the nails. Moreover there are milder degrees of koilonychia that are hardly perceptible to the eye and can only be felt, the nails being unusually flat (platonychia). In discussing the pathogenesis of koilonychia the author differentiates between exogenic and endogenic causes. The exogenic factors predominate in koilonychias that develop in persons whose hands are for long periods in hot soap suds and other cleansing fluids. Apparently the alkalis of the hot washing fluids cause a swelling and defatting of the nail, and

particles of the chemical remain under the rim of the nails. The mechanical factor involved in the washing process may likewise play a part, but the author thinks that individual predisposition is also a factor. In the further discussion of the exogenic causal factors he mentions the occurrence of spoon nails in persons whose hands are in frequent contact with oils, creosotes and cresols or in workers with coal. That exposure of the nails to acids or continuous wetting may play a part is proved by the occurrence of spoon nails in occupations that involve such exposures. As purely endogenic forms of koilonychia the author mentions their development in achylic chloranemia and certain cases of familial occurrence. The therapy of koilonychia varies according to the pathogenesis. In the occupational types, prophylactic measures are important. In the type that occurs in anemia, medication with iron is advisable.

**Differential Diagnosis of Delirium Tremens.**—Schabelitz points out that in case of delirium it may prove difficult to determine whether an infectious fever, abuse of alcohol or an endogenic psychosis is the cause. He directs attention to a reflex by which delirium tremens cases can be identified. This reflex was first described by Tramer in 1928. The author searched for this reflex in all patients (over a thousand cases) who were admitted to the institute for mental disorders with which he is connected. Tramer's reflex was elicitable almost exclusively in patients with delirium tremens, but in these it was observable again and again. The reflex is elicited by a blow of the reflex hammer on the ball of the foot. If the blow results in a single quick dorsal flexion of the foot, the reflex is positive. The most suitable position for the elicitation of the reflex is one intermediate between dorsal and plantar flexion and between internal and external rotation. Extremely flexed position or tension in the musculature of the leg prevents the reflex. The author observed that Tramer's reflex appeared in the majority of cases on the second day after the outbreak of delirium tremens and usually outlasted the so-called terminal sleep for hours or days. He never was able to elicit it within the first twenty-four hours.

### Klinicheskaya Meditsina, Moscow

14: 1727-1890 (No. 12) 1936. Partial Index

Nosology of General Neuroses. V. K. Khoroshko.—p. 1727.

Work Hypertrophy Theory of the Heart. N. A. Podkaminskiy.—p. 1748.

\*Chronic Nephritis. N. L. Vilk and N. P. Rabinovich.—p. 1767.

\*Treatment of Sepsis with Incompatible Blood. A. N. Spiridonov.—p. 1798.

Carbohydrate Metabolism in Pneumonia. V. V. Akkerman and M. A. Naryshkina.—p. 1803.

Prophylaxis of Measles. P. A. Byreev.—p. 1809.

Mesoglia Reaction in Comatose Forms of Malaria. M. B. Svyatukhin.—p. 1815.

**Chronic Nephritis.**—Vilk and Rabinovich report clinical observations on 100 cases of chronic nephritis over a period of from six to eight years. A careful analysis of the histories enabled them to establish that in fifty-five there had been an acute nephritis. In one third of the total no suspicion of acute nephritis in the past could be entertained. This type of nephritis gives a less favorable prognosis than those which follow an acute nephritis. Cases of chronic nephritis are not infrequently diagnosed as such late in the course of the disease. A considerable number of them are admitted for the first time with definite symptoms of uremia. The more prominent symptoms in the clinical picture are those of the cardiovascular system, such as insufficiency of the mitral or the aortic valves, cardiac asthma and attacks of stenocardia. Thirteen patients presented a picture that differed from the rest. These cases developed on the basis of an acute nephritis and rapidly progressed to invalidism and death. The recurring edema and high albumin content of the urine, lipoiduria, hypo-albuminemia and marked cholesterolemia of these cases presented a similarity to lipoid nephrosis. However, the presence of hematuria and a tendency to high blood pressure established that the basic process was a glomerulonephritis. The duration of life from the onset of acute nephritis in this group was from three to three and one-half years. The duration of chronic nephritis varies and may persist for decades.

**Treatment of Sepsis with Incompatible Blood.**—Spiridonov treated twenty-six cases of generalized sepsis with transfusion of incompatible blood. Sixteen patients presented

expectorating 16 ounces of foul sputum daily for a period of ten years, has been rendered practically asymptomatic for a follow-up period of two years. There were two deaths in this group while under treatment. One death occurred in a patient with profuse expectoration due to bronchiectasis which involved an entire hemithorax. After one course of roentgen therapy to the entire affected hemithorax a reduction of expectoration from 10 ounces to 2 or 4 ounces with complete loss of foulness was accomplished. Clubbing of the digits was on the wane and considerable symptomatic improvement occurred. A second course of roentgen therapy was instituted to reduce the residual expectoration. During the second course of therapy the patient experienced a severe hemoptysis followed by an extensive bronchopneumonia of the opposite healthy side, from which he died. Necropsy was not obtained. The second death occurred in a case of bronchiectasis involving the left upper and lower lobes with 8 ounces of foul sputum. Before the course of therapy was completed death occurred in another city. The cause of death could not be ascertained.

The follow-up examination on the improved cases has revealed, thus far, no recurrence in profuse expectoration with repeated infections of the upper respiratory tract and no tendency to resume foul expectoration. These patients who have responded markedly to roentgen therapy are no longer an abhorrence to themselves and to others. They appear clinically quite well, arrested to all practical purposes of their previous symptoms. One of the most severe cases in which great improvement has been experienced (16 ounce expectoration reduced to 1 ounce) has been, as already noted, followed for over two years without recurrence. The other cases that have been followed are of more recent date (from three to eighteen months). All our patients have been followed personally and have been examined at frequent intervals.

#### ROENTGENOLOGIC ASPECTS

In some of the cases that have been treated successfully, post-therapy bronchography has shown alterations in the picture of the dilated bronchial tree. The bronchi that were definitely dilated (saccular and cylindric), which were exposed to roentgen therapy, appear narrowed and strictured throughout after treatment (figs. 3, 5 and 6). It may be reasonably conjectured that such a change is due to healing by scar tissue of the previously ulcerated diseased bronchial tree. The end result is a contracture and stenosis of the diseased dilated bronchi throughout the area of treatment. In other cases, post-therapy bronchography, as yet, has shown no alterations in caliber of the dilated (now "dry") bronchi. Further studies in this regard are being carried out and will be presented in a future report. The morphologic type and degree of the dilatations (cylindric or saccular) has had no demonstrable relationship to the results of roentgen therapy. Roentgenograms of the chest other than the aforementioned bronchographic changes have shown no alterations after roentgen therapy. No evidence of pleural thickening, pulmonary fibrosis or mediastinal retraction has been noted.

#### CONCLUSIONS

1. Roentgen therapy in moderately large dosage as the sole method of treatment for chronic secreting bronchiectasis is feasible and successful, resulting in great symptomatic improvement in a considerable proportion of cases.

2. The clinical improvement in chronic bronchiectasis treated with moderately high dosage of roentgen therapy may be so great in many cases as to approach a practically complete cessation of the symptoms of expectoration and cough.

3. Follow-up examination over a period of two years in those cases in which there has been improvement has shown no recurrence of symptoms with infections of the upper respiratory tract.

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## LIPOMA OF THE TONGUE

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GRAND RAPIDS, MICH.

Lipoma of the tongue is very rare. Mazzini<sup>1</sup> states that only one case occurred among 259,366 patients seen in his hospital during thirty-one years. This patient was a woman, aged 56. There are forty-four authentic

cases in the literature, to which the case reported here is to be added.

#### ESSENTIAL DATA CONCERNING THIS LESION

*Age of Appearance.*—It is difficult to determine at what age the tumor first manifests itself. It grows so slowly and is so devoid of any indication of its presence until its size produces mechanical disturbance that it goes unnoticed for many months. Age of incidence is indicated in twenty-seven cases. Six of these were congenital, one was noted at 3 weeks and the



Fig. 1.—The normal tongue presenting at the angle of the mouth represents the midpoint in the anterior posterior measurement of its dorsum. This point is clearly seen as a notch on the right border of the extended tongue in figure 3.

others appeared much later in life. The frequency increases with age.

*Sex.*—This tumor, like others of the tongue with the exception of the vascular ones, shows a distinct preference for the male. In the thirty-six cases in which sex is noted, twenty-three relate to men and thirteen to women. The ratio is quite different in the mixed types (fibrolipoma). Of the six cases recorded, five occurred in women.

*Origin.*—Malon, Butlin and Guelliot believe that the tumor originates from small masses of fat in the genioglossus muscle and is slowly extruded as it gains in size. Bastianelli agrees with this opinion except in the cases of congenital tumors and those arising at the base. He believes that the latter originate in the abundant preepiglottic fat. Guelliot believes that trauma may determine the growth.

1. Mazzini, O. F., and Salvi, M.: Lipoma de la lingua, Rev. sud-am. de endocrinol. 16: 500-504 (June 15) 1933.

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## ROENTGEN THERAPY FOR BRONCHIECTASIS

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In a preliminary report one of us<sup>1</sup> reported the effectual use of roentgen therapy for bronchiectasis in a case of chronic bronchiectasis. Here we report our successful experience in thirty cases of chronic bronchiectasis in which roentgen therapy was employed.

### ROENTGEN THERAPY IN BRONCHIECTASIS

Roentgen therapy has been employed for a great and protean variety of pulmonary inflammatory diseases. The literature is voluminous on the subjects of roentgen therapy for pulmonary tuberculosis, "postoperative pneumonia," "unresolved pneumonia," "chronic pulmonary suppuration," pertussis, asthma and chronic bronchitis.<sup>2</sup> Under the obscure headings of "chronic pulmonary suppuration" and "unresolved pneumonia," there were perhaps many cases of unidentified bronchiectasis. Roentgen therapy has been employed in small dosage by several authors for "unresolved pneumonia" and "chronic pulmonary suppuration" with varying and, for the most part, indifferent results. In all probability, many cases of unidentified bronchiectasis were previously included under those obscure headings. Experience many years ago in the radiotherapy department of the Mount Sinai Hospital with small dosage of roentgen therapy with so-called bronchiectasis demonstrated a total failure of effect. When the present work was begun the necessity of large dosage of roentgen therapy was stressed. Bronchiectasis, as it is now known, cannot be accurately or completely diagnosed without the use of bronchography and bronchoscopy.<sup>3</sup> Before the comparatively recent introduction of iodized oil, bronchography was not clinically feasible.<sup>4</sup> An accurate and unequivocal diagnosis of bronchiectasis is therefore a relatively recent accomplishment. It is perhaps for this reason that roentgen therapy has not been previously applied to the distinct entity of bronchiectasis. The deliberate and successful use of roentgen therapy in large dosage as the sole treatment of chronic secreting bronchiectasis has not, to our knowledge, been previously described or reported.

From the Mount Sinai Hospital.

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2. Desjardins, A. U.: Action of Roentgen Rays and Radium on Heart and Lungs: Experimental Data and Clinical Radiotherapy. *Am. J. Roentgenol.* 27: 149 (Jan.), 303 (Feb.), 477 (March); 28: 127 (July), 271 (Aug.), 421 (Sept.), 567 (Oct.), 699 (Nov.) 1932.

3. Ballou, D. H., and Ballou, H. C.: Diagnosis of Bronchiectasis. *Acta oto-laryng.* 11: 580, 1927.

4. Sicard, J. A., and Forestier, Jacques: Methode generale d'exploration radiologique par l'huile iodée. *Bull. et mem. Soc. med. d. hop. de Paris* 46: 463 (March 17) 1922.

### RATIONALE OF THE USE OF ROENTGEN THERAPY FOR CHRONIC BRONCHIECTASIS

The use of roentgen therapy in chronic inflammatory processes, although resting largely on an empirical footing, nevertheless has a scientific basis of considerable clinical and experimental evidence. It is well established that x-rays act initially and mainly on the leukocytic (particularly lymphocytic) infiltration, causing destruction of these extraordinarily sensitive cells with ensuing phagocytosis and connective tissue proliferation as the sequelae of the action of the rays. In sub-chronic and chronic inflammatory processes this pathologic sequence acts to bring about a "resolution" of the chronic lesion.<sup>5</sup>

The early investigators of the action of roentgen rays on various organs reported that the lungs were relatively invulnerable to the action of the rays. However, the recent introduction of apparatus capable of delivering shorter wavelengths and larger depth doses has demonstrated that, within certain limits, definite tissue reactions can be produced in the lungs. It was the thought that an analogy might be drawn between the salivary glands and the bronchial mucous glands in their reactions to roentgen rays that led initially to this work on their use in bronchiectasis. Exposure of the salivary glands to roentgen rays brings about a diminution verging on abolition of secretion. It was thought that if a comparable reaction could be induced in the bronchial mucosa of bronchiectatic areas a comparable diminution of the secretion, and hence expectoration, might be expected. However, that such an effect can be produced in the bronchial mucosa of human beings, although supported by some experimental work on animals,<sup>6</sup> is problematic and perhaps unlikely. It is perhaps more logical to assume that the results which have been obtained in chronic bronchiectasis, as far as our present knowledge of the known reaction of tissues to roentgen rays can teach us, are due to the action of the rays on chronic inflammatory processes.

### PATHOLOGIC MANIFESTATIONS OF CHRONIC BRONCHIECTASIS

It is now accepted that the origin of bronchiectasis is based essentially on primary morphologic alterations of the bronchial wall. Extrabronchial pulmonary or pleural lesions probably play but a minor rôle in the causation of ectasia of the bronchi. Intrinsic bronchial disease must be present to bring about the weakening and destruction of elastic structure that permits the aerodynamic and hydrodynamic forces constantly acting on the bronchial lumen to operate to produce bronchiectasis. Regardless of the nature of the pulmonary

5. Desjardins, A. U.: Radiotherapy for Inflammatory Conditions. *J. A. M. A.* 96: 401-408 (Feb. 7) 1931; footnote 2.

6. Desjardins, A. U., Ladin, M., and Werthemann, A.: Lungenveränderungen nach experimenteller Roentgenbestrahlung, Strahlentherapie 38: 684-701, 1930.



## ACUTE HEMATOGENOUS OSTEOMYELITIS IN CHILDREN

VERNON L. HART, M.D.

MINNEAPOLIS

There is apparently considerable confusion and disagreement among physicians regarding the treatment of osteomyelitis. Most of the difference can be explained on the basis that there are many types and various stages and, therefore, more than one method of treatment. A discussion of treatment should specify the type of osteomyelitis and the stage of the disease. There would be a more general agreement if this principle were followed instead of considering the entire subject.

The distinct entity to be considered in this paper is the acute stage of hematogenous osteomyelitis in children. The methods of treatment of chronic hematogenous osteomyelitis are separate and distinct problems. Likewise, the treatment of osteomyelitis, which is secondary to and a complication of compound fractures, amputations, empyema, felons, abscessed teeth, metal bone plates and screws, is based on different surgical and anatomic principles.

Acute hematogenous osteomyelitis is a local manifestation of a blood stream infection which is usually transient. The skeletal infection is always secondary to a remote infection, the source of which is usually the integument or the mucous membranes of the upper respiratory regions. A bacteremia necessarily precedes the localization of infection in the osseous system. Cultures of blood and pus demonstrate that the most common infective agent is *Staphylococcus aureus*. *Staphylococcus albus*, *Streptococcus pyogenes* and *pneumococcus* organisms are also frequent causative agents.

The first skeletal manifestation of the disease is constantly localized in a single metaphysis of one of the long bones of the extremities (fig. 2) or in the juxta-epiphyseal region of other bones of the growing skeleton. The primary bone involvement is not in the medullary cavity or cortex of the main shaft of a growing bone. During the early acute stage of the disease the infection is limited to a single metaphysis. However, subsequent to direct or hematogenous spread of the infection and in the subacute and chronic phases of the disease the main shaft, the neighboring joint and the medullary cavity may be affected. If the infection is not in the main shaft and medullary cavity during the acute stage there is no reason for their surgical exposure. The surgical attack should be limited to the site of the infection or metaphysis.

Robertson<sup>1</sup> of Toronto recently stated that:

The vital factors concerning the disease acute hematogenous osteomyelitis are not fully recognized by the medical profession. The disease has so long been regarded as actually what its name implies, that the diagnosis is not made in the early stages. If the disease were an infection of the medulla, as apart from the metaphysis, one would seek for signs of infection in the middle of the shaft. If these signs occur, they are extraordinarily rare. The early signs common to this disease are not to be found in the middle of the shaft. . . . The disease is so common, the symptoms so typical and the examination so definite, that one is surprised that the diagnosis is ever missed. I believe that if a case can be made for the seat of the infection being in the metaphysis, then the diagnosis will be very much simpler. The signs and symptoms all point to this.

## ANATOMIC FEATURES

The clinical history and pathogenesis of the disease and the fundamental principles of treatment are to a large measure explained by our knowledge of certain anatomic features of the bone and joint system.

Because of a difference in anatomy and physiology, a long bone of the growing skeleton is divided into segments: the epiphyses, the metaphyses and the diaphysis (fig. 2). The name "metaphysis" was first used by Kocher to describe the broad cancellous end of the diaphysis which is adjacent to the epiphyseal disk. The metaphysis represents the bone most recently developed from the epiphyseal cartilage or disk and is therefore more vascular, more delicate, more susceptible and less immune than the older bone of the shaft, which is dense and compact. The marrow of the shaft, which occupies the medullary cavity, is "bountifully provided with cellular elements," while the marrow of the metaphysis, which fills the interstices between the trabeculae of the cancellous bone, presents a "paucity of phagocyte cells."

The researches of Hobo<sup>2</sup> and Robertson seem to prove that the medullary cavity is much richer in phagocytic elements than the metaphysis. Fraser<sup>3</sup> recently stated:

I have a suspicion that in acute osteomyelitis the bone disturbance is but a local evidence of a general infection, and that the reason why the local infection is so constantly localized to the metaphysis is conceivably because we there encounter a concentration of reticulo-endothelial tissue, and that the local suppuration which results from the defensive activities of the area is in some measure protective against the general disturbance.

The cortex of the middle of the shaft is either more or slightly less than one-fourth inch (0.64 cm.) in thickness, while the cortex surrounding the metaphysis is much thinner, and near the epiphyseal disk it is paper thin (fig. 2). This is an important anatomic feature, since it explains the ease with which infection within the cancellous metaphysis may perforate into the subperiosteal space and why the rupture is usually juxta-epiphyseal, as emphasized by the late Dr. C. L. Starr.<sup>4</sup>

The nature of the blood vascular system of the metaphyses evidently plays an important rôle in the localization of infection in the cancellous juxta-epiphyseal region of growing bones. Lexer, Kuliga and Türk<sup>5</sup> in 1904 demonstrated the practically independent circulations of the epiphyses, the metaphyses and the



Fig. 1.—Subperiosteal hematoma involving the shaft of the femur of a child with infantile scurvy. The periosteum is firmly attached to the distal femoral epiphyseal disk and acts as a barrier against spread of a subperiosteal hematoma (or abscess) into the knee joint.

2. Hobo, Teruo: Zur Pathogenese der akuten haematogenen Osteomyelitis, Acta scholae med. univ. imp. in Kioto 4:1 (March) 1921, bibliography.

3. Fraser, John: Acute Osteomyelitis, Brit. M. J. 2: 539 (Sept. 22) 1934.

4. Starr, C. L.: Acute Hematogenous Osteomyelitis, Arch. Surg. 4: 567 (May) 1922.

5. Lexer, Erich; Kuliga, P., and Türk, W.: Untersuchungen über Knochenarterien und ihre Bedeutung für einzelne pathologische Vorgänge am Knochensystem, Berlin, August Hirschwald, 1904.

From the Department of Surgery, Division of Orthopaedics, University of Minnesota Medical School.

1. Robertson, D. E.: Acute Hematogenous Osteomyelitis, J. Bone & Joint Surg. 9: 8-23 (Jan.) 1927.

(b) *Classification of Patients Given Roentgen Therapy.*—Roentgen therapy was not instituted in any patient who presented acute inflammatory symptoms. The presence of active pneumonitis was considered a contraindication to the therapy. Only those patients who were ambulatory, afebrile and presented a chronic lesion with a more or less constant level of expectoration, without marked remissions, were considered suitable for therapy.

Accordingly, roentgen therapy was instituted in three types of chronic secreting bronchiectasis, namely:

1. Bronchiectasis secondary to chronic putrid lung abscess and residual symptomatically after pneumonotomy for the chronic abscess. These cases usually presented a profuse mucopurulent discharge from one or more bronchocutaneous fistulas at the site of pneumonotomy. Expectoration, if present, was of the same character as the discharge and usually varied from 3 to 6 ounces daily. The area of bronchiectasis was usually fairly extensive, comprising the greater part of the affected lobe, and not infrequently was multilobar. There were fourteen patients in this group (table 1).



Fig. 4.—Bronchogram: Oblique view illustrating extensive bronchiectasis from apex to base of left side. The normal bronchi of the healthy right lung appear on the right side of the film. Expectoration of 16 ounces of foul sputum; marked clubbing of fingers. Duration of disease, ten years.



Fig. 5.—Bronchogram showing contracture and narrowing of previously dilated bronchial tree of left side. This occurred after roentgen therapy that had succeeded in reducing expectoration from 16 ounces (putrid) to 1 ounce (odorless), accompanied by loss of clubbing of fingers. This result has been maintained for a follow-up period of two years.



Fig. 6.—Bronchogram: Oblique view after therapy of same case, showing stricturing of dilated bronchi after treatment. Compare with figure 4.

2. The second type of case was characterized by a bronchographic picture of involvement of one or two lobes, daily expectoration of from 1 to 5 ounces of non-odorous sputum, a minor degree or absence of clubbing of the digits and a history of relatively infrequent episodes of hemoptysis and pneumonitis. These patients did not appear very ill clinically; they were ambulatory and usually had never required hospitalization. There were three patients in this group (table 2).

3. The third group of patients appeared chronically ill. They were characterized usually by multilobar extensive bronchiectasis, frequent distressing cough with the expectoration of large quantities of foul sputum. They usually exhibited marked clubbing of the digits and gave a history of frequent hemoptyses and attacks of pneumonitis. There were thirteen patients in this group (table 3).

(c) *Method of Treatment.*—To secure "control" to the effect of the treatment, absolutely no other form of therapy was used coincidentally.

The patients were treated ambulatorily, for the most part, reporting to the radiotherapy department as "out-

patients." Roentgen therapy, in large dosage, was given to these patients over a period of approximately three months, all the diseased and secreting lobes (as revealed by thorough bronchography and bronchoscopy) being "cross-fired" through anterior, lateral and posterior fields. From three to seven fields were utilized as indicated. The average total dose used was approximately 1,200 roentgens through each of the anterior, lateral and posterior fields.

The physical factors of the technic are as follows: 180 to 200 kilovolts; focal skin distance, 50 cm.; current volume, 4 milliamperes; filter, 0.5 mm. of copper and 1 mm. of aluminum; size of field, 10 by 15 cm. Each treatment consisted of 75 roentgens, measured in air, to two or three fields.

The patients were treated usually two or three times a week. In bilateral cases one side (the most extensively diseased) was treated at a time, followed by the other side after the first course of roentgen therapy was finished. In a few of our earlier cases in which the dosage of roentgen therapy was inadequate and the result unsatisfactory, a second course was given after an

interval of four months. It was found that at least four months must be allowed to elapse after a course of therapy had been given to secure the full measure of improvement. In future bilateral cases it is our impression that it would be of advantage to treat the two sides simultaneously.

No significant skin changes due to therapy have been observed. Two children under the age of 12 years have been treated successfully.

It is very important to note here that during the course of treatment the patient's symptoms are exacerbated, sometimes to a marked extent. A low grade fever is common, cough is more frequent, and expectoration is more profuse. This is explicable on the basis of the action of x-rays. In our series, four patients experienced episodes of pneumonitis, occurring during the course of therapy. Whether this can be ascribed to the action of the rays is conjectural. Hemoptysis may occur during the exacerbation of symptoms. This occurred in patients who had previously experienced bleeding. Hemoptysis is normally very common in bronchiectasis and is usually due to bleeding granu-

throughout the life of the patient. The main issue in the treatment of the earliest phase of acute osteomyelitis should not be a consideration of the comparative values of the Carrel-Dakin, Orr,<sup>6</sup> Baer and other technics but rather of the necessity of adequate drainage of the affected metaphysis during the first twenty-four, thirty-six or forty-eight hours of the disease before the infection perforates the cortex or wall of the metaphysis near the epiphyseal disk, where it is paper thin, and before it spreads beneath the periosteum. The older textbooks taught that the usual course of spread of the infection was directly from the cancellous end of the bone or metaphysis into the medullary cavity. This may occur, but the common course of spread of the infection, as first emphasized by Starr, is by perforation through the extremely thin cortical wall of the metaphysis adjacent to the epiphyseal disk. The infection then spreads beneath the periosteum along the shaft of the bone, which it invades through the haversian system. When there is evidence of a subperiosteal abscess the disease has passed beyond the phase that I refer to as acute hematogenous metaphysitis.

The term acute hematogenous metaphysitis should be added to the terminology of the study of osteomyelitis because it defines that phase of acute hematogenous osteomyelitis when surgical treatment may cure the disease without necrosis and sequestration of bone. The term will help to focus the attention of physicians on the metaphyses of the growing skeleton when considering cases presenting acute infection. It may also stimulate a more general interest in the anatomy, physiology and clinical significance of the metaphyses.

Acute hematogenous osteomyelitis or metaphysitis is preeminently a disease of childhood and puberty when the metaphyses are extremely vascular. The late adolescent skeleton is infrequently affected by the disease and the adult skeleton rarely because the vascularity of the metaphyses is diminished subsequent to the period of greatest physiologic activity of the epiphyseal cartilages or disks. Acute osteomyelitis in infancy, as recently reported by Green,<sup>7</sup> "differs in so many respects from osteomyelitis in older children that a separate consideration of the disease in children under 2 years of age is desirable."

The disease is definitely more common in boys than in girls, and this is because boys are more subject to trauma, exposure and infection of the skin and upper respiratory regions.

Only a single metaphysis is affected at the onset of the disease, but after the first twenty-four to thirty-six hours it is common to see another bone lesion occurring. Infrequently the primary bone infection may localize in a center of ossification of one of the epiphyses. If the invading organism is very virulent and the general and local resistance of the patient extremely low, the infection may be overwhelming from the onset. Several bones may be involved simultaneously, and an early death occurs in most cases owing to a general septicemia with localization of the infection in vital parts.

An analogy between acute appendicitis and acute metaphysitis is a sound one, since the tragic complications of each disease are the result of perforation. Today it is general knowledge among the public that the proper treatment of acute appendicitis is appendectomy during the early phase of the disease before

rupture of the appendix. The medical profession should continue its efforts to inform the public regarding the tremendous importance of early diagnosis and treatment of acute hematogenous metaphysitis before perforation of the cortex of the affected metaphysis. A subperiosteal abscess may be compared with peritonitis, since both are pathologic processes secondary to perforation. Many patients do not seek the advice of a physician until several days after the onset of symptoms, which may have been masked by the administration of drugs. Physicians should be alert to the necessity of diagnosis and surgery before perforation of the metaphyseal cortex and to the consequences of procrastination.

#### CLINICAL MANIFESTATIONS

During the earliest clinical phase the child is acutely ill and complains of constant severe pain in the region of a joint. Movements of the affected extremity, pressure and the application of heat aggravate the pain. The integument over the involved region does not present any striking changes and the contour of the extremity is not altered. Marked swelling, edema and redness are not present. These changes may appear one or several days later and are evidence of perforation of the infection through the cortex of the affected metaphysis. Point tenderness is one of the most important clinical observations. It is extreme and definitely localized over a limited area of the involved metaphysis. The adjacent joint is clinically normal when examined gently and carefully, although there may be limitation of movements. Synovitis and effusion are not observed during the earliest phase of acute hematogenous osteomyelitis when the infection is confined within the metaphysis. The physician should not examine the extremity for tenderness until the manual examination has been completed. Increased pain; lack of cooperation and muscle spasm usually follow the demonstration of tenderness. The chief complaint is incessant pain in the neighborhood of a joint and the chief sign is severe, unchangeable tenderness, which is localized over the affected metaphysis.

The patient presents signs of intense toxemia. The temperature is elevated to 102-104 F. and the pulse rate is rapid, from 120 to 130 per minute. Blood examination reveals a high polymorphonuclear leukocytosis, usually up to 25,000 or 30,000. Blood cultures should be done as a routine and the urine should be examined for Hedri's sign or the presence of lipuria.

A careful investigation of the history of the patient frequently reveals that trauma may have played an important rôle in the localization of the infection. The type of injury is generally a metaphyseal strain.

Radiographic studies of the involved bone and neighboring joint are negative for any evidence of infection during the phase of acute hematogenous osteomyelitis. Acute osteomyelitis does not cause enough cortical change to be recognized by the x-rays until the tenth to the twelfth day.

#### PATHOGENESIS

The pathologic changes within the metaphysis are identical with those in soft tissues which are combating a pyogenic infection. The clinical manifestations, however, are different, since the infection is confined within a bony structure which does not yield to pressure resulting from the combat between the infection and the defensive mechanisms until the "bone furuncle" perforates the metaphyseal cortex and spreads beneath the overlying periosteum. The abscess usually makes its

6. Orr, H. W.: *Osteomyelitis and Compound Fractures and Other Infected Wounds*, St. Louis, C. V. Mosby Company, 1929.

7. Green, W. T.: *Osteomyelitis in Infants*, J. A. M. A. 105: (Dec. 7) 1935. Green, W. T., and Shannon, J. G.: *Osteomyelitis of Infants: Disease Different from Osteomyelitis of Older Children*, Arch. Surg. 52: 462 (March) 1936.

period, infections of the upper respiratory tract have been experienced repeatedly and have been characterized by slight increase in odorless expectoration, but without recurrence of harassing cough and profuse foul expectoration.

CLASSIFICATION OF RESULTS

There were fourteen patients with chronic bronchiectasis secondary to chronic (operated) anaerobic lung

TABLE 2.—*Odorless Bronchiectasis*

Case	Lobes Involved	Duration of Symptoms	Expecto-ration, Ounces	Treatment and Duration		Results on Expecto-ration and Drainage
				Roent-gens	Days	
1	Left upper lobe, left lower lobe	10 yrs.	4	7 × 1,500	72	1½-2 oz.; only left lower lobe treated
2	Left lower lobe	33 yrs.	2	3 × 1,200	90	½-1 oz.; less cough
3	Right upper lobe	7 yrs.	5	6 × 1,600	60	No result
				Number	Per Cent	
Greatly improved.....				1	33½	
Moderately improved.....				1	33½	
Unimproved.....				1	33½	
Total.....				3		

abscess.<sup>8</sup> Five of the improved patients (table 1) have been followed for a period of approximately two years. They have maintained their improvement to date with-

death occurred in another city three months after the last treatment to the right lower lobe. The cause of death could not be ascertained.

There were three patients with chronic bronchiectasis characterized by moderate amounts of nonfoul expectoration (table 2).

There were thirteen patients with chronic bronchiectasis characterized by profuse foul expectoration (table 3). These patients with multilobar bronchiectasis and profuse expectoration of large quantities of foul expectoration, although the most seriously ill, have experienced the greatest benefit and have shown the most striking results and remarkable improvement. In some of these patients the bronchiectasis involved an entire hemithorax from apex to base, and in some the lesion was bilateral. Reductions in daily expectoration from as high as 16 ounces to 1½ ounces have been accomplished with complete loss of foul odor. Cough, previously harassing, has been reduced to a short morning bout with an expectoration of approximately 1 ounce. Concomitant with their great symptomatic improvement, some of these patients have lost the clubbing of their fingers. The episodes of pneumonitis have not recurred.

It is noteworthy that this type of bronchiectasis presents a pathologic and clinical picture that is more markedly inflammatory in its nature than the other two groups of patients. The marked beneficial reaction of

TABLE 3.—*Foul Bronchiectasis*

Case	Lobes Involved	Duration of Symptoms	Expecto-ration, Ounces	Technic of Treatment and Duration			Results on Expectoration and Cough	
				Fields	Roent-gens	Days		
1	Left lower lobe.....	7 mos.	7	3 × 1,125	34	No cough or expectoration		
2	Left upper lobe, left lower lobe...	10 yrs.	15-20	7 × 1,200	90	Cough slight, 1½-2 oz. odorless		
3	Right upper lobe, right middle lobe, right lower lobe	5 yrs.	7	5 × 1,200 5 × 1,500	32 94	1 oz. odorless		
4	Right upper lobe, right middle lobe, right lower lobe	6 mos.	5-7	6 × 1,200	70	Less cough, 2-3 oz. odorless		
5	Right lower lobe.....	2 yrs.	10	3 × 1,230 3 × 550	30	Death (pneumonitis, contralateral, after hemoptysis)		
6	Right lower lobe, left lower lobe	11 yrs.	4	3 × 1,500	72	Left side treated only; no result; further therapy to right side to be given		
7	Left upper lobe, left lower lobe....	10 yrs.	8	3 × 800 to left lower lobe	60	Death, three weeks after last treatment (cause unknown)		
8	Left upper lobe, left lower lobe, right upper lobe, right lower lobe	12 yrs.	16	5 × 900 5 × 1,100	40 50	No result		
9	Left lower lobe.....	3 yrs.	4-5	3 × 1,500	70	1 oz. odorless		
10	Five lobes .....	30 yrs.	3-4	Rt. 7 × 1,100 Lt. 3 × 1,100	60 50	½ oz.		
11	Left lower lobe.....	1½ yrs.	6	6 × 1,000 entire side	120	1½ oz. odorless		
12	Left lower lobe.....	9 yrs.	8	3 × 1,500	77	1½ oz. odorless		
13	Five lobes .....	14 yrs.	4	3 × 1,100	50	Only one side treated; no result		
							Number	Per Cent
Greatly improved.....							7	53
Moderately improved.....							1	7
Unimproved.....							3	23
Deaths.....							2	14
Total.....							13	

out recurrence of previous symptoms of profuse drainage through fistulas and profuse expectoration. The other cases are more recent. The death in this group occurred in a case in which all three lobes on the right side were involved in a chronic bronchiectasis secondary to a chronic anaerobic lung abscess. The daily expectoration was 4 ounces of foul sputum. Only partial treatment had been given (to the right lower lobe) and

roentgen therapy in these patients could, with logic, be ascribed to the effect of roentgen therapy on chronic inflammatory processes, as noted in the previous section in which the action of roentgen rays is discussed. This impression of more marked benefit derived from the treatment may have been gained because this group of patients presented an intensity of symptoms greater than that present in the first two groups. Thus the abolition of foulness, the practical cessation of cough and profuse expectoration and the loss of clubbing were more obvious and striking. One of these patients,

8. We are indebted to Dr. Harold Neuhoef for permission to treat this group of patients, who had been operated on in his surgical service at Mount Sinai Hospital.

shaft and medullary cavity should not be attacked with chisel and mallet. Too frequently a radical saucerization or gutter operation is performed on the main shaft of the bone. The marrow of the medullary cavity is exposed and it may even be described as "pus." Starr was the first physician to teach the fact that the medullary cavity is not infected as a rule during this phase of the disease.

The primary bone abscess is in the metaphysis, which is the source of the subcutaneous or subperiosteal abscess. Therefore, chisel and mallet or drill may be used to enlarge the opening in the cortex of the metaphysis through which the infection had perforated and spread beneath the periosteum. Infrequently the medullary cavity may be filled with pus. Therefore a relatively large drill hole, about three-eighths inch in diameter, should be made through the cortex into the medullary cavity a short distance on the diaphyseal side of the infected metaphysis. If pus escapes, several similar drill holes should be made along the infected diaphysis for adequate drainage of the medullary cavity. Pus will be found infrequently in the medullary cavity; however, I believe that in the presence of stripping of the periosteum a drill hole should be made directly into the medullary cavity as a routine. It can do no harm and gives important information.

The wound is lightly packed (Orr method) with petrolatum gauze and covered with sterile dressings and sheet wadding. A plaster-of-paris cast is applied for the dual purpose of physiologic rest and prevention of deformity. Again, as already stated, the physician should anticipate continuation of signs and symptoms of a general blood stream infection. The persistence of clinical signs of severe infection should not tempt the surgeon to perform unsound and radical gutter operations on the shaft and medullary cavity. If the primary bone lesion involves the proximal femoral metaphysis or femoral neck region, in this stage of the disease the hip joint is invariably infected. Surgical drainage of both metaphysis and joint is indicated.

Involvement of the distal metaphysis of the fibula at this stage with stripping of the periosteum from the shaft by a subperiosteal abscess also presents a variation from the usual treatment. Diaphysectomy is definitely indicated, since the fibula is a non-weight bearing bone and function of the extremity is compatible with loss of substance from the fibular shaft. The diaphysis should be removed as far as the periosteum is stripped by pus. Great care must be exercised during the dissection in order that the common peroneal nerve is not injured. Diaphysectomy is indicated in this stage of the disease in any long bone that can be sacrificed without loss of function to the part.

In all cases the wound should fill in with granulation tissue from the bottom and the walls should not be permitted to come in contact. To accomplish this and to control odor the petrolatum dressings should be changed about every ten or more days.

Many patients will gradually pass into the chronic stage of the disease. Spread of infection, vascular damage, necrosis of bone, sequestrum formation and deformity will determine the subsequent surgical program.

#### CONCLUSIONS

1. The first skeletal manifestation of acute hematogenous osteomyelitis is localized within a single metaphysis.

2. The primary bone involvement is not in the cortex of the main shaft and medullary cavity.

3. Acute hematogenous metaphysitis is a distinct clinical entity. It represents the earliest clinical phase of acute hematogenous osteomyelitis when the infection is confined within the interior of the affected metaphysis. It is during this period that proper surgical treatment may prevent extensive osseous and joint involvement, necrosis and sequestration of bone.

4. Radical gutter operations on the cortex of the main shaft and medullary cavity during the acute stage of the disease are surgically and anatomically unsound.

5. Dehydration should be prevented and controlled if present.

6. The surgical treatment includes conservative but adequate metaphyseal drainage. The surgical principles are based on the fundamental clinical and pathologic investigations of the late Dr. C. L. Starr.

7. The pathogenesis of the disease is determined by anatomic features of the bone and joint system.

8. The moment the infection perforates the cortex of the metaphysis and spreads beneath the periosteum, the prognosis as to morbidity is critically altered.

9. Acute hematogenous osteomyelitis is divided into two stages. The first stage is before and the second stage is subsequent to perforation of the thin cortical wall of the affected metaphysis. The clinical and pathologic changes, treatment and prognosis of the two stages are distinctly different.

820 Medical Arts Building.

## THE CENTRAL ACTION OF BETA-AMINOPROPYL BENZENE (BENZEDRINE)

### CLINICAL OBSERVATIONS

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Beta-aminopropylbenzene (benzedrine) is a compound of the epinephrine series resembling ephedrine in chemical constitution, as shown in the structural formula. In 1910 Barger and Dale<sup>1</sup> made an exhaustive study of a large group of epinephrine-like substances, with the conclusion that an action simulating that of true sympathetic nervous stimulation is not peculiar to epinephrine but is possessed by a large number of amines (substituted ammonias). These substances were termed sympathomimetic amines by Barger and Dale, since they mimic the effects of sympathetic stimulation. The response of the blood pressure in experimental animals has been used largely to study the comparative activities of these compounds. More recently I have studied the comparative actions of these substances on the cardiac standstill which may be induced in many individuals by pressure over the carotid artery in the neck.<sup>2</sup>

Interest in these compounds has centered almost entirely on the sympathomimetic action, an effect on the peripheral nervous system. This action is responsible for the dilatation of the pupils and bronchi, for vasoconstriction and the pressor effect, and for the cardiac stimulation. With the rediscovery of ephedrine in 1923 it was found that, in addition to the peripheral action, certain of these compounds have a stimulating effect on

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1. Barger, G., and Dale, H. H.: Chemical Structure and Sympathomimetic Action of Amines, *J. Physiol.* **41**: 19, 1910.

2. Nathanson, M. H.: Further Observations on the Effect of Drugs on Induced Cardiac Standstill, *Arch. Int. Med.* **54**: 111 (July) 1934.



Virchow and Colombo<sup>2</sup> believe that the tumor results from a metaplasia of the connective tissue which separates the muscle bundles following the deep vessels and nerves.

Pozzi distinguishes the origin of the submucous from the intermuscular types. The former originate immediately below the mucosa in the same manner that lipomas appear beneath the skin, the fat cells in the two locations being similar.

**Geographic Location.**—The tumor occurs most frequently on the edges of the tongue. It also occurs at the base and, rarely, on the tip. Of the forty cases in which the tumor is located, it occurred on the edges in twenty-two, on the base in eight, on the tip in five and on the "back" of the tongue in the remainder.

**Histologic Location.**—The tumor may be submucous, interstitial or intermuscular. The interstitial tumor is recorded in only three cases. It occurs in the submucosa most frequently.



Fig. 2.—Distortion of the lips and cheeks.



Fig. 3.—Appearance of tongue sixty days after removal of tumor.



Fig. 4.—Readjustment of lips and cheeks.

**Character.**—The tumor is benign. It varies from the size of a grain of rice to that recorded in this case. It is rarely multiple. It may be round, ovoid or lobulated. The ovoid tumor generally elongates parallel with the long axis of the tongue.

Adipose tissue predominates in most tumors. Intermuscular tumors are usually encapsulated. In some instances there is more connective tissue, characterizing the tumor as a fibrolipoma.

The rate of growth is very slow. One reporter records that a tumor grew from the size of a "grain of rice to the size of a grape in two years"; another that the growth reached the size of a walnut in three years; another that the growth extended from the cecal foramen to the lingual tip in fourteen and a half years, and so on. Our patient first noticed a small mass on the right tip of the tongue seventeen years prior to our examination.

The tumor is covered with smooth, thin, transparent mucosa which is usually devoid of papillae. The

included fat gives the mucosa a characteristic color variously described as "rose," "straw" or "yellowish gold." It is usually soft, giving a pseudofluctuation, or hard in proportion to the connective tissue element. The intermuscular tumor is fixed, in contrast to the mobile submucous lesion. It may or may not be pedunculated. It may become ulcerated.

**Diagnosis.**—The characteristics and history noted determine the diagnosis. Marked pseudofluctuation may require an aspirating needle for exclusion of the various cysts.

**Treatment.**—Complete removal is without danger and produces a definite cure.

#### REPORT OF CASE

Mrs. G. P., aged 45, examined Jan. 22, 1934, presented a mass the size of an orange on her tongue.

She stated that she had first noted a mass the size of a pea on the right tip of her tongue seventeen years previously. Nine years later the mass had reached such a size that she had to

discard her dentures and take soft foods only. She was "treated by a quack cancer specialist without relief" two years later. During the past six years she had remained at home "expecting to die from her cancer."

The tumor was round, shiny, smooth, slightly translucent and moderately pseudofluctuant. It involved the tip and largely replaced the muscle of the right anterior half of the dorsum. The covering had the appearance of a modified squamous epithelium.

The circumvallate papillae and the upper third of the epiglottis were plainly visible as the result of the prolonged traction. The tumor could be pushed through a much enlarged mouth into greatly distended cheeks. Note the lower lip in figure 2.

The tumor was removed under local anesthesia January 30.

A flap of the epithelial covering was raised from the anterior third of the tumor and the mass was resected. The left half of the tongue was employed to repair the loss on the right side with a moderate foreshortening which interferes with neither speech nor function. Figures 3 and 4 show the result sixty days later. Note the readjustment of the lips and cheeks.

The histologic report was "simple lipoma." The mass weighed 320 Gm. and measured 11 cm. by 9 cm. by 7 cm. This is the largest of these tumors reported in the literature.

Wealthy Street at Plymouth Road.

2. Colombo, Angelo: Lipoma della lingua, Tumori 18: 233-261 (May-June) 1932.

usually mild and of short duration. It was necessary to discontinue the drug in but three patients: in two, owing to disturbed sleep and in one instance because of severe palpitation.

#### SUBJECTIVE EFFECTS IN NORMAL INDIVIDUALS

The patients uniformly noticed that the various effects appeared in their maximum intensity soon after

#### *Questionnaire Used in the Study of the Action of Beta-Aminopropylbenzene Sulfate in Eighty of the Resident Hospital Staff and Laboratory Technicians*

The purpose of this experiment is to determine the type and degree of reaction following the administration of the tablets. It is hoped that you will make a careful analysis of the physical and mental reactions which may have occurred during the day of the experiment. If any reaction is observed it is desirable that an approximate estimate of the intensity of effect be noted and expressed as follows: 1 plus indicates a mild reaction; 4 plus an intense effect and intermediate degrees expressed as 2 plus or 3 plus. It is best to compare your physical and mental state on the day of this experiment with that of the usual day.

1. Any evidence of increased energy, increased desire or capacity for work?
2. Reaction to day's work as regards fatigue?
  - a. Less fatigue
  - b. Increased fatigue
  - c. No effect.
3. Many normal individuals feel tired at certain times of the day. If this is a frequent reaction in you, has it in any way been modified today?
4. Have you been more talkative?
5. Dryness of mouth?
6. Sweating?
7. Appetite: Less? More?
8. Effect on sleep (this should be answered on the following morning).
9. Any evidence of the following:
  - a. Euphoria (sense of well being)
  - b. Feeling of exhilaration
  - c. Depression
10. Mental activity: as you look back over the period following the tablets, have you observed any effect on mental processes? Has there been any indication of increased mental efficiency or any evidence of clouding of mentality?
11. Any other reaction should be noted such as headache, nausea, tremor, palpitation or any effect not mentioned.
12. If any reaction occurs, note if possible the approximate time of onset and duration

Name.....  
It is important that the name be signed, as the type of tablet administered will otherwise not be known and the record would be worthless.

the initial dose of the beta-aminopropylbenzene sulfate. It therefore seemed interesting to study the subjective reactions of a large group of normal subjects following a single administration of the drug. For this purpose a group of young individuals, consisting of the resident hospital staff, technicians and student technicians, was used. The drug was administered in two ways: (1) in divided doses, 1 tablet (10 mg.) before breakfast, and a second tablet before the noon meal, and (2) a single dose of 20 mg. before the noon meal. The study was made on eighty individuals, of whom fifty-five received the drug and twenty-five were given tablets of the same appearance containing lactose. Each subject received a questionnaire in a sealed envelop with instructions to open the envelop and answer the questions as carefully as possible in the evening.

The accompanying tabulation shows the contents of the questionnaire and the reactions are summarized in the table. There was a great variation in the intensity of the reaction but in only eight instances was the response so minimal as to be considered questionable. The most frequent effect was a sense of well being and a feeling of exhilaration, and this occurred in more than two thirds of the subjects. Next in order of frequency was a lessened fatigue in 62 per cent, talkativeness in 56 per cent, and increased energy and capacity for work in 54.5 per cent.

Some of the expressions that were used were the following: "increased energy, felt as if I could not get places fast enough"; "had no feeling of usual fatigue"; "usually tired at dinner time, resumed work after dinner and continued until 10 p. m. and no fatigue"; "I have done things today I usually dislike but which I rather enjoyed doing today"; "the last hour and a half of work is usually an effort, today I felt fine"; "my usual after lunch slump was appreciably reduced"; "did not have my usual lethargic period after lunch"; "sense of well being, nothing seemed impossible of accomplishment"; "I wanted to stop and talk to everybody I met"; "I found myself entering into conversation with donors who came to the laboratory for tests"; "I felt unusually friendly toward other people"; "my spirits have been high all day, felt bubbling inside"; "this is a few days before the menstrual period and in the last two days I had my usual premenstrual depression; today this was all gone"; "had feeling of being very efficient"; "I was able to organize my work quickly and efficiently"; "my mind felt clear all day."

Most of the subjects who experienced these favorable reactions also noted some effects which were mildly unpleasant. There was no relationship between the favorable and the unpleasant effects. In some instances an unusually favorable response was associated with minimal unpleasant effects and in an occasional subject the undesirable effects predominated. The unpleasant reactions were usually of a mild degree and rather transient. The most frequent were dryness of the mouth, sweating, lessened appetite, and a disturbance in sleep. In a smaller number tremor of the hands was noted in sixteen instances, palpitation in eleven, slight headache in eleven, nausea in five, and dysuria in four. The incidence of unpleasant reactions seemed higher in this group than in the series of patients discussed in the earlier portion of this report. This may be explained by the more advanced age of the latter group, since it was observed in several instances that older persons seemed to tolerate more and require more of the drug for a therapeutic effect.

#### *Summary of the Reactions of Fifty-Five Members of the Resident Staff and Laboratory Technicians After the Administration of Twenty Milligrams of Beta-Aminopropylbenzene Sulfate*

	Number	Per Cent
Increased energy, desire and capacity for work.....	30	54.5
Reaction to work as regards fatigue		
(a) Less fatigue.....	34	62.0
(b) Increased fatigue.....	10	18.0
(c) No effect.....	11	20.0
Usual period of exhaustion abolished.....	21	38.0
More talkative.....	31	56.0
Euphoria and feeling of exhilaration.....	37	67.0
Depression.....	4	7.0
Mental activity and efficiency		
(a) Increased.....	23	42.0
(b) Diminished.....	2	3.0
Dryness of mouth.....	34	62.0
Sweating.....	27	50.0
Appetite		
Less.....	27	50.0
Better.....	5	9.0
Insomnia (usually mild to moderate).....	17	30.0

In twenty-four of the questionnaires, statements were made relative to the time of onset of the effects and the duration. There was more certainty and consistency as to time of onset. Most of the effects were noted from thirty minutes to one hour after the ingestion of the drug. There was less certainty as to duration of

cortex of the shaft. The metaphysis is richly supplied by the terminal branches of the nutrient artery. The vascularity of the juxta-epiphyseal region is abundant and consists of a bed of terminal capillary loops where the blood current is slowed and where infection is very likely to settle as a bacillary embolism. The nutrient artery also supplies the medullary cavity and endosteum and freely anastomoses with the periosteal vessels, through the haversian system, which are the main

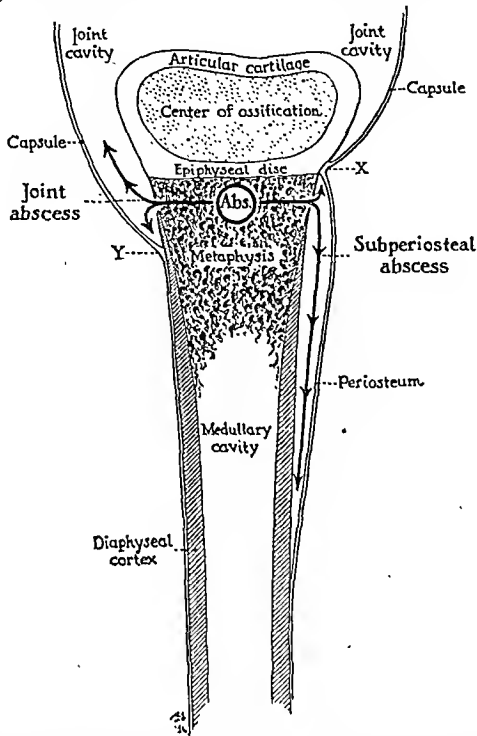


Fig. 2.—Diagram illustrating the usual course of spread of infection in acute hematogenous osteomyelitis. X represents the point of firm attachment of capsule and periosteum in the region of the epiphyseal disk when the metaphysis is extracapsular. Y is the fixation point of capsule and periosteum when the metaphysis is intracapsular.

sources of nutrition to the cortex of the entire shaft. Epiphyses receive their blood supply from articular and cortical arteries. The epiphyseal circulation is separated from the vascular system of the metaphysis by a practically avascular barrier, the epiphyseal disk. The extraordinarily rich capillary network of the metaphysis and juxta-epiphyseal region is gradually reduced with diminished physiologic activity of bone production of the epiphyseal disk. This explains why acute hematogenous osteomyelitis is essentially a disease of childhood and puberty.

The periosteum completely covers the shaft of a long developing bone and is firmly attached, except in a few instances, to the entire circumference of both proximal and distal epiphyseal disks. The ease with which the periosteum is stripped from the cortex of the shaft of a growing femur and the barrier that it provides against involvement of the knee joint because of its continuity with the distal femoral epiphyseal disk is demonstrated by the radiographic study of a subperiosteal hematoma resulting from infantile scurvy (fig. 1).

The problem of joint involvement secondary to acute hematogenous osteomyelitis depends largely on the anatomic relationship between the joint capsule, the periosteum, the metaphysis and the epiphyseal disk (fig. 3). Certain metaphyses are intracapsular (hip) while others are either entirely extracapsular (ankle) or

intracapsular and extracapsular (shoulder). When a metaphysis is intracapsular the periosteum no longer protects the joint from involvement, since the greater portion of the periosteum is attached to and blends with the capsule instead of with the epiphyseal disk. Perforation of the intracapsular metaphyseal cortex and its thin periosteal covering permits the infection to invade the joint cavity directly. The metaphysis of the proximal end of the femur is completely intracapsular. This anatomic feature explains why infection of the hip joint is the rule in acute hematogenous osteomyelitis of the proximal end of the femur. Perforation of the distal tibial metaphyseal cortex does not invade the ankle joint directly, since this metaphysis is entirely extracapsular. Clinical experience teaches one that infection of the knee joint is an infrequent complication of acute hematogenous osteomyelitis of either the distal end of the femur or the proximal end of the tibia. Most rigid knees that one does observe are more often the result of extra-articular adhesions and contractures than intra-articular infection.

Surgeons must have a thorough knowledge of the anatomic relationship between metaphysis, epiphyseal disk, periosteum and joint capsule in the many regions of the skeleton, since surgical drainage of acute hematogenous osteomyelitis without joint infection should always be made through an extracapsular dissection. The order of frequency of involvement of the metaphyses and juxta-epiphyseal cancellous bone of the growing skeleton is as follows: proximal end of tibia, distal end of femur, distal end of tibia and fibula, proximal end of femur, ilium, proximal end of humerus, distal end of radius, and distal end of humerus. No bone, however, is exempt.

#### CLINICAL PATHOLOGIC FEATURES

The earliest clinical phase of acute hematogenous osteomyelitis is in fact an acute hematogenous metaphysitis, when diagnosis is rarely made and surgical treatment more rarely performed. The incidence of chronic osteomyelitis will be lessened when physicians attack the primary bone infection within the metaphysis before it perforates the metaphyseal cortex and involves, either by direct or by hematogenous spread, the cortex and medullary cavity of the shaft of the affected bone,

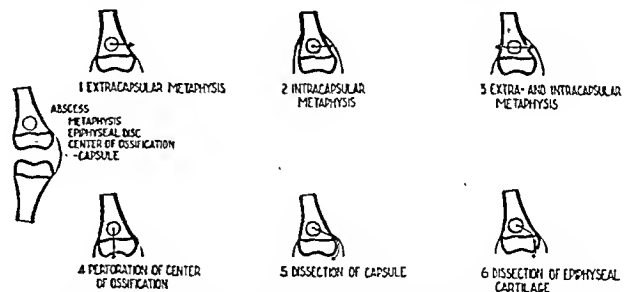


Fig. 3.—Drawings which illustrate the importance of the anatomic relationship of metaphysis, epiphyseal disk and joint capsule in determining joint involvement in acute hematogenous osteomyelitis.

neighboring joint and other regions of the skeletal apparatus. The infection remains localized in the metaphysis or juxta-epiphyseal region for a period of hours or several days, depending on the virulence of the invading organism and the local and general resistance of the patient. It is during this very brief period when the infection is confined to the interior of the metaphysis that diagnosis is essential and metaphyseal drainage imperative if one is to avoid a surgical catastrophe or chronic osteomyelitis with recurrent disability

## CONSTRICTION RING DYSTOCIA

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The clinical importance of intra-uterine rings complicating labor is not sufficiently appreciated. This condition, which causes dystocia, is chiefly functional and has been designated by at least twenty different terms. The assumption that intra-uterine rings are due solely to the contraction ring of Bandl, the contraction ring of Schroeder or the retraction ring of Barbour and Lusk is not tenable, in view of the different uterine levels at which they are found. The designation of this dystocia as a constriction ring dystocia is based on biologic grounds. A review of 350 cases collected from the literature and twenty-one cases in my experience demonstrates that a conservative management with delivery by vagina is the safest for the mother and child.

## THE FORMATION OF INTRA-UTERINE RINGS

The physiologic division of the uterus into an upper and a lower uterine segment was definitely established by the second stage frozen section of Braune<sup>1</sup> in 1872. Bandl<sup>2</sup> emphasized and popularized the occurrence of this ring in labor, with the result that the designation ring of Bandl is used for normal and abnormal labors. Schroeder<sup>3</sup> pointed out the zone of demarcation between the two segments occurring in normal labor and called this zone the "contraction ring." Barbour<sup>4</sup> and Lusk<sup>5</sup> designated the zone of demarcation between the two segments occurring in normal labor the "retraction ring." The criteria of these observers were based on longitudinal changes but no evidence was presented of the property of transverse contraction at any level.

Comparative anatomy and physiology of the lower animals studied by Ivy, Hartman and Koff<sup>6</sup> and Rudolph and Ivy<sup>7</sup> demonstrate the physiologic property of constriction rings or zones having the property of transverse contraction. Bunm<sup>8</sup> has presented a specimen of a postpartum human uterus which shows intra-uterine transverse rings or zones in the upper and lower uterine segment, which resembles the postpartum uterus of the dog.

A ring is not demonstrated by external inspection in cesarean sections but is found only after the hysterotomy when difficulty is encountered in attempting to extract the fetus from the uterine cavity. The ring is found behind the symphysis pubis and below the firm attachment of the peritoneum on the anterior uterine wall. Gilliat<sup>9</sup> reported fourteen cesarean sections for

intra-uterine rings in which the constriction ring was found to be about 1 inch (2.5 cm.) below the physiologic retraction ring.

Clinical experience demonstrates that the majority of intra-uterine rings are located behind the symphysis pubis. In my experience I have found the intra-uterine rings to be located behind the symphysis pubis and about 7 or 8 cm. above the external os. That intra-uterine rings are at or near the internal os is the opinion of Duncan,<sup>10</sup> Kehrer,<sup>11</sup> Veit,<sup>12</sup> Berkeley,<sup>13</sup> Polak<sup>14</sup> and Barbour.<sup>15</sup>

For this discussion, I shall assume, first, that the physiologic retraction ring at the onset of labor is found at the level of the superior border of the symphysis pubis, where I have observed it during the performance of elective cesarean section and where it has been observed by Smyly,<sup>16</sup> Lahs<sup>17</sup> and Reynolds<sup>18</sup> and, second, at the onset of and during the normal second stage of labor the physiologic retraction ring rises, so that it is from 6 to 8 cm. above the symphysis pubis.

It should also be pointed out, before discussing the location of the ring, that comparative physiology demonstrates that the fundal ring in the dog and sheep has the property of contraction and relaxation. The constriction rings or zones in the dog and rabbit have the property of contraction and relaxation. The physiologic retraction ring in the monkey has the property of contraction and relaxation. The fundal ring of the nongravid horn of the cow and sheep relaxes after the expulsion of the products of conception, and in the gravid horn the fundal ring reappears with labor and the musculature undergoes retraction.

## LOCATION OF THE CONSTRICTION RING

The site of the constriction ring as related to the symphysis pubis is shown in table 1. Since in 75 per cent of the cases the ring is behind the symphysis pubis, from the foregoing data it must be assumed that the physiologic retraction ring is not the site involved.

TABLE 1.—Location of the Constriction Ring

A. Palpable internally in 248, or 91%
1. Around the fetal neck, behind the symphysis pubis, in 186, or 75%
2. Around the body of the fetus, above the symphysis pubis, in 39, or 14%
3. Forelying (in front of the presenting part) behind the symphysis pubis, in 23, or 9%
B. Palpable externally in 24, or 9 per cent

The confusion concerning terminology, especially of the junction between the upper and the lower uterine segments, will be briefly discussed.

1. *The Physiologic Retraction Ring.*—Since the junction between the two uterine segments is due to physiologic changes, it would be best to designate it as the "physiologic retraction ring," because the ring of Bandl was based on the frozen section of Braune, which was due to mechanical dystocia.

2. *Abnormal.*—(a) "The pathologic retraction ring" is the result of mechanical dystocia and an exaggera-

Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the author's reprints.

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

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exit from the metaphysis near the epiphyseal disk where the cortex is paper thin. This teaching is extremely important in view of the fact that older textbooks state that the infection usually spreads directly into the medullary cavity of the main shaft. The infection may spread either directly or by way of the blood stream into the haversian canals and medullary cavity or it may pass directly through the epiphysis into the neighboring joint. Spread of the infection to the joint may also result from dissection of the capsule or articular cartilage (fig. 3). If the abscess perforates the metaphyseal cortex into the subperiosteal space, further spread of infection is largely determined by the relationship of the metaphysis to the attachment of joint capsule and periosteum (fig. 2). Most metaphyses are extracapsular and therefore the spread of infection is subperiosteal along the diaphysis or shaft. The periosteum may be stripped from epiphyseal disk to epiphyseal disk, so that the entire shaft may be infected by way of numerous periosteal vessels through the haversian system. Multiple small areas of bone necrosis may develop and this accounts for the "spotty" appearance of radiographic studies of chronic osteomyelitis. The proximal femoral metaphysis is of special interest, since it is completely intracapsular. Perforation of its cortex, as previously explained, invariably involves the hip joint.

The abscess may dissect the periosteum varying distances along the shaft and rupture through the periosteum into intermuscular planes and subcutaneous tissue and finally point beneath the integument. The subcutaneous abscess may be over the middle of the shaft of the bone, but the source of the abscess is the affected metaphysis.

#### TREATMENT

The treatment of acute hematogenous osteomyelitis includes a conservative surgical program following the principles laid down by Starr. Adequate attention to the general state and dehydration of the patient are also primary considerations. Children with acute hematogenous osteomyelitis should be divided into two groups. The division depends on whether or not the abscess has perforated the cortex of the infected metaphysis. In the first group the infection is confined within the metaphysis and the infection has not penetrated its thin wall or cortex. Therefore a subperiosteal abscess will not be encountered at the time of surgical exposure of the metaphysis. This phase is present during the first twenty-four, thirty-six or forty-eight hours of the clinical manifestations of the disease. It is this phase which I have described as acute hematogenous metaphysitis when diagnosis is rarely made and surgical drainage more rarely provided. The infection has not yet spread beyond the metaphysis, and adequate surgical treatment may prevent extensive involvement of the main shaft with necrosis and sequestration of bone. It is during this phase that the physician has an opportunity to influence appreciably the prognosis as to both mortality and morbidity.

Through a small incision the surgeon exposes the affected metaphysis and not the main shaft. The incision should be made directly over that portion of the metaphysis which was extremely tender. The cortex of the metaphysis is exposed subperiosteally. The periosteum should not be elevated except in the region of the metaphysis which is to be decompressed. Several drill holes are then made directly into the cancellous bone of the metaphysis, or a window about a half-inch by 1 inch is removed from the metaphyseal cortex in the

juxta-epiphyseal region. The cancellous bone of the metaphysis should not be curetted. If pus is encountered, a specimen should be sent to the laboratory for bacterial cultures. If pus is not found, a culture should be taken of a small portion of the cancellous bone. The wound is lightly packed with petrolatum gauze according to the Orr method and then covered with sterile dressings and sheet wadding. A plaster-of-paris cast is properly applied for the dual purpose of physiologic rest and the prevention of deformity of the affected extremity.

As the metaphyseal abscess develops it will drain through the surgical openings or window into the overlying dressings instead of taking a subperiosteal course with spread of the infection to the main shaft and medullary cavity.

One should not anticipate a dramatic ending of the clinical signs and symptoms of the acute infection following operation. The bone involvement is only a localized manifestation of a general blood stream infection. The clinical course will usually continue as a severe general infection until the defensive mechanisms of the body begin to gain control. Continuation of the signs of a general infection postoperatively should not be interpreted as spread of the skeletal infection if the original surgical drainage was properly performed. However, the extremity should be vigilantly observed for swelling, redness, edema, pain and tenderness, which are clinical manifestations of spread of infection. During this critical period the patient needs rest and fluids in order to combat the problem of dehydration. Other bone lesions may develop subsequent to the primary one. They cause less acute reactions; however, they should be dealt with in the same manner as the original bone focus.

Although the clinical course of the acute infection is not appreciably shortened by this program of therapy, there is no doubt that the skeletal involvement and morbidity are greatly reduced.

In the second stage of the acute phase of hematogenous osteomyelitis the infection has perforated the cortex of the metaphysis and spread subperiosteally along the shaft of the affected bone or directly within the neighboring joint. There is a definite change in the clinical manifestations after the metaphyseal abscess perforates the juxta-epiphyseal cortex. Pain and tenderness are no longer localized to the region of the primary bone focus in the metaphysis but extend over a greater area corresponding to the spread of infection. Swelling, redness and edema are now present. The contour of the extremity is no longer normal as it was before perforation. It is during this critical period that the disease is generally recognized and treated. The treatment is not only delayed but often is too radical. It is in this group of patients that dehydration is pronounced. The local bone and joint infection should not be considered the major issue until measures have been instituted to improve the general resistance of the patient and to restore body fluids. Generous quantities of physiologic solution of sodium chloride, 5 per cent dextrose, multiple blood transfusions and immune serum may be indicated.

A subcutaneous or subperiosteal abscess is present. The abscess may extend the entire length of the diaphysis. The bone is stripped of its periosteum and may appear "dead" although radiographic studies of the entire bone are negative for any evidence of infection.

It is certain that the abscess should be completely incised and drained. It is also just as certain that the



of the number of hours of labor, unless the labor is otherwise complicated. When the constriction ring relaxes, or rather the uterus begins to function normally, the normal physiology of the uterus effects a normal mechanism of labor (fig. 7).

#### DIAGNOSIS

In the presence of prolonged labor and in the absence of other causes of prolonged labor, my experience has caused me to make a speculative or an absolute diagnosis of a constriction dystocia. I consider the speculative diagnosis in all cases of prolonged labor. The absolute diagnosis can be made only by an intra-uterine examination and palpation of the constriction ring.

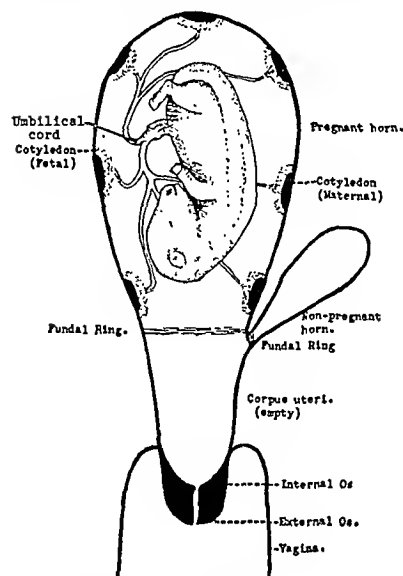


Fig. 3.—Early pregnant uterus of the Ungulata (cow).

This may account for the fact that I have observed or absolutely diagnosed only twenty-one cases of constriction ring dystocia.

My criterion for a constriction ring dystocia is a prolonged labor with a

normal cephalopelvic relation, position and presentation in either the first or the second stage of labor, other possibilities being ruled out. The diagnosis of cephalopelvic relation, position and presentation should be made during the antepartum supervision and confirmed as soon as possible after the onset of labor in order to be prepared to manage a mechanical dystocia.

The diagnosis consists in the evaluation of the following observations:

1. Labor is prolonged.
2. The uterine contractions vary in frequency, intensity and duration. The uterus may manifest tetany of the upper and the lower uterine segment, or tetany in the upper uterine segment and atonia in the lower uterine segment during the first or the second stage of labor. In such instances a speculative or an absolute diagnosis of constriction ring dystocia will prevent hasty intervention.
3. No change in the station of the presenting part, associated with a looseness of the fetal head in the pelvic cavity during the second stage of labor, has been pathognomonic in my experience.
4. There is laxity of the cervix during a uterine contraction. The laxity of the cervix and the lower pole of the uterus is very characteristic, and at times pathognomonic, of a complicating constriction ring dystocia. During a uterine contraction the external os does not contract or become tense as during a normal uterine contraction. When a constriction ring is manifested during a prolonged labor with a persisting cervical dilatation of from 7 to 8 cm. and when an intra-uterine examination is made, it is noted that the hand can be easily passed through the external os during a uterine

contraction. This phenomenon I have found present in all my cases during the first stage of labor.

During a uterine contraction, intra-uterine palpation demonstrates a flaccidity of the lower pole of the uterus, which coincides with the relative atonic stage of the cervix. When a constriction ring is located about the fetal neck, I have found the uterine wall from the constriction ring to the external os to be relatively atonic in either the first or the second stage of labor.

5. Exhaustion is frequently stressed as a complication of prolonged labor. I am firmly convinced that exhaustion is most often due to improper management of the parturient. If the parturient is properly managed, exhaustion will not be a factor of much account in either the morbidity or the mortality of the mother. I believe that puerperal sepsis and shock are much more likely to occur if the parturient patient is permitted to become exhausted by improper management.

#### PROGNOSIS

A review of the collected cases demonstrates the seriousness of a constriction ring dystocia. The maternal mortality of the 371 cases is fifty-four deaths, or 15 per cent. The causes of the deaths are given in table 2.

The fetal mortality of the 378 children is 172 deaths, or 46 per cent. In view of the operative difficulties of those who survived, one may speculate on the number of permanent disabilities.

In reviewing the 371 cases, it is noted that in 25 per cent of the cases intervention was done during the first stage of labor. It is also noted that in 154 cases, or 42 per cent, the primary obstetric procedure ended in failure and had to be terminated by some other

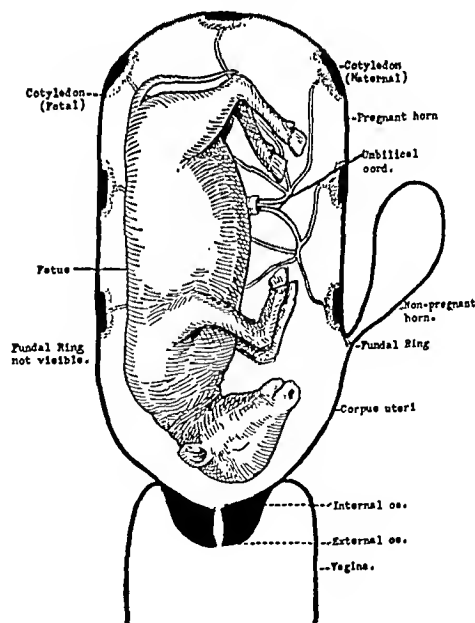
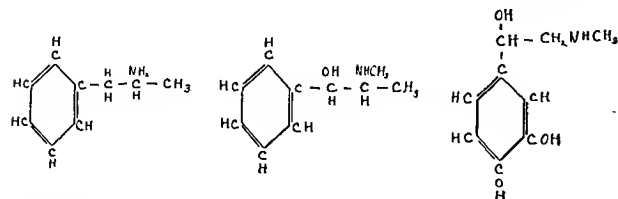


Fig. 4.—Late pregnant uterus of the Ungulata (cow).

obstetric procedure (table 3). A review of table 3 conclusively demonstrates the result of hasty intervention in both the first and the second stage of labor. I have no doubt that a proper evaluation of this obstetric complication, if managed by the conservative method, would have markedly decreased the maternal and fetal mortality.

In the 371 cases reported, operative procedures were resorted to in 97 per cent. A statistical study of the

the central nervous system. This has been termed the central effect in distinction to the peripheral sympathomimetic action. The exact site of this action is not at present clearly understood. Ephedrine shows this effect in that moderate doses may be followed by nervousness, tremor, nausea, sweating and insomnia. Experimentally it was shown as early as 1913<sup>3</sup> that narcotized animals may be awakened by ephedrine, and this drug has been



The chemical structure of epinephrine, ephedrine and beta-aminopropylbenzene (benzedrine).

used in patients as an antidote for narcotic drugs.<sup>4</sup> Schmidt<sup>5</sup> has demonstrated a stimulation of the respiratory center. The central action of ephedrine results in unpleasant side effects when the peripheral response is desirable. The central stimulating action has been utilized therapeutically in the treatment of narcolepsy and good results have been reported.<sup>6</sup>

Alles<sup>7</sup> noted that beta-aminopropylbenzene possessed a powerful central action with a comparatively weak peripheral effect. Prinzmetal and Bloomberg<sup>8</sup> found that beta-aminopropylbenzene was approximately three times as effective in narcolepsy as ephedrine. Their observations have been confirmed more recently.<sup>9</sup> In two patients suffering from typical narcolepsy, treated over a period of four months, I have observed similar remarkable therapeutic results. Typical narcolepsy is encountered infrequently, but symptoms of a milder degree simulating those of narcolepsy are commonly observed. The two chief features of narcolepsy are (1) attacks of somnolence and (2) paroxysms of extreme weakness and helplessness (cataplexy). The true nature of a narcolepsy is uncertain, but it has been suggested that this condition merely represents an exaggerated state of drowsiness and exhaustion, complaints that are encountered daily by the physician. Daniels<sup>10</sup> in his discussion of the nature of narcolepsy suggests that "the symptoms of narcolepsy represent little more than gross exaggerations of normal weaknesses of the flesh. Diurnal drowsiness is obviously a common failing and many of us are aware of relaxation of certain parts or experience difficulty in bringing certain muscles into play under conditions of emotional stress."

The effectiveness of beta-aminopropylbenzene in narcolepsy suggested a trial of the drug in patients who complained of exhaustion and who tired easily. Beta-

aminopropylbenzene sulfate was administered to forty such patients. Most of these patients did not suffer from organic disease and could be included under the diagnosis of nervous exhaustion. Focal infection was present in some instances and in other cases the exhaustion followed an infection. The drug was administered in tablets containing 10 mg. Most of the patients received a daily dose of 20 mg., one tablet before breakfast and another before the noon meal. In patients in whom fatigue was most evident late in the day, a single dose of 10 or 20 mg. was given about 11 o'clock in the morning. The drug was used for periods varying from a week to three months. With but few exceptions, a rather striking physical and mental reaction was noted.

#### EFFECT ON FATIGUE

In approximately 80 per cent of the patients there was a marked amelioration of this symptom. Many of the patients had complained of fatigue for long periods and had tried various types of treatment without benefit. In four instances the state of exhaustion was associated with a low metabolic rate. Although thyroid extract had been used with little effect, each of these patients stated that the sense of general fatigue and sluggishness was almost completely eliminated by the beta-aminopropylbenzene sulfate.

Four patients complained of migraine attacks when they became especially tired. Amelioration of the fatigue by beta-aminopropylbenzene sulfate appeared definitely to lessen the frequency of the migraine attacks. In one patient, an interval of dizziness constantly preceded the onset of the migraine. She has been able to prevent the headaches repeatedly by taking one tablet of beta-aminopropylbenzene sulfate in the prodromal stage.

#### MENTAL EFFECTS

A sense of increased energy and capacity for work was noted in more than half of the cases. In addition, a feeling of exhilaration and sense of well being was a consistent effect. This followed repeatedly after the ingestion of the drug. In a few patients there was a secondary depression following the initial stimulation. Many patients volunteered that there had been a definite increase in mental activity and efficiency. Another striking reaction was a tendency to loquaciousness. This was very marked in many instances and was noted both by the patients and by those about them.

#### EFFECT ON WEIGHT

Ten patients noticed a marked loss of appetite and with this a definite reduction in weight. Two patients stated that they had lost their craving for sweets. The loss of weight varied from 7 to 20 pounds (3.2 to 9 Kg.). The most marked loss in weight occurred in a patient with narcolepsy who lost 20 pounds in a period of two months. After the initial loss, in each instance the weight remained stationary with the continued use of the drug. A study of the basal metabolism in two patients who had lost weight indicated that the loss of weight was not due to an increase in the basal metabolic rate. The loss of weight can probably be explained by the lessened appetite and increased physical activity.

#### UNPLEASANT REACTIONS

Unpleasant effects were observed by a relatively small number of patients. Dryness of the mouth, disturbed sleep, transitory tremor of the hands, sweating and palpitation were noted. The unfavorable reactions were

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5. Schmidt, C. F.: The Action of Adrenalin on the Respiratory Center, with Remarks on the Treatment of Severe Respiratory Depression, J. Pharmacol. & Exper. Therap. 35: 297 (March) 1929.

6. Janota, O.: Symptomatische Behandlung der pathologischen Schlafsucht, besonders der Narcolepsie, Med. Klin. 27: 278 (Feb. 20) 1931.

Doyle, J. B., and Daniels, L. E.: Symptomatic Treatment for Narcolepsy, J. A. M. A. 96: 1370 (April 25) 1931.

7. Alles, G. A.: Personal communication to the author.

8. Prinzmetal, Myron, and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, J. A. M. A. 105: 2051 (Dec. 21) 1935.

9. Ulrich, H.; Trapp, C. E., and Vidgoff: The Treatment of Narcolepsy with Benzedrine Sulfate, Ann. Int. Med. 9: 1213 (March) 1936.

10. Daniels, L. E.: Narcolepsy, Medicine 13: 1 (Feb.) 1934.

sistency 5 or 6 cm. above the external os and the presenting part above the ring, which was behind the symphysis pubis. There was no vaginal bleeding. The membranes were intact.

At 9 p. m. rectal examination showed that the presenting part was floating. Ten minims of epinephrine was given, followed in one hour by morphine and scopolamine. The routine medical regimen was given for exhaustion.

March 18, at 4 a. m., there was spontaneous delivery of an eight months' living child.

The postpartum course was normal and the mother and child were discharged on the tenth postpartum day.

#### TREATMENT

The management of constriction ring dystocia is that of a prolonged labor. The basic principle is to maintain the parturient patient's mental and physical condition in order to prevent exhaustion as a complication in the first stage and to permit art to assist the parturient in the second stage, if necessary.

*The First Stage of Labor.*—The treatment may be termed "intelligent expectancy" (De Lee). The labor is considered to be prolonged at eighteen hours after the onset of labor when the state of the cervix gives one the impression that the first stage will be prolonged; the state of exhaustion must be anticipated and the treatment instituted to prevent exhaustion.

*The Medical Regimen for Exhaustion.*—At the end of eighteen hours the urine is tested for acetone, the test being repeated every twelve hours. The diet, soft or liquid, should consist of 3,000 calories of food rich in carbohydrates, and 2,000 cc. of water for each twenty-four hours of the labor. The patient should be fed every three or four hours. With persuasion she will cooperate. She should receive sufficient sedatives to ensure adequate rest or sleep. This management will prevent exhaustion as a complication of a prolonged labor. A negative acetone test throughout a prolonged labor should be the criterion for the proper management.

The parturient is conservatively managed until the second stage is reached, which may require from twenty-four to 100 hours. However, one must be continuously alert and diagnose any complication that may endanger the mother or child. The complication determines the indication for change in management.

A review of reported cases shows that in eighty-one, or 25 per cent, intervention was done during the first stage, with a maternal mortality of ten, or 13 per cent, and a fetal mortality of forty-four, or 56 per cent. These figures speak against operative intervention in the first stage. Dührssen's incision is condemned in this complication, as it is the constriction ring and not the cervix that is obstructing the descent of the fetus.

*The Second Stage of Labor.*—When the second stage is complicated by a constriction ring, intervention should not be gaged by the number of hours but rather on the condition of the parturient or the fetus for the indication.<sup>24</sup> There is no evidence showing that the uterus will rupture spontaneously, irrespective of the number of hours in labor.

When to resort to operative intervention in prolonged labor depends on the conditions governing the indication rather than on the time element of the second stage. When the functional dystocia in the second stage is manifested by inertia uteri, operative intervention at the end of two or more hours yields excellent results; but when a constriction ring dystocia is diagnosed, operative intervention must be very carefully weighed before proceeding.

The conservative management of a constriction ring dystocia will be illustrated by citing two cases, in which a speculative diagnosis was made during the first stage and an absolute diagnosis was made during the second stage. In the first case, after two hours in the second stage a trial of delivery with the forceps was made, but when too much resistance was encountered the forceps was removed. An intra-uterine examination disclosed a constriction ring around the fetal neck from 7 to 8 cm. above the external os. The patient was given morphine and scopolamine, as indicated, and after twenty-four hours in the second stage a spontaneous delivery of a living child was obtained with no morbidity to the mother during her postpartum period. In the second case an absolute diagnosis was made after two hours in the second stage. Morphine and scopolamine were given as indicated. At the end of eighteen hours the fetal head had descended from plus one to plus three, where it remained for one hour. Then the labor was easily terminated by low forceps with a living child and no maternal morbidity.

If the constriction ring does not relax on waiting or on giving morphine and scopolamine, other pharmacologic agents are resorted to.

Anesthesia is a fundamental requirement in all operative procedures and should give the greatest degree of relaxation of the constriction ring. The usual anesthetic agent is ether, although I prefer chloroform if it can be properly and safely administered. It should be administered to the point of deep surgical anesthesia and at times fairly well prolonged in order to secure the maximal effect on the constriction ring. Ethylene, nitrous oxide and oxygen from my experience do not appear to be favorable for the relaxation of the constriction ring. Atropine and cocaine have been used with no success. Amyl nitrite has been used with some success. The value of epinephrine, as advocated by Rucker,<sup>25</sup> has been demonstrated. Rudolph and Ivy,<sup>1</sup> and Ivy, Hartman and Koff<sup>6</sup> demonstrated that it would even diminish uterine activity initiated with solution of posterior pituitary. I have had some excellent results by its use and some failures. My routine procedure with epinephrine is as follows: Before the subcutaneous injection of epinephrine, the hand is introduced into the uterus, so that the dorsal aspect of some of the fingers is in contact with some portion of the constriction ring. Ten minims of epinephrine is injected. I wait a few minutes to determine the effect on the constriction ring. If no relaxation is evident, I give another injection of 5 minims (0.3 cc.) and wait fully five minutes. If at the end of five or ten minutes I find no evidence of relaxation of the constriction ring, the anesthesia is stopped and the parturient patient is treated by the conservative management. If evidence of relaxation of the constriction ring is obtained, delivery is accomplished either with the forceps or by version and extraction, preferably by forceps.<sup>2</sup>

#### CONCLUSIONS

1. Intra-uterine rings frequently complicate prolonged labors.
2. The intra-uterine rings are found at different uterine levels, so that the designation of contraction of the ring of Bandl, contraction ring dystocia and retraction ring dystocia is not tenable.
3. Constriction ring dystocia is suggested for this complication on biologic grounds.

24. Rudolph, Louis: *Am. J. Obst. & Gynec.* 25: 840 (June 1933).

25. Rucker, M. P.: *Am. J. Obst. & Gynec.* 14: 609 (Nov.) 1927.

the action, but the usual report was that the reaction lasted until the early or latter part of the evening, a period varying from seven to twelve hours.

#### REACTIONS OF CONTROL GROUP

The reactions of the twenty-five subjects who received the lactose tablets were remarkably consistent. Twenty-one, or 84 per cent, reported no reaction of any type. Two subjects stated that they were aware of slightly increased fatigue and one described a fluttery feeling, transient and mild, shortly after the ingestion of the tablets. In one questionnaire, increased energy, lessened fatigue, increased talkativeness and euphoria were indicated as being present in a mild degree, designated as one plus. When the responses of the two groups were compared, it was evident that the questionnaire method was highly reliable for the study of the subjective effects of the drug.

#### COMMENT

The results of this study indicate that beta-aminopropylbenzene (benzedrine) exerts a definite stimulating effect on the higher centers of the central nervous system in most individuals. There is a great variation in the intensity of the response, but in most instances the administration of the drug is followed by a marked lessening of fatigue, an increase in mental and physical activity, and a distinct feeling of exhilaration.

The reactions observed indicate that the drug may have a rather wide therapeutic application but a more prolonged experience is required to determine the exact indications. In patients who become easily fatigued or who are in a chronic state of exhaustion, the drug seems to exert its most favorable effect. This treatment is, of course, symptomatic and should be used only when all physical causes of fatigue have been considered and eliminated. The drug would seem to have its greatest value in the most frequent type of fatigue, that of nervous exhaustion. The symptomatic relief in patients of this type appears to have a decidedly beneficial effect. A limited experience in four patients suffering from mental depression indicates that this condition may also be favorably influenced. From observations in a group of normal individuals, it would appear that a very important purpose which may be served by the drug is the preparation of an individual for situations that require the expenditure of unusual amounts of physical or mental energy.

It is obviously of importance to consider the question of possible harmful effects, including the possibility of habituation and development of a tolerance. A wider and longer experience with the drug is necessary before this question can be definitely settled. The indications from several sources, however, are that the substance is without harm even on prolonged use. This evidence is derived from (1) pharmacologic studies on beta-aminopropylbenzene, (2) clinical observations on the closely related compound ephedrine, and (3) clinical studies with beta-aminopropylbenzene, although the observations have as yet been comparatively limited.

Pharmacologic studies indicate that beta-aminopropylbenzene is of remarkably low toxicity. The minimum lethal dose for the rat is 25 mg. per kilogram of weight, and for the guinea-pig 34 mg. per kilogram of weight.<sup>11</sup> The low toxicity is apparent when one considers that a dose of from 10 to 20 mg. has a definite

effect in most individuals. Investigators agree that the prolonged use of ephedrine, a compound closely related to beta-aminopropylbenzene, does not have any cumulative harmful effects and does not result in habit formation.<sup>4</sup> It will require further investigation to determine whether this applies fully to beta-aminopropylbenzene. Although experience with prolonged use of this substance has been limited, the results up to the present indicate that there are few, if any, harmful effects. One patient, reported by Prinzmetal and Bloomberg, received the drug for fourteen months; no harmful effects are mentioned and the original daily dose of 20 mg. continued to be fully effective. I have observed four patients who have received daily doses of from 20 to 40 mg. for a period of four months. The initial dosage was still effective and, except for a moderate loss of weight, there were no effects that might be considered harmful.

It is well known that drugs of the epinephrine series raise arterial pressure in certain dosage. No such effect was noted in the present studies with beta-aminopropylbenzene. It is apparent that the peripheral effect requires a definitely larger dose than that which produces a central action. This is very desirable, since a sympathomimetic effect over a long period might be distinctly harmful. Epinephrine and ephedrine will induce cardiac irregularities in many individuals, and this increased cardiac excitability is especially dangerous in patients suffering from coronary disease. The development of extrasystoles apparently due to the beta-aminopropylbenzene was observed in only one instance. In four patients who showed ventricular extrasystoles, this drug did not seem to increase the frequency of the ectopic beats.

A definite possibility of a harmful effect exists in that prolonged administration may result in an increased activity and energy expenditure beyond the capacity of some individuals. This is particularly likely since the protective and retarding influence of fatigue is lost.

The judicious administration of the drug should effectively prevent such a harmful action, but it is conceivable that this may occur in patients who are taking the drug without the guidance of a physician.

#### CONCLUSIONS

1. Beta-aminopropylbenzene (benzedrine) produces in most individuals a definite stimulation of the central nervous system in doses which do not result in a peripheral sympathomimetic action.

2. Euphoria, a feeling of exhilaration, lessening of fatigue, an increased energy and capacity for work and talkativeness follow quite regularly the administration of from 10 to 20 mg. of beta-aminopropylbenzene sulfate.

3. Although the drug has its most striking effect in narcolepsy, it acts favorably in states of persistent exhaustion and in individuals who become easily fatigued. The reactions observed indicate that patients who are in a depressed state may be benefited.

4. Studies in normal individuals indicate that benzedrine increases energy and efficiency to a degree that the drug should be of value in the preparation of individuals for activities that require an unusual expenditure of physical and mental energy.

5. The complete indications and contraindications in the use of the drug must await the results of further experience.

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11. Alles, G. A.: The Comparative Physiologic Actions of the D-L-Beta Phenylisopropylamines, *J. Pharmacol. & Exper. Therap.* 47: 339 (March) 1933.

which in the majority of instances is a temporary state. When a prolonged labor is mismanaged by lack of food, water and rest or sleep, increased catabolism of the skeletal musculature with excessive formation of lactic acid takes place. The acidosis present is due to improper management of the parturient, and the uterus per se plays a very minor rôle in the process. Exhaustion during labor must be anticipated and prevented by the medical regimen that I have outlined.

## TULAREMIA

REPORT OF A FULMINANT EPIDEMIC TRANSMITTED  
BY THE DEER FLY

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Tularemia is a disease that does not usually occur in epidemic form. Ordinarily one sees only sporadic cases or at most only a very few cases infected from the same source. But with conditions sufficiently favorable it is a disease that may assume epidemic proportions. This study concerns such a situation, which arose in a Civilian Conservation Corps camp in northern Utah during the summer of 1935.

The history shows that this camp consisted of about 170 enrollees located on the treeless plains north of Great Salt Lake. The men were engaged largely in road construction, and because of the excessive heat many of them worked without shirts or other covering above the waist. July 11 one of the enrollees appeared on sick report with fever, headache, general malaise and enlarged tender lymph nodes in the right supraclavicular area. Approximately twenty-four hours later a punched-out, sloughing ulcer about 1 cm. in diameter developed in the posterior cervical region. A few similar cases appeared during the next ten days, the only variation being in the location of the ulcers, on the neck, shoulders, back, arms or face and in the involvement of the corresponding regional lymph nodes. The cases gradually increased in number until during the eight day period, from July 23 to 30, there were seventeen admissions for the disease. On the latter date movement of the camp to a more favorable location was begun, after which only two additional cases appeared. During the acute stage the patients were hospitalized in local hospitals in Brigham City and Tremonton. It is of interest to note that this is the same Brigham City from which Dr. R. A. Pearse made the first report of human cases of tularemia in a paper read before the Utah State Medical Society in 1910. Following the acute phase of the disease the patients, thirty in all, were assembled and transferred in one group to Letterman General Hospital for further observation and hospital care. After detailed laboratory studies and several weeks of clinical observation, final diagnoses of tularemia were made in twenty-six cases. Another CCC enrollee was in the hospital at the time with tularemia. He had acquired the disease at a camp in Mississippi just before the transfer of his company to California. A young woman, now under observation, apparently acquired the disease a few months ago during a short winter vacation in a tourist camp in the

Sierra Nevada Mountains. The last two cases showed primary lesions near the knee with inguinal adenitis. The offending insects were not identified. Although a total of twenty-eight cases form the basis of this study, the epidemic feature applies only to the disease as it occurred in the Civilian Conservation Corps camp in northern Utah.

Study of these twenty-eight cases showed twenty-seven to be of the ulceroglandular type. One that showed no primary lesion was classified as glandular.

The location of the primary lesions proved to be very interesting. In the ulceroglandular type of tularemia the ulcer usually occurs on the finger or hand where infection occurs through contact with an infected rabbit or other infected material. In this group none had primary lesions on the fingers or hands and only one a lesion on the arm below the elbow. Two patients each had two primary ulcers. A few had one or more secondary lesions appearing near the main primary, apparently caused by killing the offending insect or spreading the infection by scratching soon after the bite. Of the twenty-nine primary lesions, twelve were located on the back, six on the shoulders, five on the arms, three on the legs, two on the neck and one on the chin. The unusual preponderance of initial ulcers on the back and shoulders is explained by the enrollees' habit of working without shirts.

In most cases the primary ulcer appeared from twenty-four to forty-eight hours after the onset of the illness, but in some the ulcer, fever, general malaise and regional lymphadenitis developed simultaneously. The pain and tenderness involved the glands, the periglandular tissues and the intervening regions between the primary lesions and the lymph glands to which they drained.

Their temperature charts showed rather similar curves, usually a high initial rise, above 104 F. in some cases, followed by remissions and less marked secondary and tertiary elevations. The temperature usually remained normal after the third week, though several still showed febrile periods above 102 F. as late as the sixth week. Our most recent case is still in the hospital presenting elevations of temperature of one degree three months after onset.

The patient with no primary lesion had right axillary nonsuppurative adenitis. In one with the inoculation on the leg inguinal and later axillary adenitis developed, all on the same side of the body. Both groups of glands in the latter case eventually broke down and required incision. All other cases showed regional lymphadenitis but in no case was there general glandular involvement. Sometimes two groups of glands showed reactions to a single primary lesion; i. e., the axillary and supraclavicular to a single ulcer on the shoulder. The glands varied in size from that of an almond to that of a small orange. Some of them remained tender and eventually suppurated as late as four months after the onset of the disease. Sixteen of the twenty-eight cases required incision of one or more glands.

Treatment consisted largely of rest, generous feeding, surgical drainage of suppurating glands and general ward care. Five cases were treated with Foshay's serum, 12.5 cc. intravenously on two successive days. Five other cases were treated with 1 per cent mercurochrome in 7.5 per cent dextrose solution intravenously, 5 cc. gradually increased to 10 cc. every other day for five doses, the course being repeated after an interval of ten days. These patients received their serum or mercurochrome during the sixth to the eighth week.

From the Letterman General Hospital.  
The authors are indebted to Dr. Karl F. Meyer, director of the Hooper Foundation for Medical Research of the University of California. He placed the facilities of the foundation at their disposal, contributed freely of his own time to seeing the patients and offered many valuable suggestions in carrying out the study.



tion of the "physiologic retraction ring," which is analogous to the ring of Bandl. This term is preferable because it connotes the physiologic changes in mismanaged cases of mechanical dystocia.

(b) The constriction ring is an annular contraction of the uterus which may occur at any level of the uterus and causes dystocia per se in the presence of normal cephalopelvic relation and position and presentation.

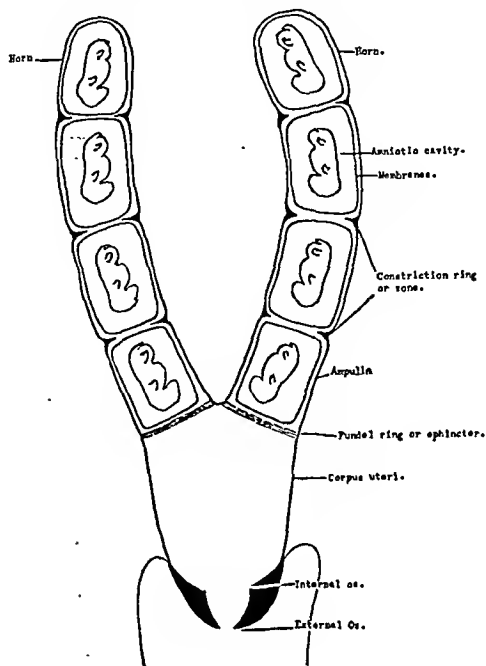


Fig. 1.—Pregnant uterus of the dog (uterus bicornis unicollis).

#### TYPES OF CONSTRICTION RINGS

On the basis of clinical experience and physiologic knowledge, two types of constriction rings may and do occur:

1. A spasmodic reversible constriction ring, which relaxes under the influence of anesthesia or incision, as is frequently observed when cesarean section is performed on these patients or after morphine and rest, after epinephrine or after death.

2. A permanent nonreversible constriction ring, which does not relax under anesthesia or drugs, or even after death, as in the cases reported by White,<sup>19</sup> Phillips,<sup>20</sup> Hannah and Massey,<sup>21</sup> Carson<sup>22</sup> and Michael.<sup>23</sup>

#### ETIOLOGY

A study of the 371 cases relative to age, parity, rupture of the membranes or bags, malposition and malpresentation, and drugs does not present any evidence that these factors played a rôle in the obstetric complication. Intra-uterine manipulations were studied. From the 318 cases reviewed, the stage of labor at which intervention was instituted was first stage in eighty-one, or 25 per cent; second stage in 237, or 75 per cent. It is noted that 25 per cent were interfered with during the first stage for indication to deliver on account of either the mother or the child. After studying these cases it would appear to me that the constriction ring dystocia was present in every instance before the intra-uterine examination.

#### PATHOLOGY

Annular uterine rings are spasmodic and permanent. The spasmodic rings, on account of their temporary nature, cannot be studied histologically. Through the courtesy of White,<sup>19</sup> Phillips<sup>20</sup> and Hannah and Massey,<sup>21</sup> who have sent me a portion of their specimens, I have been able to study these rings, which I will discuss briefly.

The histologic examination demonstrates that the transverse muscle fibers are markedly more numerous and thicker than those found in the control sections. The longitudinal muscle fibers are definitely less numerous and show only a moderate degree of tortuosity; they are not as short and thick as those found in the control sections. These histologic changes are in keeping with the physiologic changes. That a permanent constriction ring is not due to spasm is indicated by the fact that it persisted after death or hysterectomy.

#### MECHANISM OF LABOR

When the constriction ring is in spasm, the movements of the passenger are arrested. The ring causes an incoordination of the uterus in which no change takes place in either the upper or the lower uterine segments. The constriction ring does not rise irrespective of the duration of labor but maintains a stationary position. The more essential points relating to the mechanism of labor, when the ring complicates the first or the second stage of labor, is as follows:

*The First Stage.*—The fetal head may be in an attitude of either flexion or deflexion. Since the movement of descent does not occur during the normal first stage of labor (descent during the first stage is due to the elongation of the lower uterine segment), the station of the fetal head has not the same significance as in the second stage. With a normal cephalopelvic relation the fetal head will be found loose in the pelvic cavity, because the uterine dysfunction caused by the constriction ring prevents the presenting part from coming into firm contact with the lower pole of the uterus for the normal mechanism of labor. Dilatation of the cervix may take place during the first stage of labor at a very slow rate, which is explained on the basis of intermittent relaxation of the constriction ring permitting coordination of the uterus for intermittent uterine changes (fig. 6).

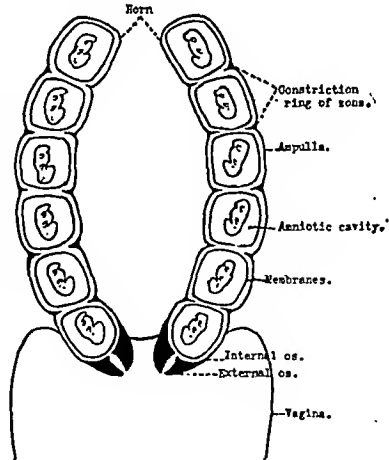


Fig. 2.—Pregnant uterus of the rabbit (uterus didelphys).

*The Second Stage.*—When the constriction ring persists or occurs after complete dilatation of the cervix, the effectiveness of the uterine contractions in causing the important movement of descent is arrested. Of course, the movement of internal rotation does not occur because of the incoordination of the uterus. As previously indicated, the uterus will not spontaneously rupture during the second stage of labor, irrespective

19. White, C.: *Proc. Roy. Soc. Med.* 6: 70, 1912-1913.  
20. Phillips, Miles: *J. Obst. & Gynaec., Brit. Emp.* 41: 497 (June) 1934.  
21. Hannah, C. R., and Massey, W. E.: *Texas State J. Med.* 29: 559 (Jan.) 1934.  
22. Carson, C. S.: *Lancet-Clinic* 101: 34, 1909.  
23. Michael, W. A.: *Am. J. Obst. & Gynec.* 10: 111 (July) 1925.

acquired the disease while enjoying winter sports in the Sierras late in January is not so clear. She became ill the day of her homecoming, developed a typical ulcer on the lateral surface of the right knee with a right inguinal bubo the size of an egg, and had an intermittent fever lasting three months with elevations above 104 F. during the early weeks. Her blood serum shows a strong agglutination of *B. tularensis* in a dilution of 1 to 640. She occasionally eats rabbit flesh, prepared and cooked by a maid. But she had consumed no rabbit flesh for some weeks prior to the onset of her illness. It appears likely that she acquired the disease through the bite of a bedbug or tick in her winter cabin in the Sierras.

## COMMENT

1. The experience recorded shows that under favorable conditions tularemia may assume epidemic proportions.

2. Unless proper precautions are taken, the success of military operations and construction projects in highly infected regions may be jeopardized.

3. Danger of acquiring the disease through contact with the pus from suppurating glands is negligible.

4. Skin sensitivity tests with *B. tularensis* antigen proved to be a valuable diagnostic procedure.

5. Even during the winter months, insect transmission of the infection appears to be possible.

THE INJECTION TREATMENT  
OF HERNIA

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Critical evaluation at this time of the injection method of treating hernia is highly desirable. It is my belief at present that by this means permanent cure can be effected, but only in suitable, selected cases.

The physician is under strong pressure from many sources to employ this form of treatment. Syndicated newspaper articles<sup>1</sup> have appeared instructing the public that the treatment is established, that the physician who does not employ it is backward, and that it is opposed by the orthodox profession because it is new and hence unorthodox. The patient of course seeks to avoid an operation, is ready to refuse surgical advice and is eager to pay much money for any promise of other cure. To illustrate the attitude of the public and not otherwise to be compared, a concern in St. Louis, recently debarred from the mails,<sup>2</sup> had gross receipts up to \$250,000 a year and many testimonials for a rupture cure that was essentially a piece of adhesive plaster and a little ointment to be applied on the skin. The physician for many reasons is impelled to wish for such a nonoperative treatment. A cynical and false one was mentioned by Dr. Carroll,<sup>3</sup> who, in discussing fads before the New York State Medical Society in 1889, said "Just as a man always comes when circumstances arise that demand his services, so fads come when it is necessary for the young practitioner to increase his income."

Pharmaceutical houses, by advertisements in journals, in the mail, and through detail men quote almost

100 per cent cures with the injection treatment, if their formulas are used, with a simple, bloodless, painless, easily learned procedure requiring only a few short office visits, practically no equipment, which does not interfere with the patient's work, eliminates hospital and disability expenses and generally has all the advantages and none of the disadvantages of open operation.

Today, as earlier, reprints of some of the published articles are included in the advertising matter or are referred to as supportive evidence of the scientific status of the treatment and of the solution. Only the trade name of the solution may be mentioned by the author of the article, and the formula even kept secret.<sup>4</sup> Many of the solutions are irrationally complex, if not of uncertain composition.<sup>5</sup>

Historical accounts are included in practically all articles written on the injection treatment of hernia. As a legitimate function, such a historical background serves first to provide a proper approach to the subject under consideration. It may also be of value to lend the weight of authority, of numbers of authors, and of otherwise notable, reputable names of men who have written about the treatment. Such names serve as "character witnesses" for respectability and frequently are included indubitably to influence the reader favorably. On the other hand, historical accounts and bibliographic references as first given by Mayer<sup>6</sup> may be erroneous and misleading, although not necessarily intentionally. Subsequent articles, even in the better journals, indicate simple repetition of references with undue elaboration. For example, Manley<sup>7</sup> who in his book on hernia most conservatively discusses the injection method, becomes one who made further contributions.<sup>8</sup> Marcy,<sup>9</sup> who two years before Manley dealt with the subject in a superior classic monograph on hernia, is referred to but rarely. The frequent mention of Manley by so many writers is apparently due to the reference by Mayer. In the same manner apparently Ripley,<sup>10</sup> who does not even mention the injection method, becomes an author on the subject.<sup>11</sup> Similarly Janney, although quoted by Warren<sup>12</sup> and Mayer, never actually wrote but is frequently referred to as an author.<sup>10</sup>

Velpeau<sup>13</sup> of Paris is mentioned in all such articles as the first to introduce the method in 1837 and, therefore, presumably recommended the treatment. As a matter of fact, Velpeau attempted the procedure in all a total of three times, specifically reported it as only experimental, and immediately abandoned it as a method of cure. Similarly, while it is true that Pancoast,<sup>14</sup> professor of surgery at Jefferson Medical College,

4. Coe, G. D.: Letter to Editor, Office Practitioner, J. D. Albright, 1910. Winters, R. A.: Injection Treatment of Congenital Hernia, Clin. Med. & Surg. 42: 563 (Nov.) 1935.

5. Pine Mestre, Enrique: Las inyecciones proliferantes obturadoras en las hernias, Laboratorio 11: 3719 (Sept.) 1927; abstr. J. A. M. A. 48: 816, 1927 (Edición Español). Fowler, S. W.: Experience with the Injection Treatment of Hernias, M. Rec. 141: 207 (Feb. 20) 1935.

6. Mayer, Ignatz: The Treatment of Hernia by Subcutaneous Injection, M. J. & Rec. 125: 528 (April 20) 1927; 125: 596 (May 4), 672 (May 18) 1927; 128: 415 (Oct. 17) 1928; 129: 71 (Jan. 16) 1929; 131: 90 (Jan. 15) 1930.

7. Manley, T. H.: Hernia, Philadelphia, Medical Press Company, 1893.

8. LaRochelle, F. D.: Treatment of Hernia, Am. J. Surg. 16: 501 (June) 1932.

9. Marcy, H. O.: The Anatomy and Surgical Treatment of Hernia, Boston, D. Appleton & Co., 1892, p. 308.

10. Ripley, C. B.: Splitting the Cord in Indirect Inguinal Hernia, Illinois M. J. 43: 223 (March) 1923.

11. McMillan, W. M., and Cunningham, D. R.: The Injection Treatment of Reducible Hernia, J. A. M. A. 106: 1791 (May) 1936.

12. Warren, J. H.: Hernia, Strangulated and Reducible, Boston, Charles N. Thomas, 1881.

13. Velpeau, Alfred: New Elements of Operative Surgery, Paris, 1839, vol. 3, translated by P. Townsend, New York, S. & W. Wood, 1851.

14. Pancoast, Joseph: A Treatise on Operative Surgery, Philadelphia, Carey and Hart, 1844.

From the Hernia Clinic, Department of Surgery, Michael Reese Hospital.

1. Brady, William: Chicago American, June 14, 1935.

2. Plapao Laboratories, Inc., Bureau of Investigation, J. A. M. A. 106: 557 (Feb. 15) 1936.

3. Carroll, A. L.: Discussion on "A Few Fads," Tr. New York State M. A. 6: 84, 1889.

different operative procedures gives valuable information of the danger of hasty intervention in constriction ring dystocia (table 4). The figures speak for caution in hasty operative intervention.

The recent increase in the performance of cesarean section in general necessitates a careful analysis of the indication of this procedure in this complication. Cesarean section, therefore, based on the speculative diagnosis of a constriction ring dystocia complicating a prolonged labor, would increase the incidence of cesarean section with the high maternal and fetal mortality that recent investigation has disclosed. A study of the statistics demonstrates that cesarean section per se is not the answer for the management of constriction ring dystocia, because in 75 per cent apparently diagnosis was made and intervention done in the second stage of labor when conditions were not favorable. I have not performed a cesarean section in the presence of either a speculative or an absolute diagnosis.

Version and extraction were performed in 142, or 38 per cent, of the reported cases. The results demonstrate the seriousness of this procedure. I have performed two successful versions and extractions in constriction ring dystocia and one in which the patient died from shock. On evaluating the literature and my own experience, and being successful with less radical procedures, I have not employed this procedure since.

TABLE 2.—Causes of Death

	Number	Per Cent
1. Shock and exhaustion.....	28	52
2. Sepsis.....	11	20
3. Ruptured uterus.....	6	11
4. Porro cesarean section.....	5	9
5. Eclampsia.....	2	4
6. Labor pneumonia.....	2	4

I would resort to this procedure only under very exceptional circumstances.

Forceps delivery was the method of choice in 137 cases, or 37 per cent. The results demonstrate the care necessary in evaluating the conditions present, for besides the mortality (table 4) and the failed forceps cases (table 3), a review of the literature on "failed forceps" and my own "failed forceps" cases may explain the cause of my failure.

In the light of my experience I believe that the prognosis for the mother and child can be markedly improved by a conservative management of a prolonged labor complicated by a constriction ring. In some cases failed forceps or contemplated cesarean section was followed by a spontaneous delivery or an easy low forceps operation. I have managed patients with prolonged labor on a speculative diagnosis with gratifying results, which is my practice today. I believe that with a conservative management the maternal mortality should be less than 2 per cent and a fetal mortality of not more than 15 per cent for constriction ring dystocia.

My experience consists of twenty-one cases (ten other cases since the foregoing statistics were compiled) in which an absolute diagnosis of constriction ring dystocia was made during the first and the second stage of labor. The following cases are typical in my experience:

CASE 1.—W. J., a primipara, aged 20, a Negress, whose history was of no importance, had her last menstrual period Nov. 20, 1934, and expected labor Aug. 27, 1935. She entered the Cook County Hospital Sept. 4, 1935, with the onset of labor at 12 a. m.

On examination at 3 a. m. the general condition was good. The cervix was partially effaced and the canal admitted a finger. Station was zero. Uterine contractions were irregular. The fetus was in the right occiput anterior position. Fetal heart tones were 140.

At 2 p. m. cervical dilatation was from 6 to 7 cm. Station was zero. Fetal heart tones were 140 and of good quality. There were uterine contractions every five minutes.

TABLE 3.—Operations Ending in Failure

	Num-ber	Per Cent	Mortality			
			Maternal		Fetal	
			Num-ber	Per Cent	Num-ber	Per Cent
Forceps.....	96	70	26	27	66	69
Version and extraction.....	30	21	10	33	26	87
Manual dilation.....	10	36	2	20	11	36
Craniotomy.....	15	45	8	46	15	..
Embryotomy.....	3	38	2	66	3	..
Total.....	154	42	46	41	121	78

Failure in a primary obstetric procedure in 154 instances, or 42 per cent.

September 6, at 7 a. m., cervical dilatation was from 6 to 7 cm. Station was at zero. Fetal heart tones were 140 and of good quality, with uterine contractions every five minutes. The medical regimen for exhaustion was instituted. The acetone test was negative.

September 7, at 7 a. m., the patient was showing the strain of the labor. A sterile vaginal examination was made: cervical dilatation was 8 cm. The station was plus one. The cervix was thick and loose during a uterine contraction. A large caput was present. Intra-uterine examination revealed a constriction ring around the fetal neck. The patient was given morphine and scopolamine, and intravenous dextrose.

At 7:57 p. m. 10 minims (0.6 cc.) of epinephrine was given subcutaneously. Within a few minutes the fetal head descended to plus three.

At 8:30 p. m. the fetal head began to crown. An episiotomy was followed by a spontaneous delivery of a colored male child weighing 7½ pounds (3,400 Gm.).

At 8:43 p. m. there was a spontaneous delivery of the placenta.

The mother and child were discharged from the hospital, September 16, after a normal postpartum course.

CASE 2.—M. S., a Negress, aged 27, a secundipara, whose history was of no importance, had her last menstrual period June 10, 1934, and expected labor March 17, 1935. She entered the Cook County Hospital March 16, 1935, with onset of labor March 15, at 10 a. m.

The general condition of the patient was good. The temperature was 98.6 F., the pulse 94, and the blood pressure 90

TABLE 4.—Mortality

Operation	Num-ber	Per Cent	Maternal		Fetal	
			Num-ber	Per Cent	Num-ber	Per Cent
Forceps.....	137	37	31	23	62	60
Manual dilation.....	28	8	2	7	13	47
.....	142	38	26	18	61	57
.....	87	23	29	33	27	31
.....	36	41	8	22	5	14
.....	34	40	11	32	12	35
Porro cesarean section.....	17	19	6	35	10	60
Craniotomy.....	33	9	16	49	..	..
Embryotomy.....	8	3	2	25	..	..

systolic, 50 diastolic. The uterus was at term. Fetal heart tones were 146 and of good quality. Cervical dilatation was 6 cm. and the membranes were intact. There was slight vaginal bleeding. The presenting part was floating. There was cephalic presentation.

March 17, at 9 a. m., cervical dilatation was 6 cm. There were irregular uterine contractions. The uterus was in tetany, so a mild premature separation of the placenta was suspected.

At 5:30 p. m. a sterile vaginal examination was made. Cervical dilatation was 8 cm. The cervix was relaxed. Intra-uterine examination showed a thick definite ring of firm con-

Absolute alcohol was the irritant employed, and he stated that vital danger was never present.

Mayer<sup>6</sup> reports that he has observed since 1899 more than 2,100 hernias with 98 per cent cures. Even the 2 per cent of his failures he cures by further injections. He has seen no recurrence of his treated cases for a period of years.

McDonald<sup>22</sup> baldly claims that all reducible hernias in "normally built cases" can be permanently cured and that all ages are amenable.

Pine Mestre<sup>5</sup> recently reported 15,000 cases in which injections were variously made over a period of twenty years with a 98 per cent cure. He states that he closes the inguinal canal in from ten to fifteen days in almost any reducible hernia. There is no mention of follow-up difficulties.

Hall<sup>23</sup> reported one failure, explained as due to lack of cooperation, in thirty-three hernias injected.

Jameson and Cantala,<sup>24</sup> although favorably impressed by Mayer's work, used the Pine Mestre technic and solution in sixty-four cases with daily injections for from twelve to fifteen treatments. Of four recurrences, two were later "relieved" by additional injections.

Gray<sup>25</sup> of England followed Mayer's technic and claimed a 75 per cent cure. He gives no statistical analysis.

Bratrud<sup>26</sup> of the University of Minnesota reported the treatment of 406 hernias in 387 patients. "A very small number of these have been only fitted with trusses because of their advanced age or feebleness. The recurrences are a little less than 4 per cent including indirect and direct inguinal, femoral and epigastric hernias." In only three cases in which there was extreme difficulty in holding the hernia reduced has he been unable to effect a complete closure.

Rice<sup>27</sup> has treated more than 600 cases at the Minneapolis General Hospital without complications. He mentions difficulties in follow up but knows of only two failures.

Larson<sup>28</sup> of the University of Minnesota concludes that injections are suitable for "umbilical, inguinal, femoral, and certain types of postoperative incisional herniae, making up in all at least 90 per cent of these cases which are seen. For the remaining 10 per cent of herniae, injections may be used to supplement surgical repair." He used the phenol, alcohol and thuja solution, averaging eight injections, and reported a 93.5 per cent cure in a total of 137 hernias, including direct and indirect hernias of all sizes occurring in all age groups. Practically the only complication, occurring in 10 per cent of the cases, was effusion into the hernial sac. The swelling subsides in three weeks but frequently necessitates aspiration. He concludes that no harm results from the injections should the method fail to cure.

Quillan<sup>29</sup> reports favorably on the treatment and cured five recurrent, two umbilical and twenty-three indirect inguinal hernias. His only complication was an edema of the scrotum.

Fowler<sup>30</sup> thinks that the claim of 98 per cent cure is reasonable. He has treated 700 cases in five years. He "naturally" assumes that, if patients do not return, their hernias are "gone and forgotten." He treats all types of hernias, using a solution of plant extracts containing tannic and gallic acid irritants of meager description but having its own trade name advertised to the profession. He describes eight cases treated; one patient (case 6) was "diabetic at the outset, but during treatment, weekly tests showed sugar in the urine diminished and disappearing, probably because of a general return of health with the removal of hernial drag."<sup>30</sup>

#### REPORTS OF EXPERIMENTS

Experimental work on this subject that has been reported is inconclusive. The research has successfully demonstrated that the injection of irritating fluids produces scar tissue, but no work has been done to prove that such scar tissue per se cures a hernia. Indeed, the surgeon who takes great care to close an incision by meticulous apposition of the tissue in order to have the least possible production of scar tissue, believes that large scarred areas are particularly prone to post-operative incisional hernia.

Hall<sup>23</sup> reported experiments on animals in which he injected into the abdominal wall a solution of alcoholic tinctures of many plants having a tannic acid composition (Pine Mestre). On histologic examinations, he obtained a proliferation of connective tissue cells with large mononuclear phagocytes and foreign body giant cells as in a foreign body granuloma. He found "regeneration of striated muscle." Hall concluded from his experiments that there is a "formation of adhesions and a connective tissue barrier, thus effectively blocking and obliterating the canal." Wolfe,<sup>31</sup> using the same solution, produced an experimental plastic peritonitis in animals. He states that injection into and around the spermatic cord left the lumen patent, the epithelial lining intact, and perfect preservation of the vas deferens. Bratrud<sup>26</sup> used various solutions in dogs and rabbits and recommended one consisting of the distillate of the tinctures of several herbs, to which is added 0.1 per cent tannic acid and 0.5 per cent thymol. He reports that microscopic sections show a marked proliferation of fibroblasts, with no infiltration of polymorphonuclear cells, giant cells or necrosis. McKinney<sup>32</sup> used experimentally a solution consisting of 50 per cent phenol, 25 per cent alcohol and 25 per cent oil of thuja, and produced young fibrous connective tissue without necrosis, hemorrhage or leukocytic exudation. The fibroblasts penetrated adjoining muscles and appeared firmly attached to them. Rice,<sup>27</sup> also using the latter solution, reports that histologic examination of tissues obtained from patients at operation at various intervals after experimental injections indicated an early reaction consisting of exudation with polymorphonuclear and round cells, with evidence of cellular necrosis. Later, fibroblasts appeared and the polymorphonuclear cells disappeared. Dense adult fibrous tissue was present by the forty-second day.

22. McDonald, G. A.: *M. Council of Philadelphia* 10, 1905; *Illinois M. J.* 48: 399 (Nov.) 1925; *Injection Treatment of Hernia*, Clin. Med. & Surg. 38: 802 (Nov.) 1931; *Treatment of Hernia by Injection or Ambulatory Methods*, Fairfield, Ill., G. A. McDonald, 1932.

23. Hall, J. S.: *The Eradication of Hernia by Injections*, M. J. & Rec. 130: 61 (July 17) 1929.

24. Jameson, F. S.: *Treatment of Hernia by Injection*, Clin. Med. & Surg. 38: 172 (March) 1931; Jameson, F. S., and Cantala, J.: *The Relief of Inguinal Hernia Without Operation*, M. J. & Rec. 131: 87 (Jan. 15) 1930.

25. Gray, St. G. B. D.: *Injection Treatment of Inguinal Hernia*, Brit. M. J. 2: 12 (July 2) 1932; *Proc. Roy. Coll. Med.* 27: 1289 (April 4) 1934.

26. Bratrud, A. F.: *The Ambulatory Treatment of Hernia*, Minnesota Med. 16: 446 (June) 1933; *Journal-Lancet* 53: 673 (Dec. 15) 1933, 54: 337 (June 15) 1934; *Minnesota Med.* 18: 441 (July) 1935; *J. Iowa M. Soc.* 26: 591 (Nov.) 1935; *Indust. Med.* 4: 469 (Sept.) 1935.

27. Rice, C. O.: *The Injection Treatment of Hernia*, Minnesota Med. 17: 248 (May) 1934; *The Rationale of the Injection Treatment of Hernia*, ibid. 18: 623 (Sept.) 1935.

28. Larson, L. M.: *The Injection or Nonoperative Treatment of Hernia*, Minnesota Med. 17: 703 (Dec.) 1934.

29. Quillan, L. J.: *The Injection Treatment of Reducible Hernia*, Internat. J. Med. & Surg. 47: 374 (Oct.) 1934.

30. Fowler, S. W.: *Experience with the Injection Treatment of Hernia*, M. Rec. 141: 207 (Feb. 20) 1935.

31. Wolfe, R.: *The Injection Treatment of Inguinal Hernia*, M. J. & Rec. 133: 243 (March 4) 1931.

32. McKinney, F. S.: *Injection Method in Treatment of Hernia*, Minnesota Med. 16: 447 (June) 1933.

4. The diagnosis is either speculative or absolute.
5. The criterion of an absolute diagnosis consists of a prolonged labor, no change in the station of the presenting part in the second stage of labor, looseness of the fetal head in the pelvic cavity, relaxed cervix during a uterine contraction, and intra-uterine palpation of the constriction ring.
6. The majority of constriction rings are found behind the symphysis pubis and from about 6 to 8 cm. above the external os.
7. In a normal cephalopelvic relation, position and presentation delivery by the vagina is the safest for mother and child.
8. The management of a prolonged labor should consist in the prevention of maternal exhaustion by a sufficient intake of food, water and rest for each twenty-four hours of the labor. A negative acetone is the criterion of a well managed parturient.
9. The conservative management bespeaks no operative intervention until the constriction ring has relaxed, leaving out indications that may point to intervention for either mother or child.
10. A conservative management should result in a maternal mortality of less than 2 per cent and a fetal mortality of less than 15 per cent.<sup>26</sup>

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#### ABSTRACT OF DISCUSSION

DR. M. P. RUCKER, Richmond, Va.: I am in hearty agreement with the author as to the diagnosis. When labor is prolonged and there is no obvious reason for it, a constriction ring is to be suspected. The character of the uterine contractions is characteristic: they are painful and ineffectual, often irregular, and the presenting part does not fill the lower uterine segment even during a contraction. Absolute diagnosis, of course, can be made only with the examining hand in the uterus. In the treatment I have been influenced by the fear that the constriction ring would grow continuously worse, and I have therefore attempted to deliver the patient as soon as I have made the diagnosis. In accomplishing this, the subcutaneous injection of epinephrine has been of great help. Only once has it failed me in relaxing the constriction ring. Of my 112 cases, thirty occurred before I began the use of epinephrine and eighty-two after that time. My own maternal death occurred before the advent of epinephrine. The only Porro section was in a case in which the epinephrine failed me. In the light of Dr. Rudolph's work, this probably should have been treated more conservatively. I have had thirty-one fetal deaths in the whole series, a fetal mortality of 27.7 per cent. In the thirty cases before the epinephrine, there were eleven fetal deaths, or 36 per cent, and in the eighty-two cases after the advent of epinephrine there were twenty fetal deaths, or a mortality of 19 per cent. My largest group, of fifty-three cases with ten fetal deaths and no maternal deaths, approaches Dr. Rudolph's ideal figures for conservative treatment; that is, 2 per cent maternal mortality and 15 per cent fetal mortality. I am of the opinion, therefore, that if the constriction ring relaxes with epinephrine one should deliver that patient in the most conservative manner possible; otherwise one should follow the conservative plan as outlined by Dr. Rudolph.

DR. W. T. PRIDE, Memphis, Tenn.: My terminology is different from Dr. Rudolph's. I tried to establish the fact that there is a difference between a constriction ring and a retraction ring. Some years ago the late Dr. Williams proved conclusively that long muscle fibers from the uterus, when stimulated, would contract at any portion. This proved conclusively that Bandl's ring was a contraction ring and that it can occur at any portion of the uterus. On the other hand, a retraction ring always occurs in the same place, at the junction of the upper and

lower uterine segments, for the reason that these long fibers retract, pulling the short circular fibers, apparently trying to expel the fetus from within. Instead of it occurring at the internal ring, it contracts the circular fibers and pulls them in. It is like closing a tobacco sack; it shuts down around the presenting part. This defines a retraction ring from a contraction and constriction ring, in that the upper portion of the uterus is very tense and not only very tense but painful. A constriction ring, according to my idea, is like a string tied around the middle of the uterus or the lower part of the uterus: it is soft above and soft below. It is a matter of time when relaxation occurs and the patient is in no danger. With a retraction ring one could not expect to relax the upper portion without relaxing the lower; therefore, whenever the tenseness of the uterus disappears, the ring has disappeared. I feel that the maternal death rate has been too high. In a series of 118 cases looked up before the meeting there was no maternal death rate. The fetal death rate was about 12 per cent. I feel that in time this ring and its treatment will be understood. I am having very little trouble with retraction rings because I am giving complete analgesia.

DR. PERCY RUSSELL, Memphis, Tenn.: I agree heartily on the question of diet. However, I insist that the nurses feed these patients every two hours with a liquid diet containing 300 Gm. of carbohydrates, 125 Gm. of proteins and 75 Gm. of fats. The fluid intake is approximately that of Dr. Rudolph's. Most of the nonresident cases that come into the John Gaston Hospital present abnormal presentations or prolonged labors. Often, but not always, do these patients have a retraction ring on admission. I notice in Dr. Rudolph's paper that this possibility should be taken into consideration in antepartum care; I do not believe it necessary if proper management is given during labor. There is one point which I should like to stress and that is the question of lactic acid acidosis. When a muscle is in tetanic contraction, lactic acid accumulates in that muscle. The result is a cramping of that muscle. I try to prevent this lactic acidosis. When a patient comes in with a constriction or retraction ring, as I prefer to call it, she is given either 1 or 2 per cent sodium bicarbonate solution, from 200 to 250 cc., provided she has had no dextrose previously. If that is the case, or, if the patient is given intravenous dextrose or a hypodermoclysis of dextrose solution, she is treated for lactic acidosis with one ampule of Hartmann's solution diluted to 500 cc. For the criterion I do not use an acetone determination on urine. I use the diacetic acid test, as well as the carbon dioxide combining power of the blood. Without fail I have found that within three or four hours a retraction, constriction or contraction ring, as one wishes to call it, will release. The patient will deliver and live. Dr. Pride has mentioned the maternal mortality as nil. The fetal mortality, of course, is greater. The manner of emptying is spontaneous, and seldom is it found necessary to undertake operative procedures, unless there be an abnormal presentation.

DR. LOUIS RUDOLPH, Chicago: Dr. Pride brings up the polemic of the lower uterine segment. The frozen sections of Bumm and Blumreich and of Holland have confused the polemic. It will be essential to study the lower uterine segment on the basis of comparative anatomy and physiology in order to give enlightenment on the location of the physiologic retraction ring at term and at various stages of labor, and its relation to the constriction rings. In some cases reported, I note permanent constriction rings which are not related to the longitudinal muscular changes of the uterus, so that there is no evidence from frozen sections or from living pathologic specimens that the human uterus has the property of transverse contraction, except to correlate comparative anatomy and physiology (particularly of the dog and rabbit) to understand transverse contraction of the human uterus. The biologic basis of this complication as a constriction ring dystocia appears to be sounder than the controversial polemic of the ring of Bandl, constriction ring of Schroeder, or the retraction ring of Barbour and Lusk. Dr. Russell has raised the very important point of lactic acid. I wish to emphasize this point: Constriction ring dystocia occurs early in labor when inanition, dehydration and loss of rest or sleep is not a factor. This complication is rather the underlying cause of the prolonged labor and is due to a pathologic functioning of the uterus,

26. This subject was completely discussed and the treatment recopied from my paper in the *Journal of Obstetrics and Gynecology of the British Empire* 42: 992 (Dec.) 1935.



19 to 25. The autopsy report<sup>37</sup> read: "Upon very careful examination, a minute serous canal, not more than a line in breadth when opened, was traced extending from the internal ring along the spermatic cord into the tunica vaginalis, being the remains of a congenital inguinal hernia."

It is important to remember that the fascia and muscles of the inguinal region in an oblique hernia may be normal and well developed, and there need be no fascial or muscular defect in the early reducible case. Practically, in oblique or indirect inguinal hernia the most essential part of the open operation is closure of the neck of the sac, and simple ligation and removal of the sac give a satisfactorily high percentage of cure.<sup>38</sup>

In a reducible oblique hernia the contents of the sac are reduced into the abdomen; the sac itself is almost never reduced. With a patient in the prone position, or with a truss pad compressing the inguinal canal of a reduced hernia, there is practically no defect, and the walls of the sac are in contact with each other. As the hernia descends, the walls of the canal are pushed apart, forming a functional defect. Therefore, if one can accomplish in these cases the closure of the peritoneal portion of the vaginal process, i. e., obliteration of the hernia sac, cure should result without further ado. With the sac completely emptied, the walls lie in close contact with each other, and they should adhere to each other and thus obliterate the empty sac as such if an irritant is introduced to provide an inflammation or fibroplastic proliferation. This is what is done when a catgut ligature is introduced about the neck of the sac.

The irritant provided may be chemical. The injected solution may be deposited either within the sac or about the sac, usually the latter. In either event an aseptic local peritonitis involving the sac wall is produced. The walls of the emptied sac are kept in constant contact by strong pressure of a truss, which also provides constant pressure on the walls of the inguinal canal. If, throughout the inguinal canal, with the maintenance of such compression, an irritant chemical is introduced, the fibroblastic process described may produce, in addition to the obliteration of the sac, which may suffice for a cure, the binding together of the walls of the canal and also the contents of the canal, into one more or less solid whole. The contents of the canal are chiefly the spermatic cord and its coverings, external and internal spermatic fascia, which are mainly connective tissue. The usual precaution of preliminary aspiration assures avoidance of a blood vessel. Insertion of the needle point or fluid into the vas is productive of exquisite pain and is thus warned against. Scar tissue formation about the vas apparently does not affect the lumen, as any surgeon who has dug a vas out of dense scar tissue of a recurrent hernia may testify. The inner lining of the vas remains, as a rule, uninjured, so that the lumen is preserved.

#### CONCLUSION

The hernia cases for injection treatment must be suitably selected. The most promising results are obtained in patients with oblique hernias which are easily completely reducible and which can be readily kept reduced by a truss. Small recurrent and small direct hernias may be successfully treated. The surrounding tissues must not be atrophic or atonic. It should be pointed out that proper fitting of the truss is of greatest importance. It must feel comfortable and firmly retain

the hernia under all conditions. It is obvious that the pad must fit over the internal ring in oblique hernias, not press on the pubis, and otherwise fit properly.

The technic of injection, adequately described elsewhere,<sup>28</sup> involves an accurate knowledge of the anatomy involved. I experimented with injections of methylene blue in cases prepared for operation and in the first few attempts was astonished at the failure of the injected solutions to be at the expected sites. With experience, the injection at the internal ring may be made quite exact, and such experience should first be gained. The solution used should be one that does not require large doses, preferably not over 0.5 cc., for it is too easy to inject into the peritoneal cavity. Knowing of no better solution at present, I use one of phenol 40 parts, alcohol (95 per cent) 35 parts, oil of thuja 25 parts. The only complication I have encountered has been mild swelling of the scrotal contents, which subsided spontaneously in a few days.

A large number of patients who reject surgery, and who would otherwise go untreated except perhaps for a truss, will submit to the injection treatment. In proper hands, in carefully selected cases, the method is valuable; abuse is extremely easy and can cause general condemnation.

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## GIANTISM

### REPORT OF A CASE

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Of 124 letters and cards requesting reprints of and/or making comments about a recent paper<sup>1</sup> on giantism, seventy-one informed me of a remarkable schoolboy giant at Alton, Ill. This giant has received much newspaper and magazine publicity; my clippings about and photographs of him, over a period of eight years, fill two large scrapbooks. But the popular accounts of his height vary so much in stating his dimensions that their accuracy was questionable. I recorded the following history and measurements at his home, June 2, 1936:

R. W., a white youth, single, aged 18 years 3½ months, is just completing the first semester of his freshman year in college. He is a precromegalic giant, 8 feet 3¼ inches (252 cm.) tall, of phenomenal size, molded on a vast scale, colossal and stupendous in bulk, truly Gargantuan in all his proportions, and symmetrically built. His family home is a small and modest house with ceilings 8½ feet high; he stoops through its doorways and picks his way about among the light fixtures. His oversized armchair and bed have been especially made, but they seem too small for him. He has been bothered much by the curious, who want to see such a freak. His parents have come to resent these intrusions of the inquisitive; they would like to have the lad regarded as an ordinary 18-year-old boy, and physicians and laymen alike find it impossible to do this. Both the giant and his mother are unduly resentful of the fate which has fashioned him on so preposterous a scale. He makes his pocket money by posing for photographs, for which his charges are variable and modest, but certain.

He objects to being measured or to talking about himself and says there is "nothing in it" for him; a lavish and continued expenditure of much cajolery, flattery, servility, wheed-

I am indebted to Drs. David P. Barr and Louis H. Belrens of St. Louis and to Dr. J. E. Walton of Alton for their discussions and suggestions and for their kindness in furnishing me with their data on the Alton giant, whose height exceeds that of every other documented case of giantism on record in medical literature.

1. Humbert, C. D.: A Twenty-Five-Year-Old Error in Measuring a Giant, *J. A. M. A.* 106: 1713 (May 16) 1936.

37. Murray, R. W.: *Hernia*, London, J. & A. Churchill, 1910.

38. Lorthioir, P.: *Inguinal Hernia in Children*, *J. de chir. et anal. Soc. belge de chir.* 33-31:544 (Dec.) 1934.

There was no evidence to show that either type of treatment modified the course of the disease. In view of the excellent results reported by Foshay it is regretted that some of this group were not given the specific antiserum early during the acute stage. Suppurating glands were usually incised only after they showed definite fluctuation. An attempt was made in a few cases to avoid incision by aspirating and washing out with physiologic solution of sodium chloride the large, soft, fluctuating gland masses. It proved successful in three cases but in some instances the procedure was followed by a febrile reaction and even a chill. Two patients whose adenitis persisted for unusually long periods were treated with high voltage roentgen therapy.

The average period of hospitalization for the entire group was ninety-eight days, for the serum treated cases 100 days, and for those treated with mercurochrome 101 days. These periods of hospitalization are considerably longer than one would expect in civil practice, where the matter of expense and the necessity of earning a livelihood would prevent such prolonged hospital care. There were no deaths. All the enrollees, twenty-seven in number, were finally restored to duty. They showed an average gain in weight of  $7\frac{85}{100}$  pounds (3,560 Gm.) while under observation.

The laboratory tests to which they were subjected gave very significant results. Nearly all the patients had three tularensis agglutinations, one in the second or third week, during the acute phase of the infection, a second during the fifth to the eighth week, and a third during the ninth to the eleventh week of the disease. The early agglutinations were done by the macroscopic method, and in only one dilution, 1:40. Notwithstanding this low dilution, some cases, which later showed very strong agglutinations, were negative. Others were feebly to strongly positive. From the fifth to the eighth week complete agglutinations were obtained in every case in dilutions of 1:160 up to 1:1,280, with an average of 1:650. The later agglutinations, i. e., during the ninth to the eleventh week, were usually, though not always, weaker, the average titer in which complete agglutinations were obtained being 1:370.

Melittensis agglutinations and complement fixation tests were also performed. Only two suggestive results were obtained, a moderately strong melittensis agglutination in a dilution of 1:160, with a negative complement fixation test in one patient, and a strongly positive complement fixation test, with a negative agglutination test in another. Neither case gave a history of any previous illness suggesting undulant fever.

Skin sensitivity tests were performed with equally interesting results. One-tenth cubic centimeter of nitrated tularensis antigen, containing approximately ten million organisms, was injected into the skin of the forearm, and the reactions were read after forty-eight hours. Nearly all cases gave strongly positive results, the reactions being considered negative in only three instances. In two of these negative cases the agglutination titer at the time was 1:160; in the third the agglutination was negative.

In discussing the treatment of tularemia, Foshay states that his antiserum has a specific desensitizing effect. In our patients it was found that those treated with Foshay's serum showed more rapid diminution in agglutinative titer and less marked reactions to *Bacterium tularensis* antigen intradermally than those not so treated. Though our results were not striking, they were in line with Foshay's observations.

Because of the characteristic lymph gland involvement found in granuloma inguinale, it appeared possible that some relationship between it and our cases of tularemia with lymphadenitis might be demonstrated. Intradermal tests with Frei antigen prepared from granulomatous lymph glands were done. All the tests were negative, indicating so far as this limited study was concerned no relationship between the two diseases.

Several attempts were made late in the disease, during the sixth to the eighth week, to recover *Bacterium tularensis* from abscessed lymph glands. Pus aspirated with a Luer syringe was injected repeatedly into guinea-pigs. Abscessed lymph glands were emptied by aspiration, gently massaged to break down partially the surrounding abscess wall, again aspirated, and the bloody necrotic material used for cultural experiments and guinea-pig inoculations. And in a further effort to obtain the organism, swollen but nonsuppurating glands were aspirated, and the serum obtained was subjected to similar tests. The results were always negative. They support the clinical observation that there is little danger to the physician who handles such cases.

It appears reasonable to attribute the transmission of the disease in this epidemic to the deer fly. This insect is a proved vector of the disease. Past experience has shown it to be the principal means of transmission in Utah. The patients stated that deer flies had become much more prevalent a week or two before the first enrollee became ill with tularemia. The flies were so numerous that each enrollee suffered not one bite but many bites every day. In many instances hard biting flies were instinctively slapped and crushed on the skin. Jack rabbits were also numerous; many were found dead without evidence of violence and others appeared sluggish and in poor condition. It is significant that nearly all the enrollees infected were young men, working stripped to the waist at some distance from camp, that older, less vigorous men employed in the camp itself as overhead personnel, about thirty-five in number, kept their shirts on, and that of this number who were not continuously out on road and dike work none contracted the disease. In other words the vector was some biting insect that attacked the bare skin of men at work away from camp, where sick rabbits were in evidence and deer flies numerous.

None of the enrollees had eaten rabbit flesh, but thirteen of the victims had killed rabbits or played with dead ones. One enrollee had even removed the ears and had carried them in his pocket for "good luck." Yet not one patient showed a point of infection on the fingers or hands. That ticks were not responsible is shown by the location of nearly all the primary lesions on the uncovered portions of the body, and not on the thighs, perineum or lower part of the abdomen.

Mosquitos were prevalent. A sanitary inspector in a report made early in June commented on the number of mosquitos and stated that mosquito bars, head nets and gloves were all necessary. Had mosquitos been a major factor in transmitting the infection, cases would probably have appeared at an earlier date. The belief that mosquitos were not important as vectors of the disease is in accord with the observations of Philip, Davis and Parker of the United States Public Health Service, who, after conducting a series of careful experiments on the transmission of tularemia by mosquitos at the Rocky Mountain Spotted Fever Laboratory, Hamilton, Mont., reached the conclusion that in nature the mosquito transmission of tularemia is rare. The method of infection of the young woman who

His walk is a slow, laborious, shoulder-hunching shuffle. Like most other giants, he is especially prone to trophic ulcers and indolent infections of the feet, which have caused him much grief. All sensations (touch, pain, temperature) are void and blank below the ankles, and the loss of pain and temperature senses affects also the middle third of the lower legs. There is a loss of temperature sense, too, up to the level of his knees. His own explanation is that his "legs have grown too fast for the nerves to keep up." It is possible to conceive of his diminished sensibility arising from a "standard" number of ordinary pain areas being distributed over a skin with the surface area more than twice the normal in size. He is unaware of a wrinkle in his sock or a foreign body inside his shoe until a blister, followed by an ulcer, is formed, and only then do the general symptoms of a systemic reaction arouse him.

Roentgenograms of the skull show the air spaces of the paranasal sinuses and mastoid cells developed to an unusual size. The sella turcica is very large, and its floor is pierced by a tubular structure (persistent Rathke's pouch) which extends downward and forward through the sphenoid to the posterior wall of the nasopharynx, where an indefinite soft tissue shadow bulges into the lumen. He must have a most extraordinary amount of functioning pituitary tissue. The mental reactions

TABLE 2.—Anthropometric Picture of Giant

	Cm.
Stature (total height, or crown-heel length).....	252
Acromial height.....	217
Height at sternal notch.....	215
Height at xiphoid.....	183
Height at iliac crests.....	157
Height at symphysis.....	133
Height at patella.....	76
Occipitofrontal circumference.....	76
Length of nose.....	8
Breadth of nose.....	5
Neck.....	39
Length of clavicle.....	20
Biacromial width of shoulders.....	51
Height of scapula.....	21
Breadth of scapula.....	18
Upper arm length.....	45
Biceps.....	30
Elbow.....	36
Forearm length.....	39
Wrist.....	25
Hand length.....	30
Hand breadth.....	14
Circumference of chest.....	112
Circumference of waist.....	110
Bi-iliac width.....	39
Thigh.....	60
Length from trochanter to knee.....	74
Calf.....	41
Ankle.....	37
Foot length.....	41
Foot breadth.....	16

suggest involvement of the frontal lobes, and pressure on the pons posteriorly could well account for his loss of sensory perceptions.

The hospital records, 1931-1935, of his blood studies show an average of about 4 million red blood cells, 7,000 white blood cells and 75 per cent hemoglobin; the Kahn and Wassermann tests were negative. Urinalyses have all been negative except for a rather high specific gravity and the presence of acetone during a starvation period in April 1935 (Simmonds' disease?). The blood sugar was 134 mg. June 30, 1932, 89 mg. March 25, 1935, and 112 mg. April 8, 1935. The basal metabolic rate was minus 18 per cent in 1932 and in 1935.

His anthropometric picture is given in table 2. His present weight, he says, is 395 pounds (179 Kg.) in ordinary clothes.

The thick lips, coarse nose, increasing depth of the chin and general enlargement of the soft parts of the face, as noted when earlier photographs are compared, suggest that an acromegaly process is already beginning and can be expected to become prominent in the near future.

Anthropologists have yet to set up a definite height above which a man can with certainty be labeled a giant. A scant 10 inches (25 cm.) added to the crown-heel length of an ordinary 6 footer sets him far apart from the crowd and gets him the attention always bestowed on giants by the public. A 10 gallon hat and a pair of high heeled boots equipped with "lifts," with some 82 or 83 inches (208 or 211 cm.) of height

furnishes the picture of more than half of the giants seen in today's sideshows. It is of interest to read that Phineas T. Barnum, doyen of American showmen, after expressing a doubt that there were any men of 8 foot (244 cm.) stature, carefully instructed a friend who was acting as his agent in hiring a French giant<sup>3</sup> to give the tall man a job only if his height, as measured when the bootless giant lay flat on the floor, exceeded 7 feet 2 inches (218 cm.). Just why the impresario chose that figure is not known; probably a giant of this height had been in his employ previously. This boy at Alton could indulge himself in the luxury of a 13 inch slouch and still get on the payroll of a later-day Barnum.

The height limit of the U. S. Army in World War days was 6 feet 6 inches (198 cm.). Among 3¾ million men between the ages of 18 and 30 (a relatively larger proportion of them between 21 and 30) only seven cases of giantism<sup>4</sup> were found. I have been unable to identify these seven cases, for only a little information about them is to be had from the tedious tables of the work cited. But four of these giants were accepted for full army service, in spite of their disability, so it must be presumed that their heights were not greatly in excess of the army's standard. One of the four was a Negro from the Mississippi River bottoms of rural Arkansas<sup>5</sup> and the other three were white. One of the three came from a rural section in the northern half of Minnesota,<sup>6</sup> where the population was 10 per cent Scandinavian, another came from a rural section in the southern half of Minnesota,<sup>7</sup> where the population was more than 20 per cent German and Austrian, and the last, a native white Southerner, came from eastern Oklahoma<sup>8</sup> where, in a rural district, there was a sparsely settled Indian territory. Perhaps these men became drum majors for army bands. Their roster does not seem to include Homer Parks of Memphis, Tenn., who is still regularly exhibiting as a circus giant under a banner which extols him as being the tallest soldier overseas. He makes an imposing spectacle in American Legion parades.

Of the three men whose giantism was sufficient reason to reject them from army service, one was a white mountaineer in a rural district of eastern Kentucky,<sup>9</sup> a second came from an urban district in section 2 of Louisiana,<sup>10</sup> and the third came from Washington<sup>11</sup>; the exact locale is in doubt, since the earlier references assign him to an urban district, while the later ones place him in a rural section. Tracing these giants must be left to some one who knows the ins and outs of War Department officialdom and the whereabouts of record cards there. I have been told that the statistical cards used in compiling the data were destroyed. The material of the text cited must be incomplete, for I have competent evidence that Bernard Coyne (1897-1921), an undescribed 7 feet 8 inches (234 cm.) giant of the infantilism type who lived on a farm near Oto, Iowa, appeared before the examining board at Des Moines in the draft routine of 1918 and was rejected because of his giantism.

3. The Life of Barnum, Written by Himself, Philadelphia, International Publishing Company, 1891, p. 250.

4. Love, A. G., and Davenport, C. B.: Defects Found in Drafted Men: Statistical Information Compiled from the Draft Records Showing the Physical Condition of the Men Registered and Examined in Pursuance of the Requirements of the Selective-Service Act, Washington, D. C., Government Printing Office, 1920, pp. 81 and 439.

5. Love and Davenport, pp. 444, 1102, 1325 and 1468.

6. Love and Davenport, pp. 448, 1102, 1330 and 1475.

7. Love and Davenport, pp. 448, 1102, 1330 and 1477.

8. Love and Davenport, pp. 451, 1107, 1333, 1472 and 1547.

9. Love and Davenport, pp. 612, 1169, 1328, 1472 and 1552.

10. Love and Davenport, pp. 612, 1035, 1247 and 1328.

11. Love and Davenport, pp. 624, 1043, 1165 and 1251.

reported having eight years previously treated thirteen cases, he also stated that he did not follow the cases longer than a few months, did not deem the method of sufficient importance for special publication, and in a very short time abandoned the treatment. Heaton<sup>15</sup> wrote a book on the injection treatment of hernia. He received European honors, specialized in his own "rupture" hospital in Boston, claimed hundreds of cures, and amassed a fortune. He was in disrepute with the American Medical Association because he kept his treatment secret. His claims were not accepted at the time,<sup>16</sup> and when he finally published his book it revealed unique ideas concerning anatomy and pathology. He was considered a "blatant and notorious charlatan" by Manley, and his only disciple, Warren,<sup>12</sup> admitted exaggerated claims on the part of Heaton. Nevertheless, he apparently did obtain a certain number of cures with his fluidextract of white oak bark. No reputable writer of that time or later accepted his work, although lack of such acceptance by the ethical profession as a whole did not, of course, result in its oblivion. The treatment by injection was taken up by innumerable quacks, and indiscriminate use resulted in deaths.

Reminiscent of the present trend, Warren<sup>12</sup> wrote and talked much in the years 1881 to 1884 and published his first paper within a few months after his first injection, and a book on the subject within a year. Similarly Schwalbe<sup>17</sup> in 1875 in Germany, who had used 70 per cent alcohol as a sclerosing agent, hastened to publish descriptions of his cases, and his first article reports three cures. His second paper cites four cases, two still under treatment. He later reported a large percentage of cures in many more cases. Many single case reports appeared, usually with a change in the chemical employed. Perhaps an extreme instance of the desire simply to innovate and to write is the use, as the injection material, of a *Bacillus pyocyaneus* culture.<sup>18</sup> Enthusiasm flamed and subsided; the articles published remained to be quoted.

#### STATISTICS OF CURE

On the other hand, articles have appeared in the past few years in which are presented thousands of treated cases. The claims are most enthusiastic, frequently without support of statistics. Where the latter are presented, they seem to be, as statistics everywhere, at least often questionable, as regards both the percentage of cases found suitable for treatment and, more important, the percentage of cures.

Contraindications to treatment have been generally agreed to include hernias associated with undescended testicles, irreducible hernias, those which cannot be continuously and perfectly retained by a truss, and sliding hernias. To these should be added other diseases local to the inguinal region, such as lymphadenopathy, and such general constitutional conditions as blood dyscrasias, carcinomatosis, active venereal diseases, obesity and a low intelligence quotient, or psychiatric maladjustment preventing thorough cooperation. The patient must wear a truss kept in an exact position continuously for twenty-four hours a day for a period

of months. He requires as a rule from four to fifteen or more injections and even more clinic visits. If the truss fits properly, the patient is thereby immediately made comfortable, often sufficiently so, in his mind, to render return for injection unnecessary. Finally, I consider as unsuitable for injection, as indicated later, hernias presenting atrophic atonic tissues, and hernias as those in the direct inguinal type in which cure depends on "filling in" a sizable defect. Altogether the foregoing factors are responsible for a high percentage of unsuitable cases, and the percentage of hernias so often reported suitable for injection treatment seems abnormally high.

As to the percentage of cures, follow-up work on ambulant cases of hernia requiring from months to years is difficult and expensive. Special effort and special personnel are required and under the very best circumstances does not reach 100 per cent efficiency. Figures that are offered should be based only on cured cases actually observed for a sufficiently long period. Reports in the literature of up to 100 per cent cure, as will be referred to, do not indicate satisfactory follow-up work. The latter may be rendered difficult by the varied type of patient. The clinic patient may be a confirmed transient, psychopathic, uncooperative alcoholic, or one who for an unknown reason discontinues visits. He may feel sufficiently comfortable after the application of a well fitting truss and a few injections to discontinue his subjection to even the slight unpleasantness of the injection and the wearing of the truss at night. He may become ill from other causes during the long treatment. He may even get a job in the meantime; or the private patient may lose his position or change his physician. Finally, the patient with the recurrence is the most difficult to follow; he often goes elsewhere or loses interest. These are the difficulties with which I have had to contend in my own clinic, and I do not doubt their general applicability. All in all, at the end of a year there is left for analysis a disappointing percentage of the original number treated. This percentage is found still smaller when an attempt is made to trace the cases after two years.

My own clinical experience with the injection treatment extends over a period of two years in connection with a large active hernia clinic and my private practice. Of several hundred hernia cases seen, the number selected as suitable, in which cooperation was actually obtained for treatment and follow up, is as yet too small to submit for statistical analysis. In many cases insufficient time has elapsed for a final estimate. Many clinical cures, by any test, have been obtained; the failures were chiefly in the direct inguinal type.

Heaton claimed 100 per cent cures. Warren never saw a recurrence after he pronounced a case cured! In Switzerland, Steffen<sup>19</sup> reported a 66 per cent cure in 1,372 hernias; Wollerman,<sup>20</sup> a 92 per cent cure in 544 cases. Wyss<sup>21</sup> reviewed 4,632 cases of injection for hernia, of which 3,048 were available for statistical analysis, including 2,775 inguinal and 309 crural, umbilical and ventral. He concluded that cure was obtained in 91 per cent of the cases. Wyss reported complications in 4 per cent, including abscesses, and in two cases of orchitis with atrophy of the testicle.

15. Heaton, George: *The Cure of Rupture*, Boston, H. O. Houghton & Co., 1877.

16. Hayward, George: Report of Committee of the American Medical Association on the Permanent Cure of Reducible Hernia, *Tr. A. M. A.* 5: 237, 259, 1882. Manley, LaRochelle.

17. Schwalbe, C.: *Die Radikalheilung der Hernien*, *Deutsche med. Wchnschr.* 2: 453 (Sept. 23) 1876; *Beiträge zur radicalen Heilung der Hernien*, *ibid.* 3: 541 (Nov. 10) 1877; *Die Radikalheilung der Hernien*, *Allg. med. Centr.-Ztg.* 48: 775, 789 (July 30) 1879.

18. Mallannah, S.: On a Nonoperative Treatment for Hernia, *Indian M. Gaz.* 59: 308 (June) 1934.

19. Steffen, E.: Erfahrungen über die Behandlung der reponiblen Hernien nach Schwalbe (Alkoholinjektionen), *Cor.-Bl. f. Schweiz. Aerzte* 21: 361 (June 15) 1891.

20. Wollerman, T.: Die Ergebnisse der Timmermannschen Injektionsmethode zur Behandlung von Hernien u. s. w. in den Jahren 1891/1904, *Arztl. Rundschau* 24: 221 (May 9) 1908.

21. Wyss, Franz: Die Behandlung der Hernien mit Alkoholinjektionen, *Schweiz. med. Wchnschr.* 59: 85 (Jan. 26), 265 (March 2) 1929.

subsequent treatment with thyroid extract and iodine, if necessary, will be much more easily and pleasantly handled than with attempts at adjustment of the patient by other means to a poorly functioning and most certainly disordered gland containing diseased tissue.

Iodine is the efficient constituent of any of the compounds containing it. There is no particular advantage in any one of them. When it is used in the form of compound solution of iodine we have found orange juice to be the best tolerated of all vehicles. The potassium or sodium salt is equally effective and may be excellently disguised in the new raspberry syrup. These points are mentioned because of their importance to the patients and as an exhibition of elegance in therapeutics.

One of us (Groat) has for many years administered from one third to two thirds grain (0.02 to 0.04 Gm.) of iodized calcium daily whenever thyroid extract is administered. With others, he believes that the action of the extract is improved and its effect smoothed by the coincidental administration of such comparatively small doses of iodine.

We realize that this presents a rather cursory survey of the legitimate uses of iodine in diseases of the thyroid gland. It indicates, however, the need for an understanding of the action of this chemical when its use is contemplated in the treatment of toxic thyroid states.

The statement that it should then be used only in the preparation of the patient for operation, and perhaps postoperatively, is heartily echoed by those who have had to deal surgically with patients who have had temporizing treatment which included the improper administration of iodine.

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## Clinical Notes, Suggestions and New Instruments

### SEQUEL TO TREATMENT WITH PHOTODYN

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An unpleasant sequel to the treatment of a condition of melancholia with hematoporphyrin hydrochloride (Photodyn<sup>1</sup>) has recently come to our attention. This was a severe urticarial response followed by intense pigmentation of the skin resulting from exposure to sunlight two months after the use of the drug. The response appeared in a region corresponding to the probable point of injection of the drug, and its similarity to the effects which we have obtained by injection of this substance into the skin and subsequent exposure to sunlight leaves little doubt as to the cause of the response. Since this drug is being frequently used in the treatment of mental disorders of depressive type, the possible sequelae should be brought to the attention of those who may employ it. We have nothing to say as to the merits of the treatment, on which we have no basis for the formation of an opinion, but we feel that the properties of the substance should be more fully understood.

#### CLINICAL ACCOUNT

Mrs. R. E. S., a white American housewife, aged about 48, consulted us May 23, 1936, because of several pigmented areas on her arms. She stated that these areas appeared Feb. 21, 1936, as angry, pruritic, elevated wheals immediately following her first sunbath of the season. She stated that they began at the sites of injection of "Photodyn," of which drug she had received about eighteen injections between Nov. 15 and Dec. 15, 1935. The first day the three areas were "like hives or insect

bites." The next day the wheal element had disappeared, leaving erythema in its wake. This erythema persisted for two or three days and was followed by brown pigmentation. There was no history of drug ingestion other than the Photodyn.

Inspection revealed a mottled brown pigmented area, 2 inches in diameter, over the insertion of the right deltoid. Near the same area on the left arm were two similar spots each measuring about 1 inch in diameter. None of the lesions were indurated. Pruritus was absent. When seen five months later, the pigmented areas were still present but had faded somewhat.

#### RESPONSE TO INTRADERMAL INJECTION OF PHOTODYN

We have made numerous injections of Photodyn into the skin of normal individuals in the course of investigations of the photosensitizing properties of the porphyrins. The procedure is to inject intradermally a small quantity of Photodyn diluted 1 to 20<sup>2</sup> with salt solution or phosphate buffer. Whealing usually follows the injection, which recedes rapidly leaving a small area at the point of injection slightly colored red by the hematoporphyrin. On exposure to sunlight for several minutes an itching wheal appears over this area, which fades in an hour or so, being followed in a few days by pigmentation, which varies in intensity with the magnitude of the urticarial response evoked. The pigmentation may be very intense and persist for several months. If the injected area is protected from the light, no response is produced.

In one case the sensitivity of the injected area persisted for as long as nine weeks, but we have seen no evidence of sensitivity after this time, and ordinarily there are no further sequelae. However, in one case which had shown no unusual initial response, a long exposure to sunlight on a bright day nine weeks after the date of injection was followed by the appearance of numerous small papulovesicular eruptions at all the points of injection, these being plainly marked by the pigment that had resulted from previous exposure. One of the areas excised and sectioned showed microscopic structure similar to the lesions of hydroa vacciniforme. All the remaining lesions disappeared in the course of two weeks; some of them, however, formed crusts and left tiny scars. In the other individuals injected no such response was observed.

#### COMMENT

The general similarity to results obtained in experimentation leaves little doubt as to the cause of the urticarial response and pigmentation in the case reported, and there is likewise little doubt that such events may be expected if the patient is exposed to intense sunlight within a considerable period after injection of hematoporphyrin. Such a response, when not anticipated by the patient, might produce considerable alarm, as in the present instance, and it seems important to give warning of the possibility of such an event at the time of administering the drug. The appearance of a papulovesicular eruption, such as resulted in the experimental case, might be even more disturbing, and when one realizes the disfigurement caused by the lesions of hydroa vacciniforme which allegedly result from the photosensitizing action of porphyrins, the possibility of such an occurrence should be carefully guarded against.

In this case it seems probable that in the intramuscular injection of the hematoporphyrin some of the substance got into the skin itself and was held there, its presence being made known only on subsequent exposure to sunlight; it is probably impossible to prevent such extravasation into the skin when injections are made. It should be called to attention, however, that sensitization of the skin of the whole body to light may result from the injection of this drug. Meyer-Betz<sup>3</sup> injected 0.2 Gm. into his own vein and produced a sensitivity to light which lasted for two months. While the doses recommended for therapeutic use are much smaller than the dose employed by Meyer-Betz, one must not forget the possibility of a cumulative effect since, as shown, the hematoporphyrin may be held in the skin for a very long time.

Hematoporphyrin belongs to the group of photodynamic dyes of which bengal rose is a member. When living organisms are treated with these dyes and subsequently exposed to light,

2. This solution should contain 0.1 mg. of hematoporphyrin hydrochloride per cubic centimeter.

3. Meyer-Betz, F.: Untersuchungen über die biologische (photodynamische) Wirkung des Hämatoporphyrins und anderer Derivate des Blut- und Gallenfarbstoffs, Deutsches Arch. f. klin. Med. 112: 476, 1913.

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1. This is the name of the commercial product.



Rice points out that the inflammation produced is exudative and proliferative. He believes that the ideal solution should "stimulate the production of fibroblasts whereby the defect can be filled with scar tissue." Rice has more recently favored for clinical use sodium psylliate, a soap of psyllium seed oil. Stoner,<sup>33</sup> in a very recent article, agrees with the foregoing and states that "the primary object of this treatment is to set up an active seroplastic exudation causing but little inflammation, with the formation of firm fibrous connective tissue proliferation filling and obliterating the hernial tract." In his enthusiasm he recklessly claims that "fibrous tissue formation following hernioplasty undoubtedly plays a much more important part in the cure than removal of the sac, replacement of the cord and the suturing process."

I have repeated these experiments on dogs and rabbits. Muscle and fascia were injected with various solutions of increasing strengths including alcohol, tannic acid and phenol. I also performed biopsies during open operations on patients who had sclerosing injections. On the whole, Rice's observations were confirmed. Irritating alcohol and tannic acid solutions produced an exudate consisting of edema, fibrin deposit and the infiltration of polymorphonuclear cells, round cells, hyperemia and thrombosis. Phenol solutions produced in addition areas of necrosis. Later biopsies showed lymphocytes and fibroblastic proliferation in progressively greater abundance. In other words, injected chemical irritants produced an acute inflammatory reaction which was gradually replaced by chronic inflammatory changes, resulting in the production of new fibrous connective tissue. Generally it appears that the more dilute the irritant the less the exudate, and there is instead a fibroplastic response, or fibroplasia, wherein fibroblasts grow with the production of collagen fibrils. As these mature, connective tissue or scar tissue is formed, the end result of inflammation. Systemic damage is not produced; very frequently no evidence of inflammation can be found after late examination of injected tissues, and finally, clinically, an area of induration even of long standing may undergo resolution.

#### EFFECTS OF FORMATION OF SCAR TISSUE

In short, the experimental work that has been done proves essentially that injection of chemicals is able ultimately to produce scar tissue. How does the newly formed scar tissue cure a hernia? All incisions into muscle and fascia, even those with the most accurate apposition, heal with the production of fibroplastic tissue. "The fibroblasts grow from one surface to intermingle with those from the opposite side, producing collagen fibrils which effect a permanent union. . . . Scar tissue is never as resistant to tension as normal tissue and if present in any amount<sup>34</sup> it may prove to be a vulnerable point in any area subjected to pressure or tension. It is desirable, therefore, to have the least possible amount of scar tissue following abdominal incisions, for example, in order to avoid postoperative herniation through the cicatrix."<sup>35</sup>

There is, therefore, an important distinction to be made in the value of scar tissue—a distinction dependent on the width of the fibrous tissue. This may be illustrated in cases of healing by first intention as contrasted to healing by second intention. In the one, the

defect is narrow and fibroblasts therein are firmly embedded in the normal tissues of the wound borders. These cells unite to form a thin scar, which, as the connective tissue cells mature, contracts still more and thus brings the borders even closer. The muscle or aponeurosis so united may have restored to it its physiologic functions, including the function of support. In the second instance there is a tissue defect with more widely separated borders requiring a greater proliferation of scar tissue simply to fill in the defect. The latter is more likely to allow postoperative hernia even with the anatomic filling in of fibrous tissue, which may be especially abundant as following infection and suppuration. The latter complication in a surgically repaired postoperative hernia would be likely to lead to a recurrence.

From this argument it would theoretically appear that hernias having anatomic defects with widely separated aponeuroses, as in postoperative hernia, in diastasis recti, or in most direct inguinal hernias, cannot be cured effectively by filling in these defects with fibrous tissue, as may be produced with injections of irritating fluids. In actual practice such hernias are not permanently cured, and the injection treatment cannot be recommended for these types. The fibrous tissue filling such a defect may serve "to obliterate" and block a hernia better than no tissue at all, but the fact remains that such tissue in large amounts under pressure is likely to stretch and yield relatively easily. Further, such new tissue can add little to support preexisting muscle or fascia already atrophic, stretched or otherwise atonic. Granting, therefore, the effectiveness of the injected solutions in producing new connective tissue, which is all that the experimental work has proved, it is difficult on theoretical grounds at least to conceive of the cure of an incisional hernia of moderate or large size by this means. A direct inguinal hernia is caused by anatomic failure of support to the abdominal contents at the site of Hesselbach's triangle. The defect is not an absence of fibrous connective tissue, for that is always present, and, in fact, the larger and older the hernia, the denser the fibrous tissue.

#### THE SCLEROSING TECHNIC

On the other hand, it is theoretically possible to explain the cure of oblique inguinal and umbilical hernias by the sclerosing technic. Normally the site of the umbilical cord becomes closed concomitantly with the obliteration of the umbilical cord. An umbilical hernia is a defect in the aponeurosis through which a protrusion occurs. If, in infancy, this protrusion is overcome by some method calculated to keep the contents of the sac within the abdomen, e. g., adhesive tape over invaginated skin, the fascia of the aponeurosis will close at a rapid rate. The addition of a chemical irritant will aid fibroblastic growth and closure.

Similarly, in indirect or oblique congenital inguinal hernia there is a defective closure of varying types of the processus vaginalis. The latter may close spontaneously and disappear even after birth. "Keith states that 4.4 per cent of male infants have a hernia in the first year of life, and Bull found that fully two thirds of these disappear either spontaneously or with the aid of a truss."<sup>36</sup> A truss worn for a long period may accomplish such a cure in infancy and even later. Sir Astley Cooper, anatomist and surgeon, requested that at his autopsy his cured oblique inguinal hernia be investigated. He had worn a truss from the ages of

33. Stoner, A. P.: Rôle of Fibrous Tissue in Hernia Repair, *Am. J. Surg.* 33: 68 (July) 1936.

34. Italics not in original.

35. Ravdin, I. S.: The Repair of Tissue, in Christopher, Frederick: A Textbook of Surgery, Philadelphia, W. B. Saunders Company, 1936.

36. Erdman, S.: Hernia, in Christopher: A Textbook of Surgery.

5.4 Gm. of the drug before the appearance of the eruption. There was no history of other idiosyncrasies to drugs or of allergic states. The patient had tolerated the administration of iodine without incident in preparation for the thyroidectomy eight years before.

The patient was fairly well nourished but moderately ill. He weighed 141 pounds (64 Kg.). The pulse rate was 112 beats per minute, the temperature was 100.2 F., and the blood pressure was 180 systolic, 114 diastolic. The heart was moderately enlarged, with accentuation of the second aortic sound; there was an advanced peripheral arteriosclerosis for a man of his years. A small adenoma of the remaining thyroid tissue was also present.

The Kline reaction on the blood was negative. The value for the hemoglobin and the number of erythrocytes in the blood were normal. The leukocytes numbered 10,400 for each cubic centimeter of blood and an eosinophilia of 5 per cent was noted. The urinalysis showed albumin, grade 2 (on the basis of 1 to 4), and 8 erythrocytes for each high power field. A roentgenogram of the thorax revealed slight congestion in both lungs. The electrocardiographic tracings were indicative of hypertensive and coronary heart disease. The readings for the basal metabolic rate were at first elevated but returned to within normal limits after a period of treatment.

Examination of the skin revealed an acute papulo-urticarial eruption, which was widely distributed over the entire body, except the palms and soles. There was no pruritus. The eyelids were slightly edematous and there was moderate conjunctivitis with lacrimation. The pharynx was moderately congested and the uvula was swollen.

The patient was placed in the hospital for a period of three days and was given large amounts of fluid nourishment and mild alkaline diuretics and cathartics. Within a few days the erythematous character of the eruption subsided and a rather marked pigmentation remained at the sites of the original lesions. There was more or less superficial desquamation in the next few weeks.

Patch tests with 1 per cent aqueous solutions of sodium thiosulfate and potassium ferrocyanide and 2 per cent solutions of sodium sulfite and sodium sulfocyanate were applied for two days to the skin of the thigh, but no local reactions could be observed at the end of ten days. The conjunctivitis, pharyngitis and microscopic hematuria gradually disappeared, and the temperature returned to normal.

#### COMMENT

Claude Bernard<sup>8</sup> almost eighty years ago described experiments which showed the toxic manifestations of sulfocyanates. The pharmacologic and toxicologic properties of the drug have been ably reviewed by Nichols.<sup>9</sup> He calculated, on the basis of experiments with guinea-pigs, that the minimal lethal dose for a 154 pound (70 Kg.) man would be about 15 to 30 Gm. However, the tolerance of the individual patient to the drug varies greatly and many patients have tolerated a much larger dosage for a period of time without showing mental, gastro-intestinal or dermatologic manifestations of sulfocyanate intoxication. In thirteen cases reported by Goldring and Chasis,<sup>3</sup> the total dosage varied from 5.8 to 32.5 Gm. and the duration of medication in days also varied from seven to sixty-nine before toxic symptoms of sulfocyanate poisoning became evident. In the two fatal cases observed by these authors, only 9.7 and 14.5 Gm. had been ingested in fifteen days and eighteen days, respectively. The dosage commonly prescribed is from 0.3 to 1.0 Gm. daily for a period not to exceed three weeks. Barker,<sup>10</sup> in his study of the cyanates in the blood of patients who are undergoing treatment with sulfocyanates, recently found that the optimal therapeutic level would seem to range between 8 and 12 mg. for each hundred cubic centimeters of blood and that significant toxicity became evident at from 15 to 30 mg. It would appear that the toxic effects resulting from sulfocyanates are the result of a true idiosyncrasy to the drug rather than to an overdose.

The suggestion has also been made that the drug possibly possesses a cumulative action, as it is very slowly excreted in the urine. Healy<sup>11</sup> has suggested an accumulation of the drug in the adrenal glands.

Sodium sulfocyanate is believed to be less toxic than potassium sulfocyanate or ammonium sulfocyanate, but there is little evidence to support this.

The toxic dermatoses that have been reported following the use of sulfocyanates have been, in general, so briefly described that a satisfactory dermatologic picture of this drug eruption cannot be deduced. They apparently resemble either the toxic erythema seen in acute arsenic poisoning or the papulopustular eruption following iodide therapy. They usually appear within ten days after administration of the drug is begun and disappear rapidly after its cessation, often leaving a pigmentation and exfoliation which persist for only a few weeks. However, it is probable that serious consequences might result if the sulfocyanates are not recognized as the inciting cause and if their administration is not immediately discontinued.

#### SUMMARY

Preparations that contain a sulfocyanate continue to be used widely in the treatment of essential hypertension despite the known toxic manifestations. The dermatoses resulting from the use of this drug have not received the attention in the literature which their frequency deserves. Only nine cases have been reported. A case in which a toxic exanthem and pigmentation resulted from the use of potassium sulfocyanate has been reported.

#### REGIONAL ILEITIS (CROHN)

J. DEWEY BISGARD, M.D., AND J. A. HENSKE, M.D., OMAHA

In 1932 Crohn, Ginzburg and Oppenheimer<sup>1</sup> described a disease entity which they termed regional ileitis and which they brilliantly isolated from a previously confused group of benign inflammatory lesions of the intestine. To this original description little has been added besides confirmatory clinical and pathologic observations.<sup>2</sup> Prior to 1932, descriptions of the disease are to be found only under such general headings as "nonspecific granulomas," "benign granulomas" or "infectious granulomas" in the American literature, and as "inflammatory tumors" or "phlegmons of the intestine" in European literature. In 1933 Harris, Bell and Brunn,<sup>3</sup> and Brown, Bargen and Weber<sup>4</sup> reported cases in which the disease involved portions of the intestine other than the terminal 8 or 10 inches of the ileum; namely, the jejunum, proximal ileum and colon. For the disease therefore they suggest the more inclusive names cicatrizing enteritis<sup>5</sup> and nonspecific regional enteritis.<sup>4</sup>

The etiology of the disease has never been established. Some investigators, notably Felson<sup>6</sup> and Jaffe,<sup>6</sup> have presented evidence to show that the primary lesions are produced by the dysentery bacillus. Felson believes that both regional ileitis and chronic ulcerative colitis have a common etiology and are the

11. Healy, J. C.: Therapeutics and Toxicology of the Sulfocyanates. New England J. Med. 205: 581-583 (Sept. 17) 1931.  
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1. Crohn, B. B.; Ginzburg, Leon, and Oppenheimer, G. D.: Regional Ileitis: A Pathologic and Clinical Entity, J. A. M. A. 99: 1323 (Oct. 15) 1932.

2. Harris, Bell and Brunn.<sup>3</sup> Brown, Bargen and Weber: Chronic Inflammatory Lesions of the Small Intestine (Regional Enteritis), Am. J. Digest. & Nutrition 1: 42 (Sept.) 1934. Mixer, C. G.: Regional Ileitis, Ann. Surg. 102: 674 (Oct.) 1935. Homans, John, and Haas, G. M.: Regional Ileitis, New England J. Med. 209: 1315 (Dec. 28) 1933. Erb, L. H., and Farmer, A. W.: Ileocolitis, Surg., Gynec. & Obst. 61: 6 (July) 1935. Clute, H. M.: Regional Ileitis, S. Clin. North America 13: 561 (June) 1933. Bockus, H. L., and Lee, W. E.: Regional (Terminal) Ileitis, Ann. Surg. 102: 412 (Sept.) 1935. Probst, J. G., and Gruenfeld, G. E.: Acute Regional Ileitis, Ann. Surg. 103: 273 (Feb.) 1935. Crohn, B. B.: The Broadening Conception of Regional Ileitis, Am. J. Digest. Dis. & Nutrition 1: 97 (April) 1934.

3. Harris, F. I.; Bell, G. H., and Brunn, Harold: Chronic Cicatrizing Enteritis, Surg., Gynec. & Obst. 57: 637 (Nov.) 1933.

4. Brown, P. W.; Bargen, J. A., and Weber, H. M.: Regional Enteritis, Proc. Staff Meet., Mayo Clin. 9: 331 (May 30) 1934.

5. Felson, Joseph: (a) New Clinical Concepts of Bacillary Dysentery, Tr. Am. Proct. Soc. 36: 133, 1935; (b) Clinical Notes Concerning Distal Ileitis as a Manifestation of Bacillary Dysentery, Am. J. Digest. Dis. & Nutrition 1: 782 (Jan.) 1935. (c) A Practical Etiological, Pathological and Clinical Consideration of Intestinal Ulceration, Ibid. 1: 297 (July) 1934. (d) Felson, Joseph; Rundlett, Emilie V.; Sullivan, James, and Gorenberg, Harold: Atypical Flexner Dysentery, J. A. M. A. 103: 1035 (Oct. 6) 1934.

6. Jaffe, quoted by Cusliway, B. C.: Illinois M. J. 66: 525 (Dec.) 1934.

8. Bernard, Claude: Leçons sur les effets des substances toxiques et médicamenteuses, Paris, J. B. Baillière et fils, 1857.

9. Nichols, J. B.: The Pharmacologic and Therapeutic Properties of the Sulfocyanates, Am. J. M. Sc. 170: 735-747 (Nov.) 1928.

10. Barker, M. H.: The Blood Cyanates in the Treatment of Hypertension, J. A. M. A. 106: 762-767 (March 7) 1936.

ling and exaggerated politeness, and persistence is necessary to secure any information about him. His expression is surly and indifferent, and he is definitely inattentive, apathetic and disinterested, unfriendly and antagonistic. His frequently voiced complaints are "It's not my fault that I am this way," and "I didn't have anything to do with my getting to be like this." His soured attitude has embittered him very much, and he is introverted and morose, though the newspaper stories, usually quoting his school teachers, say that he is very alert and intelligent. His defective attention and slow responses hold for all sensory stimuli, both familiar and unexpected, but he does manifest a vapid interest in seeing any memoranda made by a questioner. All functions that we attribute to the highest centers in the frontal lobes are languid and blurred. He says that he never has any feelings of vertigo or faintness.

His appetite is enormous, and he eats immoderately, his daily food consumption averaging some 6,000 calories and often running to 8,000. He tires very easily and sleeps much.

He was born in Alton of native American stock. His maternal grandmother was obese and had nephritis. None of his known forebears were of unusual height, and all his immediate relatives are of very ordinary stature. He is the oldest of a family of five children; he has two brothers, aged 14 and 3½ years, and two sisters, aged 16 and 12 years. He was described by Drs. Louis H. Behrens and David P. Barr<sup>2</sup> of St. Louis as of July 1931, when he was 13½ years old, as 221.5 cm. tall and endowed with a superabundance of brute strength, and there is little that can be added to their account of his early history. At birth he weighed 8½ pounds (3,856 Gm.), and his birth was the ordinary uncomplicated delivery of a primipara. At 6 months he weighed 30 pounds (13.6 Kg.), and at 18 months his weight was 67 pounds (30.4 Kg.). At 5 years he was 5 feet 4 inches (163 cm.) tall, and at 8½ years his height equaled his father's. He had a bilateral inguinal herniotomy when he was 2 years old. He had measles and chickenpox in early childhood and whooping cough when he was 11. He has not had scarlet fever and has never experienced any "growing-pains." The history of injuries includes only minor wounds to his feet.

He has been a patient in Barnes Hospital, St. Louis, on four occasions, and his routine records there have been used to supplement my own observations, particularly when his lack of cooperation made laboratory work impossible and some details of his measurements inaccessible:

Oct. 13-23, 1931: Cellulitis of the left foot with incision and drainage by through-and-through drains in the web of the first and second toes: simple anemia.

June 21-July 2, 1932: Old fracture of the second left metatarsal.

Oct. 18-23, 1932: Abscess of the left great toe, with incision, drainage and wet dressings.

March 29-May 4, 1935: Ulcer of the right great toe; epistaxis; sacro-iliac arthritis; cachexia from persistent anorexia and vomiting.

The record of his growth given in table 1 is believed to be reasonably accurate. It has been compiled from several independent sources: the hospital notes (a measurement of his height being necessary for each metabolism determination), the record of measurements kept by his father, the published accounts of newspaper correspondents (with an average deduction of 1¼ inches [32 mm.] for the heels of his shoes, since he was never asked to remove his shoes when he was backed up against sundry walls to have rulers leveled off above his crown), a tailor's specifications and a shoe manufacturer's publicity material, and a long series of photographs the backgrounds of which could be measured and scaled.

It will be noted that this growth curve has been steady and continuous, without noticeable spurts or upsets. One cannot predict when the curve will level off; I think that the lad's height is still actively increasing.

The giant appears to be quite asthenic and more than a little anemic. His musculature is inadequately developed. His general posture is good for his size and weight. His sitting posture is "droopy." His sense of position, for his arms, hands, legs and feet, is very poor. His motor coordination is not good, or else he is unduly sloppy by nature. He is careless in his dress. His handwriting is untidy and poorly legible.

His blond hair is fine and very thick; his skin is fair, cold, moist, elastic and stretched, and very pallid. His eyebrows are thin, and they are not rugged as in acromegaly. He is severely myopic and has a moderate degree of astigmatism, and a divergent squint, which is alternative. He suffered much from headaches before these refractive errors were corrected with glasses. There is no nystagmus. The pupils are round, equal and contract normally to light and slowly to accommodation. The sclerae are clear. There seems to be a slight photophobia, a little drooping of the lids and some lid lag; there is very little contraction of the visual fields. The nose is roughly shaped and rather bulbous, and the nostrils are very large. The nasal septum shows a marked deviation to the right, but the airways are clear. He thinks his sense of smell is normal. His ears share in his gigantic makeup; the pinnae are heavy and flaring. The external auditory canals project themselves upward to an unusual angle into the skull, rather than in the usual course slightly downward and forward. His lips are thick and heavy, and pale. His teeth are very large, regular and evenly spaced and in good condition; the occlusion is good. The palate is unusually high. The tongue is big but not disproportionally so. The tonsils are enlarged and a little injected, without purulent masses. Deglutition seems to be very "violent" and "awkward." His voice is a weak bass, thick, husky and mumbling and comparable to the enunciation of a patient with an acute quinsy. His spine shows only the normal anteroposterior curves, with no lateral deviations. His chest is barrel shaped. The scapular borders are straight, and the curves of the clavicles are straightened out a little from the normal. His heart shares

TABLE 1.—A Record by Years of Giant's Height

Birthday Years	Height, cm.
9	185
10	193
11	201
12	209
13	218
14	225
15	232
16	239
17	245
18	251

in his proportions; the apex beat is somewhat diffuse under the left nipple. There is a reduplication of the pulmonic second sound.

His blood pressure has been about 110 systolic and 80 diastolic for five years. The respiratory rate is 18 and the pulse 70. The abdomen is slightly paunchy, rounded and soft, and its wall is rather fat and "loose." It moves freely, and immensely, with respiration. The scars of the early bilateral inguinal herniotomy are in good condition. There is a nocturia of two or three times. The external genitalia are quite small; both testes are descended. The pubic hair is scanty, and there is no body hair. He has no lymphadenitis. His hands, whose measurements will be given later, are startlingly enormous; the metacarpals are so extremely long that the thumb, to appearances, sits noticeably nearer the wrist than it should. At the knuckles the fingers tend to an ulnar deviation laterally, away from the thumb's side of the hand, to a marked degree. His nails are thin. Roentgenograms of the hands show, despite much tapering of the fingers, an abnormal amount of tufting of the terminal phalanges of all his digits. His fingers are "double jointed," and they curl themselves up in bizarre positions and assume ungainly and gruesome postures. His wrists, knuckles, knees and ankles, without being greatly misshapen, still show that they do not function with complete normality as joints; they are enlarged and awkwardly formed. But in the hasty and riotous overgrowth at the epiphyses it is not strange that nature's architecture goes somewhat awry and that the nearby joint surfaces acquire planes with angulations, in relation to the bony shafts, that deviate a little from the normal. This would explain the vagaries of unexpected and odd "twists" in his wrists, fingers, knees and ankles. These joints appear to be swollen, but they do not pit with pressure. There are pigmented scars on his shins. His feet are disproportionately large and he is very flat footed; his toes are misshapen.

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down to 160 pounds (73 Kg.). From December 1934 to April 1935 there was a further loss of weight down to 125 pounds (57 Kg.).

When first seen there was a granulating wound over the stump of the left great toe 3 cm. in diameter. On the plantar surface of the foot overlying the first metatarsal bone there was a deep incision about 5 cm. long exposing necrotic tendons. The circulation in the upper extremities was normal. Both femoral arteries pulsated normally. The right popliteal artery was open, the left was closed. The right dorsalis pedis pulsation could be felt. The right posterior tibial was closed. There was no pulsation in the left foot. The oscillometer readings were: calf, left very faint; ankle, left 0, right 2. The general physical examination was entirely negative. The Wassermann test was negative.

A diagnosis of thrombo-angiitis obliterans was made and treatment was begun with intravenous injections of 5 per cent sodium chloride solution. The condition of the foot responded favorably and six weeks after the patient was first seen he was discharged from the hospital with the foot entirely healed. He went away to the country for a month and on his return to the city injections of hypertonic salt solution were resumed. At this time he first began to complain of weakness and occasional vomiting spells. He stated that during the past three months there had been gradually increasing pigmentation of his face. He attributed this to exposure to the sunlight. He also complained of diarrhea. On examination at this time pigmentation was noticed on the mucous membranes of the mouth; the blood pressure was found to be 80 systolic, 50 diastolic. A diagnosis of Addison's disease was made and the patient was readmitted to the hospital. At this time his weight was 107 pounds (48.5 Kg.). There was striking pigmentation of the face, mucous membranes, chest and back, the extensor surface of the elbows, and the anal fold. There were typical black freckles in these areas. The systolic blood pressure continued to range between 80 and 95. X-ray examination of the chest and the abdomen with particular reference to the adrenals failed to show any evidence of tuberculosis. The blood urea was 14 mg. per hundred cubic centimeters, blood sugar 75 mg., blood chlorides 540 mg. and hemoglobin 70 per cent. Many urine examinations were negative. The patient continued to be treated with injections of hypertonic salt solution and in addition was given 6 Gm. of sodium chloride in enteric coated capsules by mouth. He was placed on a high calory diet with increased salt and received vitamins and 30 grains (2 Gm.) of saccharated ferrous carbonate three times a day. He was also given injections of a commercial adrenal extract (eschatin-Parke, Davis & Co.) 2 cc every other day. He continued to lose strength and his weight went down to 93 pounds (42 Kg.).

At this time (September 18) the patient was seen in consultation by Dr. Leonard G. Rowntree, who confirmed the diagnosis of Addison's disease. He stated that the history of the patient, his weight loss, the blood pressure, the pigmentation (buccal, labial, cutaneous, and the black freckles) were all compatible with Addison's disease. The weight loss was about what he would expect from the duration and severity. He could discern no clinical evidence of tuberculosis or syphilis. The cause was not determined. The combination of thrombo-angiitis obliterans with Addison's disease was unique in his experience. It might be due to atrophy on a vascular basis. The outlook was grave, he said, but not hopeless so far as Addison's disease is concerned.

Another adrenal extract, made by the method of Swingle and Pfiffner, was obtained through Dr. Rowntree and the patient was started on 2 cc. of this substance twice a day. With the beginning of this treatment, his weight began to increase and his general condition improved. The blood pressure increased to 100 systolic, 60 diastolic, and remained at this level. At the time of his discharge from the hospital on October 19 his weight was 105 pounds (47 Kg.). His hemoglobin was 80 per cent and the red blood cell count 4,400,000. Injections of hypertonic saline solution were continued at the office twice a week, and the patient took injections of 5 cc. of this adrenal extract daily. Between October

1935 and March 1936 his weight increased to 140 pounds (63.5 Kg.). His walking improved strikingly and he was able to walk ten blocks at a fair pace without pain in his left foot. The left foot remained healed. The oscillometer readings increased to: calf, left  $\frac{3}{4}$ , right 4; ankle, left  $\frac{1}{4}$ , right  $2\frac{1}{2}$ . The systolic blood pressure continued to be about 100.

In April 1936 the patient developed an acute catarrhal icterus. He was readmitted to the hospital at this time. In addition to the icterus, enlargement of the spleen and liver was noted. Intravenous injections of 5 per cent dextrose in physiologic solution of sodium chloride were substituted for the hypertonic salt solution, and the other medication was continued as before. The dose of adrenal extract was increased to 10 cc. daily. The jaundice cleared up completely in a few weeks, and the liver and spleen returned to normal size. Following the suggestion of Wilder and his co-workers<sup>1</sup> of the Mayo Clinic, a low potassium diet was prescribed. The patient was discharged from the hospital at the end of May weighing 142 pounds (64 Kg.). He has continued in excellent general condition to date.

#### COMMENT

The occurrence of two diseases in a single individual is always of interest, particularly when the two conditions are so rare as thrombo-angiitis obliterans and Addison's disease. The coincidental occurrence of the two diseases in one person may be regarded as evidence that they are not antagonistic. This information may be of value in understanding the nature of the disease processes.

Although the use of tobacco appears to be the active cause of thrombo-angiitis obliterans, a constitutional susceptibility to this substance is necessary as a background. It is still not clear of what this constitutional defect consists and what mechanism it is by which tobacco produces its harmful results in such individuals. Recent studies of blood volume,<sup>2</sup> chemistry<sup>3</sup> and basal metabolism<sup>4</sup> would appear to indicate that in thrombo-angiitis obliterans there is a tendency to diminished function of the thyroid-adrenal-gonad chain of endocrine glands. The occurrence of Addison's disease in a patient with thrombo-angiitis obliterans offers additional evidence in favor of this conception.

Could the Addison's disease be due to atrophy of the supra-renal glands secondary to obstruction of their blood supply by the vascular disease? While thrombosis of intra-abdominal arteries has been observed in patients with thrombo-angiitis obliterans, this has always been a feature of very advanced and late stages of the disease.<sup>5</sup> In such cases all the vessels in the lower extremities have been occluded, and thrombosis frequently has extended upward into the lower part of the aorta. Isolated occlusion of the arterial blood supply of both adrenal glands by thrombo-angiitis obliterans has never been reported. In this patient the vascular disease is only moderately advanced, and intra-abdominal involvement seems unlikely.

It is interesting to note the unusually good effect that followed the employment of the adrenal extract of Swingle and Pfiffner. Throughout the early course of the Addison's disease, the patient received a high salt intake, intravenous salt injections and 6 Gm. of salt extra each day, along with eschatin, and continued to lose ground throughout. When, however, 5 cc. of the laboratory extract was substituted for the commercial preparation (eschatin) the patient at once began to improve. His weight rapidly increased from 93 to 140 pounds (from 42 to 63.5 Kg.). This is striking evidence of the value of the Swingle and Pfiffner preparation.

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THE USE OF IODINE IN  
TOXIC GOITERS

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The feeling that there is a definite trend toward the use of iodine in the treatment of toxic thyroid disease prompts the present discussion. It is to be presumed that there has been no appreciable decrease in the number of cases of diffuse toxic goiter and of nodular toxic goiter during the past six or seven years, yet the number of patients who have been submitting to thyroidectomy has markedly decreased. Furthermore, many who finally come to surgery have suffered from their disease for a longer period than was the case a few years ago. Many of these individuals have been given iodine in one form or another as part of their treatment. In a considerable number of instances they not only have become poor surgical risks but have an increased morbidity element which lengthens both the preoperative and the convalescent period.

It has been pointed out many times in recent surgical literature that the depression years have increased the tendency to procrastinate in elective surgical conditions. Toxic thyroid disease may be said to fall into this category, but only to a degree; for in the light of present knowledge surgery offers the best chance for cure or relative cure in this condition. If one wishes to chance the damage to the neurocirculatory and other vital systems of the body by a regimen of prolonged medical management, the disease may be thus controlled to a certain degree. The economic loss entailed by such a method far exceeds that which accompanies surgical intervention. The consequent morbidity is greater than that following surgery, and, furthermore, surgery in competent hands offers a mortality rate of less than 1 per cent. This mortality rate is made up in the main by two groups of patients: those with large intrathoracic nodular goiters and those with long neglected toxic goiters. In the latter classification falls no inconsiderable number of individuals who have become "iodine fast," who no longer respond to iodine when given as a preoperative preparation.

To sound a warning that the mortality rate of thyroidectomy will increase unless means are found for disseminating information anent the danger of procrastination and in particular the danger of improperly including administration of iodine in the medical management of these cases does not seem out of place.

Definite figures are not available, but personal interviews with many physicians who practice in a district where goiter is prevalent indicate that there is a growing tendency to disregard Plummer's dictum that iodine should be used only as a preoperative preparation. The latter is a dogmatic yet a safe rule. That there are exceptions, as will be indicated later, is recognized. That importunings of the patient should influence the judgment of his physician is inexcusable. That "another will if I do not" is even more questionable logic.

A verbatim recital of some of the interviews and views of individuals on the treatment of toxic goiter would be interesting but hardly fitting. What seems of importance, however, is that those who have graduated

since the time when Plummer presented his hypothesis are more wary of giving iodine to their patients than those of the older group of physicians. This is a fine commentary on the teaching methods in medical schools today but points at the same time to the necessity for persistent postgraduate education.

The pharmacology of iodine need not be reviewed, but it may be said that many of the actions which it exhibits are unexplainable except by the generalizing term "alterative."

The empirical nature of the administration of iodine in thyroid disease is indicated in its action in both toxic and nontoxic goiters. In the former the gland is the seat of a hyperplasia; in the latter, of a colloid increase. In the former is found hyperthyroidism and in the latter often hypothyroidism, yet iodine has a beneficial effect in both conditions. In toxic states the benefit is short lived. This is not as paradoxical as it seems, for it has yet to be proved that an altered secretion is the cause in either hypothyroidism or hyperthyroidism. There is considerable evidence and good opinion that in diffuse toxic goiter the thyroid gland is not the cause *per se* but suffers with or from disturbances of other organs of the body.

The correlation of activity of the various endocrine glands has been proved to an extent that makes one loath to attribute the therapeutic effect solely to action on any single gland. It seems reasonable, therefore, to assume that at least some of the effects of iodine in good sized doses are exhibited because of its action elsewhere than on the thyroid gland itself. The amount usually administered in dosages of compound solution of iodine is much in excess of the needs of the gland.

A true replacement value is exhibited, however, in the colloid gland found in goitrous areas where the relation of lack of iodine in the soil and colloid goiter has been pretty well established. Here, minute doses of iodine tend to correct anatomic changes and altered function in a gland which has suffered from long continued deprivation of a necessary constituent, a deprivation which amounts to a gross deficiency.

Nodular goiter—toxic and nontoxic—is found most frequently in goitrous districts. There seems to be a distinct relationship between these types and diffuse toxic and colloid (diffuse nontoxic) goiter. It may be surmised therefore that here too, when symptoms of hyperthyroidism manifest themselves, one is seeing the effect of a functional deficiency due to a mild, long continued disturbance of the general endocrine balance, nutrition and psychic state.

For this reason we believe that iodine is properly used in small doses for hypothyroidism and colloid goiter. Empirically we believe in its use for hyperthyroidism both as a preoperative preparation and as a postoperative treatment. With a definite understanding of its limitations and dangers, it may be used as an expedient in mild hyperthyroid states and as an aid in differential diagnosis. Whenever iodine is used over a prolonged period of time, its administration should be interrupted for a week or ten days every four to six weeks.

We are thoroughly committed to the idea that all so-called adenomatous goiters are surgical conditions.

Iodine should be used in both nodular toxic and nontoxic types as a preoperative preparation and for assistance in the correction of an obvious functional imbalance. One is dealing in these instances with a gland which in itself is diseased. Surgical intervention should be undertaken in these cases with the idea that



sites (prescription 1). The head is coated thickly with this ointment and washed a half hour afterward. The head covering that was worn by the patient should also be disinfected.

**Softening and Combing Out of the "Nits":** As the ova are not killed by this process and hatch within six days after they are laid and then develop into fully grown lice within two weeks, they must be slipped off the hair shaft. Following the treatment described the scalp is therefore generally treated at bedtime with warm vinegar and enveloped in a rubberized cloth. The next morning the scalp is washed with soap. The eggs are still in place but softened. A fine toothed comb

**PRESCRIPTION 1.—Benzene Petrolatum**

Rx Benzene .....	1.50 cc.
Petrolatum .....	30.00 Gm.

Apply to scalp freely. (Against head lice.)

removes them from the hair as one removes a ring from a finger. A week of watching must follow to be sure that not one egg is left.

Diluted Acetic Acid added to the suggested mercurial lotion combined with the diligent use of the fine-toothed comb unites all the essential requirements in one simple treatment (prescription 2).

**PRESCRIPTION 2.—Acetous Mercurial Lotion (Strong)**

Rx Mercury bichloride .....	0.24 Gm.
Diluted acetic acid .....	6.00 cc.
Diluted alcohol .....	120.00 cc.

M. Label: Apply to scalp twice daily followed by use of fine toothed comb. (Against head lice.)

Pyodermitis, if present, is perhaps best treated by Ammoniated Mercury Ointment, applied twice a day. If the lesion is irritable this will have to be diluted with 1 or 2 parts of Simple Ointment.

**BODY LOUSE INFESTATION.—Diagnosis.**—These should be called "clothes lice," as they merely invade the body on their foraging expeditions. They should be sought for in the seams of the clothing, especially where it fits close to the body as over the pectoral and pelvic girdles. These lice are large enough to be easily seen. In addition to the small blood crusted puncta, characteristic of this infestation are parallel scratch marks over the shoulders, around the waist and over the sacrum and the thighs. The presence of these should lead to a search for the lice in the clothing. Delousing measures are important in the prophylaxis of typhus, relapsing fever and trench fever.

**Treatment.**—Disinfestation: (a) The clothing and blankets should be disinfested by autoclave (130 F. for thirty minutes or 140 F. for fifteen minutes). Ironing of the clothing, especially the seams, is much less reliable. (b) The clothing may be soaked in 2 per cent dilution of Saponated Solution of Cresol at a temperature above 32 F. for twenty minutes or (c) dipped in gasoline or in cleaners' naphtha. (d) Sulfur may be dusted on the inner surfaces of the clothing to lessen the chances of reinfestation after it has been subjected to any one of these processes. (e) Fumigation of huts or other places that were inhabited by infested groups of men is quite as necessary as is disinfestation of their clothing, to kill wandering lice, which may live without feeding for as long as ten days. Sulfur dioxide or hydrocyanic acid (CAUTION) gas should be employed. Formaldehyde is useless.

**Cleansing Bath:** A cleansing bath with soap and hot water suffices for the individual.

**Destruction of Ova:** This is especially required when dealing with groups of men. For this purpose a bath and a mercurial lotion (prescription 3) are usually sufficient in body louse infestation.

**Treatment of the Damaged Skin:** If much irritation is present, a soothing application is indicated, such as Calamine Liniment, possibly with an antipruritic agent such as 0.5 to 1 per cent phenol if required to break the pruritus vicious circle (see Pruritus). Ammoniated Mercury Ointment may be used on secondarily infected pyodermatitic areas.

**PRESCRIPTION 3.—Acetous Mercurial Lotion (Mild)**

Rx Mercury bichloride .....	0.06 Gm.
Diluted acetic acid .....	6.00 cc.
Diluted alcohol .....	120.00 cc.

M. Label: Apply to affected parts twice daily. (Against public lice.)

**PUBIC LOUSE INFESTATION.—Diagnosis.**—Pubic lice ("crabs") most commonly affect the pubic region, producing itching, papules and secondary excoriations and dermatitis, which may extend to the scrotum and inner sides of the thighs. They may also affect the abdomen and buttocks as well as the presternum and such distal areas covered with short stiff hairs as the eyebrows, eyelashes, beard and axillae. They do not inhabit the scalp. In fair persons or those otherwise susceptible, pigmented macules may be seen at the infested sites. Whenever there is no other obvious cause for itching in the genital region, the lice ova should be looked for with a hand lens. The pediculi are small and lie at the base of hairs, holding firmly to the follicle. The infestation is contracted from intimate contact with those having lice on their clothing or on their bodies.

**Treatment.**—The simplest and cleanest way is to sponge the parts with a 1:2,000 Mercury Bichloride solution twice daily for three or four days in succession; then less frequently, every three to seven days, for two to three weeks. The Mercury Bichloride solution may preferably be made in Diluted Alcohol, and 5 per cent acetic acid (prescription 3) may be added. The much used Mercurial Ointment, even the "mild," is often too strong and should not be used here. A quick immediate cure should not be looked for. The thicker the growth of hair, the more diligently and the longer should the treatment be employed.

To remove nits and pediculi from eyelashes, small forceps should be used, followed with Yellow Mercuric Oxide Ointment.

**SCABIES**

Scabies is a classless infestation. Although seen more often in the clinic, scabies is by no means confined to the poor and unhygienic. It is easily recognized when well marked but is often a problem in diagnosis in the cleanly. Its one outstanding feature, severe itching, should make it a suspect whenever this is a symptom, particularly if it occurs at night. While benign and easily cured, it distresses greatly and may lead to unpleasant complications. Scabies challenges treatment not only of the immediate subject but also of the source and those exposed. Whether in the army or the family, scabies should be treated with a view to the group. Only thus can cross and recurrent infestation be prevented.

**Diagnosis.**—Three characteristics point to the recognition of scabies. The severe itching, usually nocturnal, is first. The type of lesions—the unique, thin, zigzag line—under a lens is a series of black or gray dots usually one-fourth inch long but may be shorter or much longer. Also present may be small papules and a characteristic bluish opal vesicle and scratch marks with small blood crusts. Most reliable is the distribution of the lesion. It is symmetrical, is absent above the clavicles, and avoids the palms and soles except in infants and young children. In men it may involve the

photo-oxidative changes result which are usually destructive to the organism. These oxidative changes all require molecular oxygen<sup>4</sup> and the effects produced in the skin can be separated from the sunburn response of normal skin on this basis.<sup>5</sup> The wavelengths of light which produce the hematoporphyrin response are those absorbed by this dye and lie in both the ultra-violet and the visible regions. The shorter wavelengths which produce the sunburn response do not pass through ordinary window glass to any extent, and such glass will protect against sunburn; but virtually all the wavelengths which produce the hematoporphyrin response will pass through such glass, so that it affords no protection in this case. It should be important to make this clear in warning patients against the effects of light, as a response might be elicited by sunlight passing through a window when the patient is indoors.

Whether the sensitivity to light produced by hematoporphyrin is supposed to play a part in the alleged therapeutic effect is not made altogether clear by the statements of those who recommend it. It is interesting to note from the work of Wolgemuth and Sorenyi,<sup>6</sup> that hematoporphyrin stimulates the use of oxygen by tissues in the absence of light; thus it has some action other than that of a photosensitizer. Bengal rose, on the other hand, does not have such a stimulating effect, although both substances cause the uptake of oxygen in the presence of light, owing to the photo-oxidations which they bring about. It may be mentioned that in our experiments we have found that bengal rose is not held in the skin for nearly so long a time as hematoporphyrin, its sensitizing action disappearing in the course of forty-eight hours. This, together with the fact that bengal rose is excreted very rapidly, accounts for the fact that sensitivity to light does not occur following the use of this dye in liver function tests, except in those cases in which the dye is retained.

#### CONCLUSIONS

From the foregoing account it would seem that, if hematoporphyrin is used as a therapeutic agent, the patient should be carefully warned of the events which may follow exposure to intense light. It should be emphasized that sunlight passing through window glass is quite as dangerous in this case as direct sunlight.

#### DERMATITIS MEDICAMENTOSA RESULTING FROM ADMINISTRATION OF SULFOCYANATES IN THE TREATMENT OF HYPERTENSION

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Sulfocyanates have enjoyed varying degrees of popularity in the treatment of essential hypertension since their introduction by Westphal<sup>1</sup> in 1924, following the observations of Pauli<sup>2</sup> in 1903. However, much of the early enthusiasm for this drug has waned as its toxic manifestations have become evident. The high incidence of alarming cerebral symptoms in cases in which patients receive either potassium sulfocyanate or sodium sulfocyanate serves as a definite caution against the indiscriminate and prolonged use of either of these drugs.<sup>3</sup> Although

sulfocyanates have fallen into disrepute as a therapeutic agent of any permanent value in the treatment of essential hypertension, they continue to be used freely in proprietary preparations designed to lower the blood pressure.

The dermatoses that result from the use of sulfocyanates have not received the attention which they deserve. From the literature we have been able to collect only nine reports of cases in which some type of eruption occurred following the ingestion of this drug. However, since the observation of the case that is reported in this paper, our attention has been called to a number of similar unreported cases that have been observed by several of our colleagues. It is our belief that the dermatoses resulting from sulfocyanates occur much more frequently than a perusal of the literature would seem to indicate.

In 1926 Takács<sup>4</sup> reported a case in which papular dermatitis followed the administration of 1 Gm. of potassium sulfocyanate daily for nine days. Gager,<sup>3</sup> in his report on the use of sulfocyanate in the treatment of hypertension, barely mentioned two cases in which the patients had "a drug rash similar to that of iodine." Logeheil<sup>5</sup> cited two cases in which the patients had "a severe dry scaling dermatitis with fever and some prostration." Weis and Ruedemann<sup>6</sup> observed a patient who had an acute diffuse toxic erythema associated with edema of the eyelids and followed by an exfoliative dermatitis which, according to them, closely resembled the exfoliating accidents following the use of arsenicals. Their patient had received only 2.7 Gm. of potassium sulfocyanate over a period of ten days before the appearance of the erythematous dermatitis. The exfoliation was complete within a month after the administration of the drug was discontinued. Ayman<sup>7</sup> has recorded a case in which an exfoliative dermatitis developed after the patient had received 4.8 Gm. of potassium sulfocyanate in eight days. Goldring and Chasis,<sup>3</sup> and Borg<sup>3</sup> briefly mentioned two other cases in which a dermatitis developed while the patients, who had essential hypertension, were receiving a preparation which contained a sulfocyanate.

It is our purpose in reporting the following case to direct attention to sulfocyanates as an etiologic agent in the production of toxic erythema and exfoliative dermatitis:

#### REPORT OF CASE

A man, aged 55, had previously visited the clinic in 1928. At the time the symptoms and signs on physical examination had been associated with an advanced exophthalmic goiter. The reading for the basal metabolic rate had been +83 per cent. A subtotal thyroidectomy had been performed. He had returned to the clinic three months later to report that he was enjoying excellent health. However, a moderately severe hypertension had been discovered. The value for the systolic blood pressure had been 205 mm. of mercury and that for the diastolic had been 135 mm. of mercury, in contrast to a very slight elevation in the value for the blood pressure prior to the thyroidectomy.

The patient was next observed at the clinic on May 19, 1936. His health had remained good until July 1934, when he had suffered from a cerebral thrombosis which had resulted in a right hemiparesis, from which he had rapidly recovered. During the two years before his last admission to the clinic, he had suffered from several moderately severe attacks of angina pectoris. On May 6, 1936, after such an attack, the value for the systolic blood pressure had been found by his physician to be 260 mm. of mercury. Two days later an elixir of sodium sulfocyanate had been prescribed in the dosage of three teaspoonfuls daily. He had continued to receive this medication for eleven days, at which time he had noticed a generalized eruption, "resembling the measles," over his body. Correspondence with the manufacturers of this elixir revealed that it contained 20 grains (1.3 Gm.) of sodium sulfocyanate in each fluidounce, so that the patient had received approximately

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FRANKLIN C. BING, Secretary.

### DEXTROSE

#### Its Place in the Diet of Normal Adults

Sugars and foods rich in carbohydrates have been an important part of the diet from the earliest times. With the development of manufacturing processes, chemically pure sucrose, prepared usually from sugar cane or the sugar beet, gradually assumed a prominent place in the diet of the American people. Mendel<sup>1</sup> pointed out that the average per capita consumption of this chemically pure substance has changed from a relatively insignificant figure in prerevolutionary days to approximately one fifth of the average caloric intake in 1924. In recent years chemically pure dextrose, usually prepared from corn starch, has become available and is being promoted largely to replace part of the sucrose of the diet. Dextrose occurs naturally in many ordinary foods, in honey, in grape juice and other fruit juices, and in maple syrup. Dextrose is obtained as one of the products of the digestion of cane sugar and milk sugar, and it is the end product of the digestion of starches and of maltose. Within the body dextrose can be formed from glycogen, amino acids, the glycerol of fats, and probably from levulose and galactose. Thus it is apparent that there are a considerable number of sources of this important carbohydrate.

The wide occurrence of dextrose in foods, the vast literature of biochemical and physiologic investigations of this substance, and the claims made in advertising have led the Council to consider it desirable to publish a brief report on the significance of dextrose in the diet of the normal adult. It is the purpose of the present report to consider the evidence available on the nutritive properties of dextrose and to formulate for the guidance of interested persons claims which in the opinion of the Council are justified for this product.

An important property of dextrose is its sweetness as compared with other sugars. It is well known that certain sugars such as lactose from milk are not as sweet as ordinary cane sugar. In 1925 Bicster, Wood and Wahlin<sup>2</sup> studied the relative sweetness of a number of pure sugars. They gave sucrose the arbitrary value of 100 and found that lactose was about one-sixth as sweet or had a value of 16. Levulose was observed to be almost twice as sweet as sucrose, its value being 173; dextrose on the same scale was recorded as 74. If sweetness is the consideration most desired, more dextrose must be used in a food mixture to produce the effect than either levulose or sucrose. Under certain conditions this property may be an advantage, under others a disadvantage. A number of physical and chemical properties limit the extent to which dextrose may be substituted for cane sugar; but these concern chiefly technical problems and are therefore outside the scope of the present report.

An enormous amount of experimental evidence has been accumulated on the subject of carbohydrate metabolism. It is well known that the digestion of carbohydrate results in the formation of three important monosaccharides—dextrose, levulose and galactose. Quantitatively dextrose is the most important, largely because starch, which yields dextrose on digestion, makes up the bulk of the carbohydrate of the diet. Deuel<sup>3</sup> has recently reviewed the available information on the metabolism of fructose and galactose. These two carbohydrates are absorbed into the portal blood and carried to the liver, where they are believed to be largely converted into dextrose and ultimately into liver glycogen. Some fructose and some galactose circulate in the systemic blood stream after the ingestion of these sugars or of carbohydrates which yield them during digestion, and there is considerable evidence that non-dextrose sugars may be oxidized or transformed to glycogen or fat.

Dextrose is the normal sugar of the blood. It is an important source of muscular energy. Although it has been called the fuel of muscular exercise, there is plenty of evidence that it is not the only fuel. Many physiologists have called dextrose the "physiologic" sugar. While this term is an expression of convenience and serves to emphasize to medical students the fact that sterile solutions of dextrose of proper concentration may be administered parenterally, yet as Deuel<sup>3</sup> has emphasized, other sugars are found in the body either temporarily following the ingestion of certain carbohydrates or permanently as pentoses, combined in the form of nucleic acids, which occur in the nuclei of all cells. Galactose is present as galactolipids in nervous tissue and it is also a constituent of lactose formed by the mammary glands. If dextrose is designated as the physiologic sugar, these other carbohydrates are certainly not pathologic. There are limitations, therefore, to the applicability of the slogan "dextrose, the physiologic sugar," especially when this term is loosely used by writers of advertising copy. Dextrose derived from dextrins, starch or protein certainly is no less valuable as a food than dextrose itself.

Because dextrose is absorbed as such and circulates unchanged in the blood stream, it has been supposed that it would be absorbed quickly and with no effort on the part of the body because it requires no enzymic process to make it suitable for absorption. Certainly dextrose is not as rapidly absorbed as the advertisements of some manufacturers would lead the uncritical reader to believe. Dextrose must be in solution and must reach the duodenum before it can be absorbed, since absorption does not take place from the stomach. Experimental evidence does not indicate that the rate of absorption of dextrose is significantly more rapid than that of many other carbohydrates of physiologic importance.

Maile and Scott<sup>4</sup> studied the relative rates of disappearance from the stomach of different sugars by means of roentgenograms taken after barium sulfate meals. They found in a few observations that sucrose left the stomach somewhat earlier than dextrose. However, their experiments were few in number, and the rapidity with which different solutions leave the stomach is not necessarily an index of the relative rates of absorption. By means of animal experiments, Cori<sup>5</sup> showed that, of the three important monosaccharides, galactose was absorbed somewhat more quickly than dextrose, and both of these sugars were absorbed much more quickly than levulose. It would seem that the pure monosaccharides which Cori fed might be absorbed more quickly when given in this form than when given in the form of polysaccharides, which require preliminary enzymic changes before absorption can take place. No extensive studies of the relative rates of digestion and absorption of disaccharides and polysaccharides have been made by the technique which Cori used.

In man the rate of absorption has also been studied by the determination of changes in the blood sugar. Following the administration of digestible carbohydrates, the blood sugar rises above the usual fasting level, as might be expected, but the rate and extent of rise is not the same for all carbohydrates. Folin and Berglund<sup>6</sup> showed that the administration of dextrose was followed by a rapid increase in the concentration of blood sugar but that other sugars such as levulose had little effect. Foster<sup>7</sup> likewise found that the ingestion of levulose resulted in but little increase in the blood sugar level. In such experiments the concentration of sugar in the blood is determined by the balance which exists between the rate at which sugars enter the blood from the gastro-intestinal canal and the rate of disappearance of the sugar from the blood. It is therefore difficult to interpret blood sugar curves on the basis of the rate of absorption from the gastro-intestinal tract only. It must be concluded from experimental evidence, however, that the blood sugar studies do show that dextrose is absorbed

4. Maile, W. C. D., and Scott, K. J. L.: Further Observations on the "Digestibility" of Common Foodstuffs as Determined by Radiography, *Lancet* 1: 1500 (June 29) 1935.

5. Cori, C. F.: The Fate of Sugar in the Animal Body: I. The Rate of Absorption of Hexoses and Pentoses from the Intestinal Tract, *J. Biol. Chem.* 66: 691 (Dec.) 1925.

6. Folin, Otto, and Berglund, Hilding: Some New Observations and Interpretations with Reference to Transportation, Retention and Excretion of Carbohydrates, *J. Biol. Chem.* 51: 213 (March) 1922.

7. Foster, G. L.: Studies in Carbohydrate Metabolism: I. Some Comparisons of Blood Sugar Concentrations in Venous and Finger Blood, *J. Biol. Chem.* 55: 291 (Feb.) 1923.

1. Mendel, L. B.: Our Changing Food Habits, in *Your Weight and How to Control It*, edited by Morris Fishbein, New York, George H. Doran Company, 1927.

2. Biester, Alice; Wood, Mildred W., and Wahlin, Cecile S.: Carbohydrate Studies: I. The Relative Sweetness of Pure Sugars, *Am. J. Physiol.* 73: 387 (July) 1925; *Chem. Abstr.* 19: 3097 (Oct. 20) 1925.

3. Deuel, H. J., Jr.: The Intermediary Metabolism of Fructose and Galactose, *Physiol. Rev.* 16: 175 (April) 1936.

sequelae of bacillary dysentery. Bargaen<sup>7</sup> holds that the disease, in common with chronic ulcerative colitis, probably results from several factors and micro-organisms, the most common of which is the streptococcus (Bargaen's diplostreptococcus).

Because the case reported here may contribute some information with respect to etiology, it seemed worthy of record. In this case the dysentery bacillus was present in cultures from urine obtained directly from the right kidney. Its identity was established by fermentation and agglutination. However, *Streptococcus haemolyticus* was present in cultures from fluid free in the peritoneal cavity and from a mesenteric lymph node. Thus there is presumptive evidence that the dysentery bacillus, present in the urine, had played a part in the inflammatory process in the ileum and that *Streptococcus haemolyticus*, present also in the urine and in the peritoneal cavity and a regional lymph node, had been a secondary if not a primary invader of the bowel wall.

#### REPORT OF CASE

J. R., a girl, aged 8 years, was admitted to the University of Nebraska Hospital Jan. 31, 1934. Her health had been excellent until thirty-one days previously, when a severe headache, a sore throat and generalized body pains suddenly developed and she vomited several times. Five days later generalized abdominal pain, a mild diarrhea, and a fever of 102 F. developed and she vomited many times. The vomitus on two occasions contained streaks of blood. No eruption developed. In five days, ten days after the onset, she returned to school but continued to complain of generalized abdominal pain and fatigue. For two weeks she attended school periodically. The pain gradually shifted to the lower half of the abdomen and twenty-four hours before admission she became acutely ill. The pain became more severe and colicky in character, the temperature rose to 102 F., she again vomited several times and a diarrhea developed.

The family and past histories were essentially negative.

She was well developed and nourished, despite considerable loss of weight.

The head, neck, heart and lungs presented no abnormality. The abdomen was moderately distended and tender throughout but was acutely tender immediately below and to the right of the umbilicus, where a mass was palpable. This mass appeared to be approximately the size of a large orange and was situated in the midline below the umbilicus, with the major portion on the right side. It was slightly but definitely movable, somewhat irregular in contour, tender and firm but not hard. These observations were confirmed by bimanual rectal examination, which also demonstrated the pelvic organs to be normal and the mass to be above the true pelvis.

The back and the extremities and the reflexes were normal.

Except for an occasional white and red blood cell the urine on several examinations was normal. Examination of the blood revealed the Wassermann reaction negative, hemoglobin 86 per cent (Sahli), red blood cells 4,340,000 and white blood cells 29,600, with staff polymorphonuclears 10 per cent, segmented polymorphonuclears 69 per cent and lymphocytes 21 per cent. The serum did not agglutinate *Bacillus typhosus*, *Bacillus paratyphosus* A and B, and *Brucella melitensis*. Two blood cultures gave no growth. Three stools contained undigested food and much mucus but no blood, ova, cysts, amebae or abnormal micro-organisms. Cultures of three stools yielded only bacteria that normally inhabit the bowel.

Roentgenograms of the chest, abdomen and urinary tract gave the following information: Intravenous pyelography showed no abnormality, the lung fields and pleural sacs were normal, and the heart was not enlarged. The gas-filled, distended loops of small bowel appeared separated as by fluid, and in the right iliac fossa just mesial to the cecum there was an area of increased density measuring 7 by 5 cm., suggesting a pericecal mass which under the fluoroscope was movable. With a barium sulfate enema the colon filled normally and no abnormality was found. The previously described mass did not appear to be connected with the cecum. Proctoscopic examination revealed no abnormality of the anal canal, rectum or lower sigmoid.

On admission the temperature was 103 F., the pulse 120 and the respiration rate 30. These rapidly subsided and were normal until the seventh day, when suddenly they recurred, as did the pain in the lower part of the abdomen and the vomiting.

The mass had remained unchanged. It was believed that it was not an appendiceal abscess because it was irregularly shaped and slightly movable (not fixed).

An exploratory operation revealed the following changes: There was considerable slightly turbid free fluid throughout the abdomen. Cultures of this were taken. Except for the terminal 8 inches, the small bowel was moderately distended. The great omentum was very thick, mildly injected and edematous. The walls of the cecum and of the terminal 8 inches of the ileum were moderately injected, spotted with petechiae, covered in areas with fibrinous exudate, edematous, rigid, and several times normal thickness to palpation. They were firm and elastic but not hard. The lumen of the ileum did not appear to be obstructed, gas passing freely through it. The mesenteries of both the ileum and the cecum were approximately 2 inches thick and felt brawny. They contained many large lymph nodes, one of which was excised for both pathologic and bacteriologic examinations. Except for a thickened and slightly edematous wall, the appendix appeared to be normal. It was removed and the peritoneal cavity was closed without drainage. A Penrose wick was placed in the abdominal wall down to the peritoneum. These observations seemed consistent with those reported by Crohn and his associates, so a provisional post-operative diagnosis of regional ileitis was made.

Cultures from both the peritoneal fluid and the mesenteric lymph node yielded *Streptococcus haemolyticus*. Microscopically the appendix was essentially normal and the lymph gland edematous with endothelial hyperplasia and with the presence of some foreign body giant cells.

The immediate postoperative convalescence was rather stormy and complicated by a wound infection, cultures from which yielded *Streptococcus haemolyticus*.

A few days after operation there appeared in the urine albumin, casts and many red and white blood cells, and, since these persisted for weeks after the patient's general condition was much improved, a cystoscopic examination was made by Dr. Edwin Davis, who reported that the urethra and bladder were normal, with no ureteral obstruction on either side. Plain films were negative; each kidney functioned normally; pyelograms were normal on either side.

The bacteriologic report of urine obtained through ureteral catheters was as follows: Urine from the left kidney contained a few white blood cells and hyaline and granular casts. Smear revealed gram-negative bacilli and gram-negative cocci; culture yielded *Bacillus coli*, *Bacillus mucosus-capsulatus*, *Bacillus pyocyaneus* and no tubercle bacilli. Analysis of urine from the right kidney gave identical results with the addition of *Staphylococcus aureus* and dysentery bacilli.

The wounds gradually healed, the mass slowly disappeared, and the patient was discharged, apparently well, sixty-six days after operation and has remained perfectly well to the present, now two years following operation.

1436 Medical Arts Building.

#### THROMBO-ANGIITIS OBLITERANS AND ADDISON'S DISEASE IN THE SAME PATIENT

SAMUEL SILBERT, M.D., NEW YORK

Since there is no record in medical literature of the occurrence of thrombo-angiitis obliterans and Addison's disease in the same patient, the following case is of unique interest:

H. G., a white youth, aged 20 years, seen in April 1935, stated that he was in excellent health until the summer of 1934, when he began to complain of pain in the toes of the left foot. This was thought to be due to a weak metatarsal arch. About two months later he first noticed pain in the left calf on walking and then found that he could not walk more than three blocks without stopping to rest. In December 1934 he observed that the left great toe became blue whenever it was put in warm water. In January 1935 ulceration developed in this toe and his physician applied a tannic acid dressing, following which gangrene of the entire toe developed. The toe was then amputated. A severe infection on the plantar surface of the foot proximal to the stump developed and was incised. The loose head of the first metatarsal bone was removed.

He used to smoke twenty cigarettes a day but stopped smoking in December 1934. His weight was 185 pounds (84 Kg.) in 1933. Between this time and December 1934 his weight went

7. Bargaen, J. A., in discussion on Felson.<sup>24</sup>

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 13, 1937

## HOSPITAL AIR CONDITIONING

Complete air conditioning of a hospital would seem to involve large capital expenditures, depreciation and running expense which do not seem justified by the facts now known. Yaglou<sup>1</sup> has recently discussed in detail the problem of air conditioning as it applies to hospitals. At present it concerns principally nurseries for premature infants, anesthesia and operating rooms, oxygen therapy chambers, heat therapy rooms or cabinets and wards for allergic patients. The optimal air conditions, he says, for the growth and development of premature infants have been determined by using four valid criteria; namely, stability of body temperature, gain in weight, incidence of digestive syndromes and mortality. Comparative observations of premature infants in conditioned and unconditioned wards demonstrated conclusively the favorable effect of conditioning on stabilization of body temperature. The favorable effect apparently resulted from better control of temperature, superior ventilation methods, suitable provision for cooling the room in warm weather and the comparatively high humidity that prevailed. The optimal conditions for minimizing initial loss of body weight and shortening the period of recovery were obtained in conditioned nurseries with high relative humidity. Similarly, maximum gain in body weight after the first week of life occurred in the conditioned nurseries under high humidity in infants weighing less than five pounds. The incidence and severity of digestive syndromes with diarrhea, persistent vomiting, diminishing gains or loss of body weight and other untoward symptoms were generally twice as high under low than under high humidity. Finally, the mortality of premature infants was found to be greatly affected by humidity, achieving its lowest rate in conditioned nurseries under a high humidity of 65 per cent or more.

Air conditioning in operating rooms is mainly concerned with the welfare of the patient, the comfort and efficiency of the surgeon and his personnel and the safety of the whole procedure. There is complete

unanimity among all workers as to the effectiveness of high humidity on the prevention of accumulation of static; this is therefore an important measure of safety where explosive gases are used. The problem of operating room temperature is a difficult one and not much is known concerning the optimal air conditions necessary to maintain a normal body temperature under the influence of anesthesia and during the immediate post-operative period. What evidence there is, however, points to the desirability of maintaining reasonably cool conditions in the operating room for both patient and operating personnel.

There is a real advantage, the author believes, in the oxygen chamber over the oxygen tent when this method of therapy is indicated. A patient in a chamber receives unhampered medical and nursing care, and the oxygen concentration, the temperature and the humidity can be adequately controlled at any desired level. The chief disadvantages are high initial and operating costs. Since the temperature and humidity requirements in oxygen therapy depend primarily on the physical condition of the patient and secondarily on the type of disease, the ease of varying these factors in oxygen chambers is a matter of considerable import. In pneumonia, for example, the range of satisfactory temperatures and humidity is placed between 60 and 75 F., with from 20 to 50 per cent relative humidity. In this disease the consensus seems to favor a low humidity. While the criteria for air conditioning in fever therapy are not yet definitely established, the author expresses the opinion that water saturated or nearly saturated air of comparatively low temperature would probably prove more suitable for the production and maintenance of fever when used as therapy than the hot dry air now employed in some machines.

The use of air conditioned wards in the treatment of many allergic disorders has found considerable vogue. There is evidence that thermal factors are important in the precipitation of allergic attacks. Many factors appear to precipitate attacks, but the most potent appears to be a sudden temperature change, which may be practically eliminated by air conditioning. There are also many persons who cannot be effectively desensitized to allergens but who can obtain varying degrees of relief from filtration of air borne antigens. It appears, in fact, that the chief remedial factor in the treatment by conditioned air is the filtration of pollen. This effect can be obtained sometimes by simple filtration without air cooling. However, comfortable temperatures between 75 and 82 F. in warm weather and a relative humidity well below 50 per cent appear to be beneficial and desirable.

Enough preliminary work has now been done apparently to indicate the lines along which air conditioning should be introduced into hospitals. Before embarking on any program of air conditioning, Yaglou's report deserves the careful study of all those hospitals now or soon to be in a position to install additional equipment.

1. Yaglou, C. P.: Hospital Air Conditioning, *J. Indust. Hyg. & Toxicol.* 18: 741 (Dec.) 1936.

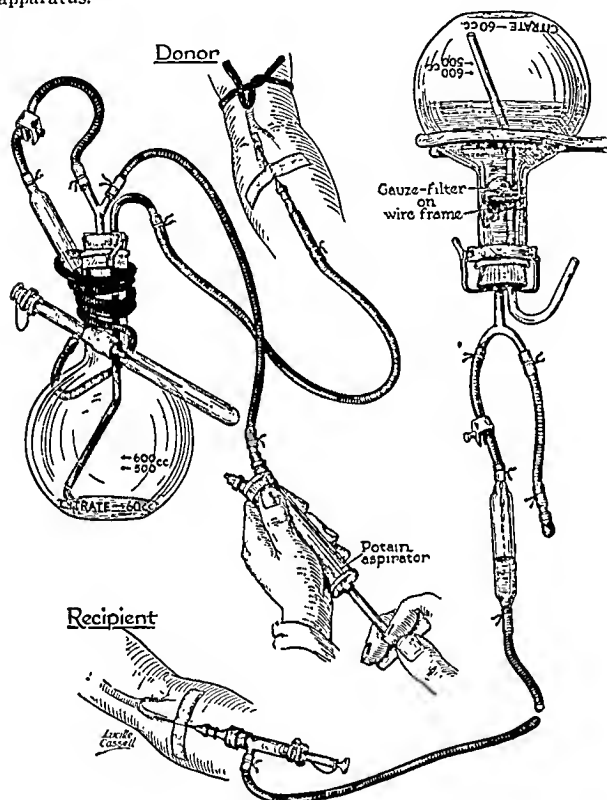


# A SIMPLIFIED METHOD OF TRANSFUSING CITRATED BLOOD

ROBERT R. BATES, M.D., CHICAGO

This method of transfusing blood is so simple that it is now preferred by the transfusion service at Passavant Memorial Hospital. No claim for originality in the separate features is made. The system is completely closed and sterilized in advance of need, thus obviating the necessity of an operating room.

A liter Florence flask is fitted with a two-hole rubber stopper through which a long U tube reaching to the bottom conducts the donor's blood when the flask is upright but acts as an air vent when the flask is inverted to discharge the blood. The other hole in the stopper admits a short glass Y tube, one arm of which connects to a detachable Potain aspirator providing suction when drawing the blood. The other arm of the Y (conducting blood to the recipient after the bottle is inverted) is equipped with a drip view and 3 feet of rubber tubing terminating in a small side arm intravenous syringe. Pinch clamps on each side of the Y, a gauze filter on coiled wire in the neck of the flask, and glass covers over the needles complete the apparatus.



Apparatus for a simplified method of transfusing citrated blood.

A nurse in sterile gown and gloves assembles the previously autoclaved parts into a unit, which is then laid aside ready for future use. The assembly includes placing 60 cc. of 2.5 per cent sodium citrate solution in the flask and inserting the filter and the stopper with the attached tubing. Finally the No. 16 donor's needle and the No. 18 recipient's needle are fitted with glass covers and the unit is then placed upright in a sterile bag.

The preparation of either donor or recipient with iodine and alcohol and tourniquet is as simple as drawing blood for a Wassermann test. Strong suction should not be used in drawing the blood; the flask should be agitated gently and when the desired amount of blood is drawn (up to 600 cc.) the donor's needle and tubing are immediately detached and washed. The rate of flow into the recipient may be increased by forcing air into the U tube with the Potain aspirator, but this procedure is rarely necessary. Hot water bottles placed about the flask and against the exit tubing insure warm blood for the recipient.

303 East Chicago Avenue.

From the Division of Surgery, Northwestern University Medical School.

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.

CHICAGO

NOTE.—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed, the series will be published in book form.—Ed.

#### THE THERAPY OF PARASITIC DERMATOSES

IN COLLABORATION WITH THEODORE CORNBLEET, M.D.

The meaning of the term "parasitic dermatoses" is restricted here to skin infestation with animal parasites, the term infection being employed for invasion of the skin by bacteria. In clinics dealing with the less fortunate members of society, animal parasites account for nearly 10 per cent of dermatologic cases.

In contrast to the bacterial diseases in which immunity develops and which are therefore self limiting, the parasitic disorders last as long as the parasites are present. It is true, however, that persons exposed to skin parasites for a long time become so accustomed to them that they seem bothered but little by them, while those newly infested suffer a great deal.

#### PEDICULOSIS

There are three types of infestation, depending on the type of parasite. These are head louse, body louse and pubic louse.

**HEAD LOUSE INFESTATION.**—*Diagnosis.*—Itching of the scalp, especially in children, possibly accompanied by a pustular eruption in the occipital region, should always lead to a search for pediculi and their ova ("nits"), which latter are attached in a characteristic acute angle to the hair shaft. The occiput and the region behind the ears are the most heavily infested. The occipital glands are frequently enlarged and they may suppurate. In extreme cases the hair may be matted together by dried exudate of an offensive odor.

*Treatment.*—Preparatory: Clipping the hair facilitates the treatment but it is not necessary and is certainly inexcusable in girls and women, unless the hair is so matted that it is impossible to apply the necessary remedies.

**Killing of the Parasites:** (a) Mercurial lotion. Most cleanly and hence generally best is the thorough sponging into the scalp and hair of a 1:500 solution of Mercury Bichloride in Diluted Alcohol twice daily for several days in succession. The chief disadvantage of this lotion is that it produces a burning sensation if the surface of the skin is damaged. A more dilute solution should then be used. (b) Oiling the scalp. While lice cannot be drowned in water, they can be drowned in oil. The thorough application of a thick layer of petrolatum suffices. The head is covered with a bathing cap or a suitably folded towel, which is left on over night. The petrolatum is then removed as thoroughly as possible by the use of sweet oil, after which the scalp is thoroughly washed with soap and hot water. (c) Benzene (5 per cent) petrolatum. Adding as many drops of benzene as there are grams of petrolatum facilitates its introduction into the respiratory apparatus of the para-

In the second table is shown for the same classes the number who graduated from a class A school and the percentage of these graduates now known to be practicing within and out of the state. From all the schools more than 25 per cent are found to be practicing outside the state and of six schools more than half of those graduated are known to be practicing outside the state.

In a school with a small student body, satisfactory educational standards can be maintained only with a

TABLE 2.—Where Graduates Are Practicing

School	Graduated from Class A Schools	Per Cent Practicing in the State	Per Cent Practicing Out of State
A.....	163	31	60
B.....	71	10	76
C.....	118	40	48
D.....	128	47	41
E.....	156	56	31
F.....	97	24	64
G.....	80	19	77
H.....	104	34	58
I.....	100	53	32
J.....	202	36	53

large expenditure for each student. So far as the state supported schools are concerned, better results could be obtained for less cost if a certain number of scholarships were annually provided open to bona fide residents of the state on a competitive basis. If thought necessary, it might even be stipulated that those to whom scholarships were awarded would return to practice within the state for at least three years.

SURVEY OF CHRONIC DISEASES

Results will apparently soon be available in the survey of chronic diseases inaugurated by the United States Public Health Service Oct. 1, 1935.<sup>1</sup> Field work of the survey was closed June 30, 1936. October 1 recording and card punching of the data gathered were about 50 per cent complete for the inventory as a whole. The chronic and disabling illness study comprises 867,000 family schedules, representing some three million persons. It covers a population from a third larger to a hundred times larger than that reported in previous surveys of comparable character. Among the previous surveys are the health and depression studies made by the U. S. Public Health Service in 1931 and 1933, covering 6,686 families and 28,959 persons. The study by the Committee on the Costs of Medical Care covered only 8,758 families representing 39,183 persons, and a similar survey by the Metropolitan Life Insurance Company in 1915 covered 637,038 policyholders and their families.

The survey of chronic diseases was conducted with the help of Works Progress Administration relief workers centering around a central office in Detroit. Approximately 1,300 persons are now at work on this survey. The first steps were house-to-house enumera-

tion. The field work of the survey was completed in April 1936 and was rapidly followed by completion of other related surveys such as communicable disease study, occupational morbidity and mortality study, the hearing survey and health facilities survey. The states included in the inventory had spent within their territory \$2,200,000 for enumeration activity, employing as high as 5,000 relief workers at one time.

The survey was conducted by asking persons in their homes about the presence of various health conditions, particularly chronic diseases. No diagnosis from a lay person was accepted and the lay enumerators were instructed to make no attempt at diagnosis. They simply enumerated the statements made to them. These were referred to physicians, who were asked to confirm the diagnosis. This question had been discussed previously with representatives of the American Medical Association and between an assistant surgeon general and the American Medical Association Board of Trustees. It was felt that many physicians might decline to give this information. It appears from the report of the survey now published that in most instances physicians with the permission of their patients confirmed the diagnosis or gave such information as resulted in correction of erroneous impressions which might have been gathered from a survey without medical confirmation.

The study is now in the punch card and sorting stage, but it is expected that before long there will be material ready for publication. The city that has been selected for early completion of the study is Grand Rapids, Mich. As these studies are published they will undoubtedly be of great interest to physicians who have contributed so liberally of their cooperation to make this study possible. The great care exercised in the preliminary preparations for this study and the high degree of public and medical cooperation that seems to have been achieved lend color to the hope that this first great and comprehensive study of disease conditions in the United States will be as accurate as it is comprehensive.

Current Comment

INSULIN SHOCK TREATMENT FOR SCHIZOPHRENIA

The amazing results already reported in some cases in which the insulin shock treatment has been applied in schizophrenia have resulted naturally in a certain amount of premature enthusiasm in relationship to the use of the method. It has been widely exploited in the press with the statement that it constitutes a cure for what has formerly been considered an incurable disease. As a result, the Committee on Public Education of the American Psychiatric Association has considered it worth while to issue a public statement on the present status of this new method. The statement comes with the approval of all the members of the

1. Health Officer 1: 333 (Jan.) 1937.

penis or in women the breasts and nipples. Otherwise lesions appear thickest on the dorsa of the webs of the fingers and sides of the fingers and on the flexor surface of the wrists and elbows, the anterior axillary fold, the ankles and the buttocks. Any other area may be involved. The number of lesions may be great in the unhygienic, among whom scabies is most characteristic. They are scanty in the cleanly, in whom diagnosis is difficult and may have to be made by exclusion or because of the itching. It is of aid in these ill defined cases to find burrows and it is diagnostic to extract from these minute tracts the causative animalcule, the acarus of scabies. Experience makes one adept at piercing the small grayish speck at the blind end of the burrow and bringing up on the tip of the needle or blade the clinging organism recognizable under the low power microscope.

**Treatment.**—All clothing that has been in contact with the skin during the course of the disease must be boiled, laundered or dry cleaned (which means a thorough immersion in naphtha). The patient should take a prolonged warm bath, thoroughly scrubbing with soap and brush. After drying the skin the remedy is applied to the entire skin below the clavicles. Sulfur ointment, preferably diluted (prescription 4), is to be used night and morning for a total of six times. Then

**PRESCRIPTION 4.—Diluted Sulfur Ointment**

R Sulfur ointment .....	30.00 Gm.
Ointment .....	30.00 Gm.
M. Label: Apply to entire body below collar bones. (For scabies.)	

the bath is repeated and the clothes worn during the treatment should be boiled, laundered or dry cleaned. The "clean up" is the most important part of the treatment and also the most difficult to get carried out thoroughly, as well as the most expensive. For children, one-half or one-fourth the strength of the ointment used for adults should be prescribed. For those who have an idiosyncrasy against sulfur, 5 or 10 per cent betanaphthol ointment (prescription 5) should be resorted to. "One day cures," such as the Danish treatment, are apt to be too irritative.

**PRESCRIPTION 5.—Betanaphthol Ointment**

R Betanaphthol .....	0.15 Gm.
Ointment .....	30.00 Gm.
M. Label: Apply to entire body below collar bones. (For scabies.)	

Continuance of the itching means (a) that the treatment was not thorough enough, (b) reinfestation from contacts, (c) residual irritation of the skin, possibly aggravated by the treatment, or (d) habit formation.

(a) To exclude the first possibility, one may repeat the treatment, which should always suffice.

(b) Infested contacts must be eliminated by treatment of these, or otherwise.

**PRESCRIPTION 6.—Borated Cold Cream**

R Boric acid .....	3.00 Gm.
Rose water ointment .....	30.00 Gm.
M. Label: Apply locally. (To soothe and soften.)	

**PRESCRIPTION 7.—Diluted Ammoniated Mercury Ointment**

R Ammoniated mercury ointment .....	15.00 Gm.
Ointment .....	15.00 Gm.
M. Label: Apply to lesions. (For pus infestation of skin.)	

(c) Residual irritation requires that the skin be soothed by Calamine Lotion or other bland application, or by 10 per cent borated cold cream (prescription 6) if it is excessively dry. If there is much trauma or if there are many raw areas from wild scratching, these should be cared for even before instituting measures for the scabies itself. Colloid baths and Calamine Lotion or Liniment help to prepare a badly scratched and traumatized skin for the more specific and irritating

scabies ointment. For pus infections, half strength Ammoniated Mercury Ointment (prescription 7) may be used after sponging with Mercury Bichloride Solution to remove the crusts.

(d) Habit requires psychotherapy, possibly plus Calamine Lotion as a placebo (see Pruritus).

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**ICHTHAMMOL.**—Bitumen Sulphonatum, N. F. V.—Ammonium Ichthosulfonate.—"Ichthammol is obtained by the destructive distillation of certain bituminous schists, sulfonating the distillate, and neutralizing the product with ammonia." N. F.

For standards see the National Formulary under Ichthammol. **Actions and Uses.**—See general article, Sulfoichthyolate Preparations and Substitutes, New and Nonofficial Remedies, 1936, p. 424.

**Ichthyol.**—A brand of Ichthammol, N. F.

Manufactured by the Ichthyol Company, Rahway, N. J. (Merck & Co., Inc., Rahway, N. J., distributor). No U. S. patent. U. S. trademark 62,603.

Ichthyol conforms to the standards of Ichthammol, N. F. VI, and in addition to the following standards: Dissolve 10 Gm. of ichthyol in 90 cc. of water, in a glass-stoppered cylinder and allow to remain undisturbed for twenty-four hours; no deposit forms. Transfer 0.5 to 1 Gm. of ichthyol accurately weighed to a Kjeldahl flask, dilute with 30 cc. of water, add 5 Gm. of potassium chlorate and 30 cc. of hydrochloric acid, evaporate the mixture to about 5 cc., add 25 cc. of hydrochloric acid, evaporate this solution to about 5 cc., again add 25 cc. of water; heat the solution to boiling, add 10 cc. of barium chloride solution, allow the mixture to stand twenty-four hours; the weight of the precipitated barium sulfate determined in the usual way will correspond to at least 10 per cent of total sulfur. If the ammonia contained in the ammonium sulfate as previously determined in ichthyol is calculated, and the result subtracted from the "total ammonia" as previously determined, the remainder will represent the ammonia combined with the organic sulfonic acids. If this value is multiplied by 1.88 the result will represent the sulfur present in the sulfonic acids in an oxidized state; i. e., the "sulfonic sulfur." If the sulfur contained in the ammonium sulfate as previously determined in ichthyol is calculated, and the result subtracted from the "total sulfur" as previously determined, the remainder will represent the sulfur present in the organic sulfonic acids contained in the substance. If the "sulfonic" sulfur in ichthyol as previously calculated is subtracted from the sulfur in the organic-sulfonic acids as previously calculated, the remainder will correspond to at least 5.5 per cent of "organic" ("sulfide") sulfur.

**RABIES VACCINE** (See New and Nonofficial Remedies, 1936, p. 376).

The Cutter Laboratories, Berkeley, Calif.

**Rabies Vaccine (Semple).**—Also marketed in packages of seven vials, each containing 1 cc.

**BACTERIAL VACCINE MADE FROM THE TYPHOID BACILLUS** (See New and Nonofficial Remedies, 1936, p. 401).

The Cutter Laboratories, Berkeley, Calif.

**Typhoid Prophylactic.**—Also marketed in bottles of 20 cc. containing 1,000 million killed typhoid bacilli per cubic centimeter.

**McKESSON'S HALIBUT LIVER OIL WITH VITAMIN D CONCENTRATE IN NEUTRAL OIL, 6 CC.**—Halibut liver oil with added natural vitamin D obtained from cod liver oil and other fish liver oils. It is assayed to have a potency of not less than 59,000 units (U. S. P.) of vitamin A per gram and not less than 1,000 units (U. S. P.) of vitamin D per gram.

Manufactured by the International Vitamin Corporation, New York (McKesson & Robbins, Inc., Bridgeport, Conn., distributor). The vitamin D concentrate used is made under U. S. patent No. 1,690,091.

**DIGITALIS** (See New and Nonofficial Remedies, 1936, p. 168).

**Tablets Digitalis Whole Leaf-Lederle,  $\frac{3}{4}$  grain:** Each tablet contains  $\frac{1}{2}$  cat unit.

**Tablets Digitalis Whole Leaf-Lederle,  $1\frac{1}{2}$  grains:** Each tablet contains 1 cat unit.

**Tablets Digitalis Whole Leaf-Lederle, 3 grains:** Each tablet contains 2 cat units.

Prepared by the Lederle Laboratories, Inc., Pearl River, New York.

were saved from subservience to the approved societies, and the intrusion into insurance practice of the evils of the old forms of contract practice was prevented. These results have been very far-reaching in their influence, for national health insurance practice not only affects a large proportion of the population but also sets the standard for other forms of contract practice.

The quotation here cited is not offered as an endorsement of the British system of health insurance. It is cited rather as an indication of the manner in which a united medical profession may express its wish to governmental authorities and legislative bodies. From present indications the medical profession in this country will, if necessity warrants, express its views with even greater unanimity than did our British confrères.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

**Two Day Graduate Course.**—The Arkansas Medical Society held its second two day course of graduate instruction at the University of Arkansas School of Medicine, Little Rock, January 13-14. Guest speakers included:

- Dr. Walter C. Alvarez, Rochester, Minn., Treatment of Diseases of the Digestive System.
- Dr. Curtice Rosser, professor of proctology, Baylor University College of Medicine, Dallas, Texas, Diagnosis and Management of Common Rectal-Anal Conditions.
- Dr. Urban Maes, professor of surgery, Louisiana State University Medical Center, New Orleans, Symptoms, Diagnosis and Treatment of Gallbladder Diseases.

**Bills Introduced.**—S. 120 proposes that the state accept an offer from the city of Little Rock to convey to the state the Little Rock City Hospital, which hereafter is to be known as the Arkansas State Charity Hospital and is to provide free hospitalization and medical treatment for the indigent sick of the state. H. 248 proposes to prohibit the cultivation, preparation, possession or distribution of marihuana. The bill proposes, however, that it shall not be unlawful for any licensed pharmacist to possess marihuana for sale on the written prescription of a physician, osteopathic surgeon, dentist or veterinarian.

### CALIFORNIA

**Bills Introduced.**—S. 291 proposes, in the event a business and professions code is enacted by the fifty-second legislature, to repeal the act to prevent blindness from ophthalmia neonatorum, approved June 11, 1915, and to enact in its stead as article 3, chapter 1, division II, of the proposed business and professions code an article proposing to make it the duty of any physician, midwife, nurse, maternity home or hospital, and any person or persons attendant on or assisting at childbirth in all cases in which the child develops ophthalmia neonatorum within two weeks after its birth, to report the case within twenty-four hours after knowledge to the appropriate local health officer. Senate Constitutional Amendment No. 5 proposes to authorize the governing body of any city, county or city and county (1) to establish a general hospital for the treatment of both indigents and persons able to pay and (2) to adopt rules and regulations, among other things, with respect to the rate or fees to be charged nonindigent patients. S. 314 proposes to authorize the superintendent of schools of each county to employ one or more nurses to supervise the health of pupils enrolled in the elementary schools and to perform such duties as may be prescribed by the county superintendent of schools. A. 871 proposes to exempt from the provisions of the state sales tax "the gross receipts from the sale of drugs of all kinds and character." A. 880 proposes to establish a business and professions code and to consolidate and revise the law regulating, among other things, the licensed professions and callings. The bill proposes to create a department of professional and vocational standards to be composed of the board of dental examiners, the board of medical examiners, the state board of optometry, the state board of pharmacy, the board of exam-

iners in veterinary medicine, and the board of accountancy. Each of the boards comprising the department is to exist as a separate unit and is to set standards, hold meetings and set dates thereof, prepare and conduct examinations, pass on applicants, conduct investigations of violations of laws under its jurisdiction, issue citations and hold hearings for the revocation of licenses, and impose penalties following such hearings. The department is to have possession and control of records, books, papers, offices, equipment, supplies, funds, appropriations, land and other property now or hereafter held for the benefit or use of any of the bodies comprising the department. The bill proposes to prohibit various designated types of frauds of medical records and to prohibit certain types of advertising, such as advertising with respect to venereal diseases, lost manhood, impotence, seminal emissions, self abuse, or medicine or means for producing or facilitating a miscarriage or abortion, or for the prevention of conception. A. 937 proposes to permit nonprofit corporations to establish, maintain and operate nonprofit hospital service plans whereby hospital care is to be provided by said corporations to such of the public as become subscribers. No corporation is to be permitted to operate a nonprofit hospital service plan until it has procured the written consent of the commissioner of insurance. Apparently, corporations operating a hospital service plan on a profit basis or which, though operating such a plan on a nonprofit basis, conduct any business whatsoever on a profit basis are not to be able to qualify under this act. A. 1009 proposes to make it unlawful for any person to own, possess or operate any x-ray device or x-ray laboratory unless such device or such laboratory is operated under the direct supervision of a person licensed by the state board of health. Apparently only licentiates of the board of medical examiners, licensed osteopaths and licensed dentists are to be eligible for licensure by the board of health. However, nothing in the bill is to be construed to prohibit "the ownership, possession, maintenance or operation of x-ray devices used only as an incident to the lawful diagnosis or lawful treatment of persons by duly licensed physicians and surgeons, osteopaths, drugless practitioners, or dentists by means other than x-rays or x-ray devices or the taking of spinographs by duly licensed practitioners of chiropractic."

### COLORADO

**WPA Research Laboratory.**—In the news item describing a tuberculosis research laboratory recently built in Colorado Springs, appearing in THE JOURNAL, Dec. 26, 1936, page 2137, the letters PWA were inadvertently used instead of WPA.

**Society News.**—Dr. Jonas Curtis Lyter, St. Louis, discussed angina pectoris before a special meeting of the Medical Society of the City and County of Denver December 14.—Dr. Henry A. Buchtel, Rochester, Minn., discussed "The Use of Mandelic Acid" before the Pueblo County Medical Society in Pueblo, January 19.—Dr. Omer R. Gillett presented a paper before the El Paso County Medical Society, Colorado Springs, January 13, entitled "Some Sewage Problems Which May Be Related to Public Health."—At a meeting of the Northeast Colorado Medical Society in Sterling, January 15, Dr. Thad P. Sears, Denver, discussed arthritis.—The Crowley County Medical Society was addressed in Olney Springs, January 2, by Drs. George B. Stanley and William M. Desmond, both of Ordway, on "Streptococcic Infection of the Throat" and "Treatment of Influenza and Pneumonia" respectively.

### CONNECTICUT

**Library Named in Honor of Dr. Steiner.**—The library of the Hartford Medical Society has been named the Walter R. Steiner Medical Library in honor of Dr. Steiner, librarian since 1903. The change was made at a meeting January 4. A native of Maryland, Dr. Steiner graduated from Johns Hopkins University School of Medicine in 1898. He was president of the Medical Library Association from 1931 to 1933; secretary of the Connecticut State Medical Society from 1905 to 1912, chairman of its council, 1929-1933, and president, 1934-1935. He was president of the Hartford Medical Society in 1929 and of the American Clinical and Climatological Association, 1934-1935. Except for the sessions of 1926 and 1928, Dr. Steiner has been a member of the House of Delegates of the American Medical Association since 1919. The library of the Hartford Medical Society was begun sixty-two years ago and consists of about 20,000 volumes.

**Bills Introduced.**—H. 139 proposes to prohibit the sale, for household use, of any caustic potash, caustic soda or lye, oxalic acid or salt thereof, or any ammonia water in concentration of 5 per cent or more unless the container as retailed bears the word "poison" and a "statement instructing as to

rapidly from the intestinal tract, but whether it is more rapidly absorbed than other sugars is not entirely clear.

After it has been absorbed, dextrose is further converted by the normal person into glycogen and stored temporarily in the liver and muscle; it may be burned to yield ultimately carbon dioxide and water, with the production of heat and energy, or it may be transformed into fat and stored in the fat depots of the body. Under certain conditions some of it may even spill into the urine. The determination of the respiratory quotient has been used as a customary method of studying the relative rates of the oxidation of dextrose and other carbohydrates. This determination requires the measurement of the volume of carbon dioxide produced and the volume of oxygen consumed. The first figure divided by the second gives the value of the respiratory quotient. When dextrose is burned, the respiratory quotient is 1.0 because there are six molecules of carbon dioxide and six molecules of oxygen involved in the metabolism of one molecule of dextrose. When pure fat is burned, the respiratory quotient is about 0.70. It has been found that the respiratory quotient in the postabsorptive state is in the neighborhood of 0.80, which indicates that a mixture of fat and carbohydrate (and possibly protein) is being burned but that fat is the predominant fuel. If dextrose is given to a subject in this postabsorptive condition, the respiratory quotient is found to rise within sixty minutes to a value of about 0.90 to 0.95. When levulose is ingested, the respiratory quotient rises much more quickly; in about twenty minutes it has reached a value of 1.0. Figures above 1.0 also have been reported; these may be interpreted in at least two ways. High quotients, particularly those greater than unity, may mean that the carbohydrate is being converted into fat or it may mean that additional carbon dioxide is being eliminated because of a reduction in the bicarbonate content of the blood resulting from the formation of organic acids from the carbohydrate. Carpenter and Lee<sup>8</sup> attempted to overcome the latter objection by measuring what they call the alveolar respiratory quotient. With their technic they were able to corroborate the general observation that ingestion of levulose or sucrose is followed by a more rapid rise in the respiratory quotient than is observed after the ingestion of dextrose. The general conclusion is that levulose and sucrose are absorbed quickly (sucrose normally is converted first into levulose and dextrose) and oxidized quickly by the body. Studies of the respiratory quotient show that sucrose and levulose affect carbon dioxide production more quickly than does dextrose, but whether this means that these sugars are more rapidly absorbed and metabolized than dextrose is not clear.

Deuel<sup>9</sup> and his collaborators at the University of Southern California have made a number of interesting studies on the relative value of different carbohydrates in combating ketosis. Ketosis was produced usually by allowing the subjects to fast for several days or by the ingestion of high fat diets until the urine showed the presence of ketone bodies. Different carbohydrates were then administered and it was observed that galactose, levulose and sucrose were all superior to dextrose in combating the ketosis. They were also more effective than dextrose in causing a diminution in the amount of ketone bodies excreted in the urine and in reducing the urinary nitrogen excreted (the so-called nitrogen sparing action). Murlin and his collaborators<sup>10</sup> have recently reported somewhat different results. With dogs and human subjects they have found that the relative antiketogenic effect of different sugars varies with the method of producing ketosis, and even with the amount of sugar given.

As a result of the efforts of many physiologists and biochemists, a great deal has been learned about the fuel of mus-

cular exercise. In a recent review Dill<sup>11</sup> concluded that the fuel of light exercise is whatever may be available at the time when the body demands an extra source of energy. For exhaustive work, however, carbohydrates are important. In 1924 Levine, Gordon and Derick<sup>12</sup> reported some interesting observations on the effect of feeding dextrose to marathon runners. They observed that the exhaustion of the runner—after running from 14 to 18 miles—was correlated with low blood sugar values and they suggested the use of carbohydrate meals before severe athletic contests. The following year, 1925, they<sup>13</sup> reported experiments in which they provided runners with dextrose candies to be eaten during a marathon race. They reported an improvement in the condition at the end of the race of the runners who had eaten dextrose. Dill<sup>11</sup> pointed out that, while the feeding of carbohydrate and especially dextrose to an individual before an athletic contest may be a rational procedure from the engineering point of view, it has not received favor among athletes. The general feeling is that man is an animal subject to digestive upsets and should not be treated like a steam engine into which fuel is shoveled. A suggestion made by certain manufacturers of candies containing dextrose, that ingestion of their products will improve the athletic ability of the young man who eats it immediately prior to his events, is certainly not justified by adequate evidence. An interesting experiment along related lines has been made by Haggard and Greenberg.<sup>14</sup> These workers investigated the muscular efficiency of university persons and employees of a factory who were engaged in individual tasks on a piece work basis. The Yale investigators found that the efficiency with which a given task was performed was greatest when the blood sugar was high and the respiratory quotient near unity. This condition they were able to secure and to maintain for a longer period during the day by having the subjects eat mid-morning and midafternoon lunches. No studies of the effect of individual carbohydrates were made, and, in the opinion of the investigators, the beneficial results which they reported could be obtained by dividing the usual daily intake of food into five small meals instead of three large meals.

More recently Bjøe<sup>15</sup> determined the blood sugar concentration as part of an investigation into the physiology of severe exercise. He found that subjects who had previously subsisted on a high fat diet develop hypoglycemic symptoms during extraordinarily severe work much sooner than they did when subsisting on a high carbohydrate diet. The blood sugar could be quickly brought up to normal levels and the symptoms relieved by the administration either of dextrose or of sucrose by mouth.

#### SUMMARY AND ALLOWABLE CLAIMS

Dextrose is a sugar found in many natural products or incorporated in different fabricated food mixtures. It is also being produced in pure form in large quantities. Its sweetness is about 75 per cent of that of sucrose. Dextrose should not be termed the physiologic sugar, for such designation permits the connotation that dextrose is a preferred food; which is not compatible with known facts. Although dextrose requires no hydrolytic changes in the alimentary tract to prepare it for absorption, it is incorrect to state that it is instantly absorbed. Dextrose is well utilized as a food, but it possesses no practical advantages over many other carbohydrates in combating ketosis produced by either a high fat diet or by fasting, nor does dextrose itself have unique advantages when administered by mouth to prevent or relieve fatigue or to maintain muscular efficiency to a high degree. Dextrose is produced by the digestion of the most important dietary carbohydrate, starch. The evidence which indicates any superiority, under normal conditions, of dextrose ingested as the free sugar over dextrose ingested as the polysaccharide starch is not convincing.

8. Carpenter, T. M., and Lee, R. C.: The Effect of Glucose and Fructose on the Human Respiratory Quotient and Alveolar Air, *J. Nutrition* 6: 55 (Jan.) 1933.

9. Deuel, H. J., Jr.; Gulick, Margaret, and Butts, J. S.: Studies on Ketosis: II. The Comparative Ketolytic Action of Glucose, Galactose, Fructose and Sucrose, *J. Biol. Chem.* 98: 333 (Oct.) 1932.

10. Clark, D. E., and Murlin, J. R.: The Effects of Glucose, Fructose and Galactose on Ketosis, Produced by Anterior Pituitary Extract and by Pancreatectomy, *J. Nutrition* 12: 469 (Nov.) 1936. Murlin, W. R., and Manly, R. S.: Comparative Effects of Glucose, Sucrose and Fructose on Ketone Substance Produced in Phlorhizinized Dogs, *ibid.* 12: 491 (Nov.) 1936. Murlin, J. R.; Nasset, E. S.; Murlin, W. R., and Manly, R. S.: The Rate of Ketogenesis in Human Subjects on High Fat Diets, as Influenced by Different Sugars, *ibid.* 12: 645 (Dec.) 1936.

11. Dill, D. B.: The Economy of Muscular Exercise, *Physiol. Rev.* 16: 263 (April) 1936.

12. Levine, S. A.; Gordon, Burgess, and Derick, C. L.: Some Changes in the Chemical Constituents of the Blood Following a Marathon Race, *J. A. M. A.* 82: 1778 (May 31) 1924.

13. Gordon, Burgess; Kohn, L. A.; Levine, S. A.; Matton, Marcel; Seriver, W. deL., and Whiting, W. B.: Sugar Content of the Blood in Runners Following a Marathon Race, *J. A. M. A.* 85: 508 (Aug. 15) 1925.

14. Haggard, H. W., and Greenberg, L. A.: Diet and Physical Efficiency: The Influence of Frequency of Meals upon Physical Efficiency and Industrial Productivity, New Haven, Yale University Press, 1935.

15. Bjøe, Ove: The Blood Sugar During and After Physical Exercise, *Skandinav. Arch. f. Physiol., Suppl.* 10, 74: 1, 1936.



health and preventive medicine and head of the department at Cornell University Medical College, New York. According to the *New York Times*, Dr. Smillie will represent Cornell in his new post in supervision of the health center in Kipps Bay, Yorkville, now being erected in cooperation with the New York City Department of Health. A native of Eaton, Colo., Dr. Smillie is 50 years of age. He graduated from Harvard University Medical School in 1912 and was an instructor from 1914 to 1916. He served as a staff member of the International Health Board of the Rockefeller Foundation from 1917 to 1927. Lent by the latter, he was director of the Instituto de Hygiene, São Paulo, Brazil, from 1919 to 1921. Dr. Smillie is the author of "Public Health Administration in the United States."

**Bills Introduced.**—H. 1448, to amend the workmen's compensation act, proposes, in effect, apparently to deprive an injured worker of the right to select his own physician for the treatment of his industrial injuries. Specifically, the bill provides: "If the insurer provides a physician he shall forthwith notify the injured person's family doctor or other physician selected by the employee, which physician shall then be entitled to assume charge of the case, and the reasonable cost of said physician's services shall be paid by the insurer." H. 721 proposes that in proceedings to commit a person to an institution for the insane that person shall have the right, at his own expense, to be examined at reasonable times by physicians of his choice for the purpose of giving evidence at such hearing on the question of his mental condition. H. 791 proposes to create a commission, to consist of one member of the senate, three members of the house of representatives, and three persons to be appointed by the governor, to investigate and study (1) a method whereby medical and surgical services may be available to the indigent, to those who because of limited resources are unable unaided to meet the cost of serious illness and to those living in remote districts and where adequate medical services are not obtainable, and (2) the subject of medical education particularly in regard to discrimination as to the number of members of various racial groups permitted to study medicine, whether or not a fair opportunity to study in tax exempt hospitals is afforded to all properly qualified medical students, the advisability of establishing a grievance board to which an appeal may be made from dismissals of students in tax exempt medical schools and the relation between the American Medical Association and tax exempt medical schools with respect to medical education. This commission is to report the results of its investigation and its recommendations to the general court, together with drafts of suggested legislation, not later than the first Wednesday of December 1937. H. 892 proposes to require both parties to a prospective marriage, as a condition precedent to the obtaining of a license to wed, to present to the official authorized to issue a marriage license a statement, signed by a licensed physician, that neither party is infected with syphilis. The physician's statement must be accompanied by a record of a standard laboratory blood test made not more than forty days before the issuance of the marriage license. H. 1200, Appendix III, proposes to authorize the department of public health to supervise all bacteriological and clinical laboratories, to make the necessary rules for their regulation and conduct, and, in effect, to license such laboratories. The bill proposes to define a "bacteriological laboratory" as a place or establishment which is maintained "in whole or in part for the purpose of accepting for and subjecting to bacteriological study or analysis specimens of blood, sputum, urine, feces, or other fluids, secretions or excretions of the body of persons ill or suspected of being ill with a disease dangerous to the public health." "Clinical laboratory" is defined as a place or establishment maintained "for the purpose of accepting and subjecting to chemical, physical, biological or bacteriological study or analysis specimens of blood, sputum, urine, feces, or other fluids, secretions or excretions from the living body of persons not residing therein or in an institution of which said laboratory is an integral part." Nothing in the bill is to be construed to require a physician or a dentist, maintaining a laboratory personally or with the aid of paid assistants for the sole purpose of performing tests from specimens obtained from patients under the direct personal care of said physician or dentist, to be licensed by the department. H. 1200, Appendix 40, proposes to require a physician having charge at the birth of an infant born prematurely, other than in a hospital or institution equipped to care for such infants, and weighing less than five pounds, to notify the board of health of the city or town in which the infant was born within twenty-four hours after birth. The board of health on receiving notification must forthwith provide for the transportation of such infant to a hospital equipped to care for prematurely born infants unless in the opinion of the attending physician such removal is deemed inadvisable.

## MICHIGAN

**Bill Introduced.**—S. 60 proposes to grant to governmental hospitals and hospitals supported in whole or in part by private charity which have treated persons injured through the negligence of others, liens on all rights of action, suits, claims, counterclaims or demands accruing to the injured persons by reason of their injuries.

**Hospital News.**—The Internae Alumnae Association of Providence Hospital, Detroit, held its first annual winter clinic, January 5-9, at the Providence Hospital Nurses' Home. Dr. Walter Schiller of the University of Vienna was the guest lecturer.—The new McArthur Strange Hospital, Mount Pleasant, was opened recently.

**Scholarship in Honor of Dr. Parker.**—A scholarship will be established at the University of Michigan in honor of Dr. Walter R. Parker, emeritus professor of ophthalmology at the university's medical school, Ann Arbor. Funds will be provided through a gift of \$30,000 to the university under the will of the late Mrs. Parker. Dr. Parker, who still practices in Detroit, graduated from the University of Pennsylvania School of Medicine in 1891.

## MINNESOTA

**Committee on Syphilis Control.**—The council of the Minnesota State Medical Association has authorized the appointment of a committee on syphilis control. Dr. Samuel E. Sweitzer, Minneapolis, will be chairman.

**Bills Introduced.**—H. 401 and S. 433, to amend the workmen's compensation act, propose to add to the list of compensable occupational diseases, carbon monoxide gas poisoning. H. 442 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act.

**Imprisoned for Illegal Operation.**—Ethel Planque, also known as Ethel Benson, 52 years of age, was sentenced Dec. 21, 1936, by Judge Frank E. Reed, in the district court of Hennepin County, to a term of from one to fifteen years in the state reformatory for women at Shakopee. According to the Minnesota State Board of Medical Examiners, Mrs. Planque was indicted by the grand jury of Hennepin County, December 9, charged with manslaughter in the first degree, and on December 19 she was permitted to plead guilty to manslaughter in the second degree. The indictment was returned following the death of a 19 year old Minneapolis girl, following an abortion performed in Mrs. Planque's home in Hopkins. The defendant admitted that she had no medical training.

## MISSOURI

**Centennial Celebration in St. Louis.**—The St. Louis Medical Society will observe its one hundredth anniversary, March 22-23.

**Bill Introduced.**—S. 3 proposes to authorize the board of curators of the state university to establish a general hospital in connection with the school of medicine of the University of Missouri for the care and treatment of the indigent sick of the state.

**Society News.**—Dr. José Arcé, dean of the Faculty of Medical Science and professor of the surgical clinic, University of Buenos Aires, Argentina, addressed the St. Louis Medical Society, January 26, on "Packing Gauze Drainings After Total Pneumectomy," and Dr. Peter Heinbecker, "Factors Determining the Type of Surgery Applicable in Cases of Spastic Vascular Disease."—At a meeting of the Jackson County Medical Society, January 19, the following members of the Kansas City Pathological Society spoke: Drs. Ward W. Summerville, "Rheumatic Endocarditis and Pericarditis"; Morris S. Harless, "Aneurysm of the Aorta"; Cecil G. Leitch, "Hematological Studies."—Dr. Isidore Friesner, New York, lectured at the Oscar Johnson Institute, St. Louis, January 19, on the fundamentals of otolaryngology.

## NEVADA

**Bill Introduced.**—A. 15 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions.

## NEW HAMPSHIRE

**New Secretary of Registration Board.**—Dr. Fred E. Clow, Wolfeboro, was elected secretary-treasurer of the State Board of Registration in Medicine at a meeting in Concord, January 19. Dr. Clow succeeds the late Dr. Charles Duncan. Dr. Howard N. Kingsford, Hanover, was reelected president.

THE RISE OF MEDICAL JOURNALISM

In a series of articles<sup>1</sup> in current issues of the London *Lancet* a chronicler traces the rise of medical journalism from the earliest times to the present. He suggests that medical journalism began with the votive offerings found in the temples of Aesculapius; these were essentially clinical notes and were thus the starting point of medical literature.

In the period called the Dark Ages the publication of medical material lapsed, although industrious scribes kept medicine alive through their records, which were stored away in the monasteries. Apparently the first definite medical journal to be published in Great Britain was the *Foreign Medical Review*, which ran for ten years at the end of the eighteenth century. That publication had slight support. It was based largely on materials published on the continent of Europe, which were abstracted. Then in 1781 the *London Medical Journal* was established, which also was devoted to extracts from foreign material. Other periodicals appeared at fairly frequent intervals until in 1823 the London *Lancet* made its first appearance. With this publication medical journalism assumed a new shape. The immediate popularity of the *Lancet* was apparently due to the fact that it became a voice for the profession and at the same time supplied the physician with medical information. Its first editor, Thomas Wakley, did what he could to publish exact reports of the lectures given in the hospitals and records of the cases presented. Lecturers in the clinics who were accustomed to being paid for what they had to say objected to this pirating of their material and its dissemination in a periodical. A polemic discussion resulted with a fine calling of names and an exchange of scurrilous insinuations. The scurrility was, of course, in the nature of the times.

In this series of articles the author next considers modern attempts to develop medical information in a manner suitable for a public audience. In Great Britain the General Medical Council has warned physicians that they "should not append their signatures to descriptions of treatment as, in the by and large, the advice given could not be generally useful. Not to accept this warning is to run the grave risk of professional status." Fortunately the admonition is administered by the General Medical Council with a considerable amount of discretion. As every one knows, it is easily determinable from reading an article or interview in the lay press whether it is justifiable or essentially a means of advertisement of its writer.

The writer of these interesting observations in the London *Lancet* is convinced that the thread of medical journalism is unbroken from the time of Hammurabi to the days of the motor car, and he has found the tracing of that thread a fascinating avocation. There is yet not available in any one place a comprehensive history of medical journalism with a real analysis of its effects

on the trends of medical thought, on the advancement of medical science or even on the dissemination of medical knowledge. In a recent conference of the editors of the various state medical journals a considerable portion of one evening was given over to a discussion as to the extent to which the editor of a medical periodical might exert leadership in medical affairs. A review of the history of medical publications indicates that in the case of Wakley at least, and quite certainly in the case of an editor with the record of Dr. George H. Simmons, it becomes possible for those who mold medical thought to exercise leadership in no indefinite manner. Those who bear the responsibility for the issuing of medical publications may well realize the great responsibility which is theirs, particularly in times of active evolution.

WHAT HAPPENS TO STUDENTS OF TWO  
YEAR MEDICAL SCHOOLS

Among our medical educational facilities are some schools, located for the most part in small communities, without clinical facilities, which offer only the first two years of the medical curriculum consisting of the pre-clinical sciences. It is frequently asserted that such schools are needed in their respective states to provide an opportunity, not otherwise procurable, for the boys and girls resident in these states to undertake the study of medicine. It is claimed also that those who have attended these schools will return after graduation to practice in the states in which their medical career was begun.

To test the validity of such statements, an analysis has been made of the birthplace and present location of all students who entered these incomplete schools in the

TABLE 1.—Birthplace of Students

School	Number Admitted	Per Cent Born In the State	Per Cent Born Out of State
A.....	215	55	45
B.....	78	5	95
C.....	141	89	11
D.....	169	73	27
E.....	166	89	11
F.....	114	59	40
G.....	107	40	60
H.....	114	73	27
I.....	113	84	16
J.....	254	53	47

years 1925-1928. These classes were chosen because all of them have had at least four years since graduation in which to complete their internship and to become established in practice. In table 1 will be found, for each of the ten schools in the United States, the total number of students entering the first year class under the years under consideration, and the percentage who were born within, or outside of, the state in which the school is located. In one half of the schools more than a third, and in seven tenths more than a fourth of the students came from outside the state.

1. Grains and Scruples, *Lancet* 2: 1358 (Dec. 5), 1422 (Dec. 12), 1485 (Dec. 19), 1542 (Dec. 26) 1936.

## Philadelphia

**Society News.**—The meeting of the Philadelphia County Medical Society, February 10, was devoted to a group of papers on "Etiology and Treatment of Edema," presented by Walter G. Karr, Ph.D., and Drs. Frederick William Sunderman, Charles L. Brown, Ralph M. Tyson and Seymour DeWitt Ludlum.—Dr. Leonard Colebrook, London, a member of the Medical Research Council of Great Britain, delivered a Nathan Hatfield Lecture before the College of Physicians of Philadelphia, February 3, on "The Control of Hemolytic Streptococcal Infection with Particular Reference to Puerperal Fever."—At a meeting of the Philadelphia Laryngological Society, February 2, the speakers were Drs. Thomas F. Furlong Jr., on "Preoperative and Postoperative Care of Mastoiditis"; Robert J. Hunter, "Methods of Interpreting Fork Tests in Decibels," and Douglas Macfarlan, "Ionization and Other Uses of Electricity in the Ear."—The Philadelphia Roentgen Ray Society and the Obstetrical Society of Philadelphia held a joint meeting February 4, at which the speakers were Drs. Benjamin H. Orndoff, Chicago, on "Diagnostic Uses of the X-Ray and the Biopsitome in a Study of the Corpus Uteri," and Paul A. Bishop, "X-Ray Pelvimetry."

## SOUTH DAKOTA

**Personal.**—Dr. Reginald H. Payne, Tripp, has been named director of a new health unit recently established in Hutchinson County, with headquarters at Tripp.—Dr. Clarence E. Sherwood, Madison, was elected president of the South Dakota Health Officers' Association at its annual meeting recently.

**Bill Introduced.**—H. 40 proposes, in effect, to compel all hospitals supported in whole or in part by public funds or exempted from taxation to permit all "physicians" to practice within their confines. A "physician" within the meaning of the bill is to be a person who has been "graduated from a school of practice in which the course of instruction shall have been for a period of not less than three years, or nine months each, including the following subjects: anatomy (with a full course in dissecting), histology, embryology, physiology, chemistry, toxicology, pathology, symptomology [sic], bacteriology, obstetrics, gynecology, psychology, mental and nervous diseases, skin and venereal diseases, general surgery, medical jurisprudence, hygiene and dietetics, public health and sanitation, with one year of clinical practice."

## TENNESSEE

**Bill Passed.**—S. 174 has passed the senate, proposing to make it unlawful for any person, other than a registered pharmacist, wholesale druggist, producer, or compounder, to sell, barter or possess cannabis or any compound, derivative or preparation thereof, except in accordance with the prescription of a licensed physician, dentist or veterinarian.

**State Association Sponsors Course in Obstetrics.**—A ten weeks course of lectures in obstetrics under the circuit plan is being presented to Tennessee physicians with Dr. Frank E. Whitacre, assistant professor of obstetrics and gynecology, University of Chicago School of Medicine of the Division of Biological Sciences, as the instructor under the auspices of the Tennessee State Medical Association. There are five towns in a circuit, with one session a week in each town. An hour's lecture and an hour for a clinic make up the instruction. Physicians may also consult Dr. Whitacre concerning their own cases as time permits. The fee is \$5, the greater part of the expense being borne by the state medical association, the Commonwealth Fund, the Vanderbilt University School of Medicine, Nashville, and the University of Tennessee School of Medicine, Memphis. Headquarters are in Memphis.

**Bills Introduced.**—S. 193 and H. 330 propose to create a board of naturopathic examiners and to regulate the practice of naturopathy. The bills provide that naturopathy "shall be construed as meaning the use and practice of Psychological and Material health methods and aids in purifying, cleansing and normalizing human tissues for the preservation or restoration of health according to the fundamental principles of anatomy, diagnosis, psychology and applied psychology. Naturopathic practice employs and sanctions the use among other agencies of Phytotherapy, Dietetics, Suggesto-therapy, Hydrotherapy, Zone-therapy, Bio-Chemistry, Massage, External Applications, Electro-therapy, Mechano-therapy, mechanical and electrical appliances, hygiene, first-aid, sanitation and Heliotherapy . . . provided, further, that the practitioners herein licensed shall not write or fill prescriptions calling for drugs." The bill further provides that such a practitioner shall not be permitted to use "X-ray Roentgen Ray machines for healing purposes, nor shall he follow the profession of a medical doctor."

## UTAH

**Bill Introduced.**—H. 86 proposes to authorize the trial court in actions for personal injuries to require the plaintiff to submit to a physical examination by one or more physicians designated by the court.

## WASHINGTON

**Bills Introduced.**—S. 103 proposes, as a condition precedent to the issuance of a license to marry, that each applicant therefor "produce and file . . . the certificate of a duly qualified physician, reciting that the applicant has submitted to a physical, mental and serological examination of a scope prescribed by the state department of health, and further certifying that the applicant is not feeble-minded, an imbecile, idiot, insane, a common drunkard, afflicted with pulmonary tuberculosis in its advanced stages, or any venereal disease." S. 134 proposes to repeal the law authorizing the sexual sterilization of certain socially inadequate persons and to enact in its stead a far-sweeping "eugenical sterilization law." S. 141 proposes to prohibit the possession, sale or distribution of amytal, luminal, veronal, barbital, acid diethylbarbituric, except on the prescription of a licensed physician, dentist or veterinarian. S. 140 proposes to require the proprietor or manager of a pharmacy to preserve for not less than five years the original of every prescription compounded or dispensed in the pharmacy and to permit the prescriptions to be inspected at all times by the prescriber, the board of pharmacy or any officer of the law.

## WYOMING

**Bills Introduced.**—H. 107 proposes to require governmental hospitals and all hospitals exempted, in whole or in part from taxation, to admit and care for "the patients of any regularly licensed physician, osteopath, chiropractic [sic], optometrist or dentist under the same terms and conditions as may be promulgated by the management of said hospital as the patients of any other regularly licensed physician, osteopath, chiropractic [sic], optometrist or dentist." H. 116 proposes to create a board of drugless therapeutic examiners and to regulate the practice of drugless therapy, which is defined as "any system of therapy that does not resort to the use of drugs, medicines, or operative surgery for the prevention, relief or cure of any disease."

## GENERAL

**Mid-South Graduate Assembly Postponed.**—On account of flood conditions, the Mid-South Post Graduate Medical Assembly which was to have been held in Memphis, Tenn., February 16-19, has been canceled.

**Conference on Occupational Disease.**—The Mid-West Conference on Occupational Disease will be held at the Hotel Statler, Detroit, May 3-7, under the auspices of the Detroit Department of Health, the Michigan State Medical Society, the Wayne County Medical Society and other interested agencies. The conference will be held in conjunction with the annual meeting of the American and Michigan associations of industrial physicians and surgeons.

**Exhibit of Scientific Photography.**—Monday February 15 is the closing date for entries in the international exhibit of scientific and applied photography sponsored by the Rochester (N. Y.) Technical Section of the Photographic Society of America (THE JOURNAL, January 16, p. 214). The exhibit, which will be on view from March 15 to April 3, will be divided in ten sections, including one on "Radiography and Medical Photography." Mr. C. B. Neblette, Rochester Athenaeum and Mechanics Institute, Rochester, N. Y., is secretary of the exhibit.

**Society News.**—Dr. Wingate Todd, Cleveland, was the guest speaker at the fall meeting of the Society for the Study of Asthma and Allied Conditions in New York in December. His subject was "The Value of Developmental Growth Studies in the Evaluation of Clinical Allergy." A round table conference was presented by the allergy clinic of Roosevelt Hospital.—Dr. John C. Wilson, Los Angeles, was chosen president-elect of the American Academy of Orthopedic Surgeons at the annual meeting in Cleveland, January 10-14, and Dr. Arthur Bruce Gill, Philadelphia, was installed as president. Dr. Philip Lewin, Chicago, was made vice president and Dr. Carl E. Badgley, Ann Arbor, Mich., secretary. The next meeting will be in Los Angeles, Jan. 15-19, 1938.

**Life Expectation Compared.**—The U. S. Bureau of the Census has recently issued figures comparing the life expectation of Negro and white men and women. Of 100,000 Negro males born alive, 91,268 will reach the second year of life as compared with 93,768 white male infants; 89,755 Negroes

committee<sup>1</sup> and also of the president of the American Psychiatric Association, Dr. C. Macfie Campbell, professor of psychiatry in Harvard University. "The impression that there never has been and is now," says the statement, "no treatment for dementia praecox, except through insulin therapy, is entirely erroneous. While dementia praecox has a less favorable outlook than many other forms of mental illness, much has been done and there are many forms of therapy each promising something. It is hoped, and may prove to be a fact, that the so-called insulin shock treatment for dementia praecox will find a useful place among the forms of treatment for dementia praecox, but its exact value has yet to be determined and it can be definitely stated that it is not a specific, nor by any means a cure for all cases of dementia praecox. It would be a source of regret should the insulin shock treatment be a means of holding out a false hope to the families of the tens of thousands of sufferers from dementia praecox when this hope most certainly cannot be widely realized with present day knowledge of insulin therapy. It is, however, at the present time receiving careful study in the New York and Massachusetts State Hospital systems, Bellevue Hospital, New York, and other scientific centers, but it should not be undertaken except by those adequately trained to meet the dangers connected with the treatment."

#### SYPHILIS IN A LARGE INDUSTRIAL ORGANIZATION

In a report on the incidence of syphilis in an industrial organization employing more than 36,800 persons, the Kahn precipitation test was used for diagnostic purposes. All new employees, according to Gehrmann,<sup>2</sup> and as many of the old employees as would voluntarily submit to the test, were examined by this means. Of the total 36,794 examined, 1,488, or about 4 per cent, were found positive. Positive results were checked with a second test in the central laboratory of the corporation and by Wassermann and Kahn tests done by an independent laboratory. With occasional exceptions it was the policy of the company to keep the results confidential between the central laboratory and the employee. Each employee with a positive reaction was carefully instructed concerning the nature of his condition and referred for treatment either to his physician or to a free clinic. Furthermore, each case was followed persistently by the staff of the medical division to insure adequate treatment. This follow-up information resulted in several expected and several surprising conclusions. Few of the employees with positive reactions refused to be treated. Some physicians, it is reported, attempted to charge fees that were not commensurate with the ability of the employee to handle. Physicians sometimes refused to treat the referred patients in spite of the positive test. In some instances when the attending

physician sent another blood specimen to a private or state laboratory and a negative report was returned the correctness of the diagnosis was denied. Many of the patients were discharged with insufficient treatment. A few patients were treated with pills alone. Although treatment at the free clinics was satisfactory, it was not always possible for the employees to conform to clinic hours and in some instances the clinics would not treat any patient who was employed. This study demonstrates the relatively high incidence of syphilis in at least one industry and the need for routine serologic examination. Furthermore, it is apparent that the cooperation of individual physicians in the treatment of syphilis should be improved if progress is to be made in combating the condition successfully.

#### MEDICAL ORGANIZATION AND SOCIAL SECURITY LEGISLATION

From time to time the Secretary of the American Medical Association has pointed out the importance of a completely united and well organized medical profession for the securing of proper medical representation. It is interesting to read in a recent review on "The Influence of the Association on Legislation"<sup>3</sup> a report of the extent to which the British Medical Association was able to influence considerations in that country of the National Health Insurance Bill. The consideration serves no less to establish the situation that confronted Great Britain at the time when the National Health Insurance Bill was first proposed in 1911. The review says:

The *cause célèbre* of the Association's Parliamentary work is, perhaps, the fight over the National Health Insurance Bill in 1911. Although the history of this conflict is well known, at least in its main outlines, its influence on the future of the profession was so vital and profound that it is well to reflect occasionally upon the full significance of the Association's success, and upon the degree of concerted action among medical practitioners that it was necessary for the Association to secure in order that the profession might achieve its victory.

It will be remembered that the Government did not consult the medical profession during the early stages of the preparation of the scheme; that the original proposals placed the control of medical benefit, including the appointment of doctors, in the hands of approved societies; and that no provision was made for the representation of the profession on any of the bodies entrusted with the administration of the system. Immediately after the introduction of the Bill the Association formulated its policy in its "Six Cardinal Points," which included free choice of doctor and patient, the administration of medical and maternity benefits by Insurance Committees, and the investment of medical committees with the control of professional discipline. The Association then began an intensive campaign to awaken the profession to the danger that threatened its independence. The response was immediate and whole-hearted, and the Association, supported by the signatures of 26,000 practitioners to a pledge to refuse service under the national health insurance scheme except on terms which accorded with its declared policy, and by the formal resignations of 33,000 doctors holding contract appointments with friendly societies, gained most of its points during the protracted negotiations with the Government.

The Association's achievement was of the highest importance to its own status and to the future of the profession. During the fight its authority was undisputed, and its firm refusal to allow any lay body to take part in the arrangement of professional terms of service has ensured to the profession direct access to Government authorities whenever negotiations on medical matters are needed. Medical practitioners themselves

1. Members of the committee include Dr. C. C. Burlingame, clinical professor of psychiatry at Yale University and psychiatrist in chief at the Neuropsychiatric Institute of the Hartford Retreat; Dr. Adolf Meyer, professor of psychiatry at Johns Hopkins University and director of the Phipps Clinic, Baltimore; Dr. William A. White, professor of psychiatry at George Washington University and superintendent, St. Elizabeth's Hospital, Washington, D. C.; Dr. Oscar Raeder, professor of psychiatry at Boston University and chief of the outpatient department of Boston Psychopathic Hospital, and Dr. Karl Bowman, professor of psychiatry at New York University and director of Bellevue Hospital.

2. Gehrmann, G. H.: Syphilis in a Large Industrial Organization. Pub. Health Rep. 17: 227 (Aug.) 1936.

3. The Influence of the Association on Legislation. Brit. M. J. Supplement, Jan. 23, 1937, p. 42.

This has been done under the advice of Mr. Stanley Morison, who was largely responsible for the change of the type face undertaken by the *Times* in the latter part of 1932. The main object is to help the reader and the reader's eyes. The type used for the first issue in 1937 is the product of some years of experiment in the offices of the *Times*, where it was subjected to severe tests. It gives a clear plain print, especially designed for easy reading when set up in columns and produced under newspaper conditions. It is bolder and more legible than any type previously used by the *Journal*. The types used for headings and cross-headings are based on the letter of the text fount, thus achieving unity throughout the pages—a feature lacking in many periodicals.

A striking change has been made in the cover, which is now gray with a scarlet device. A new feature is the list of "Principal Contents," which are for the first time displayed on the outside. This is claimed to be "a gain to all whose time is precious" and to "enable the reader to single out from other matter the subjects dealt with in original papers and special articles." The full table is in its usual place. Another new feature is the adoption of the Harvard system of giving references to scientific literature and the use, with slight modification, of the abbreviations of the World List of scientific periodicals.

## PARIS

(From Our Regular Correspondent)

Jan. 16, 1937.

### Some Social Insurance Statistics

Dr. Phillip Dally in the *Presse médicale*, Dec. 16, 1936, states that in certain countries like France, where state ownership is being rapidly extended to include a number of industries, it is not surprising to note that state medicine is the next objective. In this light, it is of interest to study the statistics of those countries in which sickness insurance is compulsory, as to whether such a law has been of benefit to the citizens in the form of a lower morbidity and mortality rate. A study of this question for the years 1911-1934 appears in the 1936 report of the Committee on Hygiene of the League of Nations. French statistics cannot be used for comparison because the social insurance law has been in effect only since 1930. South Africa, Australia, Canada, New Zealand, Norway and Holland had a mortality rate of 10 per thousand in 1914. Of these, obligatory sickness insurance existed only in Norway. The mortality rate in the United States was 11 per thousand, but this includes the high mortality rate of Negroes. If this were excluded, the rate in the United States, in which there is no sickness insurance, would be less than in those countries in which it is obligatory. Only one country, Chile, in South America, has compulsory sickness insurance. The mortality rate in Chile in 1934 was 26.8 per thousand, as compared to 11.8 per thousand in the republic of Argentina and 10 per thousand in Uruguay. If one studies the influence of sickness insurance on certain causes of death especially amenable to medical treatment, such as diphtheria, some interesting facts are brought out. In the United States and Canada, with the exception of New Orleans and Quebec, no city has a mortality rate from diphtheria above 6 per cent. In Germany and Great Britain, where sickness insurance is obligatory, the mortality rate of diphtheria is 11 per cent and 11.6 per cent, respectively, as compared to 5.2 per cent in Spain and 4.5 per cent in Australia and practically nothing in New Zealand. In none of these three last named countries is sickness insurance obligatory. Similar mortality rates hold true for pulmonary tuberculosis for those countries in which sickness insurance is compulsory compared to those in which it is not.

With regard to infant mortality, the rate for the countries in which sickness insurance is not obligatory is 61 per thousand for South Africa, 72 for Canada, 60 in the United States,

44 for Australia, 32 in New Zealand, 47 in Sweden, 46 for Switzerland and 43 for Holland. This compares favorably with the following countries, in which sickness insurance is obligatory: Germany 66 per thousand, England 59, Denmark 64 and certain cities such as Santiago (Chile), 244.

The conclusion to be drawn from this report, according to Dally, is that the morbidity and mortality rates are lower in the countries in which sickness insurance is not obligatory.

### The Odious "Patente" Tax

In an article entitled "The Odious 'Patente' Tax" in the Dec. 15, 1936, issue of the *Siècle médical*, the unfairness of this additional tax on all members of the liberal professions is complained of. In France, every physician and dentist is taxed by the city or county in which he lives, on his professional income after deductions for professional expenses. In addition there is a personal property tax based on the rent paid for an apartment or house. The "patente" is a third tax, levied on the members of all liberal professions and based on the rent paid for an office or on rental value of the rooms used for professional purposes, if such quarters constitute a portion of the apartment or house in which the physician or dentist, for example, lives. Only within the last few years has the government restricted the "patente" (or privilege) to the rent paid for an office or on the rental value of the rooms actually used as offices. Before this recent lightening of the tax burden, a physician or dentist had to pay the "patente" not only on the rooms used as offices but also on the rental value of his house or apartment if these were separately located, as well as a third "patente" on any suburban residence, even though not used for professional purposes. The medical and dental professions have protested in vain against the injustice of these three taxes on net earnings, on personal property and on the license or privilege to practice; i. e., the "patente." The author of the article in the *Siècle médical* states that the "patente" tax has become such an additional burden that many physicians and dentists will be obliged to close their offices. Although the "patente" was abolished in 1935 for space not used for professional purposes, this suppression has been followed by higher taxes for the rooms used for professional purposes. A letter from a practitioner in the south of France is quoted as complaining of a "patente" tax in 1935 of 8,500 francs (about \$425 at the present rate of exchange) based on a rent of 11,700 francs. For 1936 the "patente" tax has risen to 16,500 francs, although the rent of the offices has not been increased. Another correspondent states that his "patente" tax is 8,000 francs and his rent only 6,300 francs.

### Abuse of Free Medical Care by Physicians and Their Dependents

In the Dec. 13, 1936, *Concours médical* appears an article on the care of members of the medical profession, by one of the editors of the journal, Dr. Raphael Massart. The article is the second of a series on reflections on the practice of medicine. Massart states that both tradition and the code of ethics demand that medical care shall be given to physicians and their dependents without a thought of receiving any remuneration. This custom, which is one of the most noteworthy evidences of the solidarity of the medical profession, is unfortunately not always respected; hence the committees on ethical relations here are frequently called on to hear complaints of abuses of this privilege. Although the code of ethics imposes certain obligations on those who are called on to treat their professional brethren and their dependents, there are also certain duties incumbent on those who receive such free treatment. Every medical man hesitates to call on another to care for himself and his family because he appreciates the loss of time and the fact that in many an instance the recipient of such care cannot reciprocate directly or indirectly. The result is



treatment in case of accidental swallowing of or injury by such chemical." H. 17 proposes to forbid a licensed physician to disclose any information of a confidential character which he may have acquired in attending any patient in a professional capacity and which was necessary for him to serve the patient professionally. H. 329, to amend the state pure food and drug act, proposes that the term "drug," as used in that act, "shall include all medicines and preparations recognized in the United States Pharmacopeia or National Formulary for internal or external medicinal use, any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease of either man or animals, and any substance or mixture of substances of an antiseptic, tonic or toilet nature for internal or external use."

#### DISTRICT OF COLUMBIA

**Medical Bills in Congress.**—*Change in Status:* H. R. 4113 has been reported to the House, proposing to issue a license to practice the healing art in the District of Columbia to Dr. Ralph Charles Stuart. *Bills Introduced:* S. 1224, introduced by Senator King, Utah, proposes to amend the optometry practice act in the District of Columbia so as to permit any individual, firm, partnership or corporation to maintain an optometric department in a mercantile establishment when such department is under the supervision, direction and management of a regularly licensed and registered optometrist. S. 1225, introduced by Senator King, Utah, proposes to provide for lunacy proceedings in the District of Columbia. H. R. 3891, introduced by Representative Quinn, Pennsylvania, proposes to regulate the practice of cosmetology in the District of Columbia. The word "cosmetology" is defined in the act to mean "any one or any combination of practices generally and usually, heretofore and hereafter, performed by, and known as the occupation of, beauty culturists, or cosmeticians, or cosmetologists, or hairdressers, or of any other person holding him or herself out as practicing cosmetology by whatever designation and within the meaning of this Act and in and upon whatever place or premises; and in particular 'cosmetology' shall be defined and shall include, but otherwise not be limited thereby, the following or any one or a combination of practices, to wit: arranging, dressing, styling, curling, waving, cleansing, cutting, singeing, bleaching, coloring, or similar work, upon the hair of any female person by any means, and with hands or mechanical or electrical apparatus or appliances, or by the use of cosmetic preparations, antiseptics, tonics, lotions, or creams, massaging, cleansing, stimulating, manipulating, exercising, beautifying, or similar work, the scalp, face, neck, arms, bust, or upper part of the body, or manicuring the nails of any person."

#### GEORGIA

**Personal.**—Dr. Charles W. Reid, Pelham, has recently completed fifty years in the practice of medicine.—Dr. Thomas F. Abercrombie, director, state department of health, was awarded the honorary degree of doctor of science during the centennial celebration of Emory University, December 12.—Dr. Rufus F. Payne, Lebanon, Tenn., has been appointed health officer of Tift County; he formerly served in a similar capacity in Walker County.

**Bills Introduced.**—H. 84 proposes to authorize the board of regents of the university system of Georgia to establish and maintain in the University of Georgia, located at Augusta, a department for instruction in dental sciences and related subjects. H. 36 and S. 37 propose to grant to physicians, drugless practitioners, dentists, nurses and hospitals treating persons injured through the negligence of another, liens on any claims, moneys or things of value accruing to the injured persons because of their injuries. H. 78 proposes to authorize the department of public health to establish a standard for the organization, equipment and conduct of cancer units or departments in general hospitals in the state, to provide a plan for the care and treatment of indigent persons suffering from cancer, and to acquire such laboratories, hospitals or other property as is necessary to carry out the purpose of the act. The bill proposes to appropriate \$100,000 annually to enable the department of public health to carry out the provisions of the act. H. 179 proposes that a "regular physician or surgeon" shall not, without the consent of his patient, be examined in any civil action as to any information, or opinion based thereon, acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient. S. Res. No. 9 proposes an amendment to the constitution to permit the general assembly to delegate to any county the right to levy a tax for the purpose of furnishing medical care and hospitalization for the indigent sick of the county.

#### ILLINOIS

**Typhoid Carriers.**—Fifty-four new typhoid carriers were detected in Illinois during 1936. This brings the number of carriers under state supervision to 162, according to the Illinois Department of Health.

#### Chicago

**Hospital News.**—The dedication of the new \$200,000 annex to the St. Francis Hospital will take place in May. Work was started last July. The present building of the hospital was constructed in 1923.—St. Elizabeth Hospital celebrated the fiftieth anniversary of its founding, Nov. 14-16, 1936.

**Society News.**—Dr. Frances A. Ford, Detroit, addressed the Chicago Council of Medical Women, February 5, on "The Contact of the Average Physician with the Problem of Cancer."—Dr. Alfred Adler of Vienna gave a lecture January 24, on "The Meaning of Neurosis." The lecture was under the auspices of the Chicago Association for the Study and Advancement of Individual Psychology.

**Personal.**—John McKinlay was elected president of the Presbyterian Hospital Association at its annual meeting, January 20, succeeding Alfred T. Carton, who resigned.—Dr. Harold J. Noyes, clinical associate of pediatrics, Rush Medical College, addressed the Cleveland Dental Society, February 1, on "Modern Dental Contributions to Medical Diagnosis." Dr. Noyes also has a degree in dentistry.—Dr. Anna M. Braunwarth observed her eightieth birthday January 11; she has completed fifty years in the practice of medicine.

#### INDIANA

**Bill Introduced.**—H. 169 proposes to enact a "workmen's occupational disease act" and to make compensable any disablement arising from any occupational disease arising out of and in the course of the employment. The term "occupational disease" is defined to mean a disease arising out of and in the course of employment. A disease is to be deemed to arise out of the employment only if there is apparent to the rational mind, on consideration of all the circumstances, a direct causal connection between the conditions under which the work is performed and the occupational disease; if it can be seen to have followed as a natural incident of the work as a result of the exposure occasioned by the nature of the employment; if it can be fairly traced to the employment as the approximate cause, and if it does not come from the hazard to which workmen would have been equally exposed outside of the employment.

#### IOWA

**Personal.**—Dr. Harold T. Werner has resigned as head of the Santa Fe Hospital, Fort Madison, and has moved to Paducah, Ky., where he will engage in practice.

**Bill Introduced.**—H. 59, to amend the chiropractic practice act, proposes to authorize the board of chiropractic examiners to license chiropractors to practice physical therapy provided such licentiates have pursued a course of training of at least 200 school hours in physical therapy in some recognized institution and shall pass an examination in physical therapy to be given by the board. The bill proposes also to permit chiropractors to practice in all state and public institutions and hospitals supported by public taxation and to permit chiropractors to examine applicants, to recommend admissions and releases, and make reports in connection with the admission of patients to all state or other public institutions.

#### KANSAS

**Bill Introduced.**—S. 116 proposes to authorize the establishment and maintenance of a state pneumoconiosis and tuberculosis sanatorium in Cherokee County and to appropriate \$300,000 for the fiscal years ending June 30, 1937, and June 30, 1938, for the erection, equipment and maintenance of the sanatorium.

#### MASSACHUSETTS

**Dr. Strong Lectures in London.**—Dr. Richard P. Strong, professor of tropical medicine, Harvard Medical School, Boston, delivered the first Chadwick Lecture of the Royal Society of Tropical Medicine and Hygiene, London, January 21. His subject was "Onchocerciasis in Central America and Africa." Dr. Strong was recently elected an honorary fellow of the society.

**Dr. Smillie Goes to Cornell.**—Dr. Wilson G. Smillie, professor of public health administration at Harvard School of Public Health since 1927, has been chosen professor of public

that for the population as a whole. The basis for this is always to be found in the lesser incidence of marriage. Since this depends on the inherited characters of the schizophrenic and not on external circumstances, it does not matter whether the onset of the disease is early or late. Among schizophrenic subjects there is also a reduced marital fertility. The different groups of schizophrenic subjects present individual peculiarities. The hebephrenic, for example, offer the lowest figure for marriages previous to the onset of the disease. On the other hand, those groups in which the illness manifests itself in circular insanity strangely enough resemble the manic-depressive patients in the incidence of marriage and fertility. This incidence prior to the onset of illness coincides with that of the average members of the population. In each generation some 10 per cent of schizophrenic subjects are the offspring of a diseased parent. Skolweit believes that this progeny would be reduced by about 33 per cent if every schizophrenic patient were to undergo sterilization on the first admission to a clinic. From the eugenic point of view early diagnosis may be of the utmost importance, as it may make possible an obliteration of the procreative function of the patient before the onset of the disease.

Dr. Reichardt has investigated the heritability of ozena at the Freiburg-in-Breisgau University Clinic for diseases of the nose and throat. Numerous observations lead him to conclude that the predisposition to this disease should be considered the prime factor. Reichardt examined not only the ozena patients of the clinic but their relatives as well. He found, like other investigators before him, that in many instances the disease may be observed to continue over several generations. He regards it as highly improbable that an infection is responsible for the disorder. Research on twins has demonstrated that ozena may be detected in one pair of enzygotic twins, whereas in another pair a manifest atrophic rhinitis may be established. The pathogenic predisposition is apparently inherited as a dominant character.

TABLE 3.—Empirical Hereditary Prognosis in the Cyclothymiac Group

	Manic-Depressive Insanity, per Cent	Psychopaths of the Cyclothymiac Circle, per Cent	Number of Adults Investigated
Children.....	24.4	13.4	298
Nephews and nieces.....	2.4	2.0	602
Cousins.....	2.5	1.0	867
Average for population.....	0.44	0.8	...

TABLE 4.—Differentiated Hereditary Prognosis for Children of Manic-Depressive Parents

	Probability of Affliction with Manic-Depressive Insanity, per Cent	Incidence of Psychopaths of the Cyclothymiac Group, per Cent
Both parents manic depressive.....	38.7	50.0
One parent manic depressive, the other a cyclothymiac psychopath.....	29.6	17.9
One parent manic depressive, the other normal.....	30.6	14.5

Other investigations carried on by Dr. Scheurlen at Tübingen concerned the heritability of pigmentary degeneration of the retina. Examination was made of 506 patients who presented retinitis pigmentosa. The relatives of these patients were likewise examined. An equal familial distribution of the disease was revealed besides indications of a predominantly recessive hereditary predisposition. Close consanguinity of parents played no decisive part in the manifestations of the affliction, where-

fore it is concluded that the entire population has been permeated for centuries with the pathologic gene (this last conclusion was made on the basis of investigations carried on in Württemberg). The number of cases in proportion to the total population at a given time has neither increased nor decreased in the course of the last fifty years.

TABLE 5.—Empirical Hereditary Prognosis in the Epileptic Group

	Epilepsy, per Cent	Psychopathy of the Epileptic Circle	Otherwise Abnormal
Children.....	2-10	?	?
Siblings.....	3	19	16
Nephews, nieces.....	0.5-1	16	12
Average.....	0.3	7	9

TABLE 6.—Recessive Nature of Hereditary Feeble-mindedness

	Imbecile, per Cent	Moronic, per Cent	Dull Mentality, per Cent	Total, per Cent
Children	{Both parents feeble-minded.....			
	..	60	..	60
	{One parent imbecile.....			
	11	8	10	29
Grand-children	{One parent moronic.....			
	3	9	15	27
	{One parent of dull mentality.....			
	..	5.5	5.5	11
Nephews and nieces	{All grandchildren.....			
	..	7	11	18
	{Parents normal.....			
	..	12	..	12
Average	{One parent of dull mentality.....			
	0.9	7	7	14
	{One parent normal.....			
	..	1.5	5.5	4.5
Average	{Both parents normal.....			
	..	4.5	..	4.5
Average.....				
..				
2				
4				
6				

The family trees of ninety-four patients were studied; these showed a descentance of children and grandchildren who were all completely healthy (with the exception of a woman who had retinitis pigmentosa, whose two sons were similarly afflicted). The number of healthy phenotypes present in the descentance amounted to 237. Had these ninety-four patients been sterilized, the birth of only two children with inherited disease would have been prevented, but at the same time 237 healthy descendants would never have been born. Dr. Scheurlen adds that the goal of extermination of recessive hereditary diseases (in addition to the sterilization of diseased persons) will be attained only through the exclusion of the heterozygotes from the hereditary transmission.

Recently the Reichsgericht as supreme court of judicature has decided that a hereditary predisposition to a mental disease on the part of one marriage partner constitutes a legal ground for contesting the validity of a marriage even if during the existence of the marriage no mental disorder has been manifested. Nor is it of legal significance whether or not a psychotic manifestation may have been aggravated during the married state by uncongenial external circumstances or by the reprehensible conduct of the healthy spouse. The only important consideration in the eyes of the law is the establishment of a pathologic predisposition.

A man found guilty of an insult to a person of defective heredity was recently sentenced to two months' imprisonment. The complainant with the hereditary taint had previously undergone sterilization. The defendant was seated in a public house one day when this sterilized man approached and asked if he might sit at the same table, whereupon the defendant had turned him away with a brutal reference to his physical condition.

The National Health Bureau has initiated a sort of genetic census. As this project is incomplete, only makeshift classifications can be used as yet and the persons catalogued are roughly divided into the genetically inferior and the genetically superior. Criminality also is easily distinguishable. The

**Bills Introduced.**—H. 119 proposes to permit paupers, at the expense of the proper poor district, to obtain for themselves the services of any licensed practitioner of the healing art. H. 135 proposes that no person be required to submit to any form of vaccination or inoculation as a condition precedent to admission to any school, institution of learning or public institution, nor to the exercise of any right, performance of any duty or enjoyment of any privilege. The bill also proposes that any physician who vaccinates or inoculates a child without the written consent of its parents or an adult without the written consent of the adult be subject to a fine of \$100 or imprisonment for one year or both.

### NEW MEXICO

**Bills Introduced.**—S. 50 proposes to create the Carrie Tingley Crippled Children's Hospital to provide proper care and treatment for the crippled children of New Mexico and to make available therefor the building erected, furnished and equipped for such purpose by the federal government at Hot Springs, Sierra County. H. 19, to amend the uniform narcotic drug act, proposes to define "narcotic drug" so as to include cannabis. S. 33 proposes to create a board of naturopathic examiners and regulate the practice of naturopathy. A license to practice naturopathy is to entitle the holder thereof "to administer any and all natural and constructive remedies and treatment in human ailments as taught in standard and chartered naturopathic colleges, schools or universities . . . and to issue birth, health and death certificates." H. 41 proposes to forbid the issuance of marriage licenses unless there is filed with the officer authorized to issue such licenses a physician's certificate showing that both parties to the proposed marriage are free from syphilis. H. 44 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions.

### NEW YORK

**Bills Introduced.**—A. 299, to amend the law requiring the licensing of laboratories and other places in which live pathogenic germs are handled or cultivated, proposes to require such licensure from all places "where live pathogenic micro-organisms or viruses other than vaccine virus are handled or cultivated." The bill also proposes to prohibit all persons, other than licensed practitioners of medicine, dentistry or veterinary medicine or persons acting under the direct supervision of the licensed practitioners noted, to possess or cultivate live pathogenic micro-organisms or viruses other than vaccine viruses unless such persons have satisfied the state commissioner of health that such micro-organisms or viruses in their possession will not become a menace to the public health and unless they hold a permit issued to them by the state commissioner of health. The bill also proposes that all live pathogenic micro-organisms or viruses other than vaccine virus when given away or sold shall bear a label on the container showing the registration number of the distributor which has been issued by the state department of health for the handling of pathogenic micro-organisms or viruses, the name of the person obtaining the material and the destination of the pathogenic micro-organisms or viruses. A. 312 and S. 316 propose to prohibit a person from practicing as a clinical laboratory technician unless licensed by the education department. The bills define "clinical laboratory technicians" as persons who perform any technical laboratory procedures, including bacteriology, biochemistry, hematology, clinical pathology, immunology, parasitology, histology or tissue technic, or basal metabolism, which are used for the purpose of diagnosing, investigating or treating any disease, illness or infection. A. 335, to amend that section of the workmen's compensation act which requires an injured employee to submit to such physical examination as the industrial commissioner or the industrial board may require, proposes to strike out the provision that "such physician or physicians as the employee or carrier may select and pay for may participate in an examination if the employee or carrier so requests." A. 346 proposes to denominate the division of social hygiene in the department of health as the "division of syphilis control." A. 355 proposes to prohibit the issuance of a license to marry until there is presented to the clerk authorized to issue such a license "a statement or statements signed by a licensed physician that each person intending to be married has submitted to a Wassermann or Kahn or other similar standard laboratory blood test and that, in the opinion of such physician, the person is not infected with syphilis or in a stage of that disease that may become communicable and such statements shall be accompanied by a record of the standard laboratory blood tests made." A. 471 proposes to authorize courts to enjoin the unlicensed

practice of any profession or vocation for which a license or registration is required by law. A. 513 proposes to prohibit hospitals from permitting an employee to work more than eight consecutive hours in any twenty-four hours or more than forty-eight hours in any calendar week except during an extraordinary emergency.

### New York City

**Syphilis Clinic Opened.**—The New York Hospital recently opened a syphilis clinic in the Lenox Hill-Kipps Bay district. It is planned that this shall be a demonstration unit for handling the disease in a densely settled metropolitan area and also a teaching unit for the training of medical students in treatment and epidemiologic methods of study. Patients seeking admission from the district will be charged regular outpatient rates if able to pay, but no patient residing in the district will be refused admission. Patients from other districts will pay regular charges.

**New York University Alumni Meeting.**—The medical program of the annual Alumni Day of New York University will be held February 20 at the new building at Twenty-Eighth Street and First Avenue. The entire program will be devoted to discussions of diabetes with the following speakers: Drs. Elaine P. Ralli, William E. Studdiford Jr., Katharine G. Dodge, John H. Wyckoff, Edward B. Gresser, Emanuel David Friedman, Arthur M. Wright, Samuel Standard, Emery A. Rovenstine, Harold Brandaleone and Irving Graef. At a luncheon the speakers were Drs. Wyckoff, dean of the medical school; Samuel A. Brown, dean emeritus, and Mr. William M. Patterson, chairman of the alumni fund. In the evening a dinner will be held at the Hotel Roosevelt.

### NORTH DAKOTA

**Bills Introduced.**—S. 103 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act. S. 109 proposes to permit county welfare boards to establish dental clinics and to provide dental services. In rendering such dental services the board is not to be limited to "actual indigents, but may extend the benefits hereof to cases in which, by reason of limited family means, such services could not otherwise be secured for any minor without reducing said family to a relief status or indigence, and where said minor would, except for the use of such facilities, be required to forego necessary dental treatment."

### OHIO

**Bills Introduced.**—H. 71, to amend the workmen's compensation act, proposes to add silicosis to the list of compensable occupational diseases. The bill proposes, however, that a workman shall not be entitled to benefits for the contraction of silicosis unless he has actually been exposed to silica dust in his employment in the state for periods amounting in all to at least five years preceding his disablement. H. 77, to amend the workmen's compensation act, proposes to add silicosis, asbestosis and anthracosis to the list of compensable occupational diseases.

### PENNSYLVANIA

**Obstetric Institute.**—Dr. John Cooke Hirst, Philadelphia, conducted a series of obstetric institute lectures in the autumn under the auspices of the state health department and financed by social security funds. Dr. Hirst lectured at Altoona, Norristown, Danville, Wilkes-Barre and Allentown. In addition he conducted a clinic at Hazelton and, in association with Dr. Roy R. Snowden, Pittsburgh, another at Uniontown.

**Personal.**—Dr. James F. Schell, Philadelphia, is director of the survey on medical care of the indigent described in *THE JOURNAL*, January 9, and not Dr. Samuel Horton Brown. According to the *Pennsylvania Medical Journal*, Dr. Brown was first chosen to head the survey but was unable to give sufficient time to the work. Dr. Schell was appointed January 11.—Dr. Frederick J. Bishop, Scranton, recently chosen president elect of the Medical Society of the State of Pennsylvania, was honored by a testimonial dinner given by the Lackawanna County Medical Society at Scranton, December 3. Dr. Charles Falkowsky Jr., Scranton, was toastmaster and Dr. Wilmer Krusen, Philadelphia, made the principal address. The society presented to Dr. Bishop a plaque listing the offices he had held in the organization and his record of service in his thirty years of practice.—Among physicians in the state legislature are Drs. George A. Deitrick, Sunbury, and Leo C. Mundy, Wilkes-Barre.

living births; in other words, twice as many persons died as were born. As the number of marriages contracted is likewise steadily on the wane (within five years the number of marriages has declined by more than 4,000) and as bad economic conditions conduce to the childlessness of most marriages, a rapid aging of the population is surely to be reckoned with. Then too the immigration of outsiders into Vienna affects chiefly the age groups above 25 years, and if the newcomers are married in the capital they will likewise remain childless. Only in the rarest instances do families removing from country to city bring with them minor children.

### SWITZERLAND

(From Our Regular Correspondent)

Nov. 20, 1936.

#### The New Swiss Pharmacopeia

The fifth edition of the *Pharmacopeia helvetica*, which recently became official, was completed in 1935 after some eleven years of work. Critics have repeatedly termed the new book singularly modern and progressive and it is worth while to consider certain innovations in the new edition. It differs so extensively from its predecessor that the Federal Council deserves credit for inaugurating an entirely new standard. Contrary to the tendency of American and British pharmacopeias to reduce the number of official items, this book contains 204 more than the fourth edition (304 added and 100 deleted). The standards for testing have been removed from individual articles and entered under "General Regulations."

The preparations are classified according to whether they are (1) chemically definite pharmacologic materials of organic or inorganic nature, (2) chemically indefinite pharmacologic materials of organic or inorganic nature, (3) pharmaceutical preparations of materials belonging to one of the preceding groups but not definite chemical entities, or (4) serums, vaccines, other immunologic substances and organotherapeutic preparations.

The new edition includes proprietary substances and thus sets standards for their control which was not possible prior to this time. Proprietary preparations of official items must conform with the monograph stipulations, including name, trade marks, identity, purity and label. These labels must have red letters on white paper for potent drugs such as barbital, cantharis and cocaine, and white letters on black paper for poisons such as cocaine, morphine and phosphorus. Local regulations applying to these items must also be followed.

The constituents of official preparations must be designated in terms of weight or, in the case of certain solutions, weight percentages. Medicine glasses indicating teaspoonfuls must have the numbers of teaspoons at 5 cc. intervals, dessertspoonfuls, 10 cc., and tablespoonfuls 15 cc. Potent drugs and poisons prescribed by the drop must be dispensed in dropper bottles or with graduated pipets. Descriptions include the empirical and structural formula as well as the molecular weight and percentage content. They appear under Latin names with synonyms in German, French and Italian—the three languages in which editions of the Swiss *Pharmacopeia* are available.

The scope of the book is extensive, the intent being to include everything the physician should prescribe, including even the brands of gauze and cotton. The new preparations include "Opialum, Opial, P. H." which is a mixture of the hydrochlorides of the principal alkaloids of opium, the principal ingredient being the morphine salt, 66 per cent. It is designed to replace a popular proprietary.

This book contains the usual tables, including one of maximal doses, which in many instances are below those given in the previous edition.

In some respects it is superior to and in others inferior to the official British and United States standards. Of greatest

importance is the fact that it should meet the requirements for the Swiss physicians and pharmacists and on this basis it is superior to the previous editions.

#### Death of Sir Arnold Theiler

With the passing, at the age of 69, of Prof. Dr. Sir Arnold Theiler, a native Swiss, the world loses a scientific investigator of the first rank. Sir Arnold had come to London to participate in the second International Congress of Microbiology, but shortly before the opening of the convention death overtook him. Theiler was educated at the Universities of Bern and of Zurich; as a young man he went to South Africa. At first he devoted himself to several specific tasks in the Transvaal, but most important of these was the campaign against rinderpest. At length, after the British occupation of the country, Theiler had placed at his disposal a veterinary research institute at Onderstepoort. These "Laboratories for Veterinary Research of the Union of South Africa," as they were called, expanded under Theiler's skilful direction into a great and celebrated center of research. With the help of a numerous staff of collaborators, Theiler here successfully carried on a vast amount of theoretical and practical work. With the constant growth of the institute, the sphere of its activities became ever wider. In 1910 he was appointed professor of the newly created South African Faculty of Veterinary Medicine. On his retirement from office in 1927, he returned to his native Switzerland but continued to maintain close contact with scientific affairs.

Theiler's achievements went far beyond the sphere of veterinary medicine. The clear, purposeful method which he employed in his campaigns against the diseases of cattle in South Africa was based on strictly scientific foundations. Accordingly he has bequeathed to science a wealth of new important and even basic data, the fruit of his investigations, and above all he has enriched the sum of knowledge regarding the protozoal diseases. The mere mention of a few of Theiler's discoveries suggests the fundamental character of his work of experimentation and investigation: the group of intracellular blood protozoa known as "Theileridae" and their many subspecies; the causative organism of East African intermittent fever of cattle; the *Theileria para*; the *Theileria annulata*; the disparate *Theileria*; the cattle trypanosoma (*Trypanosoma theileri*), and *Spirillum theileri*, a species found on cattle and sheep of the Transvaal. Another of Theiler's great achievements, and one that represented a notable advance in the fight on disease, was his accurate evaluation of the tick as the transmitter of African piroplosmosis and the exhaustive study of its living habits. He was also the author of numerous works on experimental protective inoculation, serotherapy and the problem of immunization.

### CORRECTION

**Infant Mortality in Rumania.**—In the letter from Rumania published in *THE JOURNAL*, July 11, 1936, the statement was credited to Professor Mezincescu that "50 per cent of infants died before reaching the first year of life, and of those remaining alive only 50 per cent reached the fifth year." He is also credited with saying that the rate of infant mortality is not as low as it was fifty years ago. A correspondent from Rumania submits the following infant mortality rate for the last five years:

Year	Absolute Number of Deaths Under One Year of Age	Rate of Infant Deaths Under One Year of Age for 100 Living Births	Deaths 1-5 Years
1933	112,415	19.2	64,032
1934	111,520	18.2	77,109
1935	103,765	17.4	41,944
1932	122,184	18.5	66,414
1931	109,041	18.0	57,154

will enter the third year of life as compared with 92,837 white infants; 82,903 Negroes and 88,621 white persons will reach the age of 21 and 14,419 Negroes and 29,471 white persons will reach 75. The death rate in the first year of life for Negro males is 87.32 and for white males it is 62.32 per thousand. In the second year the rates drop to 16.57 for Negroes and 9.93 for white children. They decrease till they reach 2.11 for Negroes and 1.47 for white children in the eleventh year and thereafter increase. In the forty-fifth year the rates are 21.81 for Negroes and 8.74 for white persons; in the seventy-fifth year, 87.75 for Negroes and 78.61 for white persons. The maximum expectation of life, which is applied to those who have survived the first year, is 51.08 years for Negro males and 62.04 for white males; 52.33 for Negro females and 64.93 for white females.

**Warning Against Impostor.**—It is reported from Detroit that a man posing as a clinical pathologist is visiting physicians there asking them to endorse checks to pay for repairs on his automobile. He called on one physician, who entertained him for a day and night, during which time he discussed clinical pathology without betraying himself. On the second day he looked at automobiles, appearing to be disgusted with his old one. Later he left his host, saying he wished to go to a bank, but returned shortly, saying that the bank demanded identification. When the Detroit physician said he could not identify him, the visitor exhibited a bank book with a balance of \$678. The physician then cashed a check for \$50 on the Huntington National Bank, Columbus, Ohio. After an hour or more the "clinical pathologist" went out for a shave but telephoned that the Packard service agency was to pick him up and he would telephone later. That was the last heard of him. The Packard station reported they had no car for such a person and the Columbus bank reported it had no account for the man, who called himself Brown, and was about 5 feet 9 inches tall; dark brown wavy, wiry hair, a high forehead, dark skin, large brown eyes; thick skin with deep wrinkles; teeth excellent and very white; weighed about 170 pounds. He wore a dark brown suit with a pin stripe, an overcoat of Oxford gray and a light felt hat.

**Medical Bills in Congress.**—*Bills Introduced:* S. 396, introduced by Senator Steiwer, Oregon, proposes, among other things, to grant pensions to contract surgeons who served in the Indian wars from 1817 to 1898. S. 1237, introduced by Senator Gibson, Vermont, proposes to reenact all laws in effect March 19, 1933, granting pensions to veterans of the Spanish-American War, the Boxer Rebellion and the Philippine Insurrection, and their widows and dependents. S. 1240, introduced by Senator McNary, Oregon, proposes among other things to grant pensions to contract surgeons of the Spanish-American War, including the Philippine Insurrection and the Chinese Boxer Rebellion. H. R. 3859, introduced by Representative Allen, Louisiana, proposes to erect a 300 bed addition to the veterans' facility at Alexandria, La., for the care and treatment of medical, surgical and neuropsychiatric disabilities. H. R. 3867, introduced by Representative Voorhis, California, proposes to provide benefits now accorded to other veterans to persons who served in the Army of Occupation before July 2, 1921. H. R. 3873, introduced by Representative Hennings, Missouri, proposes to prohibit the sale, possession and transportation of cannabis and its derivatives and compounds, except when sold, possessed or transported for medicinal and lawful uses by the producer or manufacturer thereof or dealer therein to licensed physicians, surgeons, dentists, pharmacists, druggists and veterinarians, under such rules and regulations as shall be prescribed by the Commissioner of Narcotics. H. R. 3999, introduced by Representative Hook, Michigan, proposes to erect a veterans' hospital in the upper peninsula of Michigan. H. R. 4004, introduced by Representative Schuetz, Illinois, proposes to add the name of John D. Schwieger to those honored by the act recognizing the public service rendered by Major Walter Reed in the discovery of the cause and means of transmission of yellow fever. H. R. 4010, introduced by Representative Gasque, South Carolina, proposes to provide hospitalization and domiciliary care to former members of the Regular Establishment not dishonorably discharged. H. R. 4013, introduced by Representative Gasque, South Carolina, proposes to grant pensions and increases of pensions to certain soldiers, sailors and nurses of the War with Spain, the Philippine Insurrection, or the China Relief Expedition. H. R. 4094, introduced by Representative Arends, Illinois, proposes to create service origin presumptions for spastic paralysis, chronic arthritis, chronic rheumatism and chronic heart disease, when contracted by veterans of the World War. H. R. 4219, introduced by Representative Wilcox, Florida, proposes to construct a marine hospital in or near Miami, Florida.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Jan. 9, 1937.

#### The Influenza Epidemic

A widespread but mild epidemic of influenza is prevalent in the British Isles. Its extent can be judged from the fact that 8 per cent of the London police force are affected, while their normal total sick list is 3 per cent. In Leicester 11 per cent of the factory workers and 40 per cent of the schoolchildren are affected and the street car service has had to be curtailed because of the large number of men who are ill. The Irish Free State Department of Public Health has circularized local bodies urging them to organize health and nursing services, and where an epidemic of influenza occurs warning should be given through the press. The British Ministry of Health has issued the following advice as to the prevention of influenza: Rooms should be well ventilated and airy but not drafty. Nourishing food is desirable. It is often well to take cod liver oil. Gargling is useful. The gargle can be made by adding to a tumbler of warm water either a tablespoonful of compound glycerin of thymol or just enough potassium permanganate to give a pink color. If crowded places are avoided there will be less danger of catching influenza.

Last week 325 deaths were ascribed to influenza in 122 large cities of England and Wales (covering a population of more than 20,000,000) compared with ninety-seven for the previous week. The number of deaths in Greater London (population 8,500,000) was 232. The number of notifications of acute primary and influenzal pneumonia in the whole country was 1,542, against 844 in the previous week. The mildness of the epidemic so far is shown by the fact that the totals of deaths from influenza and notifications of pneumonia are far below the totals for several consecutive weeks throughout the epidemics of 1928-1929 and 1932-1933.

#### Delivery of Virus by Parachute

In the *Veterinary Journal* the chief veterinary officer of the Bechuanaland Protectorate illustrates a new use for the airplane in preventive medicine. Foot and mouth disease was discovered in a herd of native cattle. There were some 261,000 cattle in an area of 60,000 square miles. The whole of the cattle could be quarantined, so that it was possible to adopt preventive virus inoculation of the healthy cattle. The chief difficulty was to transport the inoculation material to the various areas in which veterinary officers work with their staffs. It was impossible for automobiles to reach the infected places, and native runners would have taken at least ten or twelve days. The chief veterinary officer devised a system of delivery by parachute in places where airplanes could not land. It was found that 7 square feet of parachute was required for each pound of weight of load. The parachute consisted of a square piece of calico, of which the four corners were firmly tied to four stout strings about 12 feet long, and the tin was tied to the free ends of these. The parachutes were folded with the strings carefully arranged to avoid tangling and were thrown out of the open door of the cabin of the plane from a height of 500 to 800 feet when gliding into the wind. The parachutes were dropped without a single failure. The report states that the use of the airplane shortened the duration of the outbreak by at least two months and that its value for establishing speedy contact with different parts of the territory is inestimable.

#### The British Medical Journal in New Type

For some time committees of the British Medical Association have had under consideration a throughgoing reform of the typography and layout of the *British Medical Journal*.



Academy of Pediatrics; served during the World War; aged 46; died, Dec. 10, 1936, in the Good Samaritan Hospital, Los Angeles.

**Clarence Lucias Miller**, Topeka, Kan.; Ensworth Medical College, St. Joseph, 1905; veteran of the Spanish-American and World wars; state registrar of vital statistics, state board of health; aged 59; died, Dec. 10, 1936, of tuberculosis of the lungs.

**Francis Joseph Jones** Ⓢ Providence, R. I.; Harvard University Medical School, Boston, 1902; on the staffs of St. Joseph's and Providence Lying-in hospitals; aged 59; died, Dec. 17, 1936, in the Butler Hospital, of cerebral thrombosis.

**Joseph Franklin Ruff**, Clearwater, Fla.; Tulane University of Louisiana Medical Department, New Orleans, 1901; aged 63; on the staff of the Morton F. Plant Hospital, where he died, Dec. 7, 1936, of coronary thrombosis and paralysis agitans.

**Henry V. S. Stout**, Livingston, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1893; formerly on the staff of the Homeopathic Hospital, East Orange; aged 81; died, Dec. 4, 1936, of cerebral hemorrhage.

**Lynn Rogers**, Lafayette, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1907; also a lawyer; served during the World War; aged 59; died, Dec. 2, 1936, of coronary obstruction.

**Bernie F. Jungkind**, Beebe, Ark.; College of Physicians and Surgeons, Little Rock, 1909; aged 54; died, Dec. 15, 1936, in the Veterans Administration Facility, Hines, Ill., of epithelioma of the nasopharynx.

**Bonaventura De Rosa**, Portland, Ore.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1897; aged 68; died, Dec. 17, 1936, in the Good Samaritan Hospital of cardiovascular renal disease.

**Berthier Whitford Mather**, Boise, Idaho; Albany (N. Y.) Medical College, 1899; member of the Associated Anesthetists of the United States and Canada; aged 64; died, Dec. 13, 1936, of myocarditis and uremia.

**William Wilkins Kain**, Cape May, C. H., N. J.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of New Jersey; also a druggist; aged 80; died, Dec. 14, 1936, of lobar pneumonia.

**Samuel Sleath**, Ambler, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; on the staff of the Abington (Pa.) Memorial Hospital; aged 62; died, Dec. 7, 1936, of cerebral hemorrhage.

**James Francis Cuddy** Ⓢ Athol, Mass.; Baltimore Medical College, 1905; medical examiner in the Worcester North District and member of the school committee of Athol; aged 54; died, Dec. 3, 1936.

**John C. Robinson**, Henryetta, Okla.; St. Louis College of Physicians and Surgeons, 1890; member of the Oklahoma State Medical Association; aged 70; died, Dec. 9, 1936, of carcinoma of the throat.

**Sidney A. Majure**, Hickory, Miss.; Medical College of Alabama, Mobile, 1889; member of the Mississippi State Medical Association; aged 75; died, Dec. 8, 1936, of cardiovascular renal disease.

**Thomas Jefferson Griffith**, Washington, D. C.; University of Louisville (Ky.) Medical Department, 1873; for many years in the Surgeon General's Office of the Army; aged 85; died, Dec. 4, 1936.

**Henry Grover Kurz** Ⓢ Chicago; Chicago College of Medicine and Surgery, 1909; aged 52; died, January 7, in the Dante Hospital, San Francisco, of rupture of a dissecting aortic aneurysm.

**Arthur L. McInnis**, Enid, Okla.; St. Louis College of Physicians and Surgeons, 1909; member of the Oklahoma State Medical Association; aged 53; died, Dec. 2, 1936, of pneumonia.

**Mathias Schmitz** Ⓢ Denville, N. J.; University of Buffalo School of Medicine, 1884; house physician at St. Francis Health Resort; aged 72; died, Dec. 1, 1936, of cerebral hemorrhage.

**John Edward McCabe** Ⓢ Providence, R. I.; Tufts College Medical School, Boston, 1914; aged 51; on the staff of St. Joseph's Hospital, where he died, Dec. 13, 1936, of heart disease.

**Xerxes A. Jones**, Detroit; University of Medicine, Indianapolis, 1898; member of the Michigan State Medical Society; aged 61; died suddenly, Dec. 4, 1936, of coronary thrombosis.

**Charles H. P. Slaughter** Ⓢ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 62; died, Dec. 25, 1936, of arteriosclerosis and myocarditis.

**Almon Nathan Pierce**, Lake Charles, La.; Pulte Medical College, Cincinnati, 1884; aged 77; died, Dec. 2, 1936, near Pine Bluff, Ark., of injuries received in an automobile accident.

**Ben M. Rosebro**, Richmond, Va.; Medical College of Virginia, Richmond, 1908; member of the Medical Society of Virginia; aged 59; died, Dec. 17, 1936, of pneumonia.

**Joseph Franklin Starrett** Ⓢ Bangor, Maine; Medical School of Maine, Portland, 1898; aged 66; died, Dec. 11, 1936, of valvular disease of the heart and acute nephritis.

**Albert Henry Gill**, Cleveland; Western Reserve University Medical Department, Cleveland, 1901; aged 62; died, Dec. 4, 1936, of lobar pneumonia and pulmonary embolus.

**Roland Barker Whitridge**, Philadelphia; Harvard University Medical School, Boston, 1883; aged 77; died, Dec. 11, 1936, in the Flagler Hospital, St. Augustine, Fla.

**Byron David Henry** Ⓢ Endicott, Wash.; Jefferson Medical College of Philadelphia, 1897; served during the World War; aged 60; died, Dec. 1, 1936, of coronary occlusion.

**B. P. Kimbro**, Monticello, Ark.; Gate City Medical College, Dallas, Texas, 1907; aged 72; died, Dec. 28, 1936, in the Mack Wilson Hospital, of carcinoma of the colon.

**Fred Le Roy Mattern**, Fleetwood, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; aged 56; died, Dec. 10, 1936, of cerebral hemorrhage.

**John James Nelson Jr.**, Columbia, Va.; Medical College of Virginia, Richmond, 1913; served during the World War; aged 48; died, Dec. 3, 1936, of angina pectoris.

**John Grass**, Denver; Rush Medical College, Chicago, 1873; Civil War veteran; aged 90; died, Dec. 3, 1936, in the Mount San Rafael Hospital, Trinidad, of senility.

**John W. Schmelzer**, Erie, Pa.; Ohio Medical University, Columbus, 1900; formerly county coroner; aged 69; died, Dec. 9, 1936, of cerebral hemorrhage.

**Edward Jay Miller**, Holyoke, Mass.; New York Homeopathic Medical College and Hospital, New York, 1903; aged 48; died, Dec. 7, 1936, of pneumonia.

**Julius Anthony Weigand**, Elmhurst, N. Y.; University of the City of New York Medical Department, 1894; aged 68; died, Dec. 15, 1936, of heart disease.

**Leon Joseph Lacasse**, Manchester, N. H.; Baltimore Medical College, 1904; aged 56; died, Dec. 4, 1936, of disease of the coronary arteries and embolism.

**Frank Lincoln Sanders** Ⓢ Kansas City, Mo.; University Medical College of Kansas City, 1898; aged 70; died, Dec. 17, 1936, of coronary thrombosis.

**Oliver Augustus Sprague** Ⓢ Turner, Maine; Bellevue Hospital Medical College, New York, 1889; aged 72; died, Dec. 15, 1936, of chronic myocarditis.

**A. J. McCullough**, Checotah, Okla. (licensed in Oklahoma by years of practice); aged 67; died, Dec. 1, 1936, of uremia and prostatic hypertrophy.

**Edwin R. Stauffer**, Cedar Rapids, Iowa; University of Wooster Medical Department, Cleveland, 1879; aged 87; died, Dec. 4, 1936, of uremia.

**Foster Fanning Potter**, New York; University of the City of New York Medical Department, 1880; aged 82; died, Dec. 18, 1936, of pneumonia.

**Richard Coale Price** Ⓢ Morgantown, W. Va.; University College of Medicine, Richmond, Va., 1901; aged 60; died, Dec. 2, 1936, of pneumonia.

**Fred George Russell** Ⓢ Milwaukee; Milwaukee Medical College, 1910; aged 64; died, Dec. 6, 1936, of coronary occlusion and diabetes mellitus.

**William M. Phillips**, Wallace, Va.; University of the City of New York Medical Department, 1870; aged 87; died, Dec. 1, 1936, of pneumonia.

**Francis Murray Phillips** Ⓢ Charles Town, W. Va.; Baltimore Medical College, 1904; aged 65; died, Dec. 9, 1936, of lobar pneumonia.

**Charles L. Hopkins**, Huntington, W. Va.; University of Maryland School of Medicine, Baltimore, 1887; aged 73; died, Nov. 20, 1936.

**Francis Joseph McMahon**, Brookline, Mass.; Tufts College Medical School, Boston, 1911; aged 52; died, Dec. 1, 1936, of pneumonia.

**William B. Foster**, Woodbine, Kan. (licensed in Kansas in 1901); aged 80; died, Dec. 9, 1936, of arteriosclerosis.

**Hein Terhorst**, Minot, N. D.; Chicago Medical College, 1880; aged 80; died, Dec. 8, 1936, of senility.

that the physician and his dependents are often less well cared for than those who pay for medical attendance, so that in many cases one prefers to make an arrangement with the family physician or specialist to pay for all visits.

In the earlier years of his medical practice, Massart replaced other physicians during their absence, and he cites an instance in which the wife of a physician successively consulted five or six obstetricians before deciding on one to take charge of her confinement. Such a practice is excusable if a fee is paid for each consultation but is distinctly an abuse of a custom imposed on us by the code of ethics of our profession. Similar abuses occur in other branches of medicine, especially in the case of the specialties. For the same ailment a circuit of four or five specialists is often followed. This perhaps could be condoned if it were not for the fact that only too often the diagnoses and proposed treatments of the various specialists are compared and unjustifiably criticized. Such criticisms may unintentionally reach the ears of paying patients, to the detriment of the reputation of the specialists. It is gratifying to any medical man to have his colleagues call on him to treat themselves and their families and it is quite human to draw the conclusion that, whenever these colleagues have occasion to call some one in consultation in their own practice or to refer a case to a specialist, the one who had been selected to treat the physician and his family should be called on to render service to the pay case. Many specialists, especially surgeons, complain that they treat physicians and their families, but when the medical man has the opportunity to refer a case, he forgets all about his own preference and gratitude, sending it to some one to whom he is not at all indebted.

Massart cites a case in which a physician asked a well known specialist to travel a long distance to see him in consultation and was quite angry when the specialist refused to leave a busy practice for several days without an adequate recompense. The calling of the specialist was unnecessary so far as the diagnosis and treatment were concerned. The physician, who had been well cared for, simply wished to gratify a whim that the particular specialist should be called.

There can be no question that the economic situation of many a colleague will not permit the additional burden of payment of medical care for himself and his family, but the duty of one member of the profession to give such care without thought of remuneration must not be abused.

## BERLIN

(From Our Regular Correspondent)

Dec. 28, 1936.

### Research in Genetics

In Germany, so-called empirical hereditary prognosis has come to the fore. A prediction with regard to the offspring of a person whose heredity is defective or whose blood relatives present a hereditary taint is termed a "theoretical hereditary prognosis." But if the hereditary history is unknown or if irregularities are discernible therein the most careful calculations are unable to supply a reliable genetic picture of the generation under observation. Here it is that "empirical prognosis" enters in, a system by which conclusions based on the examination of specific instances are made applicable to the whole. "Empirical prognosis" differs radically from theoretical hereditary prognosis in that it dispenses with a knowledge of the genetic history and of the gene manifestation, with the rôle of the environment and also with the insistence on absolute diagnostic exactitude. Professor Luxenburger of the German Institute for Psychiatric Research at Munich has discussed the question in "Erbarzt." He has assembled the results of his investigation in empirical genetic prognosis. These are arranged according to the four great psychic-hereditary groups in tables 1, 3, 4 and 5.

The figures in table 1 indicate that the rate of probable morbidity of schizophrenia for the children of afflicted parents amounts to 16 per cent. The interrelation of a hereditary prognosis of schizoid psychopathy and the status of the parents with regard to this disease is shown in table 2.

The rates for schizophrenia and for schizoid are dependent on the psychic abnormality of the parents and above all on whether or not the latter are schizoid psychopaths. In schizophrenic families, any nonschizophrenic member who presents no psychic anomalies and who above all is not a schizoid psychopath stands an excellent chance of having hereditarily healthy offspring. Such a prognosis, however, is less favorable if both parents are afflicted.

TABLE 1.—*Empirical Hereditary Prognosis in the Schizophrenic Group*

	Schizophrenia, per Cent	Schizoid Psychopaths, per Cent	Total Number of Adults Investi- gated
Children.....	16.4	32.6	1,595
Grandchildren.....	3.0	13.8	1,293
Nephews, nieces.....	1.8	5.1	2,985
Great-grandchildren.....	...	3.9	71
Grand-nephews.....	1.1	...	...
Grand-nieces.....	1.6	1.9	567
Cousins.....	1.8	9.8	665
Average for the population.....	0.85	2.9	...

TABLE 2.—*Interrelation of a Hereditary Prognosis of Schizoid Psychopathy and Status of Parents*

	Probability of Schizo- phrenia in Child, per Cent	Probability of Schizoid Psychopathy in Child
Neither parent schizoid.....	1.3	2.5
One parent schizoid.....	4.1	8.8
Both parents schizoid.....	12.0	20.0

According to more recent studies of children, the prognosis in these diseases has been improved; the rate of probable peril from manic-depressive insanity is no longer 32 per cent but 24 per cent, which is still high, especially if measured by the incidence of the psychosis among the population as a whole.

The differentiated hereditary prognosis for children of manic-depressive parents is represented in table 4.

From these data it may be concluded that if even one parent is diseased an extremely bad hereditary influence will be exercised and that the magnitude of the transmitted taint is not substantially increased if the other parent is a cyclothymic psychopath. These figures indicate that the earlier hypothesis of the decisive rôle of the dominant traits in the inheritance of manic-depressive disorders is perhaps correct and that only a minor significance is as a rule to be attached to the recessive factors.

As the figures in table 5 show, little is yet known of the probability that children of epileptic patients will present the disease. Still the figure of 10 per cent appears more significant than that of 2 per cent, as it seems to have been based on more careful calculation.

Many new facts have been brought to light in the sphere of hereditary feeble-mindedness. The recessive nature of the inheritance has become evident as well as the fact that persons of "dull mentality" are not to be considered as one with the feeble-minded. This point is provided detailed illustration by table 6.

Investigations of the propagation of schizophrenic subjects have been carried on by Dr. Skälweit of the Psychiatric Clinic of Rostock. He found that the rate is substantially less than

crude and thus intrinsically uncertain in action, and their use frequently improperly conducted, the subject became neglected and even damned by this great leader of medicine.

Jibes were cast at drugs, jibes that now come back as boomerangs to their source. Even such fantastic tales as the age old use of pregnancy urine, sneered at, laughed at and cast out of decent medicine as a disgusting anathema, now reappears as a highly valuable source of most potent, and at that time undreamed of, remedies. About the same time, however, as these things were occurring, and practically unnoticed, was born another daughter to this old queen of medicine. In a quiet little German town Schmiedeberg, following the lead of his master, was laying the foundations of pharmacology, which quite as much as any medical subject—though less spectacularly—has in a few short years become not only an entity but actually a leader. From the time of Lister up to this day, surgery has conferred such benefits on the patient and his harassed and sometimes desperate medical adviser that it has appeared not only to the public but even to the profession itself a logical leader and therefore is entitled to wear the kingly crown of its empire. As I had the honor to express to the late Lord Moynihan some years ago, I would remind the profession and especially my colleagues in surgery that this great tree, warmed by the sun of human necessity, really draws its sustenance from the soil of physiology and with the increased knowledge of function will lose most of its present overwhelming luxuriance. Tumor, for example, which today is the source of so much surgical endeavor, will, and God willing soon, be as much a part of surgery as gummas now are.

Pharmacology, however, unlike surgery, was less spectacular in its immediate appeal. The gigantic growth of more immediate human subjects forced this daughter to become, as it is still largely, the poor little Cinderella of medicine.

Yet even in 1906 Cushny, giving detailed evidence before the Royal Commission for three days, proved with chapter and verse—and how he must have wearied the court—that every drug, bar one (pilocarpine), for the previous twenty-five years had entered medicine through the pharmacologic portals. Since that time, thirty years ago, there have been no therapeutic substances of any value which have been introduced into use except by such experimentation. Furthermore, as my former colleague Dr. Sillar of Edinburgh aptly pointed out, pharmacology has rid its humble house of much superfluous dust.

In place, however, of paying homage to this active and brilliant offspring of its old mother, who has already conferred on man in a few short years such bodies as arsphenamine, anesthetics, local anesthetics, hypnotics, diuretics and new antiseptics, to name but a few substances in everyday use and more recently has shown that all processes in the body are probably controlled by drugs—even the nerve impulse itself ends as a pharmacologic action—medicine, as led by such great and human gentlemen as Osler, still throws its muddy tributes at the now dissected body of *materia medica*, and to some the now infamous "ten drugs" are yet a reality.

Can it be wondered at, then, that the younger men on the one hand, brought up in an atmosphere hostile to the old *materia medica* and while without personal bitterness, regarding the old type of prescription more of historical interest than practical value, and, personally observing the poor physical status of the pharmacologic departments, and, in their clinical years hearing of the distrust in which this subject is frequently held, and even still worse of being compelled to order drugs by a number, or proprietary mixtures, frequently of unknown composition, by their clinical superiors—can it be indeed wondered at that these young men escaping from such chaos fall easy victims to the guiles of the commercial houses, especially when in some cases these actually make a really honest effort to help them by the publication and presentation of convenient

books designed especially for their use, or by the manufacture of preparations easy to prescribe and easy for the patient to take? Can one indeed blame the younger men for prescribing Darke & Lillicome's preparation, knowing it to be a decently made compound, when he is virtually unable, by the break in his own proper training, to prescribe a suitable mixture and fears to try in case he makes a fool of himself.

The perpetuation of therapeutic nihilism and of chaos will continue until proper coordination once more takes place between the basic science and the clinic, and reasonably well trained pharmacologists teach the practical applications of their science. It cannot be too often repeated that a prescription for a disease is useless, for while classic treatment of classic disease is a theoretical ideal, classic disease occurs so rarely in practice that it arouses much interested comment when it does. The doctor, then, has the privilege of giving orders for the treatment of William Brown, who has "bad legs," or of Johnny Jones, who has measles, but he has not yet in these days won the regal privilege of writing prescriptions for "cases" of disease. Medicine and pharmacology have not yet advanced that far, and those who speak glibly or largely of the treatment of "cases" and carry this out in their own practice are either ignorant, careless or lazy medical men. In mass medicine, which sometimes because of economic or other factors exists, short cuts or average methods of treatment are better than none at all; but to lose sight of the sick human being in the treatment of his disease is medicine conducted on its lowest scale and is justifiable only in cases of emergency.

Surgery cannot be learned from books and the lesson that should be derived from the offspring of pharmacology—anesthetics—seems never to be assimilated, that drugs, as well as knives, require judgment and experience to use.

In pharmacology with its copartner physiology now to thinking men lies the real hope of controlling and treating animal and human disease. Yet still in many schools this subject is a rather disrespected subdivision of some other overworked department. Until very recently, but now happily corrected, one of the greatest schools in this country and in the world had no department of pharmacology. Another school and an unusually wealthy one still does not have. There are individuals posing as professors of therapeutics who could not pass an honors paper in the elementary knowledge of the drugs they use. Sadly enough there are also individuals who could not intelligently give advice in the practical application of the subject he is supposed to teach.

A good pharmacologist is naturally very close to medicine and only a relatively few hardy spirits have remained faithful to their first but poor love, for only next door is the tempting land of medicine, flowing with the milk and honey of opportunity, filled with the romantic calls of maidens in distress and lighted by the sun of human glory. He has even the knowledge that, should his luck strike gold from the rock of knowledge, roving bandits will most efficiently invade his domain and carry off the booty to become highly paid specialists and experts. Perhaps I have colored this picture somewhat vividly, yet the facts remain and are well enough known to pharmacologists. Therefore, when one reads that the pitiable condition of this great subject is actually attracting attention can you wonder that I rejoice? Can you wonder, then, that I hope that a differential diagnosis, respectfully made in the spirit of Osler, of the condition may receive consideration and that the Council on Medical Education and Hospitals will see fit to prescribe that this member of the medical group shall receive its proper supply of nourishment and vitamins and that it must no longer be considered the kitchen slut among her better favored sisters in her mother's house? Heaven knows I am no Prince Charming to lead a Princess, but even the

organization of the criminologic-biologic service planned by the National Ministry of Justice has helped make this possible. This service renders the hereditary antecedents of criminality more readily demonstrable than was formerly the case. These investigations are to be extended to include all asocial persons. The genetic survey is to be rounded off by a genetic classification of the oldest age group among the school children.

At Bonn, the Rhenish Provincial Institute for Psychiatric-Neurologic Genetic Research has been opened. Professor Pohlisch, director of the university psychiatric clinic, is in charge. This institution houses more than 100,000 case histories. In the center of the building are located the main card catalogue and the collection of genealogical tables. The card index comprises statistical documentary data on more than 300,000 inhabitants of the Rhine Province. Each card sets forth the personal data, the number of times admitted to hospitals and similar institutions and the diagnoses made on such occasions. In addition there are cross references to the records of the person's relatives, if such records are also to be found in the card index, besides cross references to the appropriate genealogical table. A good 50 per cent of persons for whom cards have already been filed represent cases of mental and nervous disease; the other 50 per cent of the cards contain records of the relatives of these persons. The catalogue will be extended to include records of all persons who in the course of the past 100 years have been admitted to any kind of an institution for the mentally deficient within the Rhine Province. This will mean a total of about 500,000 cards without including the records of the relatives. This vast assemblage of material will make possible voluminous research studies of the origins of mental disease. The source material on schizophrenic subjects, for example, already is represented by some 50,000 cards.

### BUDAPEST

(From Our Regular Correspondent)

Jan. 9, 1937.

#### The National Medical Week

During National Medical Week Dr. Charles Waltner read a paper on the action of cereals on bone development. He examined the action of cereals on the bones by replacing maize flour as the source of starch in the Steenbock-Black mixture with other substances rich in carbohydrates. Severe rickets developed if the mixture contained maize flour, wheat flour, wheat starch or rice starch even when it contained beet sugar. The rickets producing action of maize flour was stopped or reduced by the admixture of the extract of oats or of barley flour extracted with 5 per cent acetic acid. Instead of maize flour and other sources of carbohydrate, he used other sources, which gave the following order of severity of the rickets: tapioca ++++, sago ++, barley flour + and oats flour +. The difference observed in the production of rickets by the various carbohydrate sources depends on their phosphorus content.

#### COBRA TOXIN FOR THE TREATMENT OF NEURALGIA

Dr. Endre Kubányi treated in his clinic a large number of facial neuralgias. His experience is that the causes are traceable in a very small percentage of the cases. Kubányi treated seven patients with cobra toxin. A complete cessation of all pain was attained in two of these patients. In two of the patients there was no effect noticeable, while in the other three patients, who were accustomed to large doses of morphine, the result was uncertain.

#### MUSEUM SPECIMENS PREPARED BY A GALVANOPLASTIC METHOD

Dr. Károly Wolff exhibited museum specimens that were prepared by a galvanoplastic method. Infant corpses with this method can be exhibited as a dry preparation. The method

is successful only in case the skin of the cadaver is freed from all vernix caseosa. After adequate preliminary treatment, galvanization is followed by complete success. The metal deposited on the surface of the skin does not render the structure of the skin invisible, but every wrinkle and fold or the tiniest warts are strikingly brought out, and the whole cadaver becomes like a statue. As such a preparation is clean, odorless and dry and can be kept in the air without any special protecting case, the method is excellent for the preservation of such specimens as amputated limbs, and larger objects in which the pathologic changes are on the surface.

### VIENNA

(From Our Regular Correspondent)

Dec. 4, 1936.

#### Diet Treatment of Putrefactive Dyspepsia

In a lecture before the Vienna Society of Physicians, Professor Porges discussed putrefactive dyspepsia. Successful treatment will be difficult if the pathology of the disorder is not understood. The disease is first manifested as a recurrent obstipation, then later diarrheal discharges containing bloody mucus appear, an achylia gastrica may be established, complaints of colicky pain are not infrequent and a proctosigmoiditis finally sets in accompanied by all the symptoms of a pronounced putrefactive dyspepsia. Patients usually receive a bland cellulose-free regimen consisting of gruels, mashed potatoes, zwieback, cakes and so on. Nevertheless the already marked emaciation of the patient is seen to progress still further, lack of appetite and vomiting add greatly to his discomfort, and there is a persistent typhilitis with high grade secretion of the diseased cecal mucosa. These secretions decompose, and the products of putrefaction irritate the intestinal mucosa, which in turn reacts by hypersecretion. The motility of the entire large intestine becomes highly irritated by these products of decomposition (it is a question of a putrefaction of the intestinal secretions and not of the chyme) and the result is diarrhea. Professor Porges next outlined the type of dietetic regimen that he uses in the treatment of this disorder. Ten years ago he pointed out that the ingestion of nutriment containing cellulose was important in the dietetic treatment. He prescribes at least 200 Gm. of black bread daily, an equal amount of potato and, in addition, a mixed cellulose-free regimen: meat, eggs, cheese, fruit juices, butter, fats and light amylases. Even if this regimen does not immediately agree with the patients it should not be abandoned, for soon the condition improves and they are able to consume amazing quantities of bread and butter. The diarrhea then quickly ceases, body weight increases rapidly and, if the patient adheres to this regimen, a permanent improvement in general health becomes manifest. An explanation of the favorable effect of this diet is to be found in the fact that fermentable carbohydrates are enabled to reach the cecum in abundant quantity. Within the cecum the ferments work a rapid decrease in the bacteria of putrefaction and in this biologic way the septic dyspepsia is arrested. The readily decomposable amylases are not suitable for the foregoing purpose, as they are already nearly completely absorbed within the small intestine, whereas a considerable portion of the black bread and potatoes, if these foods are administered in sufficiently large quantities, avoids the digestive process of the small intestine and attains the cecum, wherein it is permitted to exercise its function of purification.

#### Decline in Austria's Birth Rate

Figures that have just been made public in the *Statistischen Nachrichten* of the Public Health Bureau might well be the basis for apprehension with regard to the country's future. The nationwide decline in the number of births is quite marked, although there still exists a slight excess of births over deaths. But in Vienna in 1935 there were 25,205 deaths and only 12,179

favorable, no infections followed its use, and the nonirritating properties were commented on by the surgeons using the solution.

These results are surprising, since it would seem reasonable to expect some toxic effects when a 1:1,000 mercury bichloride solution is used in open wounds and even on moderately large areas of intact skin. The inherent danger of this low concentration could be lessened with further dilution, but the optimum for effectiveness and relative safety would be difficult to determine. It must be remembered that the use of effective concentrations of mercuric chloride is not new but its toxicity has given rise to preferences for the less irritating mercurial tinctures. It has been stated that alcohol enhances the disinfectant action of aqueous solutions of mercury bichloride but it has also been claimed that alcohol increases the absorption; hence the toxicity of the solution.

It cannot be definitely stated that the solution proposed by the inquirer would be harmless. Probably some individuals would develop skin reactions and, if used over large areas, mercury bichloride poisoning as a result of its application. It is interesting to note in connection with the question of precipitation of color that the authors encountered a precipitate in this solution. They found that it could be avoided by the use of a specially purified chrysoidin X.

Vaichulus and Arnold noted that it was necessary to keep their solution tightly stoppered and recommended the following modification for practical purposes:

Ethyl alcohol (95%) .....	600 cc.
Acetone U. S. P. ....	200 cc.
Mercury bichloride .....	1 Gm.
Hydrochloric acid (concentrated).....	10 cc.
Chrysoidin X .....	2 Gm.
Distilled water, q. s.....ad	1,000 cc.

A member of the Council on Pharmacy and Chemistry who was consulted wrote that work not yet published indicates that another similar solution (Harrington's solution):

Commercial alcohol (94%).....	640.0 cc.
Hydrochloric acid (strong commercial).....	60.0 cc.
Water .....	300.0 cc.
Mercury bichloride .....	0.8 Gm.)

is not an efficient skin disinfectant and that when used on the skin it forms a coating which acts as a glove, preventing the giving off of bacteria from the skin but retaining live bacteria within and beneath the coating. For this reason, this and similar preparations would seem to be unsuitable for use when the skin is to be incised or punctured by a hypodermic needle. It must also be borne in mind that the mercurial disinfectants are rather slow in action and within a limited period are bacteriostatic rather than germicidal.

#### RELIEF OF STERILITY AFTER SALPINGECTOMY

*To the Editor.*—A woman, aged 25, who had a bilateral salpingectomy five years ago, necessitated because of a gonorrheal infection, has since remarried and is desirous of having children. She has enjoyed perfect health since her operation. The pelvic examination is normal except for the absence of the tubes. The tubes were probably removed close to the uterus, though no roentgenograms of a transuterine injection have been made to determine the extent of the tube remnants. Is there any type of plastic operation that might be done to reestablish the possibilities of pregnancy for this patient? Please omit name. M.D., Georgia.

**ANSWER.**—The first thing to be done is to make certain that the present husband is capable of procreation. This, of course, may easily be determined by an examination of his semen. If the latter is satisfactory, a hystrogram should be made by the injection of iodized oil into the uterine cavity. This not only will reveal the size and shape of the uterine cavity but also it may indicate the size of tubal stumps if one or both are present. Regardless of whether or not portions of tube exist, an operation may be done to try to overcome the patient's sterility. However, before operating, it is important to point out to both husband and wife that the chances for a pregnancy are not great and that not infrequently when a gestation does take place a miscarriage results. If the patient and her husband agree to an operation after obtaining this information, a laparotomy should be performed. If there are no remains of either tube, one uterine cornu should be removed and half of the ovary on the corresponding side, still attached to its pedicle, should be implanted over the opening thus made in the uterus. The same procedure should be carried out on the opposite side if both ovaries are healthy. The details of this operation are given by W. L. Estes Jr. (*Surg., Gynec. & Obst.* 38:394 [March] 1924). In a series of fifty cases only four women (8 per cent) became pregnant and only two of these had full term babies.

If tubal stumps are present but there is an obstruction at the uterotubal junction, as demonstrated before operation by

the hystrogram or more certainly at the time of operation by making an opening in the distal end of the tube and blowing air into the tube with a Luer syringe, the entire tubal stumps must be removed with a portion of the uterine cornu. Following this, half of each ovary should be implanted over the uterine cornu. If, however, portions of each tube are present and there is no obstruction at the uterotubal junction, all that is necessary is to perform the operation known as salpingostomy. The simplest form of this operation consists of slitting open the tubal stump all the way to the cornu and with very fine catgut suturing the tubal mucosa to the serous covering of the tube. After this is accomplished, air should be blown through the new opening into the uterine cavity to make sure of a free passage. Then a few strands of catgut should be led through the open tube into the uterine cavity on each side and left at the uterotubal junction to maintain these openings. In all plastic operations on the tube, great gentleness must be exercised and all bleeding must be checked before the abdomen is closed. When salpingostomy is performed there is not only the increased possibility of abortion but also, and more serious, a definite hazard of tubal pregnancy. In the cases in which a salpingostomy has been performed, a Rubin test or a hysterosalpingogram should be made a few weeks after operation to determine whether the new openings in the tubes are permeable to air or iodized oil.

In general it may be said that a review of the literature concerning plastic operations on the tubes and uterus to overcome sterility does not present a favorable picture for these operations. The chief reasons for this are the relatively few life babies secured by these measures, the disproportionately high number of ectopic pregnancies that have resulted, and other complications that may follow such operations.

#### PERSISTENT VAGINAL DISCHARGE

*To the Editor.*—I am writing you concerning a woman who consulted me some five years ago about the following pelvic lesion. At that time, at the age of 31, she had just married and noted some months afterward a severe itching and dryness of the vulva and vagina. This was followed by a profuse yellowish mucopurulent discharge of foul odor. Being from a prominent family, she hesitated to consult a physician until some six months later, when she presented herself at this office. I immediately referred her to our leading gynecologist. Since that time he has had other gynecologists see her. The treatment to date has been the following: 1. Douches of sodium perborate, mercury bichloride, metaphen, silver. 2. Vaginal suppositories of merthiolate and so on. 3. Solutions of dyes, as methylene blue and acriflavine. 4. Dilatation and curettage, with cauterization of the cervix. 5. Autogenous vaccines made from the discharge (diphtheroid, B. coli, atypical forms of staphylococcus and streptococcus). She has been allowed many rest periods from all treatment. At the present time she is no better. The discharge is copious and of very offensive odor. She has worn a pad for the past five years. She has shunned society and has been practically an invalid since that time. Will you please give me some suggestions as to the type of treatment that should now be instituted or refer me to some gynecologist to whom I may take her. Please do not publish my name. M.D., Ohio.

**ANSWER.**—Although no specific mention is made of the gonococcus, *Trichomonas vaginalis* and monilia, it is assumed that none of these organisms have ever been found on microscopic examination of stained slides or hanging drops. If hanging drop examinations have not been made this should, of course, be done without delay. Although the local treatments have had little effect attention is called to Hitchings reports of the successful treatment of a case of chronic vaginitis with phenylmercuric nitrate in *THE JOURNAL* for Jan. 19, 1935 (p. 212). The insufflation of compound silver picrate powder has been advocated by some clinicians for the treatment of trichomonas vaginalis vaginitis. The patient should be instructed to avoid fecal contamination of the introitus to prevent reinfection. At the beginning of the trouble the patient complained of itching and dryness of the vulva and vagina. These complaints occur rather frequently at or beyond the menopause and are associated with "senile vaginitis." In these elderly women, repeated injections of estrogenic substance have proved to be most helpful in many cases. This changes the character of the vaginal mucosa and relieves the symptoms. It may be worth while to give this patient 2,000 international units of estrogenic substance (theelin, amniotin) daily for a few weeks. In addition, a small amount of thyroid substance should be taken daily. The urine should be tested for sugar—a common cause of pruritus vulvae. Perhaps also a vacation away from the patient's present surroundings will help. She should, however, make a strenuous effort to avoid thinking of her present plight and she should become interested in some form of activity. The state of mind and the constitution of an individual may be factors in the persistence of a nonspecific vaginal discharge.



## Marriages

KENNON CHRISTIAN WALDEN, Waycross, Ga., to Miss Anne Lilbourne Gravatt, Blackstone, Va., Oct. 22, 1936.

WILLIAM J. WEATHERFORD, Uriah, Ala., to Miss Rachel Milner of Ocean Springs, Miss., Nov. 10, 1936.

AQUILLA RICHARD JOHNSTON, St. George, S. C., to Miss Catherine Deitrick of Richmond, Oct. 24, 1936.

CLAIBORNE BARKSDALE WHITE, Halifax, Va., to Miss Jean Prindle Hardy of Churchland, Oct. 31, 1936.

ROWLAND HILL EDWARDS, Welch, W. Va., to Miss Margaret Hess Hay of Hemphill, Oct. 15, 1936.

SAMUEL HARRY JUSTA, Macclesfield, N. C., to Miss Eva Feldman of Ahoskie, Oct. 25, 1936.

## Deaths

Henry C. Fisher ♂ Brigadier General, U. S. Army, retired, Arlington, Va.; Georgetown University School of Medicine, Washington, D. C., 1891; entered the military service in 1891; was awarded a silver citation for gallantry in action during the Spanish-American War; served in France as chief sanitary inspector, A. E. F., for which he received the Distinguished Service Medal; was cited for exceptionally meritorious and conspicuous service in the Surgeon General's Office, Supply Division, A. E. F.; served in the Canal Zone as chief health officer; formerly commandant of the Army Medical School; was appointed assistant surgeon general with rank of brigadier general in 1929; retired in 1931 by operation of law; was also awarded the Legion of Honor by the French government; fellow of the American College of Surgeons; aged 69; died, Dec. 18, 1936, in the Walter Reed General Hospital, Washington, D. C.

John Alphonse Ragone, Buffalo; University of Buffalo School of Medicine, 1904; member of the Medical Society of the State of New York; associate in pediatrics at his alma mater; was medical director of the Children's Aid Society of Buffalo and Erie County; on the staffs of the City Hospital, Columbus Hospital and the Buffalo Hospital of the Sisters of Charity, Buffalo, and the J. N. Adam Memorial Hospital, Perrysburg, N. Y.; for many years in charge of the Children's Aid Clinic in the Children's Hospital; formerly attending physician at the Buffalo Orphan Asylum, the Crippled Children's Guild and the Fitch Creche Day Nursery; aged 57; died, Dec. 25, 1936, of coronary occlusion.

Martin Rehling ♂ New York; University of the City of New York Medical Department, 1894; formerly associate professor of surgery, New York Post-Graduate Medical School, Columbia University; fellow of the American College of Surgeons; at various times on the staffs of the New York Post-Graduate Hospital, Flower Hospital, Lenox Hill Hospital, the Sydenham Hospital and Bronx Hospital; aged 70; died, Dec. 1, 1936, of cerebral hemorrhage.

Reginald McCreery Rawls, New York; Bellevue Hospital Medical College, New York, 1898; member of the American Gynecological Society and the Medical Society of the State of New York; fellow of the American College of Surgeons; aged 63; served in various capacities on the staff of the Woman's Hospital, where he died, Dec. 30, 1936, of aneurysm of the aorta and cardiovascular disease.

Charles Douglas Kayser, Mount Vernon, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; formerly assistant professor of anatomy at the Fordham University School of Medicine, New York; served during the World War; aged 60; on the staff of St. Joseph's Hospital, Yonkers, where he died Dec. 31, 1936, of cerebral thrombosis and arteriosclerosis.

George David McGregor ♂ Charlotte, N. C.; University of Virginia Department of Medicine, Charlottesville, 1925; formerly secretary of the Mecklenburg County Medical Society; on the staffs of the Nalle Clinic, St. Peter's Hospital and the Mercy Hospital; aged 35; was found dead, Dec. 9, 1936, of injuries received in an accidental fall from a window.

William Easley Morris, Mount Kisco, N. Y.; University of Texas School of Medicine, Galveston, 1927; member of the Medical Society of the State of New York; aged 38; on the

staff of the Northern Westchester Hospital, Mount Kisco, and the Grasslands Hospital, Valhalla, where he died, Dec. 9, 1936, of streptococcal meningitis with brain abscess.

Henry G. Sandlin, Richmond, Ky.; University of Louisville Medical Department, 1893; member of the Kentucky State Medical Association; past president of the Madison County Medical Society; for many years chairman of the board of education and county board of health; on the staff of the Pattie A. Clay Infirmary; aged 67; died, Dec. 20, 1936.

James Knox Smith ♂ Texarkana, Ark.; Medical Department of Grant University, Chattanooga, Tenn., 1903; member of the State Medical Association of Texas; fellow of the American College of Surgeons; on the staff of the Michael Meagher Memorial Hospital; aged 58; died, Dec. 28, 1936, of injuries received in an automobile accident.

Frank Sherman Hough, Sibley, Iowa; Michigan College of Medicine and Surgery, Detroit, 1890; member of the Iowa State Medical Society; past president of the Osceola County Medical Society; served during the World War; medical superintendent and owner of the Sibley Hospital; aged 71; died, Dec. 3, 1936, of diabetes mellitus.

Theodor Schaps ♂ Chicago; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1920; served during the World War; on the staffs of the Alexian Brothers' Hospital and the Evangelical Deaconess Hospital; aged 46; died, Dec. 11, 1936, of cirrhosis of the liver, gastric hemorrhage and pneumonia.

Joseph P. Pecival ♂ Berwyn, Ill.; John A. Creighton Medical College, Omaha, 1896; for many years connected with the Cook County Psychopathic Hospital, Chicago; formerly superintendent of the State Hospital, Norfolk, Neb., and the Chicago State Hospital; aged 71; died, Dec. 27, 1936, of bronchopneumonia.

Hugh Arthur Grant ♂ Potsdam, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1892; president of the board of Potsdam State Normal School; aged 66; on the staff of the Potsdam Hospital, where he died, Dec. 16, 1936, of cardiac decompensation and cerebral hemorrhage.

Samuel Louis Friedman, Brooklyn; Long Island College Hospital, Brooklyn, 1914; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; on the staffs of the Cumberland Hospital and the Beth-El Hospital; aged 57; died, Dec. 26, 1936.

Elam Albert Reeves ♂ Kansas City, Kan.; University Medical College of Kansas City, 1903; past president and secretary of the Wyandotte County Medical Society; served during the World War; on the staffs of the Bethany and Providence hospitals; aged 65; died, Dec. 5, 1936.

Melville F. Miller ♂ Wadsworth, Ohio; Western Reserve University Medical Department, Cleveland, 1892; past president of the Medina County Medical Society; on the staff of the Wadsworth Municipal Hospital; aged 71; died, Dec. 19, 1936, of cerebral hemorrhage.

Robert Lovell Samuel, Maysville, Ky.; University of Louisville Medical Department, 1920; member of the Kentucky State Medical Association; city physician and member of the board of education; on the staff of the Hayswood Hospital; aged 48; died, Dec. 11, 1936.

William Aloysius McGowan, Richmond, Va.; Medical College of Virginia, Richmond, 1897; member of the Medical Society of Virginia; served during the World War; aged 61; died, Dec. 7, 1936, in the Veterans Administration Facility, Washington, D. C.

Robert Hurst Snowden ♂ Buchanan, Mich.; Northwestern University Medical School, Chicago, 1906; past president of the Berrin County Medical Society; served during the World War; aged 57; died, Dec. 19, 1936, in the Epworth Hospital, South Bend, Ind.

William B. Eicher, Peoria, Ill.; Keokuk (Iowa) Medical College, 1898; member of the Illinois State Medical Society; aged 67; died suddenly, Dec. 7, 1936, in the Illinois Central Hospital, Chicago, of suppurative diverticulitis and multiple liver abscesses.

Albert Monroe Miller, Holliston, Mass.; Dartmouth Medical School, Hanover, N. H., 1882; at one time member of the board of health of Needham, health officer and school physician; aged 79; died, Dec. 1, 1936, in the Glover Memorial Hospital, Needham.

Donald Kendrick Woods ♂ San Diego, Calif.; Rush Medical College, Chicago, 1913; member of the American

ambulatory and four hospitalized. In three cases a temporary resolution of the dermatoses was obtained, while in the remainder the results were negative. He comments that the constancy of the relapses on the one hand, and the inconstancy of therapeutic success on the other, exclude the possibility of obtaining an absolute cure.

Wrong (*Brit. J. Dermat.* 45:244 [June] 1933) also reported on a series of ten cases. He weighed his scales and added 1 cc. of sterile physiologic solution of sodium chloride to each 10 mg. of scales. Fifty mg. of scales was injected at one time. He comments that patients must have large plaques of scales in areas suitable for scraping, that it is useless to use the treatment on patients who have shown spontaneous improvement, and that the injections are painful to some patients. One of his patients was treated entirely with scales from another patient, and the condition cleared completely. In his series of ten patients, five definitely improved, one slightly improved, and four showed no improvement.

#### HEALTH DANGERS OF STREAM POLLUTION

To the Editor:—I have been trying for several years to clean up an unhealthful condition of a brook that runs through the center of Brattleboro for a distance of 3 miles. This brook carries a very heavy deposit of sewage. Many private sewers do not reach the water but deposit the sewage on the banks, where it is dried out by the sun and blown about everywhere. The water becomes very low in the summer, making conditions even more insanitary. Numerous samples of the water have been sent to the state hygiene department, and the return reports stated that the water was highly polluted. I have been told by one of the local physicians that, if I wrote to you, you might be able to give me information with regard to the various diseases that might be contracted from water showing sewage pollution and also some information about the possibility of contracting diseases from air-borne pollution. A prompt reply would be appreciated, as the matter has gone as far as calling a special town meeting to discuss this serious condition.

JASON E. BUSHNELL, Health Officer, Brattleboro, Vt.

ANSWER.—Perhaps the most important health hazard that might result from the pollution of the brook referred to would be the possibility of typhoid fever and amebic dysentery. This would be particularly true if there is any local condition that might permit water from the brook to pollute a source of drinking water.

In some of the areas of the Middle West there have been reports of the transmission of intestinal parasites from animal to animal as the result of pollution of brooks and streams flowing through pastures, and a certain species of mosquito breeds prolifically in sewage-polluted waters; but as a rule these are not the types which transmit disease. There is always a hazard of infection by persons who may use the brook for swimming or bathing. If the polluted brook passes through a golf course, the possibility of infecting caddies and players who may pick balls out of the brook is always present.

The possibility of contracting disease from the air as the result of a polluted brook is considered remote.

#### TOXICITY OF TETRACHLORETHYLENE

To the Editor:—A patient now working as a cleaner and exposed to heated fumes of perchlorethylene (tetrachlorethylene) has developed nausea, precordial pain, anorexia and inertia. Please advise as to treatment and as to precautions he should take. M.D., North Carolina.

ANSWER.—The extent of toxicity of tetrachlorethylene,  $\text{CCl}_2\text{Cl}_2$ , may be gaged by comparison with the toxicity of carbon tetrachloride. If the toxicity of the latter is rated as 1, tetrachlorethylene may be rated at 1.6; that is, more than 50 per cent more toxic. However, this statement applies chiefly to vapors of tetrachlorethylene. When taken into the body by mouth, under proper conditions little is absorbed and consequently the toxicity is low. This has led to the extensive use of tetrachlorethylene as an anthelmintic.

The symptoms mentioned in the query are consistent with a diagnosis of tetrachlorethylene poisoning. Assuming such a condition to exist, prevention of further exposure is the best form of treatment for these milder cases. Symptomatic treatment may be required, but, in the absence of additional exposure, complete recovery is expectable with or without treatment, and in a short time, such as one week. In connection with treatment, the drinking of milk is helpful.

This worker should not be long exposed to a concentration of tetrachlorethylene vapors of more than 100 parts per million of air. The measurement of these vapors on a quantitative basis is difficult, calling for special equipment such as thermal conductivity apparatus or a combustible gas indicator. It is believed probable that such equipment may be found in the

newly created Division of Industrial Hygiene in the State Department of Health in North Carolina.

There is no practical respirator that may be worn with comfort over long periods which will protect workers in chlorinated hydrocarbon vapors. One of the chief requirements in the use of tetrachlorethylene in dry cleaning under conditions that give rise to vapors in the workroom is the installation of exhaust systems at floor levels. Vapors of tetrachlorethylene are considerably heavier than chloroform and build up at lower levels in the absence of evacuation. Completely enclosed dry cleaning systems are preferable when synthetic detergents such as tetrachlorethylene are in use.

#### KAHN TEST IN SYPHILIS

To the Editor:—A woman, aged 35, with three children, the youngest of whom is 11 years of age and no miscarriages, and with a negative family history, had so-called bronchitis about eighteen years ago. X-ray examination now shows very extensive healed military tuberculosis, with some apparent present infection of the respiratory tract. There is no cough or expectoration and the x-ray diagnosis is "no active pulmonary tuberculosis." The patient has been quite weak without apparent reason, unless the weakness is due to the respiratory infection. The urine is normal. Red blood cells number 4,460,000, white blood cells 7,000; the hemoglobin is 70 per cent. The Kahn reaction is one plus; spinal puncture was refused. There are no clinical symptoms of syphilis. Kindly give me your opinion as to the Kahn reaction in absence of clinical symptoms of syphilis. What is the proper procedure? I am giving injections of iron arsenite and also a bismuth compound and cod liver oil capsules, but no potassium iodide so far. How soon should I repeat the Kahn test? After the administration of a bismuth compound, potassium iodide and neosarsphenamine should I consider the Kahn reaction indicative of present syphilis without clinical evidence or history?

M.D., Ill.

ANSWER.—A one plus Kahn reaction (or Wassermann reaction), in the absence of clinical evidence or a history of infection, cannot be taken as establishing a diagnosis of syphilis. There is no indication from the data presented that the symptoms shown by the patient are due to syphilis; the data indeed suggest that they might be due to an infection of the respiratory tract. Although the Kahn reaction is recognized to be highly specific for syphilis, a borderline reaction, such as a one plus or plus minus, in the absence of clinical evidence or a history of syphilis cannot be considered as justifying antisyphilitic therapy. A borderline reaction should be looked on as an indicator for further clinical and serologic studies.

#### TREATMENT OF STRONGYLOIDES INFESTATION

To the Editor:—A man, aged 35, complains of some indigestion and occasional diarrhea. General physical examination is negative except for a mild secondary anemia; the urine is normal. Examination of the stool shows strongyloides. Apparently gentian violet is one of the latest methods of treatment. By mouth the dose advised seems to vary from 30 to 300 mg. If this treatment fails, I notice that one authority advises the simultaneous use of antimony and potassium tartrate intravenously, a total dose of 2.5 Gm., with intermission of a few days between treatments. Another authority advises gentian violet 20 cc., 0.5 per cent intravenously, or even double this dose. There is also the transduodenal instillation of glycerin, magnesium sulfate and hot saline solution. Are there any possible untoward effects from gentian violet (1) by mouth, (2) intravenously, (3) and from antimony and potassium tartrate, and should this be repeated? What is your opinion as to the best method of treatment?

SAMUEL L. IMMERNAN, M.D., Philadelphia.

ANSWER.—1. Excessive dosage may produce local irritation, chiefly vomiting and diarrhea.

2. Intravenous injection of the dye in doses of 5 mg. per kilogram of body weight causes marked blueness of the skin, probably chiefly from the intense color of the dye. The color disappears in a few hours. It is also liable to cause "colloid-oclastic reactions," such as chills and fever, on intravenous injection, and it is probable that its therapeutic effects when given intravenously are due to this reaction. The concentration of the solution should not exceed 0.5 per cent, as a 1 or 2 per cent solution has a tendency to cause thrombosis.

3. The intravenous use of antimony and potassium tartrate (1 per cent in physiologic solution of sodium chloride, initial dose 0.04 to 0.06 Gm.) is liable to be followed by an irritative cough, a metallic taste, nausea and vomiting, colic, diarrhea, and occasional skin rashes. As it is rather rapidly eliminated, there is relatively little danger of cumulative action, so that repetition at adequate intervals may be safe.

The therapy recommended consists of administration of oil of chenopodium, after a day of magnesium sulfate purgation and light meals. It is given in 0.5 cc. capsules at 7, 8 and 9 o'clock in the morning; a total of 1.5 cc. Two hours later a

## Correspondence

### RECENT GRADUATES AND DRUG NIHILISM

To the Editor:—The article by Dr. Norman A. David in *THE JOURNAL* Feb. 1, 1936, page 405, entitled "The Recent Graduate and Drug Nihilism" is one that should appeal to every teaching pharmacologist. It draws attention to the impoverished condition of this subject. The more recent article "The Present Status of Research and Teaching in Pharmacology," by Dr. David and George A. Emerson (*THE JOURNAL*, Nov. 14, 1936, p. 1599) stimulates me to forward the accompanying discussion, which I am especially free to do from my present position, as pharmacology has been for many years granted equal rights with her usually more fortunate sisters.

A number of years ago, while professor of pharmacology in Halifax, Nova Scotia, I became unfavorably impressed with the amount of poor prescribing, lacking both in fundamental knowledge of the subject and even more frequently in its practical application. Through the courtesy of my friend Dean Bubridge of the Pharmacy School and chairman of the Canadian Pharmaceutical Association, a somewhat similar inquiry concerning the average prescription as reported in Dr. David's article was conducted. About 200 replies were obtained from druggists in Canada who had analyzed the last one or two hundred medical prescriptions on their books. These showed that over 25 per cent were entirely composed of, or contained, proprietary medicines. Town doctors rated higher than country. The age of the prescriber was not obtained but would have been very interesting.

Shortly after, I wrote an article (*Canad. M. A. J.* 18:565 [May] 1928) in which at least one factor certainly involved in this unhappy condition was discussed, namely, the retained teaching of the degenerated remnants of the old "prescription" which had, or were supposed to have, intrinsic virtues, in place of training young medical men to write an intelligent order in its simplest terms compatible with clarity to his pharmaceutical colleague, attention however being paid to the fact that such an order, however simple, is essentially a responsible one and at any time may have legal significance.

Certain states, however, still ask examination questions which are at least in part based on this out of date type of materia medica, and duty to the student demands that a teacher in such states take cognizance of this fact and prepare his students accordingly. Thus he becomes unwillingly a party in the preservation of some old medical dead wood. However, as pharmacology in the medical school essentially consists of taking medical students around part of the medical tool shops and explaining how to use the tools, it must therefore derive a great part of this energy from the spirit of practice, much as medicine itself does. Thus, it is consistent for the teacher to make the best out of a bad job, as he needs must in practice, and show his students the way over his official hurdles. I am aware that this statement may occasion much adverse comment from some of my colleagues who, quite rightly, insist on the scientific basis of this subject being of paramount importance, especially in a university training; furthermore, that nothing which may assist weaker men in a medical school in their constant efforts to reduce the training to a mere technical status should be encouraged, even by compromise. However, two facts exist: the first, that no medical curriculum is sufficiently long to train fully a student in the science of pharmacology; and the second that human pharmacology can be learned only in the appropriate animal houses, namely, the hospital, clinic, or general practice, with but few exceptions.

There is thus a scientific as well as a practical need for close cooperation between the two types of experimental pharmacologists; namely, those who work largely on animals and those who use chiefly human material. To focus then a medical student's attention largely toward human pharmacology encourages him in his studies of this science, as well as rendering his brief stay in the department of greater value to him. Furthermore, I find by experience that as the student realizes for himself the practical difficulties which always exist in the conduction of human experiments he is more willing to consider and avail himself of the advantages of animal experimentation. On the other hand, just as the various branches of applied medicine have their specialists, owing largely to the overwhelming literature in each subject, so must human pharmacology be considered a specialized branch, and for the same reason. In the clinic no one feels ashamed to consult a specialist in eyes, and ear departments exist all the time as separate entities and their staffs teach the students without raising adverse comment. Yet most medical men equally unspecialized strongly resent even a mild implication that their knowledge of human or general pharmacology is not complete. The consequence is that many chairs of pharmacology have been filled with general practitioners who are no more capable of fulfilling the duties of the position than they would as head of the department of surgery. It must also be added that the same criticism can be fairly leveled against men trained in pure science, such as chemistry, holding such positions.

While, then, one small fault lies in the type of examinations set by certain state boards, and with due respect to Dr. David, I might suggest that these are largely in the hands of the older generation who, while unquestionably better trained in materia medica and the application of the now unnecessary Latin [sic] adornments, are less familiar with the pharmacologic behavior of drugs than some of their younger colleagues. A second and more serious difficulty lies in the fact that unsuitably trained persons have been engaged in the teaching of this science. This difficulty, serious enough in all consequence, is nevertheless merely the outcome of one which is of fundamental importance.

Materia medica in the old days was an important branch of medical learning and was, of course, intimately associated with the practice of medicine. Automatically, then, the teacher was accorded respect with his professional colleagues. Materia medica also for the greater part of medical history supplied the methods of treatment and, indeed, still earlier in the dim ages was medicine itself. With the sudden and startling development of medical inquiry beginning with Harvey, the almost fantastic success of surgery—still, however, dependent on pharmacology for its essential possibility, namely, anesthesia, analgesia, disinfectants—and the magnificent advances in pathology, bacteriology and physiology, the high estate of materia medica became overshadowed, ill nourished and even dismembered.

The inevitable process of debunking, which new knowledge ever causes, not only cast mud on the now half-starved, impoverished medical member but even on occasion denied it its proper right to exist.

At the peak of the flood of medical advancement of the last generation was found that great leader of medicine and of men, Sir William Osler, who, imbued with such desire to understand medicine and unable, being human, to be colonel of each and every one of its many companies, not only neglected to help this old, great field of endeavor, but also, though probably unwittingly, became its most deadly enemy, especially in this country. Blinded by the glory and light that differential diagnosis was bringing to medicine, men tended to forget that the patient still needed comfort and help exactly as he did before. Because knowledge failed and because drugs were still

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *THE JOURNAL*, February 6, page 498.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written examination* will be held simultaneously in different centers of the United States and Canada in March. *Practical examination* will be given in St. Louis in April and at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the United States and Canada, March 6. *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. *Applications must be received at least sixty days prior to the examination dates*. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Philadelphia, June 12. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: Philadelphia, June. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklm, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral examination*. Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

### New Jersey June and October Examinations

Dr. James J. McGuire, secretary, State Board of Medical Examiners of New Jersey, reports the written examinations held in Trenton, June 16-17 and Oct. 20-21, 1936. Both examinations covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. One hundred and seventy-four candidates were examined, 168 of whom passed and 6 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine.....	(1935)	86.1, 87	
University of California Medical School.....	(1936)	84	
Yale University School of Medicine.....	(1934)	84.6, (1935)	83.5
George Washington University School of Medicine.....	(1934)	85.5, 86.6, 89.5, (1935) 85.5, 87.6, 88	
Georgetown University School of Medicine.....	(1934)	81.2, (1935) 75, 77.1, 77.1, 79.8, 82.1, 83.3, 84.1, 84.8, 85.3, 85.9, 86.4, 86.4, 90.1, 90.5	
Howard University College of Medicine.....	(1935)	82.8, 84.8, 88.3	
Emory University School of Medicine.....	(1934)	80.1	
Loyola University School of Medicine.....	(1935)	87.7, (1936)	80.7
Northwestern University Medical School.....	(1936)	84.6	
Rush Medical College.....	(1934)	83.8, (1936) 84.7, 88.2	
State University of Iowa College of Medicine.....	(1933)	80.6	
University of Kansas School of Medicine.....	(1934)	83.7	
Johns Hopkins University School of Medicine.....	(1934)	84.8	
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1935)	79.4, 87.1, 87.3, 88.7, 89.6, 90.2	
Boston University School of Medicine.....	(1935)	80.2, 85, 88.3	
Harvard University Medical School.....	(1934)	91.5, (1935) 84.4, 88.5	
Tufts College Medical School.....	(1931)	79.1, (1934) 83.2, (1935) 77.8	
University of Michigan Medical School.....	(1935)	84.7	
St. Louis University School of Medicine.....	(1935)	81.6, 83.8, 84.3, 86.5, 87.6	
Washington University School of Medicine.....	(1935)	87.2	
Creighton University School of Medicine.....	(1935)	81.6, 82.1	
University of Nebraska College of Medicine.....	(1929)	85.4	
Columbia Univ. College of Physicians and Surgeons.....	(1935)	77.4, 84.4, 85.2, 85.5, 87.1, 88, 88.8	
Cornell University Medical College.....	(1935)	86.8	
Long Island College of Medicine.....	(1932)	91.1, (1935) 84.8, 88.8	
New York Homeopathic Medical College and Flower Hospital.....	(1935)	85.1, 85.5, 88.3	
New York University College of Medicine.....	(1935)	83.3, 90.1	
Syracuse University College of Medicine.....	(1935)	86.8, 87.4, 89, 89.1	
University of Rochester School of Medicine.....	(1935)	82.8	
Eclectic Medical College, Cincinnati.....	(1935)	86.6, 87.1, 88.3, 88.7, 89.3	
Hahnemann Med. College and Hospital of Philadelphia.....	(1934)	83, 83.2, 83.4, 85, 85.6, 85.8, 86.3, (1935) 81, 81.5, 82, 83, 83.3, 83.4, 84.5, 84.6, 84.8, 85.7, 89.6, 90.3	
Jefferson Medical College of Philadelphia.....	(1934)	87.5, 88.8, (1935) 88, 84.8, 84.8, 85.1, 85.2, 85.4, 88, 89.7, 90, 90.6	

Temple University School of Medicine.....	(1934)	82.1, 84.3, 89.7, (1935) 80, 82.6, 84, 85.4	
University of Pennsylvania School of Medicine.....	(1934)	86.2, (1935) 81.7, 82.7, 84.6, 86.1, 87.6	
Woman's Medical College of Pennsylvania.....	(1933)	83.4, (1935) 75.8, 83.8	
University of Tennessee College of Medicine.....	(1933)	78.3	
University of Vermont Coll. Medizinsche Fakultät der		81.7	
Licentiate of the Royal Col England and Member of the Royal College of Surgeons of	(1934)	80.2, 83.7	
University of Birmingham Faculty of Medicine.....	(1935)	87.3	
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg	(1922)	84.1	
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia.....	(1935)	80.2	
Regia Università di Napoli Facoltà di Medicina e Chirurgia.....	(1934)	80.7, 81.3	
Licentiate of the Royal College of Physicians and of the Royal College of Surgeons, University of Aberdeen Faculty		83	
University of Edinburgh Faculty		83.5	
University of St. Andrews (Scotland.....	(1935)	79.3, 84.3	
Universität Bern Medizinische Fakultät.....	(1934)	81.8, (1935)	86.3
Université de Genève Faculté de Médecine.....	(1935)	78.1, 86.7	
Université de Lausanne Faculté de Médecine.....	(1934)	77.8	
School	FAILED	Year Grad.	Per Cent
McGill University Faculty of Medicine.....	(1915)	54.7	
University of Montreal Faculty of Medicine.....	(1925)	65.8	
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg.....	(1923)	59.1	
Regia Università degli Studi di Modena. Facoltà di Medicina e Chirurgia.....	(1927)	51.2, 63.1	
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia.....	(1934)	66.1	

One hundred and twenty-nine physicians were licensed by endorsement from January 15 through December 16. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical.....	(1936)	N. B. M. Ex.	
University of Colorado.....	(1935)	Colorado	
Yale University School.....	(1928)	New York	
George Washington University School of Medicine.....	(1928), (1933)	New York	
Georgetown University School of Medicine.....	(1934)	Maryland	
Howard University College of Medicine.....	(1930)	Kansas	
(1934) Missouri, (1935) Tennessee			
Northwestern University Medical School.....	(1936)	Illinois	
Rush Medical College.....	(1932) N. B. M. Ex., (1934)	Penn.	
Indiana University School of Medicine.....	(1933), (1934, 2), (1935) Indiana		
State University of Iowa College of Medicine.....	(1933)	Iowa	
University of Kansas School of Medicine.....	(1932), (1934)	Kansas	
University of Louisville School of Medicine.....	(1932)	Kentucky	
Tulane University of Louisiana School of Medicine.....	(1932)	Michigan	
College of Physicians and Surgeons of Baltimore.....	(1905)	New York	
(1914) Pennsylvania			
Johns Hopkins University School of Medicine.....	(1924)	New York	
(1931), (1934) Maryland			
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1916)	S. Carolina	
(1933), (1934) Maryland			
Boston University School of Medicine.....	(1935) N. B. M. Ex., (1930) N. B. M. Ex.		
Harvard University Medical School.....	(1926) Massachusetts, (1930) New York		
School.....	(1932) N. B. M. Ex.		
School.....	(1932) N. B. M. Ex.		
School.....	(1930) New York		
(1933), (1934), (1935) Missouri			
Creighton University School of Medicine.....	(1927)	Nebraska	
Columbia Univ. Col. of Physicians and Surgeons.....	(1934) N. B. M. Ex.		
(1923), (1934), (1935, 3) New York			
Cornell University Medical College.....	(1932, 2) N. B. M. Ex.		
(1923), (1929), (1932), (1934) New York			
Fordham University School of Medicine.....	(1919)	New York	
Long Island College.....	(1912), (1921), (1925)		
Long Island College.....	(1931), (1932), (1934), (1935, 5) New York		
New York Homeopathic Medical College and Flower Hospital.....	(1916), (1930), (1934), (1935, 4)	New York	
New York University, University and Bellevue Hospital Medical College.....	(1923), (1929), (1934, 3)	New York	
University of Rochester School of Medicine.....	(1920), (1935)	Ohio	
Eclectic Medical College.....	932	Ohio	
University of Cincinnati.....	932	Ohio	
Western Reserve University.....	933	New York	
Hahnemann Medical Col. (1935, 2) Maryland.....	(1930)	New York	
Jefferson Medical College of Philadelphia.....	(1927) Pennsylvania, (1934) N. B. M. Ex.		
Temple University School of Medicine.....	(1934)	New York	
University of Pennsylvania School of Medicine.....	(1926), (1929), (1930), (1931) Penna., (1931) N. B. M. Ex.		
University of Pittsburgh School of Medicine.....	(1911), (1920)	Penn.	
Medical College of the State of South Carolina.....	(1926) W. Virginia,		
(1935) S. Carolina.....			
Meharry Medical College.....	(1934, 2), (1935)	Tennessee	
University of Tennessee College of Medicine.....	(1931)	Tennessee	
Vanderbilt University School of Medicine.....	(1920) Ky., (1928)	Tennessee	
University of Vermont College of Medicine.....	(1934)	Vermont	
University of Virginia Dept. of Medicine.....	(1932), (1935)	Virginia	
Marquette University School of Medicine.....	(1929)	Michigan	
University of Wisconsin Medical School.....	(1929)	Wisconsin	
University of Toronto Faculty of Medicine.....	(1921)	Ontario	

humblest mongrel can snarl and bite in the service of his mistress, and love takes no account of palaces.

To Dr. David, then, I and all pharmacologists owe a debt of gratitude for ably bringing into the light of day his data, and it is to be hoped that his work, aided by the Council, will grow and develop to a proper fruition.

O. S. GIBBS, M.B., Memphis, Tenn.

Chief of Pharmacological Division, University  
of Tennessee College of Medicine.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### BLOOD SEDIMENTATION TESTS

*To the Editor:*—What is the present status of the blood sedimentation test as compared with the leukocyte count (total and differential, including "stab" count) in the diagnosis of chronic and acute infections? In what circumstances is it especially valuable? What is the technique? Please omit name.

M.D., California.

**ANSWER.**—The blood sedimentation is more rapid in disease than in health, but this test is not diagnostic of any one disease. The sedimentation test is useful in differential diagnosis. It is of value in following individual cases. In tuberculosis the increased rate parallels the increase in activity. A normal or slowed sedimentation rate speaks against infection.

The sedimentation velocity is accelerated in active tuberculosis, acute inflammations, infectious diseases, carcinoma, pregnancy and rheumatoid arthritis, and following operations as a result of tissue trauma. In general the rate remains increased after the leukocyte count and temperature have returned to normal.

The chief value of the sedimentation test is in distinguishing between inflammatory and noninflammatory processes and in estimating the activity or progress of pulmonary tuberculosis. In acute inflammations the rate is increased. An actively growing cancer is likely to give a greater rate than a slowly growing scirrhous carcinoma. There is usually an increase in serum globulin and fibrinogen in conditions with rapid sedimentation.

Leukocytic changes are more valuable indicators in the early stages of disease than they are in marking the completion of recovery. The cell sedimentation rate usually tells more regarding end stages of disease. The sedimentation test shows more constant deviation from normal than does the Schilling count in acute and subacute pelvic infections.

The reaction of the leukocytes is somewhat specific for certain types of infection, but the tissue involved plays a part. Infections due to cocci give rise to a leukocytosis by causing an increase of polymorphonuclears. A differential count, special note being taken of the ratio of young or stab forms to mature cells, yields more information than the total count. With severe infections the percentage of young or unsegmented polymorphonuclears increases. Normally there are from 5 to 20 per cent. The pneumococcus produces the greatest leukocytosis. The degree of leukocytosis also depends on the reaction of the individual to a severe infection. If a very toxic infection develops, the leukoblastic bone marrow areas may fail to produce leukocytes even in normal numbers.

Bacillary infections, especially typhoid, paratyphoid, influenza and tuberculosis, rarely produce an increase in the total white blood cell count.

The tissue involved influences the leukocytic picture even more than does the type of organism causing an infection. Diseases involving chiefly the lymphatic tissue (tuberculosis, typhoid and so on) usually have a low total count and a high percentage of lymphocytes. When these infections spread to the bones or serous surfaces there may be a polymorphonuclear cell increase. In diseases with a leukocytosis the blood count usually returns to normal before actual recovery has occurred. A continued leukocytosis suggests rapid extension of the infection.

Hemorrhage into a serous cavity causes a prompt and marked leukocytosis. It begins within two hours and reaches its maximum in from six to ten hours. Many patients with malignant tumors have a leukocytosis resulting from secondary infection or absorption of necrotic tumor tissue. A steadily increasing count suggests rapid growth or metastases.

There are so many modifications of the sedimentation test that it is difficult to compare results. Three methods are chiefly used: the Cutler method, the Westergren method and the Linzenmeier method. Corresponding values for the three methods are discussed by Esther M. Greisheimer, A. E. Treloar and Mary Ryan (*Am. J. M. Sc.* 197:213 [Feb.] 1934).

The simplest of the three methods is the Linzenmeier, which is performed thus: Into a sterile 1 cc. syringe draw 0.2 cc. of sterile 5 per cent sodium citrate and then blood from the vein up to 1 cc. Place in a special tube (5 mm. internal diameter with a 1 cc. graduation mark at 50 mm. height, and two other marks at 12 and 18 mm. below the 1 cc. mark). Mix and set in a vertical position. Record the time when the cell column reaches the 18 mm. line. This is normally about two hours or longer. The normal sedimentation in one hour is from 2 to 10 mm. in men and from 2 to 15 mm. in women.

All three methods are described in the Synopsis of Clinical Laboratory Methods by W. E. Bray, St. Louis, C. V. Mosby Company, 1936. This small book is one of the best and most up-to-date laboratory manuals.

### MYASTHENIA GRAVIS

*To the Editor:*—At present I am giving a 17 year old white girl a half grain (0.03 Gm.) of ephedrine in divided doses and one package of gelatin daily in the treatment of a case of myasthenia gravis. The patient has been under this treatment only a week but seems to have gained strength already. The paralysis of the muscles of deglutition is not so marked and she has better control of the eyelids. When first seen the girl could not talk but had to communicate with me through writing. Is glycerin, strychnine, epinephrine, solution of posterior pituitary or high voltage roentgen therapy over the thymus advisable? What form of treatment has proved most satisfactory? Were heavy doses of quinine sulfate contraindicated for tertian malaria in this case? The patient received 30 grains (2 Gm.) daily for five days. They were only the usual quinine therapy sequelae. Please omit name.

M.D., Arkansas.

**ANSWER.**—If there is enlargement of the thymus gland, demonstrable by roentgen examination, high voltage roentgen therapy might be worth trying. In other cases the administration of thymus gland has been advised. The other remedies mentioned are merely of possible symptomatic value. So is more recently advocated prostigmine (a derivative of physostigmine), which in doses of 0.05 mg. may whip a patient through a crisis. The therapy employed is essentially correct except that a more adequate supply of aminoacetic acid is indicated. The dosage of Aminoacetic Acid, N. N. R., is 20 to 30 Gm. daily. Gelatin contains only 25 per cent of aminoacetic acid. There is no reason to believe that the quinine therapy aggravated the condition.

### SOLUTION FOR USE AS SKIN DISINFECTANT

*To the Editor:*—Would it be advisable to use a solution of mercury bichloride 1:3,000 in 50 per cent alcohol and 10 per cent acetone as an inexpensive bactericidal substance to be painted on very small areas of skin previous to inserting a hypodermic needle for injections? Such a solution represents an important saving over the expense of the ordinary antiseptic solutions. Is there anything harmful about it? Is it bactericidal for ordinary skin organisms? Do you know of any substance that may be added to it to color it, which will not be precipitated by the mercury bichloride?

NORMAN J. KILBOURNE, M.D., Los Angeles.

**ANSWER.**—Clinical experience with the following solution, similar to the one described in the query, was recently reported by J. A. Vaichulus and Lloyd Arnold (Compound Colored Alcoholic Solution of Mercuric Chloride for Skin Disinfection, *Surg., Gynec. & Obst.* 61:333 [Sept.] 1935):

Ethyl alcohol (95%).....	525.0 cc.	50.0 %
Acetone U. S. P.....	100.0 cc.	10.0 %
Mercury bichloride .....	1.0 Gm.	0.1 %
Hydrochloric acid .....	7.5 cc.	0.75 %
Chrysoidin Y .....	2.0 Gm.	0.2 %
Distilled water .....	367.5 cc.	.....

The authors were able to prepare the solution for \$1.60 a gallon. They stated the price of tincture of iodine U. S. P. to be \$4.02 a gallon, 3 per cent of tincture of iodine \$2.65 a gallon and tinctures of metaphen, of merthiolate and of mercurochrome very much higher. They found it more efficacious than other solutions commonly used for antiseptics and skin sterilization (phenol coefficients: compound alcoholic solution of mercury bichloride colored 357, tincture of iodine 128, tincture of metaphen 57, tincture of merthiolate 83, tincture of mercurochrome 1.8). They note its use in 300 cases of gunshot wounds, automobile accidents and "other similar emergency hospital cases" as well as in cases of neck surgery and 120 cases of abdominal surgery. The authors state that the reports were



book with the assistance of his secretary, his associates, his students and also from his private letters and diaries. The subject of the volume led a most interesting life in medical organizational affairs, in literature and in many other capacities. All those who were associated with him in his career (and they were legion) will find the volume fascinating. Every medical student should find in it a source of inspiration.

**Textbook of Surgical Nursing.** By Manelva Wyke Keller, B.S., R.N. Third edition. Cloth. Price, \$3. Pp. 504, with 127 illustrations. New York: Macmillan Company, 1936.

While most textbooks on surgical nursing are essentially abbreviated works on general surgery, it is not so in this case. This excellent and practical book was written for nurses by a nurse with wide experience in surgical and operating room nursing and teaching and is now in its third edition. The text provides only such information about surgical conditions and operations as nurses ought to have to give the patient intelligent care. In the twenty chapters little is said of etiology and nothing of diagnosis, but a great deal of the things which surgical nurses have to know and have to do. The material is presented in clear, simple style. It is illustrated well and abundantly with excellent photographs and line drawings.

**Experimentelle og kliniske Undersøgelser over Rødbehandling af Tænder med Højtfrekvent Vekselstrøm (Diathermi).** Af Ove Brinck. Paper. Pp. 210, with 46 illustrations. Copenhagen: V. Nehters Forlag, 1935.

The author has carried out an extensive clinical and experimental study of the influence of diathermy on the periodontal tissues. The technic consists of the insertion of one needle-shaped electrode into the root canal that is to be treated, while the other electrode is held in the patient's hand. The experimental part was carried out in the teeth of dogs and is illustrated by good and instructive photomicrographs of sections through the treated teeth and their supporting tissues. Bacteria were brought into these dogs' teeth and into extracted human teeth and the influence of diathermy on them was noted. Diathermy was applied also to a large number of clinical patients. On the strength of these results the treatment of root canals with diathermy is considered a useful method which offers the advantage that it reaches areas in the root which are inaccessible by other methods. A comprehensive bibliography of the recent German literature on pulp pathology and treatment is included in this thesis.

**Undersøgelser over Bacteriers Haptenaktiverende Evne samt over F-Haptensers Forekomst i forskellige Bacterlearter.** Af Sigurd With. Paper. Pp. 115, with 3 illustrations. Copenhagen: Nyt Nordisk Forlag: Arnold Busek, 1935.

This dissertation is concerned mainly with the occurrence of the Forssman heterophilic antigen in certain bacteria. The first chapter deals with the lipid fraction or hapten of the Forssman antigen and with the power of bacterial suspensions to convert this hapten into a complete antigen. In the second chapter are described the results of efforts to demonstrate Forssman's antigen in certain bacteria by immunization of rabbits and testing the serum for Forssman antibody. The third and last chapter gives the results of a series of observations on the presence of Forssman antibody in the serum of 219 patients suffering from infectious diseases. The book will interest those who are concerned with heterophilic antigens and antibodies.

**Preparation of Scientific and Technical Papers.** By Sam F. Trelease, Professor of Botany in Columbia University, and Emma Sarepta Yule, Head, Department of English in the College of Agriculture of the University of the Philippines. Third edition. Cloth. Price, \$1.50. Pp. 125. Baltimore: Williams & Wilkins Company, 1936.

The usefulness of this manual is indicated by the fact that it now appears in the third edition. It is a straight account of the details of good writing and the preparation of scientific manuscripts with actual examples so as to make the matter quite clear to the author. While the book is calculated primarily for the engineer, it has useful information and advice for those in every field of science. It should not be considered, however, as primarily a book for the physician, since the volume published by the American Medical Association and that originally published by Mrs. Mellish for the Mayo Clinic are preferable for medical writers.

**Undersøgelser af universelle Kulbueleysbades indvirkning paa experimentel Marsvinetuberkulose.** Af Tage Helms. Paper. Pp. 150, with 3 illustrations. Copenhagen: P. Haase & Søn's Forlag, 1935.

This doctor's dissertation in Danish presents the details of the author's experiments with light treatment of tuberculosis in guinea-pigs. The main outcome of the work may be summarized as follows: Universal irradiation (arc light) of hairless guinea-pigs increased the resistance to tuberculosis in animals that had been infected with small doses of tubercle bacilli or had been treated previously with the Calmette vaccine. This increase in resistance is ascribed to a special action as shown by the hastening of the specific allergic reactions; light treatment of healthy guinea-pigs that were infected later did not influence the course of the tuberculosis.

**Applied Dietetics: The Planning and Teaching of Normal and Therapeutic Diets.** By Frances Stern, Chief of Food Clinic, The Boston Dispensary. Cloth. Price, \$3.50. Pp. 263, with illustrations. Baltimore: Williams & Wilkins Company, 1936.

The author, who is dean of the food clinic in the Boston Dispensary and who has for almost twenty years been a practical dietitian, presents here the material of her daily work. After consideration of the daily food requirements of the body and the consideration of a normal diet, the author considers therapeutic diets in various diseases and the methods of educating patients in the use of suitable diets. Most of the book consists of a series of excellent tables for developing proper diets for all occasions. The volume is one of the most practical and usable thus far available in this field.

**Brookings: A Biography.** By Hermann Hagedorn. Cloth. Price, \$3.50. Pp. 334, with 16 illustrations. New York: Macmillan Company, 1936.

Robert Brookings, founder of the Brookings Institute, was a merchant who was also an educator and a statesman. This volume records the development of his career. Of special interest to the medical profession is the chapter relating to the founding of the medical school of Washington University, in which is given in intimate detail the development of that institution, including the influence of Pritchett of the Carnegie Foundation and of Brookings. The volume is written in a smooth, interesting style. It is nicely illustrated and a fine story of the success of a typical American.

**Probleme der theoretischen und angewandten Genetik und deren Grenzgebiete.** Herausgegeben von H. Böhm, et al. Redigiert von W. F. Reif. Strahlungen: Wesen, Erzeugung und Mechanismus der biologischen Wirkung. Von Dr. Karl G. Zimmer, Assistent an der Strahlungsabteilung des Cecilienhauses, Berlin-Charlottenburg. Boards. Price, 3.20 marks. Pp. 72, with 40 illustrations. Leipzig: Georg Thieme, 1937.

This little handbook is one of a group of publications on problems relating to theoretical and applied genetics and related subjects. It contains a technical discussion relating to the various forms of radiation, including infra-red, ultraviolet, ordinary light, roentgen and gamma rays, corpuscular rays and cosmic rays, and the physical and biologic problems associated with them.

**A Descriptive Atlas of Radiographs: An Aid to Modern Clinical Methods.** By A. P. Bertwistle, M.D., Ch.B., F.R.C.S. Third edition. Cloth. Price, \$13.50. Pp. 560, with 808 illustrations. St. Louis: C. V. Mosby Company, 1936.

This volume, a revised and enlarged edition, has been compiled from the material of many men. Its purpose is to show what radiology can do, to encourage medical men to resort to this means as an aid in diagnosis, and to help the inexperienced in reading roentgenograms. Only normal and abnormal subjects commonly seen in general practice are included. Accompanying each roentgenogram is an explanatory diagram or paragraph or both. Short medicolegal and anthropologic sections have been started in this volume. Physicians who have had little or no experience with roentgenograms will find this atlas useful.

#### CORRECTION

Mathews, A. P.: Principles of Biochemistry.—In the review of this book in THE JOURNAL, January 16, page 230, the reviewer inadvertently confused the volume with the Mathews "Textbook of Physiologic Chemistry." Instead, the volume there reviewed was a short concise textbook, and a new revision of the larger textbook of physiologic chemistry by Mathews will shortly be available.

## TEMPOROMANDIBULAR ARTHRITIS

*To the Editor:*—A man, aged 28, complains of pain in the region of the right temporomandibular joint when he attempts to close his jaw. Something in the joint itself, he says, obstructs the closure. By placing his head so as to stretch the right sternocleidomastoid muscle and then by slow and slight lateral motion of the jaw, he feels (and hears) the "obstruction" slip smoothly out of the way, allowing the jaw to close. Attempts to close the jaw abruptly are unsuccessful and painful. I can feel nothing abnormal on placing my fingers against the jaw when this "slipping" occurs. The trouble is found only in closing the jaw the last few millimeters; no trouble is found in opening it. With the jaw completely closed, no pain is felt as the teeth are clenched or unclenched. Increased pain and difficulty in closing the jaw and a sensation of swelling in the "obstruction" result from the irritation produced by attempts to occlude the teeth. The patient is unable to masticate with his molars, all chewing being accomplished with the incisors. This condition has remained essentially unaltered for two months. Roentgenograms with the jaw in the closed position, taken by a competent roentgenologist, were negative. No ear symptoms, headache, facial pain or change in salivation is noted, and the region of the joint is not tender to palpation either externally or internally. There has been no change in the denture since the removal of the two upper wisdom teeth five years ago. This trouble was first noticed at breakfast the morning after the patient had inadvertently flipped his jaw sideways while he was throwing stones. Physical examination shows the patient in otherwise perfect health. I would appreciate any suggestions as to procedure in diagnosis or treatment. Please omit name.

M.D., New York.

*ANSWER:*—In the absence of any direct examination and with the limited information furnished, one would be strongly inclined to make a diagnosis of traumatic temporomandibular arthritis. This condition is by no means uncommon and is frequently overlooked. The tenderness is brought about by a sudden stretching of the capsule with a coincident traumatizing of the meniscus muscle. The treatment is simple and consists in giving the joint rest without immobilization. The patient should be carefully instructed to avoid any unusual movement of the jaws during the waking hours, and to avoid yawning and particularly opening the mouth wide in eating or laughing. In other words, the jaw should be kept within moderate excursions at all times. At night the patient should be instructed to wear a bandage from the chin to the head, which will prevent any undue movement during the hours of sleep. This simple treatment should be carried out for a period of several months, eight or ten as a minimum. This will give the capsule time to contract to its normal limits, and when this is accomplished there should be no further trouble. The discomfort will disappear in a week or two after the treatment is begun. The patient should be warned to continue with the management for a protracted period, because with each repetition of the injury the condition becomes increasingly difficult to cure.

## DIAGNOSIS OF HEARING IMPAIRMENT

*To the Editor:*—A woman, aged 36, has been a telephone operator for eighteen years. Her hearing has been impaired for the past six months and she thinks it is due to her occupation. She can hear the spoken voice at 10 feet in the right ear and at 16 feet in the left ear. The Rinne test is negative in both ears; the Weber, not localized. The tympanic membranes are opaque and lusterless and have poor markings. I am wondering if her occupation has caused or influenced the deafness. Ballenger states that telephone operators develop an occupational deafness. Please omit name if printed.

M.D., Arkansas.

*ANSWER:*—So far as the tests in this case are concerned, one cannot judge definitely whether the hearing impairment is due to a lesion in the conduction apparatus or in the perception mechanism. The fact that the tympanic membrane is pale and lusterless would indicate that some involvement of the middle ear or eustachian tube had been present but, of course, that would not preclude simultaneous involvement of the inner ear if such is present. The fact that the Weber test is not lateralized may mean that the two ears are involved to about the same extent. Ordinarily the Weber test is not lateralized with normal ears. With conduction apparatus impairment, the sound is usually lateralized in the worse hearing ear, or, if both have a conduction impairment, in the worse of the two ears. With inner ear involvement the Weber test is usually lateralized to the better hearing ear, or, if both are affected, the fork is heard in the better hearing ear.

Stating that the Rinne test is negative in both ears is not sufficient information for an actual diagnosis. In other words, if the bone conduction is longer than the air and, therefore, the Rinne test is negative but the bone conduction is longer than normal, and the air conduction is considerably shortened as compared with normal, the negative Rinne test means a definite involvement of the conduction apparatus. When the bone conduction is longer than air but both are greatly short-

ened as compared with the normal, there is usually a combination of the conduction and the perception apparatus.

If in the case cited there is impairment of the conduction apparatus, it does not seem likely that the telephone receiver would cause such a condition. If, on the other hand, there is a very decided nerve involvement, it is possible that the long continued use of the telephone might have been a contributing factor. Few cases have been seen in which telephone operators have had a marked impairment of hearing apparently as a result of their occupation.

## "ARTHOX" OR "SULFIODOXYGENIA"

*To the Editor:*—Referring to the enclosed literature from the Standard Laboratories, will you please advise me whether you have any information regarding the preparation "Arthox" and oblige. M.D., Virginia.

*ANSWER:*—According to an advertising circular distributed by the Standard Laboratories, Inc., Boston, in 1935, Arthox is "a scientific medicinal formula," an "analgesic, specially prepared to aid in the relief of the muscular aches and pains of RHEUMATISM AND ARTHRITIS." The circular, which is apparently addressed to the public, gives no hint as to the composition of Arthox but does include numerous anonymous testimonials from physicians and laymen which, in the opinion of the Standard Laboratories, "attest convincingly what you may reasonably expect Arthox to do for you." The general character of these testimonials is well exemplified in the following verbatim copy of one of them:

New York ..... Hospital  
December 20, 1934

Dr. .... has been kind enough to give me some Arthox from time to time for use in the clinic. We have had gratifying results in a number of cases in which other methods were ineffective.

(Signed) ..... M.D.

An examination of the advertising material which our correspondent received from Standard Laboratories, Inc., in 1936 indicates that Arthox—now embellished with the high sounding but meaningless synonym "Sulfiodoxygenia"—is sold "on physicians' prescription only." In other words, the "patent" medicine of 1935 becomes an "ethical" specialty of 1936! What are the ingredients of this "most valuable arthritis medicine" which some physicians apparently have taken seriously enough to enable the promoters to state that "additional research work" is being done in various places "including two of Boston's leading hospitals"? The constituents, according to information given by the manufacturer in 1935, are alcohol 2 per cent, Burnham's Soluble Iodine, anise, sassafras, glycyrrhiza, sarsaparilla, methyl salicylate and sodium salicylate! Though this statement includes no information as to the amounts of iodine and salicylate in the mixture, one would probably be justified in assuming that the preparation owes whatever effect it may have in arthritis to the presence of salicylates and, possibly, to the iodine. Apparently the promoters of Arthox (also called "Sulfiodoxygenia") and, sadly enough, some physicians too, are of the opinion that such medication possesses enhanced value when it masquerades under some such title as "Arthox" or "Sulfiodoxygenia." Incidentally, Burnham's Soluble Iodine, one of the claimed constituents of Arthox, is the subject of an unfavorable report by the Council on Pharmacy and Chemistry appearing in *THE JOURNAL*, July 1, 1933, page 33.

## PSORIASIS

*To the Editor:*—I will appreciate such information as you can give me concerning the treatment of psoriasis by the injection of an emulsion prepared from the scales of the lesions on the individual. I am unable to find much information about this.

M.D., Nebraska.

*ANSWER:*—Sutherland Campbell and Kendal Frost, in a preliminary report on a new form of therapy for psoriasis (*Arch. Dermat. & Syph.* 22:685 [Oct.] 1930) detailed observations on fifteen patients with psoriasis who were treated by intramuscular injections of a suspension of the patient's own finely ground psoriatic scales in alcohol. When possible, approximately 0.2 Gm. of psoriatic scales to 20 cc. of pure alcohol was used. The dose employed varied from 1 to 4 cc., the average dose being 1.5 cc., and the injections were given at intervals of three or four days. No untoward local or general reactions were noted. All patients responded to the therapy in varying degrees. The following objective changes were noted:

1. The scales became thinner and less adherent.
2. The center of the lesions became pale.
3. The last stage showed a smooth, slightly discolored area corresponding in size to the original lesion, with a few discrete lesions at the margins. The latter finally disappeared.

Marcozzi (*Gior. ital. di dermat. e sif.* 74:441 [April] 1933) reported on the treatment of ten patients by this method, six

board to accept the surrender. With this contention, however, the Supreme Court did not agree. The fact that the license was surrendered, the court said, after the charges were filed and after evidence had been heard, was evidence from which the board could well infer that the dentist was guilty as charged. The court could not see how the order of revocation could in any manner constitute a refusal by the board to accept the surrender of the dentist's license. Furthermore, continued the court, since the record showed that the dentist voluntarily surrendered his license, he was not in a position to question the constitutionality of the dental practice act. The action of the superior court in dismissing the dentist's appeal was affirmed.—*East v. Carr (Ind.)*, 1 N. E. (2d) 1004.

## Society Proceedings

### COMING MEETINGS

American Association of Anatomists, Toronto, Ont., March 25-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.  
American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.  
American Orthopsychiatric Association, New York, Feb. 18-20. Dr. George S. Stevenson, 50 West 50th St., New York, Secretary.  
Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15-16. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.  
Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.  
Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.  
Pacific Coast Surgical Association, Seattle, Wash., and Victoria, B. C., Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.  
Southeastern Surgical Congress, Louisville, Ky., March 8-10. Dr. Benjamin T. Beasley, 478 Peachtree St. N.E., Atlanta, Ga., Secretary.

### CENTRAL SOCIETY FOR CLINICAL RESEARCH

*Ninth Annual Meeting, Held in Chicago, Nov. 6 and 7, 1936*

The President, DR. FRED M. SMITH, Iowa City, in the Chair

(Continued from page 504)

#### The Alimentary Elimination of Normally Ingested Lead

DR. ROBERT A. KEHOE, Cincinnati: A study of normal human subjects has shown that the gross alimentary output of lead over a period of months is substantially equivalent to the gross lead intake in food and drink. The data of daily observations have been studied to determine the proportion of ingested lead which passes through the alimentary tract unabsorbed, and the proportion which is absorbed and subsequently excreted. The alimentary lead output and intake are strongly correlated over four day periods. Thus it is apparent that there is no prolonged delay in the elimination of the lead, and it might be supposed that the greater portion of the ingested lead simply traverses the alimentary tract. A relationship between the degree of absorption and the alimentary emptying time is suggested by the results on several subjects.

#### Response of Normal and Diabetes Insipidus Subjects to the Ingestion of Water

DRS. THOMAS FINDLEY JR. and H. L. WHITE, St. Louis: Verney has assumed that the polyurias of diabetes insipidus, of the perfused isolated kidney and of water diuresis are all due to diminished concentration of "pitressin" in the blood. Peroral administration of water to the intact normal mammal produces diuresis only after a definite interval of about one hour, during which time the blood pitressin content is falling below its threshold level in response to the stimulus of blood electrolyte dilution accompanying the absorption of water. If this theory is true, the diabetes insipidus subject should exhibit diuresis much sooner after drinking water because he has little or no pitressin in his blood to begin with. Eight experiments on three normal subjects show that the maximum dilution of blood electrolytes, as determined by the serum specific conductivity, precedes the peak of diuresis by about thirty-seven minutes. Similar studies on two diabetes insipidus subjects show a similar blood dilution after the ingestion of water but, contrary to

expectations, no diuresis curve was obtained. In view of the fact that no time interval could be established between the peaks of hydremia and of diuresis, no evidence either for or against Verney's theory was obtained; but the capacity of the diabetes insipidus subject to retain extra water for as long as eight hours is a little appreciated phenomenon and has important bearings on the mechanism of urine formation.

#### Excretion of Hormone-like Substances in the Urine

T. F. GALLAGHER, PH.D., A. T. KENYON, M.D., D. H. PETERSON, R. I. DORFMAN, PH.D., and F. C. KOCH, PH.D., Chicago: Benzene extracts of acidified urine were assayed on capons and castrated rats for their comb-growth stimulating and estrogenic properties. The normal male excretes from 13 to 79 international capon units of androgen and the equivalent of from 3 to 29 micrograms of theelin (estrone) daily, without evidence of cyclic change in continuous studies over six weeks periods. The normale female excretes from 13 to 50 international capon units of androgen and the equivalents of from 3 to 60 micrograms of theelin daily, the latter showing two intermenstrual peaks. One woman with adrenal virilism excreted 480 capon units of androgen daily, while fourteen other virile women showed from low to slightly high values.

#### Therapeutic Value of Convalescent Serum in Scarlet Fever

DRS. MAX FOX and MAURICE HARDGROVE, Milwaukee: A comparative study was made of 1,028 patients with scarlet fever; 139 who received scarlet fever antitoxin, 589 who received convalescent serum, and 300 who were untreated. All except 294 who were treated with convalescent serum in the home were in an isolation hospital. The majority of the cases of the home group were of moderate severity, while those of the hospital group were severe and often complicated. The sex and average age incidences were approximately the same. The average length of time after treatment until normal temperature was reached in the convalescent serum group was about one-half that of the antitoxin group. The average twelve hour fall of temperature in the serum group was 3.5 degree (hospital) and 3.4 degree (home) as opposed to 2.1 degree in the antitoxin group. In 68.4 per cent of the home group satisfactory response was shown if the serum was given within a three-day period, and in 14.9 per cent when given later than three days after the onset of the illness (83 1/3 per cent). In the hospital group a satisfactory response was obtained after convalescent serum in 90 per cent, and in 60 per cent when antitoxin was used. Complications occurred in 35 per cent of the cases after the use of antitoxin and in 16 per cent (hospital) and 12 per cent (home) of the convalescent serum groups. The incidence of reactions after convalescent serum was 1 per cent, as opposed to 35 per cent after antitoxin. Deaths occurred less frequently in the home group.

#### DISCUSSION

DR. MAX FOX, Milwaukee: There were eight deaths reported at the Isolation Hospital from among 295 patients, all of whom received convalescent serum. These patients were all admitted to the hospital from five to thirteen days after the diagnosis had been made and presented complications. They received from 20 to 120 cc. of convalescent serum. Convalescent serum, to be effective, must be given early and in large doses. If complications have already occurred, the convalescent serum may be of no help. In addition to convalescent serum, these patients were treated with intravenous therapy and specific and nonspecific immunotransfusions. There were available a number of post-scarlet fever patients properly typed whose blood could be used in an emergency; with the advent of convalescent serum we ceased to use these donors except for cases of this serious type. About 20 per cent of the cases treated at the Isolation Hospital fell into this group presenting complications or marked toxemia. Approximately 80 per cent were mild cases and received only general care. It is obvious that the clinician must be able to evaluate the cases with which he is confronted and must know which are the cases in which complications are likely to develop. For the general practitioner I recommend that convalescent serum be used in most cases. I take this opportunity of presenting a series of cases seen in consultation in the city of Milwaukee during an epidemic of scarlet fever. In this series there were eleven instances in

purgative dose of magnesium sulfate should be given and the treatment repeated about once a week until all the worms are destroyed. Thymol in doses of from 1 to 3 Gm. is a competitor. Carbon tetrachloride in doses not exceeding 3 cc. is also recommended and is considered by some as superior to the other two.

#### TRANSMISSION OF SYPHILIS

*To the Editor:*—A white woman, aged 25, is afflicted with berydo-syphilis. In January she sought treatment for a repeated attack of interstitial keratitis. Her Wassermann reaction was 4 plus. I started her on a bismuth compound; then she had a course of neoarsphenamine and is now on her second course of bismuth. The eye condition has cleared up nicely. The Wassermann reaction is still 4 plus. She is a splendid type of individual, quite intelligent and is aware of her condition. She wants to marry and is anxious to know what the possibilities are for transmission to her prospective husband and any possible child. She wants to get married this summer. Should she wait till she gets more treatment? She is quite aware that lifelong observation and intermittent treatment are necessary for the proper care of her disease. Please omit name and address.

M.D., Pennsylvania.

*ANSWER:*—This patient with congenital syphilis may marry at any time she likes without any risk of transmitting syphilis to her prospective husband. So far as the transmission of syphilis to a possible child is concerned, third generation syphilis does occur but is exceedingly rare. Of 118 children born to eighty-eight congenitally syphilitic mothers in one large clinic of the country, only eight of the children themselves had congenital syphilis. Even these chances may be lessened by adequate treatment of the mother during the course of her pregnancy.

#### TREATMENT OF SYPHILIS

*To the Editor:*—A man, aged 25, had a chancre in 1914 for which he received six injections of arsphenamine and was given mercury and iodides by mouth for several months. The four plus Wassermann reaction was changed to negative. He received no further treatment. In 1926 he had a severe attack of coronary thrombosis from which he recovered in about three months. In 1932 he had a similar but milder attack. He has been well since then. Now for the first time he admits a syphilitic history. The Wassermann reaction is one plus. The electrocardiogram shows evidence of myocardial disease. How much antisyphilitic treatment should be administered now?

M.D., New York.

*ANSWER:*—Coronary occlusion is rarely due to syphilitic heart disease. The slight degree of positivity in the complement fixation test is of no value in estimating the activity or lack of it of syphilitic infection of twenty-two years ago. If the patient has no physical evidence of syphilis, it would be wisest to withhold antisyphilitic treatment altogether. If physical evidence of syphilis is present, either in the form of syphilitic aortitis associated with what is almost surely arteriosclerotic heart disease or of neurosyphilis, antisyphilitic treatment might perhaps be given, although no definite opinion could be offered as to its type without further knowledge of the physical evidence of syphilis, if any, that may be present. Under no circumstances should the patient now be treated merely because of his weakly positive Wassermann reaction. The arsenical drugs are relatively contraindicated in a patient with myocardial damage of this degree.

#### INJECTION TREATMENT OF BURSAL CYSTS—NEURITIS

*To the Editor:*—I noted what you had to say in Queries and Minor Notes in *THE JOURNAL*, June 13, relative to the treatment of hydrocele with 5 per cent sodium morrhuate and wondered whether the same treatment is applicable to bursal cysts, especially in the popliteal space. Also kindly suggest treatment that will cure neuritis of the arm and hand (subacute).

SHERMAN R. WANTZ, M.D., Baltimore.

*ANSWER:*—Bursae in general are amenable to the injection treatment with 5 per cent sodium morrhuate. Popliteal bursae may widely communicate with the knee joint and their injection may produce a marked inflammatory reaction of the knee. The bursae of the hamstring muscles may be readily injected.

The treatment of neuritis of the arm and hand depends on the thorough investigation of its cause. Traumatic neuritis is caused by pressure of a cervical rib, arthritis of the spine, subdeltoid bursae, old injuries to the shoulder or brachial plexus. Infectious or toxic neuritis may be caused by influenza, typhoid, lead, arsenic, alcohol or carbon monoxide, to mention only the most frequent offenders, as there are many others. Possible foci in the teeth, tonsils, prostate and cervix must be investigated. Rheumatic nodules in the muscles, fibrositis, often simulate brachial neuritis. Symptomatic relief is afforded by salicylates, heat and abduction of the arm in an airplane splint.

#### EMOTIONAL UPSET PRECIPITATING HYPERTHYROIDISM

*To the Editor:*—Can a recurrence of acute hyperthyroidism in a case in which there have been no symptoms since thyroidectomy two years previous be precipitated by an emotional upset associated with a trauma? Please omit name.

M.D., New York.

*ANSWER:*—It is generally believed that an emotional upset associated with trauma may precipitate hyperthyroidism. If this concept is correct, it is also quite probable that an emotional upset associated with trauma might precipitate a recurrence of hyperthyroidism. However, there is no evidence obtainable that permits of drawing a definite conclusion in an individual case.

#### OPERATION ON LACRIMAL SAC IN INFANT

*To the Editor:*—I should like to have your version of the best treatment for an infected lacrimal sac, in a child 16 months old, the condition having persisted since birth; the nasal duct is open. What is the general impression regarding removal of the sac at such an early age? Please omit name.

M.D., British Columbia.

*ANSWER:*—The infected tear sac of an infant of 16 months should be removed through the external route. The nasal drainage operations used in adults are scarcely applicable, the nasal spaces in an infant are so small.

#### HAGEDORN-JENSEN METHOD OF ESTIMATING BLOOD SUGAR

*To the Editor:*—With respect to the note on page 2075 of the Dec. 19, 1936, issue of *THE JOURNAL*, Dr. Selsam is correct in her criticism of the "standardization" as published in the October 24 issue of *THE JOURNAL*, having to do with the Hagedorn-Jensen method of determining the blood sugar.

Thiosulfate solutions cannot be standardized against iodide solutions for a number of reasons. Two are that the end products of a thiosulfate-iodine reaction are a tetrabionate and an iodide, and that starch-iodide blue appears only in the presence of hydriodic acid or a soluble iodide. These reactions are in no wise matters of feeling but have been known, demonstrated quantitatively and taught to sophomore students of quantitative analysis for many decades. They may be found, fully described, in any standard work in that field, of which Treadwell and Hall's *Analytical Chemistry* is representative.

An infinitely preferable way of standardization of thiosulfate solutions is described in the sixth edition of Talbot's *Quantitative Analysis* on pages 78-80, using bromate, copper or arsenous oxide as reference standards rather than the metastable iodate. Use of these methods will make the final analysis of the blood specimen more nearly approach a determination rather than an estimation.

L. F. PIERCE, Ph.D., Los Angeles.

#### EFFECT OF STERILIZATION

*To the Editor:*—In the Dec. 5, 1936, issue of *THE JOURNAL*, on page 1912, there is an inquiry by a physician in New York regarding the effect of sterilization on epilepsy. In my experience I have found definite benefit in the treatment of epilepsy associated with menstruation by x-ray suppression of the menstrual function. In the *American Journal of Obstetrics and Gynecology* (26:116 [July] 1933) I reported on the result of treatment in just such a case as described by your correspondent, with excellent results. Recently numerous workers have shown a definite relationship between menstrual function and mental disturbances; x-ray therapy has been of distinct help in such conditions. In cases of epilepsy associated with menstrual function, it may be readily benefited by x-ray suppression of the menses. The question as to temporary or permanent sterilization rests on several factors, not the least important being the age of the patient. In most instances x-ray sterilization in women under 30 years of age is not permanent in effect.

IRA I. KAPLAN, M.D., New York.

#### HYPERPERISTALSIS WITH BORBORYGMUS

*To the Editor:*—On page 320 of the January 23 issue of *THE JOURNAL*, in Queries and Minor Notes, is a question as to the possible etiology of hyperperistalsis with borborygmus. Having seen one such symptom complex in a patient with proved brucellosis, whose symptoms disappeared under vaccine therapy, I would like to suggest the advisability of a blood agglutination test, intradermal test and perhaps an opsonocytophagic index test to rule out possible chronic, subclinical brucellosis.

HAROLD J. HARRIS, M.D., New York.

#### X-RAY THERAPY IN OSTEOMYELITIS

*To the Editor:*—On page 1988 of the Dec. 12, 1936, issue of *THE JOURNAL* I note your answer to a request for suggestions as to treatment for chronic osteomyelitis and was sorry that you did not mention x-ray therapy. I have found x-ray therapy very successful in my practice and believe that its advantages should be better known. In my experience surgery sometimes is followed by an acute exacerbation of the disease, and this is especially true in cases of osteomyelitis of the femur.

WILLIAM A. EVANS, M.D., Detroit.

hypotension. The man was 63 years old, with characteristic manifestations of that syndrome. He has been taking the drug for six months without any unfavorable effects so far as we can observe except a tendency to insomnia, which can be controlled with barbiturates. The dose has been high, as much as 150 mg. a day, especially in hot weather. The patient preferred benzedrine to ephedrine because it made him less tremulous, induced less insomnia and was perhaps somewhat more effective in dispelling his weakness. The hypotension was more easily and effectively controlled with benzedrine than with ephedrine.

DR. LOUIS LEITER, Chicago: I should like to know whether the authors have had any experience with this drug in muscular dystrophies.

DR. DWIGHT L. WILBUR, Rochester, Minn.: In answer to Dr. Keeton's question, the only observations on gastro-intestinal function we have made have been subjective ones. One of the most remarkable subjective changes is loss of consciousness of abdominal organs. Meyerson has demonstrated that benzedrine relieves spasm of the gastro-intestinal tract, and he has used the drug as a method of relieving spasm during roentgenologic study of patients. Dr. Katz had mentioned the fact that Dr. Nathanson of St. Paul has done considerable work on the effects of benzedrine in exhausted patients. This work served as an inspiration for our observations. I believe that Dr. Nathanson is in a better position than we are to discuss the effects of benzedrine used daily over a considerable period. Dr. Shapiro emphasized the fact that increase in pulse rate may follow administration of benzedrine. We have made similar observations in many cases, especially in patients who are nervous and already stimulated. Dr. Korn spoke about the effect of the drug in orthostatic hypotension. In one case we have observed that a more satisfactory result was obtained than with ephedrine. In answer to Dr. Leiter's question, we have not observed the effect of benzedrine in muscular dystrophy. I should like to emphasize the fact that benzedrine is a stimulant, that its effect is temporary, and that it therefore probably does not fundamentally and permanently alter a psychiatric disorder or a state of chronic exhaustion or neurosis.

#### General Edema of Indeterminate Etiology

DRS. MELVIN W. BINGER and NORMAN M. KEITH, Rochester, Minn.: Three selected cases with edema of obscure etiology were studied. It is interesting that in these cases there was a low serum protein concentration, all below 5 Gm. per hundred cubic centimeters and one as low as 2.7 Gm., yet there was no albumin in the urine. No gross evidence of liver disease was found. Basal metabolic rates, liver functional tests, blood chemistry and renal functional studies were carried out. One case came to necropsy with the outstanding finding of pancreatic degeneration. These cases were treated with high protein, low salt and low fluid diet, and potassium nitrate, from 8 to 12 Gm. daily, was given. In all cases the edema was controlled.

#### DISCUSSION

DR. JOHN TUCKER, Cleveland: I should like to ask the authors whether they have given their patients a thorough trial with massive doses of yeast extract. I have found that a certain group of patients with edema, in whom the usual causes of fluid retention have been ruled out, improve markedly with adequate amounts of vitamin B complex. It would appear that such patients are suffering with an atypical form of wet beriberi.

DR. MELVIN W. BINGER, Rochester, Minn.: Two of these patients were on a high vitamin diet. The other patients had been on a general diet with plenty of fruits and vegetables. There was no evidence of lack of vitamin.

#### Study of the Erythrocyte Volume and the Proteins of the Blood Serum

DR. FRANK H. BETHELL, Ann Arbor, Mich.: The mean corpuscular volume varies normally between 86 and 96 cubic microns, according to our observations with the Wintrobe technic. Deviations from this range are usually considered to denote developmental abnormality, the shift to large or small red blood cells occurring in the bone marrow. Such is the case of the macrocytosis of pernicious anemia and the micro-

cytosis of iron deficiency anemias. However, alterations of erythrocyte size may also depend on changes in the environment of the circulating red blood cells. An appreciable decrease in the serum protein is accompanied by red blood cells of increased volume. A swelling of the cells apparently occurs, which is related specifically to the albumin content of the serum and is not a simple osmotic phenomenon. Instances of macrocytosis accompanying cirrhosis of the liver are often of the latter type and are related to decrease of the serum albumin with reduction of the albumin-globulin ratio. Consequently, with certain limitations, determination of the average erythrocyte volume may give a clue to the functional efficiency of the liver in protein metabolism.

#### Further Studies on the Glomerular Function Test with Sodium Ferrocyanide

DR. EDWARD J. STIEGLITZ, Chicago: In 1934 Stieglitz and Knight published a preliminary report on sodium ferrocyanide excretion as a clinical test for glomerular function. This first clinical application of a ferrocyanide salt as a test substance was based on extensive experimental evidence that it is secreted solely by the glomeruli. Since then additional work has confirmed the first impression of the usefulness and physiologic soundness of this test procedure. A much larger series of normal control cases precisely defined the normal range of excretion. The new mean normal corresponds very closely with the 1934 figures. Additional studies in hypertensive arterial disease show that glomerular function is depressed more than tubular secretion. In hypertensive arterial disease there is an almost constant minute output of sodium ferrocyanide after the first hour; if the amount remaining in the body is used as the basis for the percentage excreted per hour the curve obtained is practically a horizontal line. This is taken as evidence that in hypertensive arterial disease the glomeruli are constantly active to the maximum of their depleted capacity. A close parallelism is found between the half hour output of sodium ferrocyanide and the maximum urinary specific gravity in the concentration test of Fishberg. I feel that the ferrocyanide test is quite sensitive to glomerular function change. Of necessity the full and thorough clinical evaluation of the test is still incomplete, but the present additional data contribute appreciably to our knowledge. Further studies are necessary and are thus being continued.

#### DISCUSSION

DR. WALTER S. PRIEST, Chicago: For the past year I have been interested in this work of Dr. Stieglitz, applying it to patients of the hypertensive group. In one patient, a woman of 60 with apparently early hypertension but not fixed hypertension because it responded to the ordinary methods of therapy, rest, and so on, it interested me to note that in the absence of demonstrable renal damage the ferrocyanide excretion was very slightly diminished. It raised the question in my mind whether this test might furnish a means of forecasting hypertensive states before they actually develop clinically, as indicated by rise in blood pressure or other symptoms. Perhaps the type of curve of the ferrocyanide excretion if corrected for the percentage remaining in the blood, as Dr. Stieglitz has shown, will give a clue as to the possible development of hypertension in individuals approaching the age at which we begin to look for cardiovascular disease. This test might be used as a routine in connection with periodic examination. I think that the test deserves further study before it can be properly evaluated.

DR. HAROLD C. HABEIN, Rochester, Minn.: I am glad to see that Dr. Stieglitz as well as others is continuing the study of sodium ferrocyanide as a test of renal function. The test is based on sound physiologic principles, and as time goes on further study and experience will make it possible to evaluate the test. Baker and I carried out studies with sodium ferrocyanide as a test of renal function in cases of urinary obstruction, for the first time so far as I know. Our studies were not carried out on a large group of patients, as the test has to be discontinued because of pain in the urethra in cases in which an inlying urethral catheter has been placed. Our study did, however, include ten patients and the results of our study would indicate that the sodium ferrocyanide test correlates very closely with other tests of renal function. From our study we



McGill University Faculty of Medicine.....	(1933)	Minnesota
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....	(1934, 2)	New York
..... de Médecine.....	(1918)*	Colorado
Medizinische Fakultät.....	(1930)*	New York
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia.....	(1934)*	Maryland
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia.....	(1934)	Vermont
University of Edinburgh Faculty of Medicine.....	(1932)	New York
Syrian Protestant College School of Medicine.....	(1913)	New York

\* Verification of graduation in process.

## Book Notices

**Starling's Principles of Human Physiology.** Edited and revised by C. Lovatt Evans, D.Sc., F.R.C.P., F.R.S., Jodrell Professor of Physiology in University College, London. The Chapters on the Central Nervous System and Sense Organs revised by H. Hartridge, M.A., M.D., Sc.D., Professor of Physiology at St. Bartholomew's Medical College. Seventh edition. Cloth. Price, \$8.75. Pp. 1,096, with 554 illustrations. Philadelphia: Lea & Febiger, 1936.

In subject matter this is one of the most complete single volume textbooks on the subject of physiology. However, this very fact constitutes its most serious defect as a textbook for medical students: there is a tendency to become lost in the mass of information. This defect is, however, to a considerable extent neutralized by the clear lucid style and logical treatment consistently followed throughout. Bibliographic references appear as footnotes on the same pages with citations. In addition, each chapter or special section carries at the end a list of references to monographs, special treatises and reviews. The value of some of the illustrations in proportion to the added cost of inclusion is questionable. For example, figure 450 is a full page cut of roentgenograms of the thorax at inspiration and expiration. Numerous consultations with students have revealed that this illustration means nothing to the average student. The same kind of evidence indicates that figures 232, 233 and 234, which are, respectively, a diagram of a recording spirometer, a respiration chamber for small animals and a Douglas bag, give little information not obtainable from figure 230, which is a schematic diagram of a Benedict respiration apparatus; yet the first three occupy most of two pages. However, illustrations of this type are not numerous. In view of the importance which vitamins and endocrines have assumed in physiology, the treatment of these general subjects is inadequate when compared to the space devoted to muscle and circulation, and there is too little correlation with the various phases of the "classic" pattern of physiology. On the other hand, the numerous functions of the liver are discussed in widely separated sections, so that only by exhaustive search with the aid of the index can the reader obtain a comprehensive view of liver physiology. There is thus too little attention given to the interrelations of its different rôles. However, it seems that it is too much to expect of any one author or even any two to be able to present adequately balanced treatment of every phase of the subject of physiology in face of the enormous volume of new information available every year that must be digested, correlated and condensed. The criticisms mentioned are therefore not criticisms of the work of the authors but of a condition. The wonder is that they have accomplished the task so well, for, despite its shortcomings, this textbook is one of the best available in any language.

**Undersøgelser over spæde Børns Ventrikelsekret, med særligt Henblik paa Pepsin-Løseproblemet.** Af Bent Andersen. Paper. Pp. 94, with 4 illustrations. Copenhagen: Levin & Munksgaard, 1935.

The purpose of this work was chiefly to study the secretion of pepsin and rennin from the infant's stomach and to find out whether there was any evidence of the presence of rennin as an independent enzyme, different from pepsin. The study was carried out on infants from 8 to 40 weeks old, mostly convalescents in good condition. The gastric content was obtained by giving a test meal consisting of weak tea sweetened with saccharin. The meal was given in amounts adapted to the age of the infant, after a fast of at least six hours. The gastric content was obtained by aspiration forty minutes after the beginning of the meal. For the determination of peptic activity the amino nitrogen was determined at 0 and 120 minutes by the

method of Linderstrom-Lang. There was some evidence of increasing peptic activity as the infants grew older; in infants less than 21 weeks old the aspirated test meal contained an average of 27 "pepsin units" per cubic centimeter, while in the older infants the average was 42 "pepsin units" per cubic centimeter. In undiluted juice from four normal adults the same method gave the values 109, 210, 210 and 220 "pepsin units" per cubic centimeter. Taking into account the dilution by the test meal, the author concludes that the peptic activity of the gastric juice of the infant is of about the same magnitude as that of the adult. The rennin activity was determined by measuring the coagulation time of a suitable medium after the addition of gastric content and then calculating rennin activity by certain methods, which the author explains and justifies. The author was particularly interested in the ratio rennin:pepsin, which was found to be rather constant and of the same magnitude as in adults. This parallelism between the proteolytic and coagulating activity of gastric juice makes the author conclude that in the human being these functions are carried by one and the same enzyme and that there is not, as in the young calf, any independent coagulating enzyme (true rennin, the chymosin of Hammarsten). The work also contains studies of gastric acidity as measured by  $p_H$  and by titration. The literature on the various problems involved is extensively discussed.

**Johannes de Mirteld of St. Bartholomew's, Smithfield: His Life and Works.** By Sir Percival Horton-Smith Hartley, C.V.O., M.A., M.D., Consulting Physician to St. Bartholomew's Hospital and to the Brompton Hospital, and Harold Richard Aldridge, M.A., Assistant Keeper in the Department of Manuscripts in the British Museum. Cloth. Price, \$4.50. Pp. 191, with 4 illustrations. Cambridge: University Press; New York: Macmillan Company, 1936.

The constant interest in the history of medicine which prevails brings us more and more volumes related to the predictions of some of the famous writers of the past. Johannes de Mirteld was a medieval English medical writer credited by Sir Norman Moore with being the first genuine writer in medicine being in any way connected with St. Bartholomew's Hospital. He represented the priest type of physician. His most notable work as a medical writer was his *Breviarium Bartholomei*, an encyclopedia of contemporary medical knowledge with much superstitious and magical lore, such as charms and incantations. One of the most interesting chapters is that devoted to the signs of death. Also interesting are the pages dealing with the customs and ethics of medical practice.

**Undersøgelser over Refektion, med særligt Henblik paa Stivelsens Forhold.** With an English summary. Af Mogens Nathan. Paper. Pp. 160, with 9 illustrations. Copenhagen: Levin & Munksgaard, 1935.

The term refectation refers to a condition that occasionally appears in experimental animals, mainly rats, fed on diets devoid of or poor in vitamin B and characterized by normal growth in spite of the insufficient nourishment and the excretion of bulky white feces containing large amounts of undigested starch. Refection may occur spontaneously or be produced by the feeding of feces from other refected animals. The stool contains characteristic gram-negative vibrios, amylase and starch which is not digested by ptyalin. The amount of starch in the stool is between 60 and 85 per cent in proportion to the amount of dry substance, and the utilization of starch is 57 to 92.4 per cent. Most of the starch escapes digestion in the small intestine. The possibilities are suggested that the reduced digestibility is due to changes in the starch grain itself and that the dyspepsia which results from the low or absent vitamin B content of the diet results in the indigestion of starch and favors the growth of vitamin B producing bacteria.

**The Life and Convictions of William Sydney Thayer, Physician.** By Edith Gittings Reid. Cloth. Price, \$2.50. Pp. 243, with 4 illustrations. New York, London & Toronto: Oxford University Press, 1936.

Dr. William Sydney Thayer, of New England stock, was noted as a physician, a humanist, a teacher and a scholar. He entered Harvard at 16 and, although suspended briefly because of a prank, returned and took his B.A. degree with the class of 1885 as Phi Beta Kappa. He then entered the Harvard Medical School, where he was especially interested in pathology. Postgraduate study in Berlin and in Vienna prepared him for the career finally offered to him as assistant to Osler. It was during his early period at Hopkins that he did his most important work as investigator. Miss Reid has prepared this

curve, and the statistical mode, mean, standard deviation, and variability determined. Since each increase in dosage of thyrotropic hormone administered causes a characteristic shift in the frequency curve, this procedure affords a quantitative method of determining the effects of the thyrotropic hormone on the guinea-pig thyroid gland.

## DISCUSSION

DR. CLARENCE F. G. BROWN, Chicago: I think those of us who clinically use these hormone compounds wonder whether these pharmaceutical preparations are real hormone preparations. This piece of work demonstrates in a clear, quantitative way that there is a genuine physiologic hormone at least in this preparation. Such work removes "folklore" and conjecture from hormone investigations and may lead to less pharmaceutical perversion.

DR. PAUL STARR, Chicago: We have been working with the thyrotropic hormone for several years. The present method of measuring thyrotropic dosage indicates that the amounts of this hormone used in experiments in previous years were greatly in excess of physiologic levels.

## The Normal Urinary Iodine of Man

DRS. GEORGE M. CURTIS and ITALO D. PUPPEL, Columbus, Ohio: Iodine is a normal constituent of human urine. Two hundred and twenty-seven determinations made on thirteen individuals without evidence of thyroid disease gave from 7 to 196 micrograms excreted for the twenty-four hour period, with averages of from 36 to 78 micrograms. The grand average was 51 micrograms for twenty-four hours.

The daily fluctuation in the excretion of iodine by the kidney may be great. This may be due to several normal variables. Even though the urinary excretion of iodine is influenced normally by many factors, wide variations are not representative of ordinary conditions. When the subject is kept on a constant regimen immediately preceding and during the period of study, the daily output is remarkably constant. The normal daily variation in the urinary iodine is accounted for chiefly by differences in the food iodine. The urinary iodine, normally, is derived to a lesser extent from the body metabolism.

The relation of age to iodine metabolism is as yet unknown. However, we observe that two boys of 8 years excreted 41 micrograms (average) of urinary iodine daily over a period of fifteen days; five men from 28 to 34 years of age excreted 50 micrograms (average) of urinary iodine daily over a period of sixty-nine days, and two men of 54 and 59 excreted 73 micrograms (average) of urinary iodine daily over a period of thirty days.

The average normal iodine excretion in central Ohio is less than that of normal man in the five goiter-free regions of Danzig; Berlin, Germany; Vik-i-Sogn, Norway; New Orleans, La., and Forte dei Marmi, Italy. It is a little less than that of the mildly goitrous region of Effgen, Switzerland. However, it is greater than that of the goitrous regions of Sandsvagr, Norway; Lwów, Poland, and Pécs, Hungary.

The normal human urinary excretion of iodine in five non-goitrous regions is approximately four times that in five goitrous regions. This difference in the urinary excretion of iodine is probably due to a difference in the available absorbable iodine in these different regions.

## DISCUSSION

DR. ITALO D. PUPPEL, Columbus, Ohio: These were all normal individuals living in various regions. We did not take into consideration any of the goiter patients.

## Plasma Hemorrhage

DR. HENRY N. HARKINS, Chicago: The importance of loss of whole blood in certain types of secondary shock is well recognized, but the etiologic rôle of loss of blood plasma-like fluid has not received the attention it deserves. The present paper discusses several well known examples of loss of plasma as well as several not considered heretofore. The presence and importance of plasma loss in the following conditions is considered: burns, intestinal manipulation, portal obstruction, release of an extremity constrictor, bile peritonitis, tissue autolysis in vivo, freezing, pneumonia, and externally strangulated colostomy loops.

## DISCUSSION

DR. C. J. LUNDY, Chicago: I should like to ask Dr. Harkins whether in his observations of these patients he used any method to prevent or overcome this plasma loss, such as injection of acacia solution or any hypertonic solution and if so, did it have any influence on the course of the patient's illness?

DR. HENRY N. HARKINS, Chicago: In these charts the distinction between experimental animals and patients is not always made clear. In a large number experimental animals were discussed. In the patient who was burned, blood transfusion was given and blood concentration seemed to go on independent of blood transfusion. I have given no blood plasma infusions to patients but have to experimental animals. The condition of the animals improved temporarily, but almost invariably they went on to eventual death, just as would have been expected if no plasma infusions had been given.

## Effect of Iron Deficiency in Pregnant Rats on the Young

DR. HOWARD L. ALT, Chicago: This problem was undertaken in order to throw further light on the relationship of maternal iron deficiency to iron deficiency in the infant. Albino rats receiving a whole milk powder diet did not develop anemia during a single pregnancy but had marked depletion of liver iron when studied twenty-one days post partum. During and after a second pregnancy, a moderate hypochromic anemia occurred. New-born rats from mildly deficient mothers had normal blood hemoglobin at birth but had marked depletion of the iron reserves. More severe iron deficiency in the mother resulted in a marked decrease in blood hemoglobin in the new-born. Administration of iron to the mother rats protected both the mothers and the young against iron deficiency. Supplements of copper to the mother's diet did not alter the results given. In iron deficient suckling rats the total hemoglobin formation during the first eighteen days of life was practically normal. From these experiments it seems likely that iron deficiency in pregnant women may result in a diminished iron content of the new-born. The observations of Strauss and of Josephs suggest that a normal iron reserve at birth is important for normal hemoglobin formation during the first year of life.

## DISCUSSION

DR. FRANK H. BETHELL, Ann Arbor, Mich.: I should like to ask whether these rats did well on the Klim diet. In my experience feeding rats such diets has not maintained their weight during pregnancy. With a mixed diet adjusted to a daily iron content of less than 0.3 mg. the mother rats' hemoglobin was decreased from 15 to about 10 Gm. per hundred cubic centimeters and the young developed such severe anemia during the first fourteen days of life that their hemoglobin was less than 3 Gm. per hundred cubic centimeters.

DR. ADOLPH SACHS, Omaha: In whole blood iron determinations of cord blood at birth the infant presents so-called polycythemia of the new-born. The whole blood iron takes a precipitous drop at once. Then there is another drop at the third month, which is hard to explain but which may be due to an iron depletion. Whole blood iron deficiencies occur in the late weeks of pregnancy of some mothers which can be avoided by administration of iron, which in turn aids the new-born. Dr. Alt found that addition of copper to the mother's diet in rats did not alter the results. This is also true in human beings because in a great many copper determinations in pregnant women I never found a copper deficiency.

DR. O. O. MEYER, Madison, Wis.: I wonder whether Dr. Alt administered so-called iron with copper, which is quite common, or whether it was copper-free iron.

DR. HOWARD L. ALT, Chicago: In answer to Dr. Bethell, I can say that adult rats which received an exclusive Klim diet for nine months remained in an excellent nutritional state. Also milk-fed animals were apparently able to undergo a normal pregnancy without difficulty. Undoubtedly, much depends on the nutritional condition of the rats used. The rats in our colony receive liver and vegetables once a week in addition to the stock diet. In answer to Dr. Meyer, no attempt was made to remove copper impurities from iron used for supplementary feedings. The preparation of ferric chloride used has been shown to contain insignificant amounts of copper.

(To be continued)

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Accident Insurance: Death from Veronal Poisoning.**—The defendant insurance company issued to the insured an insurance policy wherein it promised to pay certain benefits if death occurred as a result "of bodily injuries effected solely through external violent and accidental means." The insured died as the result of an overdose of veronal (barbital). He intended to take veronal but apparently did not intend to take a lethal dose. The trial court, in a suit to recover the benefits specified in the policy, gave judgment for the beneficiary. The supreme court, appellate term, New York, reversed that judgment and the beneficiary appealed to the supreme court, appellate division, New York.

This case, said the supreme court, falls within the category of such cases as *Gallagher v. Fidelity & Casualty Co.*, 148 N. Y. S. 1016, affirmed 117 N. E. 1067, and *Lewis v. Ocean Accident & Guarantee Corporation*, 120 N. E. 56. In the first case cited, the insured died from sunstroke and though he had intentionally exposed himself to the sun, it was held that his death had occurred through accidental means. In the second case, the deceased died from inflammation of the brain which resulted from infection occurring when the deceased had punctured a pimple with a contaminated instrument. In both cases, the insured had intended the act which resulted in death but an unusual and unexpected result followed. In construing the provisions of an insurance policy, the court said, its words should be judged in the light of the understanding of the average man. Ambiguities and uncertainties should be resolved against the company which drew the policy. So construed, the present policy, the court concluded, provided benefits for a death resulting from veronal poisoning where the insured intended to take veronal but accidentally took an overdose. The judgment of the trial court for the beneficiary was affirmed.—*Mansbacher v. Prudential Ins. Co. (N. Y.)*, 287 N. Y. S. 486.

**Accident Insurance: Death in Relation to Heart Disease, Trauma and Cerebral Hemorrhage.**—The Great Northern Life Insurance Company agreed to pay certain benefits if the insured died as a result of injury effected directly and exclusively of all other causes through external, violent and accidental means. No benefits were payable for the result of the injury if there was no "visible contusion, wound, or other marks or evidence of injury on the exterior of the body at the place of injury," or if the injury was "caused or contributed to directly or indirectly by . . . any pre-existing disease, infirmity, deformity or physical impairment. . . ." The insured died from a cerebral hemorrhage following an automobile accident. The insurance company refused to pay the benefits and the plaintiff, as beneficiary, brought suit. The trial court gave judgment for the plaintiff, and the insurance company appealed to the Supreme Court of Washington.

Several days prior to the accident, the insured, aged 56, underwent a physical examination, admittedly incomplete, which disclosed a low blood pressure, a probable pathologic coronary condition, a peptic ulcer, and a definite mitral valve heart murmur. The physician considered the condition of the insured serious and warned him against any undue strain or excitement. The accident occurred at a street intersection when the automobile driven by the insured collided with another car. Neither car overturned but both were considerably damaged. The driver of the other car upbraided the insured, who remained seated in his automobile, for the accident. The insured appeared in great physical distress, perspiration stood out on his face, and other evidences indicated that he was suffering intense pain. He complained of being sick, and asked that a discussion of the accident be postponed until he felt better. About a half hour later, the insured with difficulty got out of his car, took a few steps, and collapsed. His face became red, then turned purplish, and in a few minutes he died. An autopsy showed that death was due to an extensive cerebral hemorrhage, the blood clot that was removed being described as "large as one's

thumb." The insurance company contended that there was no causal connection whatever between the collision and the cerebral hemorrhage. Just prior to the collision, the company contended, the insured sustained a severe heart attack from which he partially recovered and that, when he left his automobile after the collision, he suffered a stroke of apoplexy due partly to the excitement engendered by the antagonistic attitude of the driver of the other car and partly by the exertion of getting out of the car in his then weakened physical condition.

The trial court instructed the jury that while the policy did not cover an injury in which there was no visible contusion, wound or other mark or evidence of injury on the exterior of the body, yet it did not necessarily follow that the injury must be external; that the visible signs and evidence might be such as indicated an internal injury; and that if the deceased became pale, sickly looking, showed signs of injury through perspiration or discoloration of his face at the time of or immediately after the collision, then the jury might find that there were visible marks or evidences of injury within the meaning of the terms of the policy. The words "visible mark or evidence of injury," said the Supreme Court, are not construed in the strict and narrow sense of a bruise, contusion, laceration or fracture, but in the broad sense of something that is discernible, perceptible, or evident on observation. This is the general rule and the rule that was laid down in *Horsfall v. Pacific Mutual Life Insurance Co.*, 32 Wash. 132, 72 P. 1028, in which case the court said:

It is also urged that the injuries causing death left no visible external mark, produced at the time of and by the accident, upon the body of deceased, and therefore the injury was one excepted from the policy. The evidence as stated above shows that immediately after the accident the deceased became deathly pale and sick, his hands and feet became cold, and the perspiration stood out on his face and hands. The next day after the accident his skin, which previously had been ruddy, became a bluish gray color, and remained so until his death. These, we think, were visible external marks, and sufficient to bring the case within the terms of the policy.

The trial court in the present case did not err, in the opinion of the Supreme Court, in instructing the jury as it did.

The insurance company further contended that the evidence as a whole was insufficient to sustain the verdict and judgment. The issues in the present case, said the court, were of such a nature that the jury was necessarily dependent on medical testimony in determining the cause of death. A medical witness for the plaintiff testified that death was caused by a cerebral hemorrhage resulting from the shock of collision, and that neither the coronary trouble nor the peptic ulcer had anything to do with the result. Another physician, a witness for the defense, testified that the cerebral hemorrhage did not occur until after the insured got out of the car thirty minutes after the collision, and that death was then almost instantaneous. In his opinion, the death was the result of a heart attack. The question thus presented was whether death resulted from cerebral hemorrhage induced by shock resulting from the accident or whether it resulted from coronary trouble. The testimony was clear cut and conflicting and presented a question for the jury to decide. It did decide that the death was caused by cerebral hemorrhage resulting from the accident, and the Supreme Court could find no reason for disagreeing with that finding. The judgment of the trial court was therefore affirmed.—*Hill v. Great Northern Life Ins. Co. (Wash.)*, 57 P. (2d) 405.

**Dental Practice Acts: Effect of Surrender of License in Revocation Proceedings.**—The Indiana state board of dental examiners instituted proceedings to revoke the license of the appellant to practice dentistry on the basis of charges filed with the board. The dentist appeared before the board and entered a plea of not guilty. After evidence had been heard, however, he voluntarily surrendered to the board his license. Thereafter the board revoked the license and the dentist appealed to the superior court of Lake County. The board filed a motion to dismiss the appeal on the ground that since the dentist had surrendered his license to practice dentistry in Indiana all questions raised in the appeal were moot questions. The superior court dismissed the appeal and the dentist then appealed to the Supreme Court of Indiana.

The dentist undertook to avoid the consequences incident to the surrender of his license by contending that the order of the board revoking his license constituted a refusal by the

posing circumstances surrounding the case at hand. If the pulse stops without warning during the induction of anesthesia, the cause is probably ventricular fibrillation. Respiration stops almost immediately after the ventricles fibrillate. Unless the anesthetist has his finger on the pulse constantly, fibrillation will be well advanced before it is recognized. The respiratory cessation will probably be mistaken for one of the frequent respiratory pauses occurring at this stage of anesthesia and death occurs almost before the anesthetist is aware that anything is wrong. Embolism, acute cardiac dilatation and apoplexy might be confused with ventricular fibrillation, although in none of these will the pulse go from normal to nothing between two heart beats. Artificial respiration with oxygen should be instituted immediately, because one can never be sure at the time that circulation has ceased entirely. If the abdomen is open at the time of fibrillation, circulation may be maintained by rhythmic compression of the heart between the anterior thoracic wall and the hand, through the diaphragm. Ventricular fibrillation is preeminently the condition in which direct cardiac massage is indicated. If the condition is recognized as soon as it occurs, opening the abdomen in order to prosecute this procedure is justifiable. Prevention lies in holding down the activity of the sympathetic nervous system and thus the output of epinephrine from the adrenals, and the avoidance of any external stimuli during the induction of anesthesia. Any preanesthetic medication that will prevent sympathetic hyperactivity is of value. Any disturbance of the patient during induction should be avoided. Beginning the preparation of the operative field or the surgical procedure itself before anesthesia is complete is dangerous. Since it is known that the danger zone is the second stage of anesthesia, anesthesia should be carried through this stage as rapidly as possible. The use of epinephrine in amounts sufficient to control bleeding during general anesthesia is to be condemned. Levy and others have shown that ventricular fibrillation is produced much more easily under anesthesia with chloroform than with other anesthetic agents. Aside from placing chloroform first and ethyl chloride possibly second, the authors cannot classify the other anesthetic drugs with relation to the frequency of occurrence of this phenomenon.

### American Journal of Tropical Medicine, Baltimore

16: 647-734 (Nov.) 1936

- Malaria in India: Impressions from Tour. P. F. Russell, New York.—p. 653.  
Nature of Immunity to Malaria in Its Relationship to Antimalarial Therapy. M. Ashford, Panama, Canal Zone.—p. 665.  
Recent Observations on Origin of Schüffner's Granules. H. E. Hingst.—p. 679.  
Status of Plasmodium Capistrani. R. D. Manwell, Syracuse, N. Y.—p. 685.  
Clinicopathologic Studies of Leprosy in Brazil. H. H. Anderson, San Francisco; P. Cerqueira, Jeanette Van D. Anderson and H. Portugal.—p. 689.  
Glucose Tolerance in Rat Leprosy. G. A. Emerson, Morgantown, W. Va.—p. 699.  
Studies on Intestinal Parasites Among Wild Rats Caught in St. Louis. H. Tsuchiya and L. E. Rector, St. Louis.—p. 705.  
Case of Echinococcosis in Oklahoma: Report on Discovery of Hydatid Cyst of Echinococcus Granulosus (Batsche, 1786) in Man. W. P. N. Canavan, Oklahoma City.—p. 715.

### Annals of Internal Medicine, Lancaster, Pa.

10: 717-950 (Dec.) 1936

- The Manner in Which Food Controls Bulk of Feces. R. D. Williams and W. H. Olmsted, St. Louis.—p. 717.  
\*Observations on Use of Acetyl Beta Methylcholine Chloride in Chronic Arthritis. D. Boyd, S. L. Osborne and D. E. Markson, Chicago.—p. 728.  
Studies in Hodgkin's Disease: III. Clinical Application of Gordon Test (a Syndrome of Ataxia, Spasm and Paralysis Induced in Rabbits by Intracerebral Injection of Emulsified Hodgkin's Tissue). E. M. Chapman, Boston.—p. 742.  
The Course of Hypertensive Heart Disease: I. Age of Onset, Development of Cardiac Insufficiency, Duration of Life and Cause of Death. N. Flaxman, Chicago.—p. 748.  
The Problem of Rheumatism and Arthritis: Review of American and English Literature for 1935 (Third Rheumatism Review). P. S. Hench, Rochester, Minn.; W. Bauer, Boston; A. A. Fletcher, Toronto; D. Christ, Los Angeles; F. Hall, Boston, and T. P. White, Charlotte, N. C.—p. 754.

Use of Acetyl Beta Methylcholine Chloride in Arthritis.—Boyd and his co-workers used acetyl beta methylcholine by common ion transfer in the treatment of twenty-seven patients having arthritis. It was soon evident that certain less

advanced arthritic patients derived more benefit than the far advanced. Those with evident circulatory disturbances of the extremities—those with cool, pale, moist and often cyanotic hands and feet—seemed to gain most from the treatment. All patients had had considerable previous medical treatment along the usual lines without much evident improvement. Acetyl beta methylcholine is not useful in arthritic patients with peripheral arteriosclerosis nor is it feasible to treat patients with well distributed skin changes. It seemed most helpful in those who (1) show the earlier changes of the rheumatoid type, with cool, damp and cyanosed extremities, (2) have moderate hypertrophic changes with paresthesias and sensitivity to cold and (3) have sciatica or other manifestations of irritation of the spinal nerve roots as a result of spinal arthritis. Many patients showed not only a marked increase of the pulse volume wave in the member treated locally by common ion transfer but also minor increases in pulse volume wave in the opposite untreated extremity. The hands treated showed in eight of the fourteen patients an increased flexibility in function and usefulness in work. The group of failures in treatment were in general the elderly, far advanced rheumatoid arthritic patients with bone changes and fibrosis. Striking relief of pain was afforded some cases, but as a record of therapeutic achievement in this respect the results are only fair. The striking therapeutic effect in the group is the decreased fatigability and the increased endurance. This was noted consistently in almost all patients who absorbed the drug and took a sufficient number of treatments. No satisfactory measure of such fatigue has been proposed, though indirectly metabolic studies may help. The authors believe that, if fatigue can often be controlled, in many instances pain can be relieved, physical activity increased and the morale of these patients raised considerably. It is this effect of mecholyl that impressed them most.

### Annals of Otol., Rhinol. and Laryngology, St. Louis

45: 923-1208 (Dec.) 1936

- Blastomycosis of Larynx. L. H. Clerf and C. J. Bucher, Philadelphia.—p. 923.  
Mixed Tumors in Nose and Throat. P. G. Goldsmith and P. E. Ireland, Toronto.—p. 940.  
Value of Roentgenography of Neck, with Especial Reference to Its Use in Diagnosis and Treatment of Laryngeal and Tracheal Obstruction. C. L. Jackson, Philadelphia.—p. 951.  
Further Observations on Use of Specific Immune Serums in Treatment of Streptococcal Infections. H. L. Baum, Denver.—p. 969.  
\*Vertigo in Brain Tumors, with Especial Reference to Results of Labyrinth Examination. E. A. Spiegel, Philadelphia, and A. Alexander, Vienna, Austria.—p. 979.  
Otomycosis: Investigation of Effective Fungicidal Agents in Treatment. R. McBurney and H. B. Searcy, Tuscaloosa, Ala.—p. 983.  
Intraligular Thyroid: Discussion with Report of Large Struma Presenting in Anterior Part of Tongue. R. S. Rosedale, Buffalo.—p. 1009.  
Anomaly of Lateral Sinus: Report of Case. G. D. Hoople, Syracuse, N. Y.—p. 1019.  
Differences in Loudness Response of Normal and Hard-of-Hearing Ear at Intensity Levels Slightly Above Threshold. S. N. Reger, Iowa City.—p. 1029.  
Osteomyelitis of Skull Originating in Ethmoid Area. W. F. Clevenger and H. L. Norris, Indianapolis.—p. 1040.  
Management of Labyrinthine Infection. S. L. Shapiro, Chicago.—p. 1045.  
Operative and Nonoperative Treatment of Ethmoiditis. J. D. Kelly, New York.—p. 1050.  
Hypothyroidism in the Practice of Otorhinolaryngology. B. L. Bryant, Cincinnati.—p. 1060.  
Disease—or Defamation? C. K. Carpenter, New York.—p. 1069.  
Prophylaxis in Parasigmatism. C. H. Voelker, Hanover, N. H.—p. 1072.

Vertigo in Brain Tumors.—The observations of Spiegel and Alexander on brain tumors seem to corroborate the assumption of a representation of the labyrinth in the cerebral cortex, particularly in the temporal lobe. Parts of the frontal lobe, especially the centro-occipital region, must also be taken into consideration as a place at which vestibular and spinal impulses joined in the subcortex (cerebellum-ruber system) may enter. The conception that vertigo in brain tumors is only a general symptom of increased intracranial pressure seems to need a revision. In a large number of cases symptoms of choked labyrinth, hyperexcitability of this organ, differences in excitability between the two sides, nystagmus, diplopia and cerebellar disturbances are found, and the appearance of vertigo is explainable as due to these effects of increased intracranial pressure. Yet there remains a group of cases in which such an effect of

which other forms of streptococcal infection occurred among the contacts of scarlet fever patients. In one family the mother died of septicemia, probably puerperal, the grandmother had erysipelas and the grandchild scarlet fever. In another instance two children and the mother were brought into the Isolation Hospital with scarlet fever and the nurse who took care of them developed erysipelas. In another family the mother died of scarlet fever and the child developed the septic type of erysipelas. In another case at the County Hospital a nurse, who was in attendance on a child with scarlet fever, developed erysipelas. In the same hospital a nurse developed scarlet fever while in attendance on a case of erysipelas. In another instance a mother developed sore throat, the daughter developed scarlet fever and was attended by a nurse who developed erysipelas. There seems to be clinical evidence to show that there is a relationship between scarlet fever and erysipelas. I am certain from clinical observations that such cases as I have discussed do occur.

DR. W. O. THOMPSON, Chicago: From the mortality rates presented it would appear that a patient who develops scarlet fever is less likely to die if treated at home than if treated in the hospital. What is the reason for this? Do the patients who remain at home have the disease in a milder form than those who are confined to the hospital?

DR. ISADORE PILOT, Chicago: I want to say a word about the statements of the authors that scarlet fever and erysipelas may be due to the same hemolytic streptococcus. My work on septic sore throat, particularly in epidemic sore throat, and epidemic scarlet fever tends to show that scarlet fever and erysipelas are not related. For example, in the analysis of scarlet fever epidemics practically no cases of erysipelas have been reported, whereas in connection with septic sore throat the severe epidemics have shown the complication of erysipelas during convalescence. In my experience with scarlet fever patients and in the experience of contagious disease hospitals, erysipelas is a very unusual complication of scarlet fever, whereas in septic sore throat and tonsillitis with sinusitis, otitis media or enlarged glands, erysipelas is not an uncommon complication. I would therefore disagree with the authors that the etiologic organisms are identical in scarlet fever and erysipelas. The clinical results that may be obtained from convalescent serum and streptococcus serums may be misleading because there may be certain antibodies common to both scarlet and erysipelas streptococci.

DR. GEORGE F. DRICK, Chicago: My experience would agree with that of Dr. Pilot. I find that there is a distinction between these two diseases. If one takes a series of 500 people and immunizes them to erysipelas toxin they will still give a positive test to scarlet fever toxin. If another 500 are immunized with scarlet fever toxin, they will still give a positive skin test with erysipelas toxin. With erysipelas antitoxin and scarlet fever toxin there is no cross neutralization. With scarlet fever antitoxin and erysipelas toxin there is no cross neutralization. Cellulitis and dermatitis are seen when patients with scarlet fever are operated on, as for mastoiditis, but this is not called erysipelas. It is true in my experience, as in Dr. Pilot's, that erysipelas is commonly found in epidemics of sore throat, though not common in epidemics of scarlet fever. One is also unable to distinguish immunologically between the organism of septic sore throat and erysipelas. I think the important thing about the treatment of scarlet fever is that, as the authors mentioned, of using either convalescent serum or convalescent antitoxin to treat the case early. Unfortunately, doctors wait until the later stages to use either one at which time neither will produce a result.

DR. MAURICE HARDGROVE, Milwaukee: With reference to the low mortality in the home group, most of those cases were of mild or moderate severity and convalescent serum was administered early. The majority of the cases in the hospital group in which convalescent serum was given were severe or complicated and the serum was given later in the disease. It appears to be necessary to give convalescent serum early in the disease in order to lower the number of deaths and the incidence of complications.

DR. MAX FOX, Milwaukee: Possibly I did not make myself clear in one statement. I did not say that scarlet fever was complicating erysipelas or that we saw the two at any time

in the same individual. In reviewing the literature I found that it occurred once in 800 times. I did say that we found the two entities occurring in the same home under suspicious circumstances. These were clinical observations and as clinical observations the patients received convalescent pooled serum. Although we regard scarlet fever and erysipelas distinct clinically and etiologically, though caused by a hemolytic streptococcus, one cannot explain the cited cases otherwise than that they have occurred as the result of the same causative agent. It seems reasonable to anticipate that continued investigations on the problems of streptococcus differentiation will yield results supporting my clinical experience.

#### Clinical Experiments with Benzedrine Sulfate

DRS. EDGAR V. ALLEN, DWIGHT L. WILBUR and ALEXANDER R. McLEAN, Rochester, Minn.: Benzedrine sulfate is a sympathomimetic compound structurally related to ephedrine and epinephrine. Pharmacologic studies have indicated that this drug has a profound stimulating effect on the higher centers of the central nervous system. The effects of the drug administered orally in doses of from 10 to 20 mg. before breakfast, and frequently repeated at noon, have been studied in ninety-five patients without demonstrable significant organic disease whose chief complaints were melancholia, chronic fatigue and exhaustion, or nervousness. In from 75 to 80 per cent of patients with chronic exhaustion or depression the immediate results have been favorable and in some instances spectacular, leading to complete relief of exhaustion, exhilaration and increased capacity for mental and physical effort. In psychoneurotic patients, particularly those who are anxious, highly nervous and apparently stimulated, benzedrine had a less favorable effect. Of fifteen patients who had used the drug daily over a period of from two to three months, twelve have remained improved. In view of the possible unfavorable effects which have been reported by others, we feel that until further observation is made it is probably unwise to recommend the continuous use of benzedrine except for patients who are less than 60 years of age, who present no evidence of cardiovascular disease and who can be closely followed.

#### DISCUSSION

DR. ROBERT W. KEETON, Chicago: I wonder whether the authors made any observations on the gastro-intestinal tract with this drug.

DR. L. N. KATZ, Chicago: About a year and a half ago I had the good fortune of hearing about this drug from Dr. Nathanson, formerly of Minneapolis, who informed me that there was marked depression as an after-effect following the use of the drug. Were such after effects observed in this study?

DR. M. J. SHAPIRO, Minneapolis: I have been using benzedrine sulfate for somewhat more than a year. My first experience with the preparation was in the treatment of narcolepsy, in which benzedrine works admirably. My two narcoleptic patients are still well controlled with the same dose of the drug. With regard to the treatment of so-called chronic exhaustion, I have had a number of such patients on benzedrine for the past year. When I first began its use I prescribed doses that were too large, causing many of the patients to complain of nervousness, insomnia, rather marked loss of appetite, tachycardia, and often irregularity of the heart. On considerably smaller doses, I find that a favorable response is obtained without the disagreeable side-effects. The use of large doses over a period of time may cause a considerable rise in blood pressure. Most patients with chronic exhaustion can be controlled favorably with 5 mg. twice a day, preferably after breakfast and after lunch; giving benzedrine later in the day may cause insomnia. In some instances, good results were obtained with 2.5 mg. twice a day. As the authors have stated, one must use judgment in selecting the type of patient to be treated with benzedrine. The asthenic individual with a tendency to hypotension reacts most favorably. The hyperkinetic patient who exhausts himself with too much work should not be given this new drug; it may produce uncomfortable overstimulation. I have seen no ill effects from benzedrine after using it a year, particularly when small doses were given.

DR. H. M. KORNS, Iowa City: Dr. W. L. Randall and I recently experimented with benzedrine in a case of orthostatic



posing circumstances surrounding the case at hand. If the pulse stops without warning during the induction of anesthesia, the cause is probably ventricular fibrillation. Respiration stops almost immediately after the ventricles fibrillate. Unless the anesthetist has his finger on the pulse constantly, fibrillation will be well advanced before it is recognized. The respiratory cessation will probably be mistaken for one of the frequent respiratory pauses occurring at this stage of anesthesia and death occurs almost before the anesthetist is aware that anything is wrong. Embolism, acute cardiac dilatation and apoplexy might be confused with ventricular fibrillation, although in none of these will the pulse go from normal to nothing between two heart beats. Artificial respiration with oxygen should be instituted immediately, because one can never be sure at the time that circulation has ceased entirely. If the abdomen is open at the time of fibrillation, circulation may be maintained by rhythmic compression of the heart between the anterior thoracic wall and the hand, through the diaphragm. Ventricular fibrillation is preeminently the condition in which direct cardiac massage is indicated. If the condition is recognized as soon as it occurs, opening the abdomen in order to prosecute this procedure is justifiable. Prevention lies in holding down the activity of the sympathetic nervous system and thus the output of epinephrine from the adrenals, and the avoidance of any external stimuli during the induction of anesthesia. Any preanesthetic medication that will prevent sympathetic hyperactivity is of value. Any disturbance of the patient during induction should be avoided. Beginning the preparation of the operative field or the surgical procedure itself before anesthesia is complete is dangerous. Since it is known that the danger zone is the second stage of anesthesia, anesthesia should be carried through this stage as rapidly as possible. The use of epinephrine in amounts sufficient to control bleeding during general anesthesia is to be condemned. Levy and others have shown that ventricular fibrillation is produced much more easily under anesthesia with chloroform than with other anesthetic agents. Aside from placing chloroform first and ethyl chloride possibly second, the authors cannot classify the other anesthetic drugs with relation to the frequency of occurrence of this phenomenon.

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Recent Observations on Origin of Schüffner's Granules. H. E. Hingst.—p. 679.  
Status of Plasmodium Capistrani. R. D. Maxwell, Syracuse, N. Y.—p. 685.  
Clinicopathologic Studies of Leprosy in Brazil. H. H. Anderson, San Francisco; P. Cerqueira, Jeanette Van D. Anderson and H. Portugal.—p. 689.  
Glucose Tolerance in Rat Leprosy. G. A. Emerson, Morgantown, W. Va.—p. 699.  
Studies on Intestinal Parasites Among Wild Rats Caught in St. Louis. H. Tsuchiya and L. E. Rector, St. Louis.—p. 705.  
Case of Echinococcus in Oklahoma: Report on Discovery of Hydatid Cyst of Echinococcus Granulosus (Batsche, 1786) in Man. W. P. N. Canavan, Oklahoma City.—p. 715.

### Annals of Internal Medicine, Lancaster, Pa.

10: 717-950 (Dec.) 1936

- The Manner in Which Food Controls Bulk of Feces. R. D. Williams and W. H. Olmsted, St. Louis.—p. 717.  
\*Observations on Use of Acetyl Beta Methylcholine Chloride in Chronic Arthritis. D. Boyd, S. L. Osborne and D. E. Markson, Chicago.—p. 728.  
Studies in Hodgkin's Disease: III. Clinical Application of Gordon Test (a Syndrome of Ataxia, Spasm and Paralysis Induced in Rabbits by Intracerebral Injection of Emulsified Hodgkin's Tissue). E. M. Chapman, Boston.—p. 742.  
The Course of Hypertensive Heart Disease: I. Age of Onset, Development of Cardiac Insufficiency, Duration of Life and Cause of Death. N. Flaxman, Chicago.—p. 748.  
The Problem of Rheumatism and Arthritis: Review of American and English Literature for 1935 (Third Rheumatism Review). P. S. Hench, Rochester, Minn.; W. Bauer, Boston; A. A. Fletcher, Toronto; D. Ghrist, Los Angeles; F. Hall, Boston, and T. P. White, Charlotte, N. C.—p. 754.

**Use of Acetyl Beta Methylcholine Chloride in Arthritis.**—Boyd and his co-workers used acetyl beta methylcholine by common ion transfer in the treatment of twenty-seven patients having arthritis. It was soon evident that certain less

advanced arthritic patients derived more benefit than the far advanced. Those with evident circulatory disturbances of the extremities—those with cool, pale, moist and often cyanotic hands and feet—seemed to gain most from the treatment. All patients had had considerable previous medical treatment along the usual lines without much evident improvement. Acetyl beta methylcholine is not useful in arthritic patients with peripheral arteriosclerosis nor is it feasible to treat patients with well distributed skin changes. It seemed most helpful in those who (1) show the earlier changes of the rheumatoid type, with cool, damp and cyanosed extremities, (2) have moderate hypertrophic changes with paresthesias and sensitivity to cold and (3) have sciatica or other manifestations of irritation of the spinal nerve roots as a result of spinal arthritis. Many patients showed not only a marked increase of the pulse volume wave in the member treated locally by common ion transfer but also minor increases in pulse volume wave in the opposite untreated extremity. The hands treated showed in eight of the fourteen patients an increased flexibility in function and usefulness in work. The group of failures in treatment were in general the elderly, far advanced rheumatoid arthritic patients with bone changes and fibrosis. Striking relief of pain was afforded some cases, but as a record of therapeutic achievement in this respect the results are only fair. The striking therapeutic effect in the group is the decreased fatigability and the increased endurance. This was noted consistently in almost all patients who absorbed the drug and took a sufficient number of treatments. No satisfactory measure of such fatigue has been proposed, though indirectly metabolic studies may help. The authors believe that, if fatigue can often be controlled, in many instances pain can be relieved, physical activity increased and the morale of these patients raised considerably. It is this effect of mecholy that impressed them most.

### Annals of Otol., Rhinol. and Laryngology, St. Louis

45: 923-1208 (Dec.) 1936

- Blastomycosis of Larynx. L. H. Clerf and C. J. Bucher, Philadelphia.—p. 923.  
Mixed Tumors in Nose and Throat. P. G. Goldsmith and P. E. Ireland, Toronto.—p. 940.  
Value of Roentgenography of Neck, with Especial Reference to Its Use in Diagnosis and Treatment of Laryngeal and Tracheal Obstruction. C. L. Jackson, Philadelphia.—p. 951.  
Further Observations on Use of Specific Immune Serums in Treatment of Streptococcal Infections. H. L. Baum, Denver.—p. 969.  
\*Vertigo in Brain Tumors, with Especial Reference to Results of Labyrinth Examination. E. A. Spiegel, Philadelphia, and A. Alexander, Vienna, Austria.—p. 979.  
Otomycosis: Investigation of Effective Fungicidal Agents in Treatment. R. McBurney and H. B. Searcy, Tuscaloosa, Ala.—p. 988.  
Intraligular Thyroid: Discussion with Report of Large Struma Presenting in Anterior Part of Tongue. R. S. Rosedale, Buffalo.—p. 1009.  
Anomaly of Lateral Sinus: Report of Case. G. D. Hoople, Syracuse, N. Y.—p. 1019.  
Differences in Loudness Response of Normal and Hard-of-Hearing Ear at Intensity Levels Slightly Above Threshold. S. N. Reger, Iowa City.—p. 1029.  
Osteomyelitis of Skull Originating in Ethmoid Area. W. F. Clevenger and H. L. Norris, Indianapolis.—p. 1040.  
Management of Labyrinthine Infection. S. L. Shapiro, Chicago.—p. 1045.  
Operative and Nonoperative Treatment of Ethmoiditis. J. D. Kelly, New York.—p. 1050.  
Hypothyroidism in the Practice of Otorhinolaryngology. B. L. Bryant, Cincinnati.—p. 1060.  
Disease—or Defamation? C. K. Carpenter, New York.—p. 1069.  
Prophylaxis in Parasitism. C. H. Voelker, Hanover, N. H.—p. 1082.

**Vertigo in Brain Tumors.**—The observations of Spiegel and Alexander on brain tumors seem to corroborate the assumption of a representation of the labyrinth in the cerebral cortex, particularly in the temporal lobe. Parts of the frontal lobe, especially the centro-opercular region, must also be taken into consideration as a place at which vestibular and spinal impulses joined in the subcortex (cerebellum-ruber system) may enter. The conception that vertigo in brain tumors is only a general symptom of increased intracranial pressure seems to need a revision. In a large number of cases symptoms of choked labyrinth, hyperexcitability of this organ, differences in excitability between the two sides, nystagmus, diplopia and cerebellar disturbances are found, and the appearance of vertigo is explainable as due to these effects of increased intracranial pressure. Yet there remains a group of cases in which such an effect of

also concluded that the sodium ferrocyanide test did not, from a practical standpoint, give us information which we could not get from other tests of renal function, especially the split phenolsulfonphthalein test.

DR. EDWARD J. STIEGLITZ, Chicago: An interesting case, which we did not report because of lack of time, has been observed for more than two years. The kidney function has been studied at intervals of about three months and gradual improvement in ferrocyanide output noted. We have seen no evidence whatever of intoxication from sodium ferrocyanide in the dosage used and advocated. It takes many years to evaluate any diagnostic test. It certainly took a long time before we felt any confidence in the phenolsulfonphthalein test. Recent work, many years after the introduction of the test, shows that there is much variation in the excretion of phenolsulfonphthalein from extrarenal factors. With sodium ferrocyanide the output appears to be wholly independent of the volume of urine secreted. This is in sharp contrast to the usual experience with phenolsulfonphthalein. The present report is but one step further and the work with this glomerular function test is still far from being complete. Extended studies are justified and necessary. They are being continued.

#### The Specific Dynamic Action of a Mixed Meal

DR. CYRIL M. MACBRYDE, St. Louis: Studies were begun four years ago on the relationship to the body weight of the rise in metabolism following a mixed meal. More than forty-five individuals have been followed through periods of weight gain and weight loss, both spontaneous and induced by diet, desiccated thyroid, dinitrophenol or insulin. Fifteen normal individuals were used for controls. In addition, more than thirty single determinations have been made on abnormally obese or thin persons. The specific dynamic action was found not to vary with the nutritional state but with the nutritional phase. Patients gaining weight showed lower specific dynamic action than the same patients when losing. With rapid weight loss the specific dynamic action tends to be very high. Pituitary and thyroid disease have no definite influence except as they change the nutritional phase.

#### Motor Involvement of Central Nervous System in Pellagrins

DRS. M. A. BLANKENHORN and TOM D. SPIES, Cincinnati: Pellagra is a clinical syndrome which characteristically affects the skin, gastro-intestinal tract and nervous system. In a given case of pellagra one or more of these systems may be involved. A diagnosis of pellagra can be made only if the person has characteristic pellagrous dermatitis or glossitis, or both. The lesions of the central nervous system are not visible during life, and the postmortem observations usually do not correlate well with the symptomatology of the disease. Motor involvement of the central nervous system in certain pellagrins has been described, but no controlled studies have been reported which show that the involvement of the motor portion of the central nervous system, like the accepted manifestations of the disease (dermatitis and glossitis), may also respond to anti-pellagic therapy. Three patients whom we observed had motor involvement of the central nervous system at a time when they had diagnostic pellagrous lesions. Two were adults who were addicted to alcohol; both had severe motor disturbances, characterized by rigidity, inability to walk, and slow choreiform movements; one resembling hemiplegia, the other spastic paraplegia. The third, a boy of 13 who did not drink alcohol, had paralysis of the four extremities which was suggestive of poliomyelitis. Following the administration of a high caloric, high protein diet and large amounts of powdered brewers' yeast, the pellagrous dermatitis disappeared and the motor function of the central nervous system was restored in all three cases.

#### DISCUSSION

DR. M. G. PETERMAN, Milwaukee: It seems to me that one of the cardinal symptoms of pellagra which has developed to any great extent is the loss of the deep tendon reflexes. Three years ago I saw a child, aged 7 years, who had elsewhere been put on a ketogenic diet and within six months developed a typical case of pellagra, with some anesthesia of the fingers, loss of the deep reflexes, some hesitation in gait and weakness in the legs. The child made an excellent recovery on 300 mg.

of dry brewers' yeast every day, but it took between eighteen months and two years to recover completely the loss of the patellar reflexes.

DR. TOM D. SPIES, Cincinnati: The case described by Dr. Peterman certainly seems to be one of pellagra associated with peripheral neuritis. I think that the peripheral neuritis in such cases responds to the administration of large amounts of a potent brewers' yeast. The three patients with involvement of the central nervous system were more severely diseased than the average pellagrin with peripheral nerve involvement.

#### Relation of Thyroid Gland to Hematopoiesis

DRS. J. DEWEY BISGARD and JOHN C. SHARPE, Omaha: This report presents complete blood studies in thirty-two totally thyroidectomized rabbits showing the development of the macrocytic anemia of myxedema and its response to thyroid feeding, liver extract and iron. This is controlled with the feeding of the same substances in thirty-five normal rabbits. Studies include daily reticulocyte counts and frequent hematocrit determinations.

#### DISCUSSION

DR. O. O. MEYER, Madison, Wis.: These results, I think confirm to some degree what we have appreciated about cretinism and myxedema. One point of interest was that the reticulocytes persisted at a high level, in one slide from 6 to 8 per cent. That differs from what we have found in thyroidectomy in rats. The reticulocytes normally were about 3 per cent, and a very significant decrease followed total thyroidectomy. One would expect an increase in reticulocytes following thyroid administration.

DR. J. DEWEY BISGARD, Omaha: We have shown the anemia and other signs of myxedema that developed in these total thyroidectomized rabbits. We have another group of thyroidectomized rabbits that were used for entirely different experimental purposes but do have some bearing on this problem. After these animals were totally thyroidectomized we transplanted the tissue removed at operation into the anterior chambers of both eyes, in some animals as an autogenous and in some as a heterogenous transplant. The transplanted tissue becomes attached to the iris and becomes vascularized because it gets its blood supply from the iris very promptly. Two things happened in these animals, and they can be divided into two or more groups according to the fate of the transplants. In one group the transplants remained vital and were vital up to the time the animals were killed, as long as ten months after transplantation. None of these animals developed either signs of myxedema or the anemia of myxedema, and so it appears that these transplants were actually functioning. In the other group the transplants at the time the animals were killed were found to have undergone complete necrosis. We found the thyroid tissue all gone and replaced by fibrous tissue. All in this group developed anemia and other signs of myxedema, but they developed these signs from twelve to sixteen weeks following total thyroidectomy, one or two months later than the group reported, the group that received no transplants. The delay in development of myxedema was due presumably to two causes: first, that the transplants had a short period of viability, and second, that the thyroid tissue which was transplanted carried with it a certain amount of thyroid principle that delayed the onset of myxedema.

#### Increase in Heights of Thyroid Cells as a Method of Thyrotropic Hormone Determination

DRS. PAUL STARR and RULON W. RAWSON, Chicago: Our object is to describe the application of micro measurements of the hyperplasia of the thyroid, induced by the thyrotropic hormone, with statistical analysis of these measurements, as a quantitative determination of the hormone present. Female guinea-pigs weighing 200 Gm. after three daily subcutaneous injections of quantities ranging from 0.0025 to 0.02 cc. of antuitrin T were examined post mortem and the thyroids removed on the fourth day. Paraffin sections stained with hematoxylin and eosin were studied under oil immersion. The height of the representative cell of each of 200 acini, selected according to a uniform system, was determined with an ocular micrometer. The 200 measurements were graphed in a frequency

conduction time and lowest in those with shortened bone conduction time. The differences are statistically significant. The effect of age on the acuity of hearing by bone conduction appears to be the most noteworthy finding. Prolonged bone conduction time in all probability represents the upper "tail" of the frequency distribution of the normal variation. The fact that the persons with such bone conduction were the youngest, on the average, may be regarded as confirming the hypothesis that acuity of hearing by bone conduction is associated with some factor or factors other than the condition of cochlear nerve and end organ.

### Archives of Pathology, Chicago

22: 729-866 (Dec.) 1936

- Reticulo-Endotheliosis. G. Ritchie and O. O. Meyer, Madison, Wis.—p. 729.
- Studies of Serum Electrolytes: XI. Blood Changes Following Death from Contact with Alternating Current of High Intensity. F. W. Sunderman and E. O. Harper, Philadelphia.—p. 738.
- \*Tubular Tuberculosis of Liver. K. Rosenkranz and L. D. Howard, San Francisco.—p. 743.
- Genesis of Intestinal Infarction Following Embolization of Superior Mesenteric Artery. L. Loeffler, Brooklyn.—p. 755.
- \*Inhibitory Action of Sodium Chloride on Skin Necrosis Produced by Staphylococcus Toxin. R. H. Rigdon, Nashville, Tenn.—p. 763.
- Experimental Pulmonary Abscess in Monkeys. C. Weiss and Marian C. Shevsky, San Francisco.—p. 770.
- Rapid, Reliable and Simple Technique for Simultaneous Dehydration and Infiltration of Human Tissues. R. J. Lebowich, Gloversville, N. Y.—p. 782.
- Effect of Staphylococcus Toxin on Dog's Blood Pressure. R. H. Rigdon, Nashville, Tenn.—p. 806.
- Photodynamic Effects of Fluorescent Substances in Living Kidney. E. Singer, New York.—p. 813.
- Size and Weight of Normal and of Pathologic Prostate Gland. M. Van B. Teem, Rochester, Minn.—p. 817.

**Tuberculosis of Liver.**—Rosenkranz and Howard encountered three cases of tuberculosis of the bile ducts in their necropsy service. Necropsy of the first patient revealed that the man died of an advanced tuberculosis of the spine, with a miliary spread into the inner organs complicated by tuberculous abscesses along the intrahepatic bile ducts. The second patient was a young native Filipino in whom, without signs of pulmonary infection, tuberculosis of the bone developed which was complicated by tuberculosis of the bile ducts and of the liver. The site of the primary infection must be assumed to have been the intestine. The last case was one of typical progressive pulmonary and extensive intestinal tuberculosis with caseation of the mesenteric, peribronchial and periportal lymph nodes, complicated by a secondary tuberculous cholangitis with abscess formation. The microscopic picture of the liver in these cases shows a rupture of caseous tubercles into the bile ducts from the periportal tissue. The excretion of virulent tubercle bacilli with the bile is always due to microscopic ruptures of this kind. Development of tubular tuberculosis of the liver is favored by an early generalized spread of the primary infection, especially when the latter occurs in the intestine. This type of tuberculosis is usually found in young children and in races that do not have high resistance against infection by Koch's bacillus. Intestinal primary infection tends to spread easily and to retain virulent bacilli for a long time.

**Action of Sodium Chloride on Skin Necrosis.**—Rigdon treated nineteen rabbits intradermally in five areas on the right and on the left side with from 1.5 to 2.5 cc. of an 0.85 per cent (right) and a 5 per cent (left) solution of sodium chloride. Into each bleb made by the salt solution, from 0.1 to 0.2 cc. of staphylococcus toxin was injected at intervals varying from immediately to two hours. Sixteen rabbits showed a decrease in the extent of necrosis in the areas previously receiving the 5 per cent solution. The most pronounced degree of inhibition occurred when the interval between the injection of the 5 per cent solution and the injection of the toxin was from five minutes to one hour. The location of the necroses with regard to the points of toxin injection in the areas receiving the one concentration of sodium chloride was different from that in the areas receiving the other. In the areas treated with the 5 per cent sodium chloride solution, necrosis occurred at the sites of toxin injection and also frequently inferior to these points. The skin between these two necrotic regions was macroscopically normal.

### Archives of Surgery, Chicago

33: 913-1116 (Dec.) 1936

- Differential Analysis of Bile Acids in Human Gallbladder Bile. R. Colp and H. Doubilet, New York.—p. 913.
- \*Ossification: Influence of Mineral Constituents of Bone. J. D. Bisgard, Omaha.—p. 926.
- Plan for Treatment of Cancer with Small Quantities of Radium. G. T. Pack, New York.—p. 940.
- Hydrodynamics of Relief of Distention in Gastro-Intestinal Tract by Suction Applied to Inlying Catheters. J. R. Paine, Minneapolis.—p. 995.
- Hernia into Umbilical Cord and Related Anomalies. L. A. Thunig, Brooklyn.—p. 1021.
- Quantitative Studies on Congenital Clefts of Lip. W. T. Peyton and H. P. Ritchie, Minneapolis.—p. 1046.
- \*Unusual Cartilaginous Tumor Formation of Skeleton. E. Freund, Venice, Fla.—p. 1054.
- A Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Berlin, Germany; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, Rochester, Minn.; J. T. Priestley, Rochester, Minn., and V. J. O'Connor, Chicago.—p. 1078.

**Ossification: Influence of Mineral Constituents of Bone.**—The results of Bisgard's investigation indicate that in experimental animals: 1. The synthetic salts of bone, calcium carbonate, calcium phosphate and magnesium phosphate have no influence on osteogenesis or ossification. In great concentration and in the presence of tissue not in itself osteogenic but recognized as ossifiable, these salts failed to give rise to the formation of bone, and in the presence of osteogenic tissue they appeared not to alter the normal course of ossification. 2. Bone, regardless of its viability, has a favorable influence on ossification. This was true of partially viable bone, boiled bone and bone ash. Transplants of the former invariably initiated ossification in the fibrous tissue surrounding them. This was true also of boiled bone, but to a much lesser degree, and, although it did not occur with the use of bone ash under similar circumstances, ossification did take place in transplants of fibrous tissue and epithelium from the bladder which were bathed in bone ash. Since bone was not formed in this type of transplant in the rabbit in mediums of either normal aqueous or bone salts, it is deduced that bone ash possesses some factor favorable to ossification which is not present in bone salts. It would seem likely, as suggested by Watt, that calcium as it exists in bone exists in a physiochemical or structural form more suitable for use in the process of ossification.

**Unusual Cartilaginous Tumor Formation of Skeleton.**—Freund reports four cases of cartilaginous tumor of the skeleton, which represent in part unusual forms of otherwise well known conditions (enchondroma, single osteochondroma and multiple cartilaginous exostoses) and in part an apparently rare form of a multiple intra-articular tumor formation which, to his knowledge, has not yet been described. There is one case of a true intra-articular osteochondroma, which developed in more than one joint on the basis of a peculiar hyperplastic change of joint cartilage and which had to be differentiated from similar formations as they develop typically in persons with hypertrophic arthritis and from other conditions usually considered neoplastic changes of the joint capsule, such as chondromatosis of the joints. Besides the cartilaginous component, a considerable amount of bony tissue was present. One is justified in speaking of the growth as a cartilaginous tumor, despite the fact that in some instances the bony component is prevalent, mainly because the cartilaginous portion represents the real active element in the tumor, the cellular proliferation of which results in the increase in size. The bony tissue replaces the cartilage; its significance is therefore merely secondary.

### Canadian Public Health Journal, Toronto

27: 421-476 (Sept.) 1936

- Liver Therapy in Treatment of Pernicious Anemia. E. W. McLennan, Toronto.—p. 421.
- Recent Trends in Mortality from Pernicious Anemia. A. H. Sellers, Toronto.—p. 428.
- Multiple Specimens for Central Laboratory Diagnosis of Enteric Infections. M. H. McCrady, L. P. Lebeau, R. Boudrias and J. M. Desranleau, Quebec.—p. 439.
- Planning a Generalized Public Health Nursing Program. L. M. McDonald, St. Mary's Ont.—p. 445.
- Value of Records and Statistics to the Medical Officer of Health. D. V. Currey, St. Catharines, Ont.—p. 452.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Diseases of Children, Chicago

52: 1293-1526 (Dec.) 1936

- Encephalography in Infants and in Children. J. L. Law, Ann Arbor, Mich.—p. 1293.
- \*Tremors of the New-Born (Birth Shock), Tetany and Nervous Disturbances in Children: Clinical Observations and Treatment. H. R. Litchfield, Brooklyn.—p. 1312.
- Lipid Composition of Blood in New-Born Infants. E. M. Boyd, Kingston, Ont.—p. 1319.
- \*Serum Disease and Therapeutic Effect of Diphtheria Antitoxin. I. Davidsohn and L. W. Hunt, Chicago.—p. 1325.
- Insensible Perspiration in Children: II. Statistical Correlation of Insensible Perspiration and Various Body Measurements; Proposed Basal Standards for Children. G. J. Ginandes and Anne Topper, New York.—p. 1335.
- \*Bile Peritonitis in Infancy. E. Caulfield, Hartford, Conn.—p. 1348.
- Histologic Aspect of Experimental Poliomyelitis Produced via Gastro-Intestinal Tract. J. A. Toomey, Cleveland.—p. 1361.
- Lacunar Skull of the New-Born. H. B. Rothbart, Detroit.—p. 1375.
- Treatment of Pertussis with New York State Pertussis Vaccine. T. S. Bumbalo, Buffalo.—p. 1390.
- Nutrition of Children on Vegetable Diet: III. Growth and Allergy. Dorothy Engelhard Lane, Chicago.—p. 1397.

**Tremors of the New-Born.**—From a study of the laboratory data of infants with tremors or birth shock and children with tetany, Litchfield discovered that many of the minor disturbances might be dependent on an underlying calcium deficiency. In addition to the supplying of the full demand of the body for calcium, certain further therapy seemed necessary for the control of the common functional disturbances as represented in these cases. In considering the medication most appropriate for these patients, he found that a new chemical compound of calcium lactobionate and calcium bromide appeared to possess such properties as to make it especially suitable. This preparation is a crystalline double salt produced during the manufacture of polyhydroxymonocarboxylic acid by oxidizing lactobiose with calcium hypobromide in the presence of calcium hydroxide. The double salt may be crystallized directly from the solution. To test the therapeutic efficacy of this preparation, two reasonably comparable groups of infants were studied. The infants who received the new double salt in one-half teaspoonful doses twice daily showed a complete change in the clinical picture with a uniform increase in the calcium content of the blood, and all the symptoms disappeared in an average period of slightly less than seven days. Similarly good results were obtained with this new preparation in a group of older children who from birth had had manifestations of nervous disturbances.

**Serum Disease and Therapeutic Effect of Diphtheria Antitoxin.**—Davidsohn and Hunt studied forty patients with so-called immediate or accelerated serum reactions, 164 patients with ordinary serum reactions and ninety-seven patients without any serum reactions. No difference was noted in the therapeutic effect on the patients with ordinary serum disease and on those without any serum reactions. On the other hand, the therapeutic results were distinctly less satisfactory and the incidence of complications was considerably higher in the patients with immediate serum reactions.

**Bile Peritonitis in Infancy.**—Caulfield reports two cases of bile peritonitis in infants in whom successful surgical treatment was possible even after the disease has persisted for some time. Both the infants had been apparently normal for about three weeks, at the end of which time they manifested signs of biliary obstruction—jaundice and bile-stained urine in one patient and acholic stools in the other. In each instance the infant was brought to a physician not because of jaundice, vomiting or pain but because of swelling of the scrotum. The jaundice was intermittent. On admission there were signs of

a marked increase in intra-abdominal pressure—respiratory distress, pouting umbilicus, fluid in the scrotum and engorged superficial veins. The abdomen of each patient showed on percussion a shifting dullness. The temperatures were normal or subnormal. Both patients had acholic stools and their urine did not contain bile. The absence of bile pigments from both stools and urine, without jaundice, should immediately suggest that there is a rupture along the biliary tract and that bile is flowing freely into the peritoneal cavity. In both instances the disease was amenable to surgical treatment, in the first case actually and in the second theoretically. The first child recovered with a functionally perfect biliary tract after simple drainage in the region of the bile ducts. The surgeon suggested that the child may have had an accessory duct which functioned after operation, but his rapid recovery following simple drainage constitutes evidence very much against the existence of any extensive or serious abnormality. The second child had stenosis of the common duct, and at necropsy inspissated bile was found between the stenosis and the ampulla. Whether this inspissated bile was formed before or after the rupture is not known. There was a theoretical possibility of surgical repair, especially if an early diagnosis had been made. If repair of the ruptured common duct or anastomosis of the sac wall to the intestine had been technically difficult or impossible, perhaps a cholecystoduodenostomy with ties on the common duct or a drain to the region of the rupture might have saved the patient's life.

#### American Journal of Ophthalmology, St. Louis

19: 1053-1146 (Dec.) 1936

- Aneurysm of Internal Carotid Artery with Atrophy and Compression of Optic Nerve. J. O. Wetzel, Lansing, Mich.—p. 1053.
- Iritis Produced in Rabbits' Eyes by Intravenous Injection of Crude and Purified Cultures of Bacteria Isolated from Patients with Certain Inflammatory Eye Diseases: Preliminary Report. C. Berens, Edith L. Nilson and G. H. Chapman, New York.—p. 1060.
- Tobacco Amblyopia; Alcohol Amblyopia: Report of One Uncomplicated Case of Each Condition. F. D. Carroll and C. R. Franklin, New York.—p. 1070.
- Results of Surgery of Glaucoma. L. Bothman, Chicago, and M. J. Blaess, Marshalltown, Iowa.—p. 1072.
- Ocular Changes in Multiple Sclerosis. D. Marshall and R. G. Laird, Ann Arbor, Mich.—p. 1085.
- Glaucoma in Amblyopia. S. V. Abraham, Los Angeles.—p. 1094.
- Rôle of Paracentesis in Ophthalmology. W. F. Hardy, St. Louis.—p. 1097.
- Unilateral Congenital Anophthalmos with Orbitopalpebral Cyst. M. Rosenbaum, New York.—p. 1101.

#### American Journal of Surgery, New York

34: 403-638 (Dec.) 1936. Partial Index

- Preoperative Estimation of Anesthetic and Surgical Risk. P. D. Woodbridge, Boston.—p. 410.
- Choice of Anesthesia. L. F. Sise, Boston.—p. 419.
- Endotracheal Anesthesia. I. W. Magill, London, England.—p. 450.
- Carbon Dioxide Absorption Method for Inhalation Anesthesia: Its Development and Principles. E. A. Roventine, New York.—p. 456.
- Anesthesia in Children. C. H. Robson, Toronto.—p. 468.
- Etiology of Muscular Spasms During General Anesthesia. E. C. Rosenow and R. M. Tovell, Rochester, Minn.—p. 474.
- Anesthetics and Liver Function. W. Bourne, Montreal.—p. 486.
- \*Ventricular Fibrillation in Anesthesia. A. E. Guedel, Los Angeles, and P. K. Knoefel, Louisville, Ky.—p. 496.
- Regional Anesthesia: Agents and Methods. J. S. Lundy and E. B. Tuohy, Rochester, Minn.—p. 511.
- Regional Anesthesia for Operations on Neck. R. M. Tovell, Rochester, Minn.—p. 531.
- Brachial Plexus Block. E. B. Tuohy, Rochester, Minn.—p. 544.
- Protective Action of Picrotoxin in Prolonged Surgical Anesthesia with Evipal. A. H. Maloney, Washington, D. C.—p. 571.
- Evipal Anesthesia: Its Use in Proctology. B. Haskell and J. J. Cheleden, Philadelphia.—p. 581.
- Mortality of Spinal Anesthesia: Based on an Analysis of Thirty Immediate Fatalities in a Series of 33,811 Cases. J. R. Veal and B. deK. Van Werden, New Orleans.—p. 606.

**Ventricular Fibrillation in Anesthesia.**—Guedel and Knoefel point out that ventricular fibrillation occurs without warning; it either passes in less than a minute or death results. The approach to a surgical operation and the induction of anesthesia provide favorable circumstances for its occurrence. The most likely time in anesthesia for the occurrence of ventricular fibrillation is in the stage of delirium immediately after consciousness is lost. It is most likely to occur in the periods of life when general physiologic activity is greatest; that is, between the ages of 5 and 30 years. Clinical recognition of the phenomenon depends largely on the appreciation of predis-

the following morning. For supper at 5:30 he is served with food containing as little water as possible. Such dry food includes meat, fish, egg, bread, butter, cheese and crackers. When the child is already in bed for the night and all his wants and requests have been attended to, he is given a sandwich containing about 5 Gm. of salt. The salt is given most effectively when combined with fat or meat abundant in binding tissue. Under such conditions the salt is absorbed gradually and the restraining influence on the discharge of urine is prolonged. Measured quantities of salt butter, ham, bacon, boned herring, boneless salt codfish, Swiss cheese, smoked salmon and salt can be used for the fillings. To make the herring or fish more palatable, chopped hard-boiled egg or raw scraped apple may be added. At the end of about two months of this regimen cereal, vegetables and some fruit were added gradually. This more liberal plan was continued for two months longer, after which the salt was decreased slowly. If bed wetting occurred on the reduction of the salt intake, it became necessary for a while to give a larger portion of a salty sandwich. In most cases the reduction of the salt intake was gradually accomplished without any recurrence of the nocturnal enuresis.

**Diminution of Spinal Fluid Sugar in Tuberculous Meningitis.**—Weichsel and Herzger observed the diagnostic value of spinal fluid sugar in cases of tuberculous meningitis. The method used for the examination of the spinal fluid sugar was that of Jensen and Hagedorn. A progressive diminution of the spinal fluid sugar was found from the time of first observation to the fatal termination of the cases. In this decline there is in many cases a slight increase about two weeks before death, and then a final drop of the sugar content. The authors feel that the diminution of the spinal fluid sugar is an early diagnostic sign, since in several cases the value of the sugar showed a decline from twenty-five to thirty days before the death of the patient. In most cases the decrease in the sugar content follows a rise in globulin and an increased cell count. Following the intraspinal injection of a 5 per cent solution of dextrose in children with tuberculous meningitis, a response in blood sugar was observed, which can be compared with that found after intramuscular injection or after absorption of sugar from the intestinal tract. The sugar content of the cerebrospinal fluid at the end of a spinal puncture gave almost the same value as at the beginning, and a repetition of the puncture after one hour usually gave no higher amounts. After an artificial increase of the blood sugar, the ratio between blood and spinal fluid sugar remained the same. The absolute augmentation of the dextrose in the cerebrospinal fluid was very low. The experiments tend to show that the chief cause of the diminution of sugar is not an increased glycolysis but rather a disturbance of the barrier between blood and spinal fluid.

### Journal of Pharmacology & Exper. Therap., Baltimore

58: 361-492 (Dec.) 1936

- Actions of Kurchicine, Alkaloid of *Holarrhena Antidysenterica*. I. Bakhsh, Oxford, England.—p. 361.  
 Pharmacologic Actions of Conessine and Isoconessine. I. Bakhsh, Oxford, England.—p. 373.  
 Explanation of Duodenal Activity. W. J. R. Camp, Chicago.—p. 393.  
 Liver Preparation Protecting Against Necrosis from Chloroform or Carbon Tetrachloride Administration. J. C. Forbes, R. C. Neale and J. H. Scherer, Richmond, Va.—p. 402.  
 \*Pharmacodynamic Study of Autonomic Nervous System in Normal Men: Effects of Intravenous Injections of Epinephrine, Atropine, Ergotamine and Physostigmine on Blood Pressure and Pulse Rate. H. Freeman and H. T. Carmichael, Worcester, Mass.—p. 409.  
 Studies of Chronic Morphine Poisoning in Dogs: VI. Effect of Increasing Tissue Oxidations by Dinitrophenol on Excretion of Morphine in Tolerant and Nontolerant Dogs. O. H. Plant and D. Slaughter, Iowa City.—p. 417.  
 Toxicity of Rhodium. O. H. Plant, Iowa City.—p. 428.  
 Detoxification of Gaseous Hydrocyanic Acid. J. N. Etteldorf, Memphis, Tenn.—p. 431.  
 Properties of Physiologically Active Substance in Body Resulting from Administration of Acetyl-Beta-Methylcholine Chloride by Iontophoresis. W. F. Alexander and A. J. Kotkis, St. Louis.—p. 439.  
 Comparison of Minimal Fatal Doses of Selenium, Tellurium, Arsenic and Vanadium. K. W. Franke and A. L. Moxon, Brookings, S. D.—p. 454.  
 Pharmacologic Action of Deuterium Oxide: I. Toxicity and Symptoms; Metabolic Rate; Water Exchanges. H. G. Barbour and Jane Trace, New Haven, Conn.—p. 460.  
 Effects of Drugs on Autonomic Nervous System.—  
 Freeman and Carmichael observed the reactions of blood pressure and pulse rate in twenty-four male subjects to the intra-

venous administration of epinephrine, atropine, physostigmine and ergotamine. The administration of all four drugs resulted in a significant rise in systolic blood pressure of varying intensity and duration. The diastolic blood pressure also underwent a significant increase with the exception of epinephrine, in which case pressor and depressor responses were so equally distributed that the net change was negligible. Epinephrine, atropine and physostigmine each resulted in a significant increase in pulse rate, while ergotamine caused a significant slowing of the heart rate. No significant relationship was found in the reaction of the systolic or diastolic pressure or pulse rate: to the magnitude of their control readings, to one another after the injection of a single drug or to one another in a comparison of the responses to several drugs. This lack of relationship was due to individual variability rather than to inconsistency of the basal blood pressure and pulse rate.

### Journal of Urology, Baltimore

36: 599-808 (Dec.) 1936

- Hemorrhagic Cyst of Kidney. J. D. Barney, Boston.—p. 602.  
 \*Simple Method for Doing Nephropexy. C. M. McKenna, Chicago.—p. 609.  
 Ureteral and Renal Complications of Carcinoma of Cervix: Study of 257 Cases. R. C. Graves, C. J. E. Kickham and I. T. Nathanson, Wrentham, Mass.—p. 618.  
 Roentgen Therapy in Treatment of Bladder Tumors. A. E. Bothe, Philadelphia.—p. 643.  
 Grading of Epithelial Tumors of Urinary Bladder: Study of Cell Types and Methods of Grading of Cases in Carcinoma Registry of the American Urological Association. R. O. Dart, Washington, D. C.—p. 651.  
 \*Infiltrating Carcinoma of Bladder. J. A. C. Colston and W. F. Leadbetter, Baltimore.—p. 669.  
 Cystitis Emphysematosa: Case Report and Review of Literature. N. L. Burrell, Springfield, Ohio.—p. 690.  
 Vesico-Intestinal Fistula. C. C. Higgins, Cleveland.—p. 694.  
 "The Cord Bladder": Its Definition, Treatment and Prognosis When Associated with Spinal Cord Injuries. D. Munro, Boston.—p. 710.  
 Diabetic (Cord) Bladder. R. D. Gill, Wheeling, W. Va.—p. 730.  
 Suprapubic Cystostomy for Drainage: Technique and Results. M. L. Boyd, Atlanta, Ga.—p. 740.  
 How Prevalent Are *Smeigma Bacilli*? Their Alleged Importance as a Confusing Factor in Examination of Urine for Tubercle Bacilli by Smear and Centrifugal Method. H. S. Jeck and Charlotte Hanley, New York.—p. 764.  
 Masturbation and Impotence from Urologic Standpoint. M. Hubner, New York.—p. 770.  
 Surgery of Genital Elephantiasis (Nontropical). E. M. Watson, Buffalo.—p. 786.

**Simple Method for Doing Nephropexy.**—McKenna believes that pain is the first indication for nephropexy. It may be acute, chronic or periodic. In carrying out his procedure he has the patient lie on the side with the leg next to the table flexed at a right angle and the upper leg straight. A V-shaped incision is made through the lumbar fascia with the apex at about the level of the ninth or tenth rib and the base in the middle of the twelfth rib. The flap should be just long enough to make implantation into the kidney parenchyma. The fascia, to make the implant, may be brought between the eleventh and twelfth ribs or it may be brought over the last rib with the implant directed into the kidney parenchyma. The incision into the kidney parenchyma is not more than 0.5 cm. deep and 1.5 cm. long. At this point partial decapsulation is done around the incision into the parenchyma. This permits the surgeon to fold the kidney capsule on either side of the incision so as to make a pad through which to pass the suture in order that there is no tearing or mutilation of the kidney parenchyma. One stitch is usually sufficient to make the fixation. The kidney is placed in position and the wound is closed in the ordinary way. The perinephric fat or fascia of Gerota is now brought up over the kidney to act as a temporary hammock during the patient's convalescence. The patient is placed in bed with the foot of the bed elevated about 6 inches and kept there for three weeks to allow for a better anastomosis between the fascia and the kidney itself. The purpose of the operation is to place the kidney in position so that there is a straight line between the kidney pelvis and the bladder. Incision of the kidney parenchyma has led to no appreciable difference in function.

**Infiltrating Carcinoma of Bladder.**—Colston and Leadbetter have made a study of ninety-eight cases of extensive infiltrating tumors of the bladder from both the clinical and the pathologic points of view. Of the ninety-eight cases, fifty-



pressure on the labyrinth or on the brain stem is absent. In these cases, at least, it seems not unreasonable to assume that the vertigo may appear as a local symptom of the cerebral cortex due to direct lesion (stimulation) of the aforementioned cerebral areas, or due to pressure on these foci by tumors in neighboring regions. In general it seems that tumors close to the sylvian fissure induce vertigo more easily than do tumors more distant from this fissure.

### Annals of Surgery, Philadelphia

104: 961-1130 (Dec.) 1936

- Stage Operations in Severe Hyperthyroidism. F. H. Lahey, Boston.—p. 961.
- \*Hyperparathyroidism in Siblings. L. Goldman and F. S. Smyth, San Francisco.—p. 971.
- Cyclopropane Anesthesia in Thyroidectomy. A. Goetsch, Brooklyn.—p. 982.
- The Problem of Myositis Ossificans Progressiva. W. Dobrzaniecki, Lwów, Poland.—p. 987.
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- Use of Glyceryl Trinitrate (Nitroglycerin) for Control of Pain Following Cholecystectomy. J. M. McGowan, W. L. Butsch and W. Walters, Rochester, Minn.—p. 1013.
- \*Operative Procedure for Right-Sided Ulcerative Ileocolitis. A. A. Berg, New York.—p. 1019.
- Surgical Treatment of Five Hundred Hernias. F. Glenn and A. F. McBride Jr., New York.—p. 1024.
- Intraperitoneal Approach for Repair of Inguinal Hernia. L. E. Sutton, Syracuse, N. Y.—p. 1030.
- Correlation of Pathologic and Roentgenologic Findings in Tuberculosis and Pyogenic Infections of Vertebrae: Fate of Intervertebral Disk. E. L. Compere and M. Garrison, Chicago.—p. 1038.
- Giant Cell Tumors of Jaws. S. G. Major, Pittsburgh.—p. 1068.
- Subchondral Tuberculous Sequestrums. J. G. Finder, Chicago.—p. 1080.
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**Hyperparathyroidism in Siblings.**—The clinical, metabolic and roentgenologic observations associated with the classic type of von Recklinghausen's disease are illustrated by the two cases reported by Goldman and Smyth. Hypercalcemia was evident in both. Conversely, the phosphorus was lower than normal. One patient had renal calculi and the other did not, although the excessive urinary loss of calcium and phosphorus in both patients (a sister and a brother) would presumably favor the formation of stones. Perhaps the extent of the process in the first patient would suggest a disturbance of metabolism of longer standing, which would favor lithiasis. The transition from the hypercalcemia of hyperparathyroidism to the hypocalcemia of hypoparathyroidism was observed post-operatively in the second patient. It is important to meet the immediate reversal of function following parathyroidectomy by a diet low in phosphorus and high in calcium, which helps to guard against further depression of the calcium. While this is ordinarily accomplished by administration of calcium, the authors believe that a careful restriction of phosphorus is of additional benefit. Additional calcium was not given in the cases cited, as a minimal intake was desired to allow detection of the endogenous (endocrine) factors. The study illustrates the shift of the excretion of calcium from urine to stool, and the change to a positive balance. That this is a temporary phenomenon must be admitted, since follow up has shown no persistent tetany and no hypocalcemia. It is likely that further study might show a readjustment to that of the normal adult metabolism. An erroneous diagnosis of giant cell tumor was made roentgenologically in one and microscopically, after biopsy, in the other patient. Giant cell tumor is usually situated asymmetrically at the epiphyses of the long bones and is usually single rather than multiple. The giant cell variant of fibrous osteitis may occur in the shaft of the bone, subperiosteally or centrally, and is associated with generalized demineralization of the skeleton and altered calcium and phosphorus metabolism. This lesion is more likely to be multiple. If a small portion of surrounding bone proper is included in the biopsy, the histologic picture of fibrous osteitis should be evident enough to suggest hyperparathyroidism in cases of giant cell variant. The symptoms and signs in both patients disappeared rapidly following the removal of the parathyroid tumors, and a deposition of minerals in the skeleton took place within a short time. A markedly negative calcium balance became positive after parathyroidectomy, indicating that reconstruction of

the skeleton was taking place. In time, a normal negative balance may be expected to supersede this. The symptoms of easy fatigability underwent the most marked subjective improvement. The presence of malacic disease in two members of the same family does not necessarily point to a diagnosis of fragilitas ossium or to any other type of familial skeletal disturbance.

**Operation for Right-Sided Ulcerative Ileocolitis.**—To put the diseased colon at rest and to irrigate and cleanse it, Berg has carried out the following procedure in five cases: A left-sided transrectus incision is made extending 3 or 4 inches upward from the symphysis; the terminal ileum is identified and delivered out of the wound. The healthy sigmoid is similarly delivered into the abdominal wound. The healthy ileum, as near to the ileocecal valve as is possible, is cut completely across and its mesentery is divided. Both ends are closed by two or three tiers of sutures; an inner chromic catgut suture is made through all the coats, reinforced by one or two layers of interrupted linen or chromic catgut sutures. The proximal end of the ileum is joined to the lower sigmoid just above the peritoneal reflection by a side-to-side anastomosis. Several inches above this side-to-side anastomosis the sigmoid is cut completely across, the distal end is closed by a row of chromic catgut sutures reinforced by one or two layers of linen or catgut, and the proximal end is tied off with a heavy silk suture, thoroughly phenolized and brought out through the upper angle of the wound. The rest of the abdominal wound is closed in layers. The heavy silk suture around the proximal end of the sigmoid is left in situ for from forty-eight to seventy-two hours and then removed, leaving a fistula in the proximal end of the sigmoid. The fecal stream is thus entirely diverted into the lowermost sigmoid and rectum, and the fistula in the sigmoid permits the free drainage of the products of inflammation from the diseased colon. After from ten to fourteen days the colon is irrigated through the sigmoid fistula. The entire colon and the diseased portion of the ileum have been removed subsequently in two cases.

### Archives of Otolaryngology, Chicago

24: 687-810 (Dec.) 1936

- Sympathetic Innervation of Nose: Research Report. O. Larsell and R. A. Fenton, Portland, Ore.—p. 687.
- Lymphatic Pathways from Nose: Research Report. O. Larsell, with collaboration of R. A. Fenton, Portland, Ore.—p. 696.
- Substances Resembling Ephedrine in Experimental and in Clinical Sinusitis: Research Report. R. A. Fenton and O. Larsell, Portland, Ore.—p. 714.
- \*Conduction Deafness: Statistical Observations. A. Ciocco, Baltimore.—p. 723.
- Method for Early Detection of Otosclerosis: Study of Sounds Well Above Threshold. E. P. Fowler, New York.—p. 731.
- Effect of Zinc Ionization and Galvanic Current on Reaction of Nasal Mucosa to Vasomotor Drugs. W. F. Wenner and J. H. Alexander, St. Louis.—p. 742.
- Staphylococcus in Relation to Sinusitis, Bronchitis and Bronchiectasis. F. D. Woodward, University, Va.—p. 753.
- Treatment of Hemorrhage in Nonhemophilic Patients with an Estrogenic Substance. C. J. Heinberg, Pensacola, Fla.—p. 758.

**Conduction Deafness.**—Ciocco discusses data on the acuity of hearing by bone conduction for 516 patients with a conductive type of impairment (acuity by bone conduction being better than that by air conduction). The data have been statistically analyzed to determine whether or not the acuity of hearing by bone conduction is related in any way to age, the appearance of the tympanic membrane, tinnitus, a history of familial deafness and the degree of impairment of hearing by air conduction. Prolonged bone conduction time was found in 26.7 per cent of the cases, normal bone conduction time in 66.1 per cent and shortened bone conduction time in 7.2 per cent. Those with prolonged bone conduction time were, on the average, the youngest; those with shortened bone conduction time were the oldest. On the average, the acuity of hearing by air conduction of persons with prolonged and with normal bone conduction time was similar and was more acute than in patients with shortened bone conduction time. A normal tympanic membrane was observed with greater relative frequency in persons with prolonged bone conduction time, while a perforated tympanic membrane was found relatively oftener in those with shortened bone conduction time. The incidence of tinnitus was practically the same for all groups. The incidence of a family history of deafness was highest in those with prolonged bone

**New York State Journal of Medicine, New York**

36: 1927-2036 (Dec. 15) 1936

- Fatigue and Noise in Industry. F. Kennedy, New York.—p. 1927.  
 Arteriosclerosis and Hypertension in Diabetes Mellitus. J. Schwartz, Brooklyn.—p. 1934.  
 Current Trends in Medical Education. W. C. Rappleye, New York.—p. 1939.  
 Late Extra-Uterine Pregnancy. H. H. Ware Jr., Richmond, Va.—p. 1943.  
 Treatment of General Paralysis by Ultra High Frequency Heating. L. E. Hinsie and J. R. Blalock, New York.—p. 1951.  
 Present Status of Surgery of Sympathetic Nervous System. W. J. M. Scott, Rochester.—p. 1955.  
 Entrance of Iodized Oil into Circulatory System During Uterography. G. Weitzner, New York.—p. 1961.  
 Sensitivity to External Irritants in Industry. L. Schwartz, New York.—p. 1969.  
 Between Mental Health and Mental Disease. B. Liber, New York.—p. 1978.

**Philippine Islands Med. Association Journal, Manila**

16: 663-730 (Nov.) 1936

- Epidemics of Gastro-Intestinal and Respiratory Diseases in Young Children of the City of Manila in 1936. R. G. Padua, Manila.—p. 663.  
 Reminiscences of Tenth International Congress on History of Medicine. S. de los Angeles, Manila.—p. 683.  
 Medicine and Men: Discussion of Compulsory Sickness Insurance. F. E. Sondern, New York.—p. 689.  
 Treatment of Placenta Praevia. G. Rustia, Manila.—p. 707.

**Public Health Reports, Washington, D. C.**

51: 1707-1732 (Dec 11) 1936

- Duration and Cost of Federal Compensation Cases with Disease as Complicating Factor. W. M. Gafafer.—p. 1707.  
 \*Ornithodoros Turicata: Possible Vector of Relapsing Fever in Southwestern Kansas: Preliminary Report. G. E. Davis.—p. 1719.

**Ornithodoros Turicata: Possible Vector of Relapsing Fever.**—In late August and early September 1936 Davis and two assistants recovered approximately 2,000 specimens of *Ornithodoros turicata* in Clarke County, heretofore not known to occur in Kansas. The various stages of the tick were found in rodent burrows, in holes in sand and attached to cottontail rabbits, spermophiles, prairie dogs, prairie dog owls and terrapins. From a single sand hole which contained eleven terrapins (*Terrapene ornata*) 1,197 ticks were removed. Three strains of spirochetes were recovered from ticks collected from a prairie dog burrow, a sand hole and a cottontail rabbit burrow. The prairie dog burrow was located on a ranch at which a case of relapsing fever had occurred. It seems reasonable to believe that *Ornithodoros turicata* may be implicated in the transmission of relapsing fever in this area.

51: 1733-1782 (Dec. 18) 1936

- \*History and Frequency of Diphtheria Immunizations and Cases in 9,000 Families: Based on Nation-Wide Periodic Canvasses, 1928-1931. S. D. Collins.—p. 1736.

51: 1783-1816 (Dec. 25) 1936

- Organization for Promoting Mental Hospital Services in the United States and Canada. W. L. Treadway.—p. 1783.

52: 1-30 (Jan. 1) 1937

- Disabling Illness Among Industrial Employees in 1935 as Compared with Earlier Years. D. K. Brundage.—p. 1.  
 Toxicity of Fruit Sprays: Study of Lead Spray Residues in Iowa-Grown Fruit, with Reference to Manifestations in Consumers. R. H. Heeren and Helen B. Funk.—p. 8.  
 Six Years' Intensive Observation on Seasonal Prevalence of Tick Population in Western Montana: Preliminary Summary. C. B. Philip.—p. 16.

**Diphtheria Immunizations and Cases.**—Collins conveys the information on the history of artificial diphtheria immunizations obtained on 8,758 white families in 130 localities in eighteen states. The group makes a composite cross-section of the population of the United States. Considering the whole group, 43 per cent of children 9 years of age gave a history of an artificial diphtheria immunization; above this age the percentage declined until at from 20 to 24 years only 5 per cent gave such a history. About 7 per cent gave a history of an attack of diphtheria at this age period. Boys and girls show about the same percentages with a history of diphtheria immunization. Boys less than 10 years of age gave more histories of attacks than girls. In the Northeast and the South the percentages of persons with a history of diphtheria immunization were somewhat higher than in the North Central and Western regions. The South was also high in histories of attacks, but the Northeast was low. Histories of diphtheria immunization were as

frequent in rural as in urban places, but histories of diphtheria attacks were most frequent in large cities. The frequency of diphtheria immunizations of children of the preschool ages increases regularly with family income; in the school ages the frequency of immunizations does not show any consistent relation to income. The peak of diphtheria case incidence occurs at a younger age in the South than in the North. The peak of diphtheria mortality in the registration states occurs at 2 years of age. The maximal diphtheria case fatality occurs among infants less than 1 year of age.

**Review of Gastroenterology, New York**

3: 291-374 (Dec.) 1936

- Hiatus Hernia. I. W. Held and A. A. Goldbloom, New York.—p. 291.  
 Is Gastritis a Common Disease? S. Morrison and M. Feldman, Baltimore.—p. 301.  
 Treatment of Gastric and Duodenal Ulcer. E. Rosenthal, Budapest, Hungary.—p. 309.  
 \*Insulin Therapy for Duodenal and Peptic Ulcer. P. Sperber, Providence, R. I.—p. 320.  
 The Autobiography of a Stomach as Related to H. C. Rutherford-Darling, by "Ventriculus."—p. 327.  
 Neocinchophen Hepatitis with Recovery: Case. J. C. Doane, Philadelphia.—p. 333.  
 Water Soluble Form of Alpha Naphthol and Its Inhibitive Action on Intestinal Flora of Human Subject. H. C. Carel, Santa Monica, Calif.—p. 334.

**Insulin Therapy for Peptic Ulcer.**—Sperber employed insulin in the treatment of twenty patients with duodenal or peptic ulcers who received no relief from a dietary regimen. Early cases were relieved of all symptoms and, while observed, showed no recurrences. They were classified as clinically cured, although roentgen examinations still showed a deformity of the duodenal cap. Recurrent cases were greatly improved. Complicated cases showed marked improvement in symptoms reported. One patient was discharged as clinically cured and has been followed for twenty months with no recurrence except a recent loss of appetite. Insulin either completely relieves or else causes a vast improvement in the symptoms. It is difficult to explain the persistence of positive x-ray signs in clinically cured patients who have had no recurrences of symptoms. One patient with gastric ulcer (malignant) reported relief from pain and increased appetite. Pyloric stenosis nullified the insulin beneficial effects. In the older group of complicated ulcers the patients were in many instances saved from major surgical procedures and restored to a useful existence. Insulin therefore offers a medical solution to the treatment of apparently hopeless cases that have been marked for surgery.

**Southwestern Medicine, Phoenix, Ariz.**

20: 447-484 (Dec.) 1936

- Trends in Care of the Indigent Sick. R. O. Brown, Santa Fe, N. M.—p. 447.  
 Trends in Care of the Indigent Sick by Public Agencies. R. L. Cleere, Denver.—p. 449.  
 Dermatitis: Atopic and Contact (Eczema). L. M. Smith, El Paso, Texas.—p. 451.  
 Management of Sinus Disease. F. W. Standefer, Lubbock, Texas.—p. 453.  
 Interrelationship of Sinus Infection to General Disease. Rea E. Ashley, San Francisco.—p. 456.  
 Fifteen Years with Trachoma Among the Indians. P. G. Eilers, Washington, D. C.—p. 457.  
 Arizona Medical Industrial Committee. D. F. Harbridge, Phoenix, Ariz.—p. 460.  
 Report of Activities of the Social Security Committee. J. D. Hamer, Phoenix, Ariz.—p. 461.  
 \*Etiology and Treatment of Food Allergy. A. W. Oelgoetz, P. A. Oelgoetz and J. Wittekind, Columbus, Ohio.—p. 463.  
 Injection Treatment of Hernia: Suggestions Gained from Treating Myself and 100 Others. G. S. Chapin, Hollywood, Calif.—p. 465.

**Etiology and Treatment of Food Allergy.**—The Oelgoetzes and Wittekind advise that many chronic invalids complain of a host of gastro-intestinal symptoms but on examination show no abnormal physical signs. Some of these have true neuroses, but the greater number are sufferers from food allergy secondary to pancreatic hypofunction. Because a gastro-intestinal patient's reactions to foods are so confused by misinformation, biases, fads, prejudices, food likes and dislikes, and in many cases, true food allergy, the history is more often misleading than informative. That part of the external pancreatic secretion produced when food is in the stomach and intestine (Boldyreff) combines with the food and serves a local digestive function, while that secreted when no food is in the stomach is absorbed into the blood stream to act as true buffers,

pressure on the labyrinth or on the brain stem is absent. In these cases, at least, it seems not unreasonable to assume that the vertigo may appear as a local symptom of the cerebral cortex due to direct lesion (stimulation) of the aforementioned cerebral areas, or due to pressure on these foci by tumors in neighboring regions. In general it seems that tumors close to the sylvian fissure induce vertigo more easily than do tumors more distant from this fissure.

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- Surgical Treatment of Five Hundred Hernias. F. Glenn and A. F. McBride Jr., New York.—p. 1024.
- Intraoperative Approach for Repair of Inguinal Hernia. L. E. Sutton, Syracuse, N. Y.—p. 1030.
- Correlation of Pathologic and Roentgenologic Findings in Tuberculosis and Pyogenic Infections of Vertebrae: Fate of Intervertebral Disk. E. L. Compere and M. Garrison, Chicago.—p. 1038.
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- Surgical Treatment of Human Bites. T. M. Lowry, New York.—p. 1103.

**Hyperparathyroidism in Siblings.**—The clinical, metabolic and roentgenologic observations associated with the classic type of von Recklinghausen's disease are illustrated by the two cases reported by Goldman and Smyth. Hypercalcemia was evident in both. Conversely, the phosphorus was lower than normal. One patient had renal calculi and the other did not, although the excessive urinary loss of calcium and phosphorus in both patients (a sister and a brother) would presumably favor the formation of stones. Perhaps the extent of the process in the first patient would suggest a disturbance of metabolism of longer standing, which would favor lithiasis. The transition from the hypercalcemia of hyperparathyroidism to the hypocalcemia of hypoparathyroidism was observed post-operatively in the second patient. It is important to meet the immediate reversal of function following parathyroidectomy by a diet low in phosphorus and high in calcium, which helps to guard against further depression of the calcium. While this is ordinarily accomplished by administration of calcium, the authors believe that a careful restriction of phosphorus is of additional benefit. Additional calcium was not given in the cases cited, as a minimal intake was desired to allow detection of the endogenous (endocrine) factors. The study illustrates the shift of the excretion of calcium from urine to stool, and the change to a positive balance. That this is a temporary phenomenon must be admitted, since follow up has shown no persistent tetany and no hypocalcemia. It is likely that further study might show a readjustment to that of the normal adult metabolism. An erroneous diagnosis of giant cell tumor was made roentgenologically in one and microscopically, after biopsy, in the other patient. Giant cell tumor is usually situated asymmetrically at the epiphyses of the long bones and is usually single rather than multiple. The giant cell variant of fibrous osteitis may occur in the shaft of the bone, subperiosteally or centrally, and is associated with generalized demineralization of the skeleton and altered calcium and phosphorus metabolism. This lesion is more likely to be multiple. If a small portion of surrounding bone proper is included in the biopsy, the histologic picture of fibrous osteitis should be evident enough to suggest hyperparathyroidism in cases of giant cell variant. The symptoms and signs in both patients disappeared rapidly following the removal of the parathyroid tumors, and a deposition of minerals in the skeleton took place within a short time. A markedly negative calcium balance became positive after parathyroidectomy, indicating that reconstruction of

the skeleton was taking place. In time, a normal negative balance may be expected to supersede this. The symptoms of easy fatigability underwent the most marked subjective improvement. The presence of malacic disease in two members of the same family does not necessarily point to a diagnosis of fragilitas ossium or to any other type of familial skeletal disturbance.

**Operation for Right-Sided Ulcerative Ileocolitis.**—To put the diseased colon at rest and to irrigate and cleanse it, Berg has carried out the following procedure in five cases: A left-sided transrectus incision is made extending 3 or 4 inches upward from the symphysis; the terminal ileum is identified and delivered out of the wound. The healthy sigmoid is similarly delivered into the abdominal wound. The healthy ileum, as near to the ileocecal valve as is possible, is cut completely across and its mesentery is divided. Both ends are closed by two or three tiers of sutures; an inner chromic catgut suture is made through all the coats, reinforced by one or two layers of interrupted linen or chromic catgut sutures. The proximal end of the ileum is joined to the lower sigmoid just above the peritoneal reflection by a side-to-side anastomosis. Several inches above this side-to-side anastomosis the sigmoid is cut completely across, the distal end is closed by a row of chromic catgut sutures reinforced by one or two layers of linen or catgut, and the proximal end is tied off with a heavy silk suture, thoroughly phenolized and brought out through the upper angle of the wound. The rest of the abdominal wound is closed in layers. The heavy silk suture around the proximal end of the sigmoid is left in situ for from forty-eight to seventy-two hours and then removed, leaving a fistula in the proximal end of the sigmoid. The fecal stream is thus entirely diverted into the lowermost sigmoid and rectum, and the fistula in the sigmoid permits the free drainage of the products of inflammation from the diseased colon. After from ten to fourteen days the colon is irrigated through the sigmoid fistula. The entire colon and the diseased portion of the ileum have been removed subsequently in two cases.

### Archives of Otolaryngology, Chicago

24: 687-810 (Dec.) 1936

- Sympathetic Innervation of Nose: Research Report. O. Larsell and R. A. Fenton, Portland, Ore.—p. 687.
- Lymphatic Pathways from Nose: Research Report. O. Larsell, with collaboration of R. A. Fenton, Portland, Ore.—p. 696.
- Substances Resembling Ephedrine in Experimental and in Clinical Sinusitis: Research Report. R. A. Fenton and O. Larsell, Portland, Ore.—p. 714.
- \*Conduction Deafness: Statistical Observations. A. Ciocco, Baltimore.—p. 723.
- Method for Early Detection of Otosclerosis: Study of Sounds Well Above Threshold. E. P. Fowler, New York.—p. 731.
- Effect of Zinc Ionization and Galvanic Current on Reaction of Nasal Mucosa to Vasomotor Drugs. W. F. Wenner and J. H. Alexander, St. Louis.—p. 742.
- Staphylococcus in Relation to Sinusitis, Bronchitis and Bronchiectasis. F. D. Woodward, University, Va.—p. 753.
- Treatment of Hemorrhage in Nonhemophilic Patients with an Estrogenic Substance. C. J. Heinberg, Pensacola, Fla.—p. 758.

**Conduction Deafness.**—Ciocco discusses data on the acuity of hearing by bone conduction for 516 patients with a conductive type of impairment (acuity by bone conduction being better than that by air conduction). The data have been statistically analyzed to determine whether or not the acuity of hearing by bone conduction is related in any way to age, the appearance of the tympanic membrane, tinnitus, a history of familial deafness and the degree of impairment of hearing by air conduction. Prolonged bone conduction time was found in 26.7 per cent of the cases, normal bone conduction time in 66.1 per cent and shortened bone conduction time in 7.2 per cent. Those with prolonged bone conduction time were, on the average, the youngest; those with shortened bone conduction time were the oldest. On the average, the acuity of hearing by air conduction of persons with prolonged and with normal bone conduction time was similar and was more acute than in patients with shortened bone conduction time. A normal tympanic membrane was observed with greater relative frequency in persons with prolonged bone conduction time, while a perforated tympanic membrane was found relatively oftener in those with shortened bone conduction time. The incidence of tinnitus was practically the same for all groups. The incidence of a family history of deafness was highest in those with prolonged bone

**Journal of Pathology and Bacteriology, Edinburgh**

43: 441-608 (Nov.) 1936

- Titration of Vaccinia Virus on Chorio-Allantoic Membrane of Chick Embryo and Its Application to Immunologic Studies of Neurovaccinia. E. V. Keogh.—p. 441.
- Biology, Pathogenesis and Classification of *Streptobacillus Moniliformis*. C. E. van Rooyen.—p. 455.
- Suprarenal Atrophy Following Denervation: Case with Necropsy. A. M. Snell, R. M. Wilder and R. W. Cragg.—p. 473.
- Immunity Following Cure of Experimental Trypanosoma Brucei Infection by Chemotherapeutic Agent. C. H. Browning and R. Gulbransen.—p. 479.
- Direct Fermentation of Disaccharides and Variation in Sugar Utilization by *Streptococcus Thermophilus*. H. D. Wright.—p. 487.
- Production of Reversed Anaphylaxis in Man. C. E. Kellett.—p. 503.
- Malignant Hemangio-Endothelioma of the Heart: Report of Case. T. F. Hewer and R. P. Kemp.—p. 511.
- \*Chemotherapy of Experimental Typhoid Carrier State in Immature Rabbit. M. Coplans.—p. 517.
- Bactericidal Action of Serum Against Meningococcus, Gonococcus and Micrococcus Catarrhalis. J. Gordon and L. Hoyle.—p. 537.
- Further Observations on General Bactericidal Action of Normal Serum. J. Gordon and L. Hoyle.—p. 545.
- Effect of Meat Extract and Other Substances on Pigment Production. N. E. Goldsworthy and J. L. Still.—p. 555.
- Significance of Changes in Diameter of Erythrocytes in Familial Achromic Jaundice. J. C. Hawksley.—p. 565.
- Benign Calcified Epithelioma of Skin. F. H. Côté.—p. 575.

**Chemotherapy of Experimental Typhoid Carrier State.**—Coplans inoculated 104 immature rabbits with a single intravenous injection of a prepared strain of *Bacillus typhosus*. These rabbits proved without exception to be "carriers" of the specific organism, showing infection of the hepatic system up to the thirty-seventh week following inoculation. The organism was recovered from the bone marrow and from the feces up to the twenty-seventh week, from the former in 93.9 per cent and from the latter in 84 per cent. The urinary system was found to be infected up to the sixteenth week following inoculation, the urine proving positive in 79.1 per cent. The organism was recovered from the blood in 48.3 per cent of all animals examined up to the eighth week following inoculation, the latest positive result being on the forty-sixth day. Oral administration of methenamine-sodium acetate was found preferable to methenamine. Within fifteen days of the commencement of daily treatment the organisms disappeared entirely from the infected animals. When treatment was commenced ten days prior to infection, the organisms could not be found after seven days. Sodium acetate administered orally daily for 100 days rendered four of thirteen animals free from infection. Sodium mandelate administered for a similar period, while freeing the urinary system from organisms, failed to influence the infection of the gallbladder and bile, which remained positive in eight cases. Normal animals exposed to infection by contact with typhoid carriers for sixty-two days failed to show infection. The offspring of parents both of which were carriers were not found to be infected at birth.

**Lancet, London**

2: 1253-1312 (Nov. 28) 1936

- From Consumption to Tuberculosis. S. R. Gloyne.—p. 1253.
- Complement Fixation Reaction in Influenza. W. Smith.—p. 1256.
- Inhibitory Effect of Testosterone Propionate on Experimental Prostatic Enlargement. S. Zuckerman.—p. 1259.
- Complement Titer in Acute Nephritis, with Especial Reference to Causation by Reversed Anaphylaxis. C. E. Kellett.—p. 1262.
- \*Intravenous Injections of Charcoal in Treatment of Acute Febrile Disease. E. Davis.—p. 1266.
- Palpebritis from Eyelid "Shading." H. C. Semon.—p. 1267.
- Amatosis in Pernicious Anemia. C. R. Box.—p. 1269.

**Intravenous Injections of Charcoal.**—Davis tested the effects of intravenous charcoal in healthy subjects, in patients with skin diseases and in 123 patients with fever of various origin. A 2 per cent suspension of charcoal injected intravenously into afebrile subjects often caused a rise of temperature, pulse and respiration, frequently associated with chills and rigors. To the febrile patients the charcoal was given in 2 per cent suspension in gum-saline solution, in saline solution alone or in distilled water, but the results did not vary with the vehicle, and wood charcoal did not differ in action from animal charcoal. In half the febrile cases the injections were followed by a rise in temperature, respiration and pulse within a few hours. Often the temperature reached was the highest since the beginning of the disease, and not infrequently it was the maximum for the whole illness. This rise was often followed

by an abrupt fall in temperature to normal, usually temporary; the rise and fall were over in eight hours. In the other half of the cases the temperature, respiration and pulse were not significantly altered. Subjective reactions were uncommon. For the trial of charcoal in febrile diseases, only those patients were selected who had been in the hospital at least twenty-four hours and who were not improving. The 123 patients received 24 injections of charcoal—usually from 4 to 5 cc. of a 2 per cent suspension. In most cases it was given in addition to ordinary therapy. Injections of gradually increasing doses were given at intervals of a day or longer for as long as the clinical condition and temperature, respiration and pulse did not show marked improvement. The results were compared with those obtained in similar control patients with the same disease who were in the hospital at the same time and whose treatment was the same except that they received no charcoal. No significant difference was found between these results; the death rates were approximately the same and so was the manner of recovery.

**Practitioner, London**

137: 789-932 (Dec.) 1936

- Treatment of Uremia. D. M. Lyon.—p. 789.
- Infections of Urinary Tract. R. M. Handfield-Jones.—p. 802.
- Diagnosis and Treatment of Urinary Lithiasis. J. S. Joly.—p. 817.
- Disorders and Diseases of Urinary Bladder. J. B. MacAlpine.—p. 822.
- Diseases of the Prostate. J. Everidge.—p. 844.
- Diseases of the Male External Genitalia (Other Than Venereal). K. M. Walker.—p. 864.
- \*Surgery of Urinary Tract in Childhood. T. T. Higgins.—p. 873.
- Estimation of Renal Function. H. Gainsborough.—p. 887.
- Clinical Examination of Urine. C. Dukes.—p. 900.
- Lumbar Puncture in General Practice. W. G. Wylie.—p. 906.
- General Practice: VI. Panel Practice. H. G. Dain.—p. 914.

**Surgery of Urinary Tract in Childhood.**—Higgins states that the clinical manifestations of disorders of the urinary tract in childhood are general (pain, fever, presence of a tumor) disorders of micturition (frequency, urgency, pain and dribbling) and changes in the urine (odor, cloudiness, presence of blood and pus). Roentgen examination by means of plain roentgenograms, excretion pyelography and retrograde cystography and pyelography supplies valuable information. Preliminary preparation is necessary to get rid of intestinal gas. With the instruments now available it is possible to carry out cystoscopy and even ureteral catheterization in children from the age of approximately 18 months. Pyuria becomes a surgical problem when it persists in spite of treatment for a period longer than six to eight weeks or when it is recurrent in type. Developmental anomalies may be many and various. In the main their effect is to determine obstruction at some point or points in the urinary channel with resulting dilatation and stagnation of the normal flow of urine. Such stagnation predisposes to infection and, once infection has occurred, inflammatory swelling further aggravates the obstruction. A vicious circle is formed and recovery retarded. Apart from systemic disease, e. g., hemophilia, nephritis, injury or the transient smokiness which may mark the acute onset of urinary tract infections, hematuria in childhood may be the prominent symptom in meatal ulcer, calculus and tuberculosis. On rare occasions it may result from ulceration of the bladder, nevus growths, essential hematuria, congenital cystic kidneys and hydronephrosis. In obstinate cases of ulcer with a small meatus, meatotomy may be necessary. Removal of the calculus alone is not enough, the underlying cause, hydronephrosis, must be removed if possible to prevent recurrence. Provided the child's general health indicates that the tuberculosis in the urinary tract is the dominant lesion, and provided one kidney is chiefly involved, nephro-ureterectomy gives excellent results. In favorable cases of hydronephrosis, division of an abnormal artery and/or freeing of the ureter from adhesions have given gratifying results.

**Tubercle, London**

18: 97-144 (Dec.) 1936

- Tuberculosis in Hospital Nurses. J. Heimbeck.—p. 97.
- Oat Cell Carcinoma of Lung Occurring in Asbestosis: Case. S. F. Gloyne.—p. 100.
- Intradermal Tuberculin Test in Nurses. P. W. Edwards.—p. 101.
- \*The Tuberculosis Problem Among Nurses in a Tuberculosis Sanatorium. E. S. Mariette.—p. 103.

**Tuberculosis Among Nurses.**—Mariette states that tuberculosis is spread by contact with the patient's sputum rather than by contact with the patient himself. Uninfected individuals

**Florida Medical Association Journal, Jacksonville**

23: 259-306 (Dec.) 1936

- Bloody Pleural Effusion. J. W. Merritt, Jacksonville.—p. 271.  
Progress Toward Lower Maternal Morbidity and Mortality. W. C. Roberts, Panama City.—p. 272.  
Sterility: Diagnosis and Treatment. F. Richards, Jacksonville.—p. 277.  
Use of Protamine Insulin in the Hospital Management of Diabetes Mellitus. A. W. Lewis Jr., St. Augustine, and H. Bowcock, Atlanta, Ga.—p. 282.

**Johns Hopkins Hospital Bulletin, Baltimore**

59: 393-456 (Dec.) 1936

- Plasma-Coagulating Properties of Staphylococci. A. M. Fisher, Baltimore.—p. 393.  
Fibrinolytic Properties of Staphylococci. A. M. Fisher, Baltimore.—p. 415.  
\*Peculiar Granules in Cells of Liver and Adrenal in Infections. F. L. Santee, Baltimore.—p. 427.  
Clinical and Pathologic Findings in Congenital Malformations of Heart Due to Defective Development of Right Ventricle Associated with Tricuspid Atresia or Hypoplasia. Helen B. Taussig, Baltimore.—p. 435.  
Nail Fold Capillaries in Negroes: Note. J. Bordley 3d, M. H. Grow and W. B. Sherman, Baltimore.—p. 447.

**Granules in Cells of Liver in Infections.**—Santee calls attention to the fact that in pathologic sections of the human liver and adrenal cortex fixed in formaldehyde or Zenker's fluid and stained with hematoxylin and eosin there appear in the cytoplasm oval, rod-shaped or club-shaped granules dark with hematoxylin. Their average size is about 1 by 3 microns, but they vary greatly. Their outlines are irregular. All the cells may be thickly dotted with them or there may be only three or four granules in an occasional cell. In the cells of the adrenal cortex they may be fewer than in the liver cells. They are stained red with pyronin. They have no special station in the lobule of the liver or in the adrenal cortex. They are often indiscriminately arranged within the cells. Since the granules occur very frequently and are quite distinct with the high, dry objective, they must have been seen by many observers. And yet little or no mention of them has been made in the literature.

**Journal of Biological Chemistry, Baltimore**

116: 457-816 (Dec.) 1936. Partial Index

- Studies on Enzyme Action: L. Estimation of Pepsin and Trypsin in Yeast. M. Hecht and Helen Cavin, New York.—p. 477.  
Relationship of Vitamin C to Glucose Tolerance in the Guinea-Pig. A. Sigal and C. G. King, Pittsburgh.—p. 489.  
Vitamin C Studies in the Rat and Guinea-Pig. J. L. Svirbely, Pittsburgh.—p. 543.  
Studies on Biologic Oxidations: VII. Oxidation of Ascorbic Acid in Biologic Fluids. E. S. G. Barron, A. G. Barron and F. Klemperer, Chicago.—p. 563.  
Studies on Ketosis: VIII. Quantitative Studies on Oxidation of Ethyl Esters of Fatty Acids. H. J. Deuel Jr., Lois F. Hallman, J. S. Butts and Sheila Murray, Los Angeles.—p. 621.  
Simplified Method for Preparation of Crystalline Progesterone from Pig Ovaries. W. M. Allen and C. Goetsch, Rochester, N. Y.—p. 653.  
Relation of Glycogen, Fat and Protein to Water Storage in Liver. A. Kaplan and I. L. Chaikoff, Berkeley, Calif.—p. 663.  
\*Comparison of Antitryptic Activity of Egg White with Its Capacity to Produce a Characteristic Nutritional Disorder. Helen T. Parsons, with cooperation of Eunice Kelly, Madison, Wis.—p. 685.  
Hydroxylated Acids of Fats: Improved Method of Determination. P. G. Hafner, R. H. Swinney and E. S. West, Portland, Ore.—p. 691.  
Studies on Glutathione Content of Blood in Nutritional Anemia. M. O. Schultze and C. A. Elvehjem, Madison, Wis.—p. 711.  
Vitamin C in Vegetables: IV. Ascorbic Acid Oxidase. Z. I. Kertesz, R. B. Dearborn and G. L. Mack, Geneva, N. Y.—p. 717.  
Inulin and Creatinine Clearances in Dogs, with Notes on Some Late Effects of Uranium Poisoning. A. N. Richards, B. B. Westfall and P. A. Bott, Philadelphia.—p. 749.  
Provitamin D Potency of Some Sterol Derivatives. Elizabeth M. Koch and F. C. Koch, Chicago.—p. 757.  
Water and Electrolyte Distribution Among Plasma, Red Blood Cells and Muscle After Adrenalectomy. A. H. Hegnauer and E. J. Robinson, Columbus, Ohio.—p. 769.  
Water and Electrolyte Distribution Between Plasma and Red Blood Cells Following Intraperitoneal Injections of Isotonic Glucose. E. J. Robinson and A. H. Hegnauer, Columbus, Ohio.—p. 779.

**Antitryptic Activity of Egg White.**—Parsons prepared crude concentrates of an antitrypsin from a commercially fermented dried egg white which has been shown to be highly active in producing pellagra-like lesions in rats and other animals. These concentrates showed no corresponding increase in the capacity to produce the nutritional disorder but permitted the healing of the characteristic lesions when the diets incorporating them held a much higher concentration of antitrypsin than did the physiologically injurious diets carrying

the egg white or extracted residues. The pellagra-like syndrome due to egg white is not attributable to the antitryptic content of this substance.

**Journal of Nutrition, Philadelphia**

12: 535-682 (Dec. 10) 1936

- Differentiation Between Vitamin G and an Insoluble Factor Preventing Pellagra-like Syndrome in Chicks. A. T. Ringrose, Harrison, N. J., and L. C. Norris, Ithaca, N. Y.—p. 535.  
Differentiation Between Vitamin G and Soluble Factor Preventing Pellagra-like Syndrome in Chicks. A. T. Ringrose, Harrison, N. J., and L. C. Norris, Ithaca, N. Y.—p. 553.  
Distribution and Properties of Anti-Gizzard-Erosion Factor Required by Chicks. H. R. Bird, O. L. Kline, C. A. Elvehjem, E. B. Hart and J. G. Halpin, Madison, Wis.—p. 571.  
Use of Ten-Day Period for Assay of Vitamin B by Rat Growth Technic. F. W. Schlutz, Chicago, and Elizabeth M. Knott, Iowa City.—p. 583.  
\*Quantitative Study of Utilization and Retention of Vitamin B by Young Children. Elizabeth M. Knott, Iowa City.—p. 597.  
Specific Dynamic Action of Butter Fat and of Superimposed Sugar. J. R. Murlin, A. C. Burton and W. M. Barrows Jr., Rochester, N. Y.—p. 613.  
Rate of Ketogenesis in Human Subjects on High Fat Diets, as Influenced by Different Sugars. J. R. Murlin, E. S. Nasset, W. R. Murlin and R. S. Manly, Rochester, N. Y.—p. 645.  
Availability of d(—)-Lysine for Growth. C. P. Berg, Iowa City.—p. 671.

**Retention of Vitamin B by Children.**—Knott has studied the utilization of vitamin B through biologic assay with rats of the amounts of vitamin B in the food and excreta of children receiving weighed diets. A total of twenty-three balance studies have been completed with eight children from 4 to 7 years of age. The children, who were selected from private homes and from a county juvenile home, were apparently in normal health. While being studied they were under constant supervision by nurses trained in metabolism technic. The utilization of vitamin B as affected by various levels of ingestion has been studied by comparing the retentions of the children during twenty-three metabolism periods. The dried food aliquots, dried feces and concentrated urine from the children were assayed for their vitamin B content according to standardized technic. The unit of vitamin B selected as being most suitable to the short period type of assay employed was the quantity of vitamin B causing 1 Gm. of gain. This unit is approximately equal to 2 Chase-Sherman units. Increasingly higher retentions were obtained with higher intakes for each level of ingestion studied. On the basis of the ingestions giving the highest retentions, the optimal requirement of vitamin B by young children is estimated to be 20 units per kilogram of body weight, or about 40 Chase-Sherman units per kilogram daily.

**Journal of Pediatrics, St. Louis**

9: 717-868 (Dec.) 1936

- Study of 244 Prematurely Born Infants. Ethel C. Dunham, Washington, D. C., and P. F. McAlenney Jr., New Haven, Conn.—p. 717.  
Lipoid Factor in Glycogen Storage Disease. C. Krakower, Boston.—p. 728.  
Angiomas in Premature Infants. A. C. Rambar, Chicago.—p. 744.  
\*Sodium Chloride in Treatment of Nocturnal Enuresis in Children. W. Rosenson, New York, and Rebecca Liswood, Brooklyn.—p. 751.  
Continuous Intravenous Method of Serum Administration: Case Reports. N. Silverthorne, Toronto.—p. 755.  
Puberty Mastitis. P. Rosenblum, Chicago.—p. 758.  
\*Significance of Diminution of Spinal Fluid Sugar in Tuberculous Meningitis. M. Weichsel and Gertrud Herzger, New York.—p. 763.  
Twisted Ovarian Cysts in Children: Report of Case in a Ten Year Old Child. M. S. Mazel and L. J. Halpern, Chicago.—p. 771.  
Spontaneous Rupture of Liver in a Child with Complete Recovery. C. E. Bradley and D. L. Garrett, Tulsa, Okla.—p. 776.  
Further Roentgenographic Studies of Sella Turcica in Abnormal Children. M. B. Gordon and A. L. L. Bell, Brooklyn.—p. 781.  
Meningitis Due to Morgan Bacillus: Report of Case. R. H. Mitchell, Washington, D. C.—p. 791.  
Citrate Transfusion in Infants and Children. S. Hirsch, New York.—p. 795.

**Sodium Chloride in Treatment of Nocturnal Enuresis.**—Rosenson and Liswood treated twenty-eight cases of nocturnal enuresis by a dietetic regimen with sodium chloride; successful results were obtained in all but one, in which the child refused to cooperate. Before this regimen is instituted in any given case, any underlying physical or psychologic condition that might account for the bed wetting should be treated. If such attempts fail, the sodium chloride treatment offers an effective method. The child is given his regular diet during the day. Until noon he is allowed to take as much fluid as he desires; after that, fluids are somewhat limited until 4 p. m. At that time he is offered his last drink of water or milk until



operation: the disorder for which the operation is being performed, the state of the patient at the moment of operation and the surgical act itself. The best method of studying the humoral and tissue modifications following operations seems to be experimentation on absolutely well animals by close simulation of the human surgical technic. In this manner the authors studied the effect of starvation, anesthesia and the operation itself on some of the tissues. The starvation affects dogs only slightly and is characterized by some reduction in the quantity of water in the blood with a minimal reduction in the mineral elements. Diuresis is rapidly reduced and the urinary minerals excreted fall to a small quantity. The effects of anesthesia on the blood and urine are varied, depending on the type and duration of narcosis employed. In general there is a definite restriction in the amounts of urinary chlorides. The effects of the surgical act itself are more marked. The blood volume is reduced about 10 per cent in cases in which operative hemorrhage plays no part. The globulin-plasma ratio is increased because of loss of plasma. Globulin is generally also increased. Nonprotein nitrogen, urea and residual nitrogen are increased. The alkali reserve is slightly lowered and there is a definite drop in the sodium, potassium and calcium of the blood. In the urine there is a drop in total quantity and in mineral elements, especially chlorides. From the practical standpoint a study of the tissue syndrome of the postoperative period does not allow the formulation of adequate therapeutic measures for the changes observed. It is, however, necessary to restore the water balance of all those operated on in order to reestablish a nearly normal state. It seems wise also to give sodium, potassium, calcium and chlorides in satisfactory proportions by the subcutaneous method if necessary.

44: 1913-1936 (Nov. 25) 1936

Progress in Study of Anaerobic Organisms Since the War. M. Weinberg.—p. 1913.

\*Dangers of Radioactive Substances Introduced into Body. S. Laborde.—p. 1915.

**Dangers of Radioactive Substances Introduced into Body.**—It is well known that radioactive substances introduced into the general circulation exert interesting therapeutic actions, but the accompanying dangers are not equally well known. The most common substances used, according to Laborde, are radon, mesothorium, radiothorium, thorium X, thoron and rarely the salts of radium. The knowledge of the fixation of radioactive elements and the electivity of their action on certain substances of the body serve to direct attention to the dangers which their presence may cause. Thus, their fixation at the level of the reticulo-endothelial tissues and the bony medulla readily explains their harmful action on all the blood-forming organs and the osseous tissue. The principal harmful effects, therefore, which these substances are likely to produce are osseous necroses, certain tumors of the bone, diseases of the blood-forming system and cutaneous accidents. Among the better known of the accidents of bone necrosis are those resulting from painting watches and clocks with radioactive substances. Similar disorders of the blood system have been reported from the professional use of radioactive substances and from therapeutic uses as well. From his review of this subject the author concludes that the therapeutic doses currently employed are frequently too close to toxic doses. There is no evidence that it is wise in therapeutics with such elements to exceed the dose of radioactive substances obtained from natural radioactive sources existing in some of the spas.

44: 1937-1952 (Nov. 28) 1936

Cardiac Clinic: Inaugural Lecture. C. Laubry.—p. 1937.

\*Effects of Bleedings on Blood of Universal Donors. Merklen, L. Israel and A. Apffel.—p. 1941.

Urticarias Cured by Appendectomy. P. Chevallier and M. Colin.—p. 1942.

**Effects of Bleedings on Blood of Universal Donors.**—Much more attention has been paid to the recipient of a blood transfusion than to the donor. From the standpoint of the frequent donors, however, the results of large transfusions are important to both parties. Merklen and his collaborators examined twenty donors who had given quantities of blood varying between 2 and 15 liters. There were fourteen men and six women, ranging in age from 24 to 59 years. The number of red blood corpuscles was only slightly changed, there being a count of below 4,000,000. The hemoglobin was

found to be more variable, being between 60 and 70 per cent in four instances but lower in none. The white cells were normal except in two persons, in whom it was high in one and low in the other. In one patient there was one myelocyte. Nevertheless, ten of these donors showed more or less neutropenia, which was quite marked in three instances. This tendency to agranulocytosis constituted the single important factor uncovered by the examination. While of questionable significance, the authors believe that these facts point to the probability that the regeneration after transfusion is fastest in the erythrocytes, slightly less rapid in the hemoglobin and still slower in the white blood cells.

### Schweizerische medizinische Wochenschrift, Basel

67: 1-24 (Jan. 2) 1937. Partial Index

Histologic Diagnosis of Measles. C. Wegelin.—p. 1.

\*Pathogenesis of Bronchiectasis. W. Löffler.—p. 2.

Extrapleural Filling in Treatment of Pulmonary Abscess. R. Nissen.—p. 6.

Experiences with Klein's Cancer Reaction. A. Fehr.—p. 8.

Apparatus for Moistening Respiratory Oxygen. F. Rumpf and H. Kühni.—p. 16.

**Pathogenesis of Bronchiectasis.**—Löffler points out that opinions still differ as to whether bronchiectasis is a congenital or an acquired process. He emphasizes that in tuberculosis roentgenoscopy and in bronchiectasis auscultation is the more reliable diagnostic procedure. He discusses the condition of the sputum in the two disorders, and then bronchography. He presents the arguments in favor of the congenitality of bronchiectasis and groups them under four headings: localization, pathologic anatomy, concurrence of bronchiectasis with other deformities and the familial occurrence of bronchiectasis. The sites of predilection of bronchiectasis are the left lower lobe, the right upper lobe and the paracardial section in the right lower lobe. He emphasizes that not the lobes as such but rather the pertaining parts of the bronchial tree are responsible for the localization of bronchiectasis. The common characteristics of the three bronchial branches are their asymmetry and the fact that deformities are especially frequent in these branches. As to the pathologic anatomy of bronchiectasis, it is not permissible to consider as equivalent true dilatative changes of the bronchial wall, which are microscopically recognizable by the atrophy of the elastic elements, and suppurating, ulcerative changes in the parenchyma: bronchiectasis signifies dilatation; the suppurating destruction of the pulmonary parenchyma with or without involvement of the bronchial wall is an abscess and not a bronchiectasis. In discussing the concurrence of bronchiectasis with other deformities he cites reports from the literature and states that in the bronchiectasis material of his clinic (142 cases) he observed that bronchiectasis concurred with such conditions as status thymicolymphaticus, multiple cartilaginous exostoses, color blindness, heterochromia iridis, hereditary deaf-mutism, congenital cardiac defect, cystic kidneys and idiocy. The concurrence of bronchiectasis with chronic suppurations of the accessory nasal sinuses and particularly with situs viscerum inversus is another noteworthy factor. Regarding the familial occurrence of bronchiectasis the author says that he observed it in four pairs of cases, three times in siblings and once in cousins. He also cites cases of familial occurrence from the literature. He does not doubt the occurrence of acquired bronchiectasis, but he only wishes to emphasize that it is frequently congenital, even if the anamnesis seems to indicate infectious diseases or colds as the cause. In the individual instance it may be difficult to decide whether a case is congenital or acquired, but a survey of a large material justifies the assumption of congenitality.

### Policlinico, Rome

43: 607-658 (Dec. 15) 1936. Surgical Section

Pneumococcal Peritonitis: Case. L. Josca.—p. 607.

Surgery in Diabetes: Influence of Induced Parotid Swelling on Experimental Pancreatic Diabetes. C. Mastrosimone.—p. 622.

Acute Appendicitis in Persons of Advanced Age and in Old Persons: Clinical, Statistic and Anatomopathologic Study. C. Stefanelli.—p. 644.

\*Leukocyte Formula in Gastroduodenal Ulcer Before and After Gastric Resection. L. Ugelli.—p. 652.

**Leukocyte Formula in Gastroduodenal Ulcer, Before and After Gastric Resection.**—Ugelli states that association of lymphocytosis and eosinophilia, which is a common occur-

seven showed metastasis (56.1 per cent). Ten more cases had extended through the wall of the bladder without producing metastasis. The demonstration of early metastasis is difficult, but before any radical operation is undertaken roentgenography of at least some of the long bones, abdomen and chest should be proved negative. In all cases in which extensive resection or cystectomy is proposed the peritoneal cavity should be opened, by which procedure a satisfactory examination of the liver, of the glands along the great vessels and of the regional lymph glands can be carried out to exclude metastatic deposits. If metastatic deposits are demonstrable, radical methods are contraindicated and complete cystectomy should be reserved for those cases of infiltrating carcinoma in which other methods have failed, and only when the patient is in sufficiently good condition to withstand these rather formidable procedures.

### Medical Annals of District of Columbia, Washington

5: 353-378 (Dec.) 1936

- Diseases of Major Duodenal Papilla in Man. V. J. Dardinski, Washington.—p. 353.  
Postoperative Pneumonia: Cause, Prevention and Treatment. H. F. Dowling, Washington.—p. 359.  
Analysis of Health Survey of 1,193 School Children in the District of Columbia. H. A. Monat, R. A. Bier and E. Lewis, Washington.—p. 362.  
Successful Treatment of Massive Air Embolism: Report of Case. O. H. Fulcher, Welch, W. Va.—p. 365.  
Medicine in Brazil. W. Caldas Pires, Rio de Janeiro, Brazil, South America.—p. 367.

### Medical Bull. of Veterans' Adm., Washington, D. C.

13: 201-296 (Jan.) 1937

- The Army Medical Library: Its Resources and How They May Be Utilized. E. E. Hume.—p. 201.  
Treatment of Occlusive Peripheral Vascular Disease by Suction Pressure. S. K. Livingston.—p. 205.  
Elliott Heat Treatment in Chronic Inflammatory Diseases of Body Cavities and Orifices. L. E. Nolan and Helen K. Dexter.—p. 209.  
Use of Benzedrine Sulfate in Catatonic Stupors: Case Reports. C. L. Carlisle and C. H. Hecker.—p. 224.  
Follow-Up Study of Thirty-Five Cases of Paralysis Caused by Adulterated Jamaica Ginger Extract. M. L. Weber.—p. 228.  
Fungal Infections of Lung. E. J. Kehoe.—p. 243.  
Treatment of Forty-Three Cases of Lobar Pneumonia. H. Mella.—p. 247.  
Typing of Pneumococci. H. Reiss.—p. 251.  
Blood Count in Pneumonia. Mabel M. Blomberg.—p. 253.  
Allergic Etiology in Obscure Gastro-Intestinal Conditions. S. G. Mollica.—p. 257.  
Hazard of Travel in Advanced or Terminal Tuberculosis. C. A. Anderson.—p. 261.  
Method for Purifying Potassium Iodide. J. Meininger.—p. 263.

**Jamaica Ginger Extract Paralysis.**—Weber bases his study on thirty-five cases of ex-service men from 28 to 54 years of age at the time of the onset of the paralysis, early in 1930, as the result of drinking adulterated Jamaica ginger. Twenty-two of the total number were personally examined by the author during June and July 1936; the remaining thirteen were examined by other physicians during the last two years. In his opinion the orthopedic and neurologic residuals, as seen from the material studied, are due solely to the original paralysis, even though four of the patients are known to have systemic syphilis and several others have continued to consume alcoholic beverages. The absence of cranial nerve involvement and the practical absence of mental manifestations preclude the diagnosis of either neurosyphilis or an alcoholic polyneuritis. The early (1930) prognosticated restoration of motor power in the paralyzed limbs has not materialized in a considerable number of cases. The residuals found were contractures, equinovarus, bilateral foot drop, wrist drop, steppage gait, atrophy of legs, atrophy of hands, exaggerated knee jerks and ankle, knee and patellar clonus. Four patients were unable to stand or walk. The greater disability of the legs, compared with the hands, is accounted for by the fact that the neurons of the legs are longer, requiring more time for their regeneration. The pathology involved appears to be of a combined lower and upper motor neuron degeneration: a neuronitis of the peripheral motor nerves and anterior horn cells, in addition to the lateral motor columns of the spinal cord itself. The prognosis for improvement, barring orthopedic and neurosurgical intervention, appears to be very grave. That the age

of the patient had any influence on the outcome of the disease was not observed. As nearly all the peripheral nerves (with the exception of some of the cranials) carry both motor and sensory fibers, it is curious that so little of sensation was impaired in even the most severe cases of the series. It is also curious that the toxin should strike the lower and upper motor neurons at the same time, phylogenically old and new parts of the motor system.

### Michigan State Medical Society Journal, Lansing

35: 769-836 (Dec.) 1936

- Placental Extract (Immune Globulin Human) with Especial Reference to Its Use in Prevention and Modification of Measles. R. C. Eley, Boston.—p. 769.  
Subtubal Ethmoidectomy in Treatment of Uveitis. J. M. Robb, Detroit.—p. 772.  
Currents and Countercurrents in Obstetrics and Gynecology. H. C. Mack, Detroit.—p. 775.  
Simple Plan for Treatment of Diabetes in General Practice. F. H. Lashmet, Petoskey.—p. 779.  
Treatment of Infantile Paralysis. A. D. La Ferté, Detroit.—p. 782.  
Why a Medical Library? A. Malloch, New York.—p. 785.  
Medical Libraries. W. T. Dempster, Ann Arbor.—p. 791.

### New England Journal of Medicine, Boston

215: 1099-1146 (Dec. 10) 1936

- Treatment of Elephantiasis of Legs: Preliminary Report. J. Homans, Boston.—p. 1099.  
Repair of Contractures Resulting from Burns. V. H. Kazanjian, Boston.—p. 1104.  
Retropharyngeal Abscess. L. Richards, Boston.—p. 1120.

215: 1147-1198 (Dec. 17) 1936

- Harvard and Nutrition. G. R. Minot, Boston.—p. 1147.  
Extracellular Fluid and Its Maintenance. J. L. Gamble, Boston.—p. 1150.  
Protein Deficiency. C. M. Jones, Boston.—p. 1152.  
Mechanism of Hemoglobin Deficiency. C. W. Heath, Boston.—p. 1155.  
Relationship of Defective Nutrition to Changes in Gastro-Intestinal Tract. W. B. Castle, Boston.—p. 1158.  
Vitamin C and Formation of Intercellular Material. S. B. Wolbach, Boston.—p. 1158.  
Progress in Early Recognition of Vitamin Deficiency States. K. D. Blackfan, Boston.—p. 1159.  
Relation of Avitaminosis to Oral Pathology. P. R. Howe, Belmont, Mass.—p. 1163.  
Nerve Disorders Arising from Defective Nutrition. M. B. Strauss, Boston.—p. 1164.  
Protamine Insulin and Its Advantages. E. P. Joslin, Boston.—p. 1166.  
Urinary Fistulas Opening into Vagina. F. A. Pemberton, Boston; G. van S. Smith, Brookline, Mass., and S. C. Graves, Boston.—p. 1170.  
Molded Plaster Right Angle Elbow Splints. P. R. Withington, Milton, Mass.—p. 1174.

215: 1199-1260 (Dec. 24) 1936

- Serologic and Allergic Reactions with Simple Chemical Compounds. K. Landsteiner, New York.—p. 1199.  
Trend of Prevention, Therapy and Epidemiology of Dysentery Since Discovery of Its Causative Organism. K. Shiga, Tokyo, Japan.—p. 1205.  
Clinical and Immunologic Observations in Cases of Pneumococcus Type V Pneumonia Treated with Specific Antibody. M. Finland, Boston, and R. C. Tilghman, Baltimore.—p. 1211.  
Aneurysm of Intestinal Branch of Superior Mesenteric Artery. A. R. Kimpton, Boston, and S. C. Dalrymple, Newton Lower Falls, Mass.—p. 1221.  
Lymphatic Metastasis in Case of Rectal Adenocarcinoma Simulating Clinically Benign Tumor. W. M. Shedden, Boston.—p. 1222.  
More Rational Methods in Prevention and Control of Eclampsia. J. O. Arnold, Philadelphia.—p. 1226.

**Protein Deficiency.**—Jones concludes that acute or chronic protein deficiency has as its causes (1) an insufficient intake of protein, (2) failure of absorption and (3) an increased loss of protein from the body or, possibly, increased destruction or failure of regeneration of protein. Treatment consists in providing an adequate protein intake whenever possible, in the specific treatment of any other deficiencies that may at the same time interfere with the proper absorption of protein, in appropriate surgery with proper precautions in instances in which inadequate intake or insufficient absorption is due to a lesion of the gastro-intestinal tract, or in the more chronic cases in the use of transfusions and diuretics in order at least temporarily to alter plasma protein values. In all instances it is expedient to limit the intake of fluid and sodium chloride.

disease, roentgenokymography reveals atony or disturbances in the peristalsis. Roentgenokymography discloses atony of the ureters and of the renal pelvis in some cases in which simple pyelography may simulate normal conditions. Roentgenokymography is valuable also in the control of therapeutic methods in that it can be used for determining the degree of functional improvement that is effected by a therapeutic measure. The progressive recovery of the renal function after an operation for calculus can likewise be observed. Moreover, the roentgenokymogram of the urinary tract discloses whether the disorder is due to defects of the spinal cord (tumor or myelitis) or whether the bladder or a higher part (ureter or renal pelvis) is paralyzed.

### Jahrbuch für Kinderheilkunde, Berlin

148: 113-176 (Dec.) 1936

- Acute Infectious Diseases in Young Nurslings. H. Zischinsky.—p. 113.  
Unification of Statistics on Breast Feeding. G. Fedders.—p. 149.  
\*Permanent Impairment of Heart in Children After Diphtheria. A. Beer.—p. 152.

**Impairment of Heart in Children After Diphtheria.**—In order to determine whether permanent cardiac impairment develops after diphtheria and what significance it has, Beer made a follow-up examination of children who had had diphtheria with cardiac complications during 1928-1935. Among forty he discovered seven who had noticeable cardiac disorders, in four of whom they were chiefly of a clinical and anamnestic nature with only slight electrocardiographic changes, while in the other three there existed only electrocardiographic changes. The author gained the impression that the cardiac impairments which appear in the course of diphtheria disappear largely in the course of the following years. He points out that Hecht expressed the optimistic opinion that the cardiac defects caused by diphtheria disappear generally in the course of months. In view of all this, the author concludes that the rôle which some authors have ascribed to diphtheria in the heart diseases of older persons is only a supposition and requires further investigation.

### Klinische Wochenschrift, Berlin

15: 1905-1928 (Dec. 26) 1936. Partial Index

- Predominance of Female Hormone in Its Action on Hypophysis of Male and Female Castrates Compared to Male Hormone. W. Schoeller, M. Dohrn and W. Hohlweg.—p. 1907.  
Microscopic Behavior of Viscera, Particularly the Heart in Exclusion of Vagus Nerve. J. Weiser.—p. 1908.  
\*Simple Demonstration of Lactic Acid in Gastric Contents. H. E. Never and E. Vincke.—p. 1910.  
Enzymes of Pleural Exudates. C. Cattaneo and G. Scoz.—p. 1912.  
Agranulocytosis Caused by Medicaments. E. von Baeyer.—p. 1914.  
\*New Therapeutic Method of Essential Hypertension and of Related Conditions. H. Rutenbeck.—p. 1920.

**Lactic Acid in Gastric Contents.**—After demonstrating that Uffelmann's reaction is not a specific test for lactic acid, Never and Vincke point out that Denigès's color reaction is specific; they adapted it for the examination of the gastric contents. After several trials they found the following procedure the most suitable: First they determine the reaction of the gastric contents. If it is acid, it is used as such for the test; if it is not, it is acidified with a few drops of tenth normal hydrochloric acid. From 5 to 10 cc. of the gastric contents is boiled and then filtrated. The filtrate is rendered slightly alkaline by the addition of a 10 per cent solution of sodium carbonate. Then five drops of tenth normal solution of potassium permanganate is added for each cubic centimeter of filtrate. This mixture is brought once more to the boiling point until the forming manganese dioxide has completely precipitated. After filtration, 2 cc. of concentrated sulfuric acid is added to 0.2 cc. of filtrate. This is heated for two minutes in the boiling water bath and, after cooling down, from two to three drops of a 5 per cent alcoholic solution of guaiacol is added. The presence of lactic acid is indicated by a rose to carmine red coloration. In employing this test on patients with various disorders, the authors found that the lactic acid reaction was positive in patients with gastric carcinoma.

**New Therapy of Essential Hypertension.**—Rutenbeck describes craniocerebral electrophoresis as the new treatment for essential hypertension. He shows that craniocerebral elec-

trophoresis produces a reflex hyperemia of the brain. The substance he uses is a choline derivative and the maximum current strength is 1.5 milliamperes. With such low intensities, burns are avoided. The treatments, lasting about one hour each, are repeated every day or every second day. The author employed the method with good results in those cases of essential hypertension in which treatment was required on account of headaches, vertigo and so on, for he does not consider treatment necessary in all cases of hypertension.

### Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

103: 305-362 (Nov.) 1936. Partial Index

- Coccygeal Teratoma from Practical and Scientific Point of View. M. Brenner.—p. 305.  
Spontaneous Rupture of Symphysis During Pregnancy. H. Hirsch.—p. 314.  
\*Essential Pregnancy Hypertension as Monosymptomatic Manifestation of Edemonephrotic and Eclamptic Syndrome. G. Gaetgens.—p. 321.  
"Prognostic Index" (Effect Index) in Treatment of Uterine Cancer. O. E. Nudolskaja.—p. 331.

**Essential Pregnancy Hypertension.**—Gaetgens points out that in the frequent concurrence of pregnancy nephropathy and increased blood pressure, the latter was generally regarded as merely of symptomatic significance. However, since the various forms of the edemonephrotic and eclamptic syndrome were separated and the monosymptomatic pregnancy toxemias were recognized, essential pregnancy hypertension was accepted as a manifestation of the toxic processes of pregnancy. The author describes a case history which reveals that in this case of pregnancy toxicosis there existed an elective disturbance of the neurovegetative apparatus. The family anamnesis of this patient revealed a hereditary instability of the neurovegetative system: it seems that in this case the hypertension was caused by a dysfunction of the neurovegetative and perhaps also of endocrine processes, which in turn was traceable partly to hereditary factors and partly to the pregnancy. It cannot be doubted that during pregnancy there occurs a form of hypertension that resembles essential hypertension and is accompanied neither by renal disturbances nor by angiospastic retinitis. It is possible, however, that the essential pregnancy hypertension gradually changes into the renal form with angiospastic retinitis and genuine contracted kidney. The author suggests that this interpretation might help to explain also the development of renal disease after eclampsia.

### Monatsschrift für Kinderheilkunde, Berlin

67: 229-378 (Nov. 28) 1936. Partial Index

- Contribution to Problem of Sympathetic Regulation of Red Blood Picture. H. Kinkel and Gertrud Diercks.—p. 229.  
\*Modification of Anaphylactic Shock of Guinea-Pigs by Vitamin C. H. Lemke.—p. 244.  
\*Meningeal Reaction in Erythema Nodosum. D. von Moritz.—p. 255.  
Obesity During Childhood and Its Prognosis with Especial Consideration of Question of Adiposogenital Dys trophy. Margarete Bornhardt.—p. 270.  
Creative Metabolism in Pubertas Praecox. Irmgard Scharff.—p. 273.  
Acute Cutaneous Inflammations of the New-Born. E. Flusser.—p. 279.

**Modification of Anaphylactic Shock by Vitamin C.**—Clinical observations demonstrated to Lemke a greatly reduced incidence of serum disease in children who were constantly treated with vitamin C. In order to clarify the connections he resorted to animal experiments and found that the daily administration of cevitic acid to guinea-pigs sensitized with horse or sheep serum resulted in the survival of animals following the reinjection of a dose several times as large as the otherwise fatal one. This effect increased proportionately to the quantity of the administered vitamin C. Sensitization as well as shock could be inhibited by a single parenteral injection of cevitic acid thirty minutes before the sensitization or the reinjection, respectively. Tests that were made to exclude a nonspecific acid or reductive action disclosed that the observed effect is specific for cevitic acid.

**Meningeal Reaction in Erythema Nodosum.**—According to von Moritz, the etiology of erythema nodosum is not entirely cleared up, for, whereas some assume a special as yet unknown agent, others think that it is of tuberculous origin and represents a form of subcutaneous tuberculid and still others consider it an allergic or a parallergic skin reaction usually on the basis of a tuberculous allergy. The author thinks that, regard-

splitting whole serum proteins that are toxic and cannot be used as food to nontoxic split products that can be used. When the serum enzymes are in normal concentration, whole proteins cannot reach the cells in an unsplit state. As whole proteins are regular constituents of normal blood, it is the serum enzymes that prevent all of us from being food allergic all the time. In short, food allergy results from too much food, not too much for nutritional requirements but more food than can be hydrolyzed by the available pancreatic enzymes. Food allergy then is not a disease entity or a specific sensitization but a variation of a normal physiologic process. Pancreatic hypofunction may be secondary to a primary disease, syphilis or gallbladder disease for example, but more often no primary disease can be demonstrated. The tensions, stresses and strains of modern life with resultant nervous fatigue produce in the low threshold type of individual, first, overstimulation of the vagus (vagotonia) with oversecretion of the pancreas and, later, fatigue with hypofunction. Extreme fatigue often results in complete pancreatic achylia. Oversecretion of the pancreas produces mild hypoglycemia, while undersecretion permits serum proteins to reach the individual cells in an unsplit state not usable as food but producing the toxic effects known as allergy. Physiologic rest together with underfeeding to meet the lessened pancreatic secretion will quickly remedy many cases. If the reduced intake of food is sufficient for nutritional requirements, no other treatment is necessary. Sedatives help during critical periods. However, since the cause of the symptoms is not only the nervous system but the resulting pancreatic hypofunction, the most effective treatment is the administration of an extract of whole pancreas—preformed enzymes—to help out the inadequate gland. Fifteen grains (1 Gm.) of an active extract after each meal assures a sufficient concentration of serum enzymes to split all the food taken.

### Tennessee State Medical Assn. Journal, Nashville

29: 457-496 (Dec.) 1936

- Pyloric Stenosis in Infants, with a Few Modifications in Operative Technique: Report Based on Series of Sixty Cases. J. W. Bodley, Memphis.—p. 457.  
Important Points in Prostatic Surgery of Interest to the General Practitioner. G. M. Roberts, Chattanooga.—p. 463.  
Kidney Lesions with Abdominal Symptoms. I. G. Duncan, Memphis.—p. 469.

### Western J. Surg., Obst. & Gynecology, Portland, Ore.

44: 675-728 (Dec.) 1936

- Interrelationships Between Thyroid and Anterior Pituitary. J. B. Collip, Montreal.—p. 675.  
\*New Method of Gradual Dilation of Benign Strictures of the Esophagus. C. L. Hoag, San Francisco.—p. 679.  
Postoperative Pulmonary Atelectasis. W. J. Carson, Milwaukee.—p. 683.  
Safety Factors in Surgery of Colon. F. M. Findlay, Santa Barbara, Calif.—p. 688.  
Partial Excision of Pyloric Sphincter Muscle. G. W. Nagel, San Francisco.—p. 694.  
Fibroids and Ovarian Cysts Complicating Pregnancy. L. J. Tiber and S. Turkel, Los Angeles.—p. 696.

**Dilation of Benign Strictures of Esophagus.**—Hoag suggests a method for use in the dilation of esophageal strictures. It must be used with care and judgment, since injury or perforation of the inflamed and friable esophagus is always a real danger. The smallest Levine duodenal tube, 12 F., is used. Through it is threaded a piano wire (or a tonsil wire) the tip of which has been looped and inserted into a hole burned into the blunt end of the tube. The wire and the tube together are then grasped with a hemostat to prevent slipping. The tube with its stylet is introduced through the mouth into the esophagus. As the tube is passed down the esophagus the stricture is located. If it does not pass the stricture by gentle pressure, 4 or 5 cc. of liquid petrolatum is injected into the tube with a syringe so that it will emerge at the point of the lesion. Again the tube is turned slowly, pressure with the tip being exerted in various directions. Frequently the tube will slide through the stricture into the stomach, allowing the introduction of food and maintenance of a passageway for future treatment. The use of a series of Levine tubes of increasing size acts the same way in the esophagus as a rubber tube in any other sinus and produces a gradual and more permanent dilatation of these strictures as well as providing a means of feeding the patient during the process. It has proved to be a successful method of treating these strictures.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Experimental Pathology, London

17: 431-486 (Dec.) 1936

- Studies on Neurotropic Rift Valley Fever Virus: Susceptibility of Sheep and Monkeys. G. M. Findlay, R. D. Mackenzie and Ruby O. Stern.—p. 431.  
Id.: "Spontaneous" Encephalomyelitis in Mice. G. M. Findlay and R. D. Mackenzie.—p. 441.  
Typhus Group of Diseases in Malaya: Part VII. Relation of Rural Typhus to Tsutsugamushi Disease, with Especial Reference to Cross-Immunity Tests. R. Lewthwaite and S. R. Savor.—p. 448.  
Id.: Part VIII. Relation of Tsutsugamushi Disease (Including Rural Typhus) to Urban Typhus; Part IX. Relation of Tsutsugamushi Disease (Including Rural Typhus) and Urban Typhus to Rocky Mountain Spotted Fever (with Especial Reference to Cross-Immunity Tests). R. Lewthwaite and S. R. Savor.—p. 461.  
Necessity of Living Cells for Cultivation of Psittacosis Virus. F. O. MacCallum.—p. 472.  
Nutrient Mixture Suitable for Growth of Staphylococcus Aureus. P. Fildes, G. M. Richardson, B. C. J. G. Knight and G. P. Gladstone.—p. 481.

### British Medical Journal, London

2: 1067-1124 (Nov. 28) 1936

- Prognosis and Therapeutic Principle. J. A. Ryle.—p. 1067.  
Some Methods of Analgesia During Labor. Katharine Lloyd-Williams.—p. 1072.  
Prognosis of Carcinoma of Cervix. F. H. Finlaison.—p. 1075.  
Active Immunization Against Diphtheria: Relative Values of Two Methods as Shown by Subsequent Schick Testing. H. C. M. Williams, J. D. Dear and W. Stewart.—p. 1078.  
Cysts of the Mesentery. W. A. Jackman and E. A. Mayston.—p. 1079.  
\*Milk Allergy in Elementary School Children: Preliminary Report. D. A. Williams.—p. 1081.

**Milk Allergy in School Children.**—Williams inquired into the family histories of 150 elementary school children who had refused milk at school. Of these, 124 appeared to be allergic to milk. They all had symptoms after milk, or a very definite dislike of it, and all except five gave a personal or family history of allergy. Twelve disliked the school milk only because of its taste (it was pasteurized), but it is significant that five of them came from allergic stock. Fifteen children refused the school milk for reasons unconnected with health. It did not disagree with them and apparently they were normal children; only two had allergic histories. Forty normal children taking milk readily without ill effects were examined as a control; only four gave a personal or family history of allergy. While the popular movement to encourage the widespread consumption of milk has much to commend it, the fact that not every one can take it with impunity should be remembered. The refusal or disinclination of many children to take milk at school should be given due consideration. Their attitude is probably protective in nature to prevent them from suffering allergic reactions and possibly also to give them time to develop a gradual immunity to milk. Desensitization to milk not infrequently occurs as a result of its omission from the diet over a lengthened period, and the degree of tolerance often varies with the interval. Thus milk should not be forced on these children but rather withheld.

### Edinburgh Medical Journal

43: 717-804 (Dec.) 1936

- Clinical Recollections and Reflections: VIII. Alcoholism and Psychiatry. D. K. Henderson.—p. 717.  
The Pupil After Cervicothoracic Sympathetic Ganglionectomy: Photographic Observations in Man. J. R. Mutch.—p. 743.  
Corynebacterium Diphtheriae in Edinburgh: Incidence of Types Among Cases and Carriers from 1932 to 1936. May II. Christison, Helen A. Wright, Barbara J. Shearer and R. C. M. Pearson.—p. 747.  
The Philosophy of a Doctor. W. T. Ritchie.—p. 760.

### Journal of Anatomy, London

70: 447-594 (July) 1936

- Thalamic Connections of Temporal Lobe of the Brain in the Monkey. W. E. Le Gros Clark.—p. 447.  
Presence of Double Cones and Oil Droplets in Retina of Marsupials: Preliminary Note. K. O'Day.—p. 465.  
Intraneural Plexus and Its Significance. J. E. A. O'Connell.—p. 468.  
Wound Healing in Vitro. F. H. Bentley.—p. 498.  
Variation in Lymphocyte Production. J. M. Yoffey.—p. 507.  
The Head Problem in Chordates. D. de Lange.—p. 515.  
Surgical Anatomy of Neck in Relation to Septic Lesions: Investigation of Cervical Connective Tissue. D. Barlow.—p. 548.  
Congenital Urogenital Anomalies in Rats, Including Unilateral Renal Agenesis. A. M. Hain and E. M. Robertson.—p. 566.

killed and the histologic studies revealed that the allergy experiment by means of eclampsia serum produces in the liver and kidneys of pregnant rabbits anatomic changes indicating a hyperergic reaction. The morphologic pictures greatly resemble those of eclampsia.

**Delivery of Shoulders in Large Children.**—Tüscher describes a case in which he encountered difficulties in the delivery of the shoulders. He says that, if the abnormal presentation of the breadth of the shoulders at the pelvic inlet is the cause of the difficulty, the fetal head, following its external rotation backward, should be directed downward toward the perineum, for by this maneuver a correct presentation of the shoulders can often be effected. If in case of correct presentation the difficulty lies only in the excessive size of the shoulders, it is again advisable first to make an attempt to deliver the shoulders by bringing the head downward. This mechanism is further promoted by pressure on the fundus and if necessary by slight traction on the fetal body in the direction toward the perineum. If these attempts at extraction should fail to succeed and the downward pulling of an arm should no longer prove feasible, the author recommends that the extraction efforts on the head should not be further continued, but a rotation of the shoulders should be resorted to by first loosening the shoulder girdle slightly and then making screw-like movements.

### Problemy Tuberkuleza, Moscow

Pp. 1463-1618 (No. 11) 1936. Partial Index

Chronic Tuberculosis of Subarachnoid Space. M. A. Zakharchenko.—p. 1477.

\*Development of Peritoneum and Treatment of Tuberculous Peritonitis. L. N. Zhmakin.—p. 1483.

\*Rational Therapy of Tuberculosis. I. A. Golyanitskiy.—p. 1493.

Local Application of Koch's Tuberculin in Diagnosis and Treatment of Tuberculosis of the Eye. M. M. Baltin.—p. 1499.

Selective Upper Thoracoplasty. N. V. Antelava.—p. 1506.

Tuberculosis of Bronchial Lymph Nodes in Children. E. E. Granat.—p. 1517.

**Treatment of Tuberculous Peritonitis.**—According to Zhmakin, the course of tuberculous peritonitis in children differs considerably from that in adults. In children tuberculous peritonitis more frequently runs a mild latent course. A clinical cure may be obtained in a few months. Tuberculous peritonitis in adults pursues a more chronic course. Protracted, recurring forms, lasting ten and more years are frequently observed. Absorption of the exudate and of solid tuberculous nodes is slow and not infrequently remains arrested at some stage. Metastatic processes are observed in adults much more frequently than in children. Laparotomy performed during the acute stage of the disease is likely to give rise to metastatic phenomena and activation of the process. Laparotomy is seldom indicated in tuberculous peritonitis of children. It is of value in adults when latency of the process is unduly protracted. The Spa-Sanatorium treatment of tuberculous peritonitis in Eupatoria (Crimea) gives excellent results in both children and adults, the children, as a rule, making a more complete and quicker recovery. The spa treatment is contraindicated in the stenosing forms of tuberculous peritonitis as well as in cases with marked debility, high fever and an active process in the lungs.

**Rational Therapy of Tuberculosis.**—According to Golyanitskiy, most authors believe that in tuberculous infection allergy is not definitely related to immunity. Allergy here cannot be regarded as an immunity reaction. The fate of a tuberculous patient depends on the natural defense mechanisms. Immunity does not play the determining part in the cure. Local regenerative processes of the connective tissue play an important part in the natural immunity. The tubercle itself represents a typical regenerative process. In the presence of normal regenerative power of the organism the tubercle is converted into a scar and the infection is thus terminated. When the regenerative power is insufficient or the virulence too great, the tuberculous lesions develop into an exudative or caseating form. The author concludes that treatment of tuberculosis depends on the restoration of the normal regenerative processes. This in turn depends on normal nutrition of the affected tissues and on their normal oxidation. In his treatment of bone and joint tuberculosis the author reduces the

foregoing to restoring (1) the blood to normal, (2) the acid-base balance, (3) the normal mineral metabolism and (4) the normal vitamin balance. The first condition is best accomplished by transfusion of small doses (from 100 to 150 cc.) of freshly conserved blood, by transfusion of small amounts (from 15 to 20 cc.) of incompatible blood or by autohemotherapy (5 cc.). An effective therapy of altered acid-base balance consists in the increase of gaseous exchange. This is best met by life outdoors. Alterations in the mineral balance are determined by roentgenologic examination of the bones and by determinations of the blood calcium. Decalcification is treated by intravenous introduction of from 5 to 10 cc. of calcium chloride every other day and drinking adequate amounts of milk. The general hypovitaminosis, as reflected in the deficiency of vitamin C, is made up by the feeding of carotene, carrots, yeast, cod liver oil and so on. On this regimen, in conjunction with the general adequate nutrition and local orthopedic procedures, positive results are obtained in a much shorter time.

### Acta Tuberculosea Scandinavica, Copenhagen

10: 321-376 (No. 4) 1936

From Childhood Infection to Adult Type of Pulmonary Tuberculosis. A. Wallgren.—p. 321.

Attempts to Treat Tuberculous Cutaneous Disorders with Lecithin Tuberculin. K. Hedén.—p. 340.

Endogen Factors in Occurrence of Erythema Nodosum. A. Roosvall.—p. 351.

\*Pulmonary Tuberculosis Caused by Bovine Type of Tubercle Bacillus: Thirty-Three Cases. P. Mourier.—p. 356.

\*Glutathionemia in Tuberculosis of Bones. M. M. Altschuler.—p. 370.

**Pulmonary Tuberculosis Caused by Bovine Bacillus.**—Mourier reports about thirty-three cases of pulmonary tuberculosis that were caused by the bovine type of tubercle bacillus, the type identification having been made in the state serum institute. Of the thirty-three patients twenty-five had been in direct contact with cattle, and of the other eight only three apparently had had no connection with farming. Thirty of the patients admitted that they had taken raw milk, but three could not state that with certainty. In ten of the patients the anamnesis revealed the familial occurrence of tuberculosis; however, in most of these cases there had been no contact with the diseased members of the family. In one case there was considerable evidence that the bovine infection had been spread from man to man in the hospital. Transmission of the infection from cattle to man seemed probable in twenty-nine of the patients. The author gained the impression that the clinical aspects, the course and the prognosis of the pulmonary tuberculosis of bovine origin do not differ from those caused by the human type of tubercle bacillus.

**Glutathionemia in Tuberculosis of Bones.**—Altschuler, after reviewing the literature on glutathione, reports his own investigations on the glutathione content of the blood of children with tuberculosis of the bones and joints. He found that the total amount of glutathione increases in the closed and open forms of tuberculosis of the bones and joints. The more severe the process, the higher are the glutathione values in the blood. In the closed form of tuberculosis of the bones and joints, the reduced form of glutathione shows a decrease in the venous blood if the process becomes more severe. The quantity of oxidized glutathione increases in these cases absolutely as well as in relation to the reduced form. In open tuberculosis of the bones and joints the increase of the oxidized glutathione in the venous blood is less severe. The glutathione coefficient is increased in tuberculosis of the bones and joints and, as the process exacerbates, the increase becomes even more pronounced. The author concludes that, besides the clinical picture, the fluctuations in the glutathione content of the blood permit an estimation of the course of the tuberculous process in the bones and joints.

### CORRECTION

**Cardiac Asthma.**—In the abstract of Weinberger's article in THE JOURNAL, January 30, page 433, the dosage of morphine and atropine to be injected should be from 1 to 2 cc. of morphine, to which from 0.5 to 1 mg. of atropine has been added.



who take care of tuberculous patients will in due time become infected. The incidence of infection in student nurses at the end of their senior year varies in hospitals that have a tuberculosis service or an affiliation from at least 56 to almost 100 per cent. Only a small percentage of those who are infected are ever harmed in the least by their infection. According to laboratory experimentation, a mild infection increases the natural resistance to exogenous reinfection when the reinfection occurs not sooner than four to six weeks after the first infection. A tuberculin-positive nurse is less likely to develop serious and fatal tuberculosis as a result of caring for tuberculous patients than is the tuberculin-negative nurse. Eighteen, or 16.5 per cent, of the supervising nurses gave x-ray evidence of the adult type of tuberculosis on the initial roentgenogram and another seven, or 8.3 per cent, subsequently developed active adult tuberculosis. Thirty-six, or 8.9 per cent, of the general duty nurses gave x-ray evidence of the adult type of tuberculosis on the initial roentgenogram and another twenty-five, or 6.2 per cent, subsequently developed x-ray evidence of the adult type of tuberculosis. Sixty-eight, or 6.4 per cent, of the student nurses had x-ray evidence of the adult type of tuberculosis on the initial roentgenogram, and subsequently an additional fifty-three, or 4.9 per cent, developed x-ray evidence of the adult type of tuberculosis. In order to minimize the hazard to nurses, the patient should be taught to cover his mouth with a fresh paper napkin every time he coughs or sneezes and to expectorate into a paper cup that can be burned. Scrub basins should be provided so that the nurse may wash her hands thoroughly at frequent intervals. Each nurse should have a clean gown daily and should be roentgenographed at the beginning of employment or when she enters the hospital as a student and at regular intervals thereafter. Working conditions should be comparable to those in industry, in which the exposure to disease and strain is not as great as it is in the nursing field. A course of instruction should be given all nurses, including lectures and special conferences, so that she may be informed of the nature of the disease and how to protect herself against it, and only students who are tuberculin positive should be admitted to the nurses' training schools or the employment of nurses in a sanatorium limited to those who are tuberculin positive.

### Chinese Medical Journal, Peiping

50: 1323-1554 (Oct.) 1936

Anterior Chamber Punctures: Aid in Diagnosis of Glaucoma. P. C. Kronfeld and C. K. Lin.—p. 1323.

Restoration of the Eye Socket with Thiersch Graft: Report of Six Cases. C. K. Lin.—p. 1335.

Retrolbulbar Neuritis Among the Chinese: Report of Fifty-Three Cases. C. K. Lin.—p. 1345.

Further Observations on Retrolbulbar Neuritis in the Chinese. P. Chen and W. P. Ling.—p. 1373.

\*Keratitis Punctata Superficialis and Swimming Pool Conjunctivitis: Discussion on Some Cases in the Chinese. W. P. Ling.—p. 1381.

Contribution to Knowledge of Marginal Corneal Ulcer: Report of Five Cases. P. S. Soudakoff.—p. 1393.

**Swimming Pool Conjunctivitis.**—Since June 1934 Ling has observed fifty-three typical cases of superficial punctate keratitis conforming to the description given by Ernst Fuchs. For twelve years previously neither the author nor his colleagues encountered any condition of this kind with the exception of one case, which was questionable. The cases under discussion appeared in the eye clinic of the Peiping Union Medical College in rather quick succession within a comparatively short period and many of them were associated with so-called swimming pool conjunctivitis. The incidence was most marked in the latter part of 1934. A certain relationship seemed to exist between superficial punctate keratitis and swimming pool conjunctivitis, although the former could occur independently of the latter. It is possible that the two conditions had one and the same etiology. The simultaneous occurrence of these two conditions does not seem to have been mentioned in the literature. As swimming pool conjunctivitis is probably of genito-urinary origin, it can naturally occur under any circumstances and may be transmitted from one person to another at any time. Accordingly some authors have suggested the name "adult inclusion conjunctivitis" or "inclusion blepharitis of the adult" instead of swimming pool conjunctivitis, which may be misleading.

### Bulletin de l'Académie de Médecine, Paris

116: 424-490 (Dec. 1) 1936

\*Endocrine Origin of Prostatic Hypertrophy. B. Cunéo.—p. 434.  
Acute Poliomyelitis in Paris During Last Three Years. Tannon and A. Besson.—p. 446.

**Endocrine Origin of Prostatic Hypertrophy.**—The object of Cunéo's report is to show that the type of hypertrophy usually called prostatic adenoma is of endocrine origin. From a structural standpoint the adenoma has the same constitution as the prostate itself. It is formed essentially by a group of nodules, of which the center is a glandular cavity comparable to the prostatic glandules and the periphery a fibromuscular capsule. These facts led to the opinion that the prostatic adenoma develops not from the prostate properly speaking but from the elements placed in its center near the ureter and above the origin of the verumontanum. The usual age of appearance is between 50 and 60 years and coincides with the period of decline of genital activity. Clinical observations reported by Cunéo, although small in number, led him to the conclusion that treatment with estrogen gives excellent results from the functional standpoint. In patients observed for more than three years, the impression was gained that because of the treatment, separated by periods of rest, the disorder remained stationary if it did not even regress. He believes that the development of the adenoma is the consequence of weakening of the secretion of estrogen. The latter may be combated by administration of estrogen either orally or subcutaneously. The use of estrogen is also recommended especially from a preventive standpoint.

### Bulletin Médical, Paris

50: 815-832 (Dec. 5) 1936

\*Indications for Hepatic Opothrapy in Asthma. Girbal.—p. 817.

**Liver Therapy in Asthma.**—Asthma is a syndrome of toxic infectious origin superimposed on a predisposed ground affected by endocrine disequilibrium. Therefore, according to Girbal, asthma does not exist without hepatic insufficiency, and without hepatic treatment permanent cure of asthma is impossible. He has observed numerous cases confirming this opinion but cites three characteristic ones in the present article. He believes that in all asthmatic patients, if systematic search is made, signs of hepatic insufficiency can be found. Thus in an examination of the urine of 100 asthmatic patients he found traces of sugar in fifty-eight, excess urobilin in forty-eight, traces of albumin in fifty-five and biliary salts in forty-one. Similarly, clinical examination frequently reveals dyspepsia, migraine or other symptoms indicative of functional hepatic insufficiency. Furthermore, the systematic treatment of asthma with oral or hypodermic liver extracts, as well as the specific bacterial product indicated, leads to favorable results. Chologogues, because of their action on congestion in the liver, are also indicated.

### Presse Médicale, Paris

44: 1889-1912 (Nov. 21) 1936

New Researches on Epilepsy of Guinea-Pig Caused by Cutaneous Parasites. P. Pagniez and A. Plichet.—p. 1889.

Polyradiculoneuritis. G. de Morsier and J. Steinmann.—p. 1890.

\*Rare Form of Insomnia. R. Lacassie.—p. 1892.

\*Postoperative Humoral and Tissue Syndrome. J. Bottin and J. Conradt.—p. 1894.

Changes of Cardiovascular System in Actors. A. M. Vydrine.—p. 1895.

**Rare Form of Insomnia.**—Lacassie investigated the factors involved in postoperative insomnia and found that the most important are vomiting and the results of morphine injections. Morphine injected for pain unquestionably assists in the development of nausea and vomiting. Furthermore, experience has shown that a number of injections of morphine are followed by insomnia, in spite of the suppression of symptoms that necessitate them. The author believes that postoperative insomnia can be classified into several types; namely, early insomnia, which develops in the hospital and is more postoperative than postanesthetic and has probably a complicated mechanism, and late insomnia, the mechanism of which appears to be more postanesthetic than postoperative. A partial late insomnia also apparently exists, characterized by more or less poor sleeping but which is usually readily amenable to hypnotics.

**Postoperative Humoral and Tissue Syndrome.**—According to Bottin and Conradt, three factors must be considered in the study of the tissue changes resulting from surgical

machine. The nonsoluble material is removed by centrifugation and the supernatant fluid is saved. The residue is washed once with water; this supernatant fluid is added to the first. The aqueous extract is washed with ether and is then tested for its content of gonadotropic substance by injection into infantile mice. I have also tried 0.02 per cent sodium hydroxide or 1 per cent ammonia water for the extraction instead of water, but the results were no better. Assays are stated in terms of 1 Gm. of fresh tissue.

Some examples may be cited from the literature of cases in which urinary hormone assays prevented serious errors: Dietrich<sup>7</sup> describes the case of a young woman in whom a histologic diagnosis of chorionepithelioma had been made. As the pregnancy test was negative eight days later and remained negative

TABLE 1.—Gonadotropic Potency of Urine in Case 1

Date	Follicle-Stimulating Factor*	Luteinizing Factor*
Aug. 23.....	3,333	555
Oct. 31.....	16,650	16,650
Nov. 6.....	277,500	277,500
Nov. 23.....	500,000	500,000

\* Mouse units per liter of morning urine.

on repetition at intervals of four weeks, operation was postponed. The patient remained healthy. The hormonal urine assay demonstrated the incorrectness of the histologic examination and the young woman was saved from a mutilating extirpation of the uterus. In another woman, aged 25, reported by Fahlbusch,<sup>8</sup> histologic examination performed by Robert Meyer, an expert on chorionepithelioma, suggested malignant degeneracy of the villi. There was a retained placental fragment with destructive epithelial proliferation of such a nature as to render possible invasion of the uterine wall. The hormonal urine reaction was negative. As the patient wanted a child, intervention was delayed especially as further urine tests were also negative. The patient remained healthy. In contrast, Balkow<sup>9</sup> reported a case in which histologic examination of the curettage material was inconclusive, while assay of diluted urine gave a positive pregnancy test. On extirpation of the uterus a well encapsulated, reddish brown tumor somewhat larger than a plum was found in the cavum. This tumor histologically was indisputably a malignant chorionepithelioma. Kimbrough<sup>10</sup> made a diagnosis of chorionepithelioma five weeks after discharge of a mole based on increasing gonadotropic potency of the urine and cystic enlargement of the ovaries despite the absence of uterine hemorrhage.

Following are descriptions of three cases of malignant chorionepithelioma which I have examined in the past two years. In addition to the urine the tumor tissue also was examined; in one case the spinal fluid and in another the pituitary gland was investigated:

CASE 1.—A woman, aged 38, had not been pregnant for the last ten years. In the beginning of 1935, menstruation failed to occur for two weeks; then a slight hemorrhage occurred. Curettage, performed in Europe, apparently did not show anything suggestive. In June the patient had a severe hemorrhage. Curettage at that time indicated an indisputable malignant chorionepithelioma (Dr. Casper). Urine assay, performed by me, showed an excessively high content of gonadotropic substance (1,000,000 mouse units of follicle-stimulating factor and

55,000 mouse units of luteinizing factor per liter of morning urine). So high a hormone excretion indicates with certainty the presence of a chorionepithelioma. July 1, 1935, total extirpation of the uterus and adnexa was performed by Dr. Danziger of Tel-Aviv, who kindly placed at my disposal the surgical specimen.

The excretion of gonadotropic substance declined strongly after operation; 500,000 mouse units of follicle-stimulating factor and only 500 mouse units of luteinizing principle per liter were now found in the urine. The patient, who felt very well, was treated postoperatively with irradiation (Professor Halberstädter). She received 1,480 mg. hours of radium intravaginally from July 21 to 29, 1935, and in addition up to August 7, high voltage roentgen irradiation to a total of 3,550 roentgens. Five days after termination of the irradiation the urine was assayed once more and showed a further decrease in excretion of follicle-stimulating factor (only 555 mouse units per liter). In contrast, however, the content of luteinizing principle had decreased scarcely at all (416 mouse units per liter). Thus the pregnancy test remained positive even after irradiation.

In the following weeks the patient felt well and gained weight; she believed herself cured. The blood picture was normal. In contrast to the clinical condition, urine assays showed an increased excretion of gonadotropic hormone. August 23, two weeks after the last irradiation, the content of follicle-stimulating substance had increased from 555 mouse units to 3,333 mouse units and the content of luteinizing factor from 416 mouse units to 555 mouse units per liter of morning urine. These observations indicated with certainty that metastasis must have occurred somewhere in the body. Made watchful by the result of the urine assay, we searched for a metastasis. Four weeks later a lesion was found in the left lung by x-ray examination, at the level of the third rib. High voltage roentgen therapy was administered over the lung from October 4 to 10 and from November 7 to 24. Gynecologic examination showed nothing pathologic in the pelvis. Clinically the patient continued to feel well and was fully able to work. The gonadotropic potency of the urine quickly increased (table 1).

In December the patient began to lose slightly in weight and was paler. A metastasis (diameter 1 cm.) was now visible roentgenologically in the base of the right lung. Furthermore, in the left parametrium a small hard nodule was felt, growing rapidly; it reached the size of a fist within three weeks and caused trouble by pressure on the bladder. Hemoptysis occurred and the patient complained of head pressure, headache and dizziness. These symptoms increased in intensity, indicating

TABLE 2.—Tissue Assays in Case 1

Tissue	Mouse Units per Gram of Fresh Tissue Follicle-Stimulating Factor	Luteinizing Factor
Chorionepithelioma (uterine tumor).....	1,500	800
Uterine mucosa.....	1,000	100
Ovary.....	150	0

cerebral metastases. In the middle of January the patient became somnolent. February 17 death occurred with symptoms of cerebral tumor. Autopsy was not permitted.

Tissue Assay.—The surgical preparation showed a spongy tumor the size of a plum, well delimited in the right corner of the fundus. The tumor infiltrated the musculature without reaching the serosa. The following tissues were assayed: (1) the tumor tissue itself, (2) the mucosa of the left uterine wall at a spot distant from the tumor, and (3) the ovaries. The tissues were extracted and the extracts assayed (table 2).

CASE 2.—A woman, age 36, born in Persia, had had five pregnancies, the last five years before. In September 1934 an abortion occurred. There was no suspicion of a mole at that time. Beginning in January 1935 the patient had irregular, occasionally severe hemorrhages. At the end of November 1935 she was admitted to the hospital in a bad general condition. (This case was referred to me by Dr. Sadovsky of Jerusalem.)

Gynecologic examination indicated the presence of a chorionepithelioma. A partly necrotic tumor the size of a plum was found in the anterior vaginal wall; it was very soft and bled

7. Dietrich: Zentralbl. f. Gynäk. 54:194 (Jan. 18) 1930.

8. Fahlbusch, O.: Zentralbl. f. Gynäk. 54:1842 (June 21) 1930.

9. Balkow, E.: Zentralbl. f. Gynäk. 57:159 (Jan. 21) 1933.

10. Kimbrough, R. A., Jr.: Am. J. Obst. & Gynec. 28:12 (July) 1934.

rence in patients suffering from gastroduodenal ulcer, is not a characteristic blood picture of ulcer but an indication of vagotonic constitution of the patient. Vagotomy determines a gastric angiospasm which predisposes to the development of ulcer. The leukocyte formula can be altered in patients suffering from gastroduodenal ulcer complicated by infection or hemorrhage. The last two mentioned complications may determine the production of neutrophilia, which can be controlled by repressing the complicating infection or the causal factor. The author made determinations of the leukocyte formula in seventy-three patients suffering from gastroduodenal ulcer before and late after gastric resection. He found association of lymphocytosis and eosinophilia in 40 per cent of the cases before and late after the operation. Cases complicated by infection or hemorrhage showed neutrophilia, which disappeared after gastric resection.

### Sperimentale, Florence

90: 487-595 (Oct.) 1936

Liver and Glutathione: Contents of Glutathione in Blood of Afferent and Efferent Liver Circulation and in Blood of Vena Cava. G. Barbaro-Forleo and F. Cattaneo.—p. 487.

\*Parallel Changes of Peripheral and Medullary Blood Immediately and Late After Splenectomy. S. Deleonardi and L. Paolazzi.—p. 512.

Experimental Production of Tumors by Injections of Thorium Dioxide Sol. G. Prussia.—p. 522.

Alterations of Liver Following Injections of Bile. C. Gargano.—p. 540.

Antigenic Capacity of Insulin: Experiments. G. Spaccarelli.—p. 545.

Permeability of Erythrocytes of Normal Persons and Diabetic Patients to Dextrose in Vitro. G. Patrassi and U. Teodori.—p. 555.

Spine, Cranium and Brain in Complete Transposition of Viscera: Case. Flora Spolidoro.—p. 588.

**Parallel Blood Changes After Splenectomy.**—Deleonardi and Paolazzi studied the behavior of the peripheral and medullary blood immediately and late after splenectomy in dogs. They found that immediately after splenectomy the total number of globules in the peripheral blood, especially those of minimal resistance and the reticulocytes, increase. Erythrocytes and reticulocytes diminish in the medullary blood. Peripheral polyglobulia has a medullary and splenic origin. The liberation of medullary cells to the blood is controlled by splenic nervous reflexes and splenic substances, the lack of which results in lowering of the "medullary threshold" with consequent passage of immature cells (reticulocytes) through the myelohematic barrier. The passage of splenic cells, especially those of minimal resistance, takes place during contraction of the spleen by the maneuvers that precede ligation of the splenic vessels in splenectomy. Late after splenectomy the resistance of the blood cells, in both the peripheral and the medullary blood, increases. In the peripheral blood, cells of maximal resistance appear which do not exist in the blood of normal dogs. In the peripheral and medullary blood the number of reticulocytes and cells of maximal resistance increases and that of erythrocytes diminishes. The authors say that the increased osmotic resistance of erythrocytes that follows splenectomy is due to the lack of hemolysis because of the absence of the spleen. The increase of reticulocytes and the appearance of hyperresistant cells in the circulation is due to the lowering of the "medullary threshold" which results from splenectomy.

### Semana Médica, Buenos Aires

43: 1761-1836 (Dec. 24) 1936. Partial Index

\*Kaposi Familial Sarcoma: Clinical and Etiologic Study. N. V. Greco.—p. 1761.

Thoracoplasty with Aspiration of Blood During Operation. H. Aguilar and A. A. Veppo.—p. 1768.

Grave Albuminuria in Pulmonary Tuberculosis: Cases. J. B. Ferradás.—p. 1770.

Acute Retention of Urine from Urethral Calculus: Case. E. Castaño, J. Grünberg and S. Wilber.—p. 1800.

Tuberculosis of Female Genital Apparatus: Treatment. A. de Moraes.—p. 1812.

Reinfection and Superinfection of Syphilis: Cases. A. A. Diaz Colodrero, D. Calzetta and H. J. T. Pisetta.—p. 1822.

**Kaposi Sarcoma.**—Greco reports a case of familial Kaposi sarcoma. In the course of the last twenty years, two brothers died from the disease and at present the third brother and a nephew are suffering from it. There have been no cases of the disease in the women of the family, although they came in contact with the patients as much as the men did. The disease in all cases followed a protracted evolution. The author was

able to make an etiologic study from the infectious, parasitic and microbiologic aspects in two of the patients. The disease began with edema of the legs and pain of the extremities and evolved with late appearance of cutaneous pigmented spots and nodules, which were hard at first and then softened. The liquid obtained by puncture of soft nodules coagulated in a test tube on the first day, but the coagulum was subjected to partial lysis by the third day. On microscopic slides it suffered lysis in twenty-four hours. Mycotic cells were identified in the liquid both by direct observation of the liquid placed in a sodium hydroxide solution and by microscopic examination of fresh and stained preparations of the liquid. Mycotic cells were not found in histologic preparations made with tissues taken for a biopsy of the nodules. Attempts to culture the fungus and to transmit the disease to rabbits failed. According to the author, the fungus found in his cases is the causal agent of the disease. The nature of Kaposi sarcoma as a mycosis explains the slow evolution of the disease. Softening of the nodules is due to mycotic ferments. The author concludes that Kaposi sarcoma is a mycosis and at the same time an infectocontagious disease which can be transmitted by direct and indirect contagion like other common infections. The incubation period of the disease varies from one to ten years. The disease attacks adults and old persons and more frequently men than women. The ages of the patients reported by the author were 28, 32, 58 and 59 years. The fungus has not been identified but probably belongs to the genus *Aspergillus* or is a cryptococcus.

### Fortschritte a. d. Gebiete der Röntgenstrahlen, Leipzig

54: 433-540 (Nov.) 1936. Partial Index

Roentgenologic Aspects of Disturbances of Small Intestine. F. Kuhlmann.—p. 433.

Limits and Advantages of Roentgenokymography of Heart. H. Ludwig.—p. 469.

\*Cardiac Movements in Case of Elevation of Diaphragm in Relation to Gastrocardiac Symptom Complex and Theory of Apical Impulse of Heart. W. Böhme and R. Wawersig.—p. 476.

Physiologic Foundations of Roentgenoscopy. G. C. E. Burger and B. van Dijk.—p. 492.

\*Roentgenokymographic Studies on Movements of Healthy and Diseased Renal Pelves and Ureters. Maria Maintz and G. Wüllenweber.—p. 505.

Pathogenesis of Detachment of Epiphysis of Femoral Head. Nadeschda Rendel.—p. 517.

**Cardiac Movements in Case of Elevation of Diaphragm.**—Böhme and Wawersig investigated whether in addition to the already known positional changes of the heart in case of elevation of the diaphragm, which may produce the so-called gastrocardiac syndrome, there exist still other changes in the movement of the heart as a whole or of some of its parts. They found that in all cases of chiefly left-sided elevation of the diaphragm the following can be demonstrated in addition to the already known topographic changes: 1. Elevated diaphragm in case of relatively slack diaphragm; that is, gastric eventration and diaphragmatic hernia produce a heart action resembling the tachycardia of pneumothorax. 2. A rigidly stretched left side of the diaphragm above a greatly distended stomach or colon is capable of causing from below a considerable compression of the cardiac muscle when it is relaxed during the diastole. 3. A diaphragm that is displaced in such a manner may elevate the heart during every diastole to such an extent that during every systole the heart has to press the diaphragm downward while it rotates around its sagittal axis. The conditions mentioned under points 2 and 3 may be absent, but their existence is a measure of the displacement of the heart by the diaphragm. Both of the latter phenomena represent a reversal of those conditions which correspond to the normal apical impulse according to the theory of Ludwig. Such conditions and particularly the abnormal modes of cardiac movement caused thereby, if they gradually increase in severity, will impose excessive work on the heart and will cause considerable subjective symptoms in affected persons.

**Roentgenokymographic Studies on Renal Pelves and Ureters.**—Maintz and Wüllenweber show that Stumpff's roentgenokymograph makes possible the exact study of the normal and pathologic movements of the renal pelvis and ureters. It reveals the number and amplitude of the contractions and regularity or irregularity of the ureteral waves. In case of

urine. Of course, at the same time the content of luteinizing factor must be determined; usually this is correspondingly increased. But this is not always the fact, as illustrated by case 1.

While the presence of a definite amount of luteinizing factor (at least 416 mouse units per liter of urine) affirms the diagnosis of pregnancy, such exact numerical values cannot be obtained in the presence of a pathologic placenta (mole).

(a) If a woman is pregnant and if there is a suspicion of the presence of hydatidiform mole, pregnancy toxicosis must first be excluded. If there is no toxicosis and if the content of luteinizing factor amounts to more than 200,000 mouse units per liter of morning urine, it is likely that a hydatidiform mole<sup>14</sup> is present. One assay is insufficient, however. The more the content of gonadotropic substance increases in the course of observation the more certain will diagnosis become. The spinal fluid should also be examined. If the pregnancy test (reaction II or III) can be obtained with undiluted or diluted spinal fluid, this may be important support for the diagnosis. According to my present experience I would make the diagnosis of hydatidiform mole if at least 200,000 mouse units of luteinizing factor is present in a liter of urine on repeated assays, and if in addition at least 416 mouse units per liter is present in the spinal fluid.

(b) If a patient has discharged a hydatidiform mole and thereafter the pregnancy test has become negative, to become positive again in the course of several weeks, the presence of at least 416 mouse units of luteinizing factor per liter of urine, in case a new pregnancy can be excluded, will in itself indicate a diagnosis of chorionepithelioma. A similar amount in spinal fluid confirms the diagnosis. The hormonal diagnosis of chorionepithelioma is not difficult, for the reason that the content of luteinizing substance in the urine is usually far more than 416 mouse units per liter (up to 1,000,000 mouse units per liter).

In case 3 the amount of gonadotropic substance in the urine was relatively small, being only 100,000 mouse units each of follicle-stimulating and luteinizing factor per liter. These relatively small values may have been due to the fact that the patient was in a bad general condition. The urine was examined some days before death. As I reported in 1930,<sup>15</sup> women suffering from carcinoma frequently discharge follicle-stimulating factor in the urine. When the general condition deteriorates acutely, this principle frequently disappears from the urine. This has been confirmed by Borst, Döderlein and Gostimirović.<sup>16</sup>

For the diagnosis of chorionepithelioma the demonstration of gonadotropic substance in urine and spinal fluid is more important than its presence in the blood. In case 2 the blood contained 500,000 mouse units of follicle-stimulating factor per liter; on the same day, however, the urine contained double this amount of hormone. The content of luteinizing factor in the urine was four times as high as in the blood; 1,000,000 mouse units per liter of urine, 250,000 mouse units per liter of blood. However, I have not yet seen such high values for the blood except in chorionepithelioma.

It is necessary to observe excretion of gonadotropic substance continuously in chorionepithelioma; this is more informative of the progress of the disease than the clinical signs. If an essential decrease in production occurs following therapy (operation, x-ray) this is prognostically favorable. As long as the pregnancy test in urine remains negative, namely less than 416 mouse units of luteinizing substance per liter of urine, prognosis is favorable. In case the pregnancy test, in spite of treatment, remains continuously positive, the prognosis is bad; in case the hormone content increases in spite of therapeutic measures, the prognosis is distinctly unfavorable, as this is an indication of metastasis.

Qualitative and quantitative tissue assay for gonadotropic substance has scarcely been employed for the diagnosis of chorionepithelioma. Considering the enormous inundation of the body with this hormone, it seems likely that it would be found in relatively high concentration not only in the tumor itself but also in other tissues of the body. Nevertheless, the difference is considerable, as I found in case 1; the tumor contained a far higher content of gonadotropic principle than either the uterine mucosa or the ovary. In my experience such a high content of hormone occurs only in chorionepithelioma and not in other malignant tumors. In the latter the luteinizing factor is not found at all,<sup>17</sup> or very rarely, and the follicle-stimulating factor only in relatively small amounts (1 mouse unit per gram of fresh tissue). The presence of 800 mouse units of luteinizing factor per gram of fresh tissue establishes the diagnosis of chorionepithelioma. (The tissue must be fresh and should not show signs of necrosis.) In the normal placenta in the seventh week of pregnancy I have found 143 mouse units of follicle-stimulating and luteinizing factors in 1 Gm. of fresh tissue by implantation. Still larger amounts of hormone can probably be demonstrated by the extraction method. Assays of between 100 and 300 mouse units per gram can be obtained with retained placental fragments. In metastases, however, the presence of 100 mouse units of luteinizing factor per gram is sufficient to establish the diagnosis of chorionepithelioma. Occasionally there are no definite signs of chorionepithelioma in the uterus at autopsy; if in such a case one finds a value of 100 mouse units per gram in some metastasis, e. g., in a cerebral or liver tumor, the diagnosis of chorionepithelioma is established.

Also in chorionepithelioma of men, assay for gonadotropic substance is of importance, particularly in mixed testicular tumors. In a lecture at the Viennese Biologic Society (April 15, 1929) I<sup>1</sup> pointed out, with reference to the strongly increased excretion of gonadotropic principle in the chorionepithelioma of women: "It will be very interesting to examine the urine of men suffering from a chorionepithelioma, in order to determine the biologic identity of these epitheliomas." Some weeks later (May 1929) I was in a position to examine a case<sup>18</sup> of malignant testicular tumor; a greatly increased excretion of the hormone was detected (both follicle-stimulating and luteinizing factors). This was a mixed tumor with chorionepitheliomatous elements. The biologic identity of these epitheliomas in men and women is now established. By assay of the tumor material (implantation or, still better, extraction) evidence may be derived as to the nature of the tumor. Thus I did not find any gonadotropic substance

14. It must be mentioned that in the literature there are several reported cases of hydatidiform mole without increased excretion of gonadotropic substances. These cases, although very rare, indicate that a normal content of gonadotropic substance in pregnancy urine does not absolutely rule out the presence of a hydatidiform mole.

15. Zondek, Bernhard: *Klin. Wchnschr.* 9: 679 (April 12) 1930.

16. Borst, Max; Döderlein, Albert, and Gostimirović, D.: *München. med. Wchnschr.* 79: 1104 (July 8) 1932.

17. Zondek, Bernhard: *Hormone des Ovariums und des Hypophysenvorderlappens*, ed. 1, Berlin, Julius Springer, 1931, p. 269.

18. Zondek, Bernhard: *Der Chirurg.*, 1930, 23; *Klin. Wchnschr.* 11: 274 (Feb. 13) 1932.

less of whether the one or the other opinion is accepted, it is certain that erythema nodosum is not a local skin disorder but rather a partial manifestation of a general reaction of the organism. The general symptoms such as fever, headaches, loss of appetite and severe depression, which accompany the erythema nodules, corroborate this. The reaction capacity of the skin and of the entire organism is changed. The blood sedimentation is accelerated; there is leukocytosis and a slight deviation to the left. Roentgenoscopy reveals in some cases perihilar infiltration. The observation of meningeal symptoms in a case of localized erythema nodosum induced the author to give especial attention to the meningeal symptoms and to resort to the chemical examination of the spinal fluid. He studied the spinal fluid in ten cases. A tabular report of the results indicates that the pressure of the fluid was increased, probably as the result of an increase in the quantity of the fluid. The author thinks that in the examined cases the meningitis reaction as well as the erythema nodules and the perihilar infiltrations were all manifestations of an allergic reaction. Intracutaneous tests with increasing doses of tuberculin in three of five tuberculous children resulted in meningeal symptoms, which disappeared again after a few days or a week. In these cases too the examination of the cerebrospinal fluid revealed increased pressure but no other pathologic changes. The author thinks that the meningeal symptoms were of tuberculotoxic or allergic origin, in that the allergy of the organism was suddenly increased in response to the intracutaneous injection of tuberculin. He evaluates the significance of these observations in connection with tuberculous meningitis and points out that the anamnesis frequently reveals an erythema nodosum in cases of tuberculous meningitis.

#### Zeitschrift f. Geburtshilfe u. Gynäkologie, Stuttgart

114:1-124 (Dec. 4) 1936. Partial Index

Histologic After-Examinations in Leukoplakia. J. P. Emmrich.—p. 1.  
Histologic Diagnosis and Prognosis of Neoplasms of Mammary Gland. H. Limburg.—p. 7.

Amount of Posterior Pituitary Hormone in Hypophysis of Women with Eclampsia. W. Bickenbach.—p. 29.

\*Elimination of Hypophyseally Formed Gonadotropic Hormone During Normal Pregnancy and During Pregnancy Toxicoses. K. J. Anselmino and F. Hoffmann.—p. 52.

Adhesiveness of Living Leukocytes of the New-Born. E. Junghans.—p. 62.

\*Etiology of Rupture of Liver in the New-Born. F. J. Schmitt.—p. 70.

\*Treatment of Fractures of Upper Arm in the New-Born. F. A. Wahl.—p. 82.

**Elimination of Gonadotropic Hormone Formed in Hypophysis.**—Anselmino and Hoffmann point out that the assumption of the placental origin of the gonadotropic substances in the blood and urine of pregnant women has found wider acceptance in recent years. However, a number of authors have also called attention to the different gonadotropic action of prehypophyseal preparations and of the extracts of pregnancy urine. The authors say that, although it cannot be doubted that the gonadotropic substances which appear in such large quantities in the blood and urine of pregnant women are of placental origin, a number of investigations indicate that the pregnancy urine eliminates also gonadotropic hormones that have been formed in the hypophysis. The authors describe their own investigations on the gonadotropic hormone of hypophyseal origin in the urine during normal pregnancy, during hyperemesis gravidarum and during eclampsia. They show that with the method of Evans and his collaborators it is possible to demonstrate in the urine of a number of women during the early part of pregnancy small amounts of gonadotropic hormone that has been formed in the hypophysis. This observation demonstrates the contradictory results of the action of gonadotropic substance on hypophysectomized animals. In patients with hyperemesis gravidarum, gonadotropic hormones of hypophyseal origin appear in the urine regularly in increased quantities, whereas in the urine of eclamptic patients the hypophyseal gonadotropic hormones cannot be demonstrated. The authors reach the conclusion that the blood and urine of patients with hyperemesis or with eclampsia contain unphysiologically large quantities of gonadotropic substances, which in the patients with hyperemesis are mostly, and in those with eclampsia exclusively, of placental origin.

**Rupture of Liver in the New-Born.**—After pointing out that hepatic rupture is a comparatively rare birth injury, Schmitt reviews the literature on this problem, particularly the report of Hedrén, who maintained that the parenchymatous ruptures should be differentiated from the subcapsular hepatic hemorrhages. In the true ruptures the parenchyma is injured, whereas the subcapsular hemorrhages signify tearing of the hepatic capsule. In the case reported by Hedrén, the injury of the hepatic parenchyma developed in a spontaneous delivery, a possibility that had been denied by Kratter. In discussing the causes of subcapsular hemorrhages as well as of the parenchymatous injuries, the author again cites Hedrén, who believed that the pressure exerted during delivery on the right costal arch and on the abdominal wall might play a part but in addition to this there must be other factors, such as an overfilling of the liver with blood as the result of asphyxia. The author reviews reports of other authors. He cites Genell, who reports the history of a woman with obliquely contracted pelvis, who twice gave spontaneous birth to apparently mature and healthy infants, but each time the child died as the result of hepatic rupture. After reviewing several other reports, the author describes three cases that were observed at his clinic and prove that hepatic rupture and subcapsular hepatic hemorrhages may develop in spontaneous and in artificially terminated delivery. The true ruptures are the rarer forms of injury. Some authors recommend suture, while others consider treatment useless.

#### Treatment of Fractures of Humerus in the New-Born.

—Wahl shows that Spitz's "high back splint," which, like the "low back splint" (which is used for fractures of the clavicle), is designated also as "transverse back splint," causes a severe torsion of the distal end of the fracture of the humerus and effects curative results that are undesirable from the anatomic as well as from the functional point of view. In the two cases the author gives clinical and roentgenologic proofs of a severe peripheral dislocation of almost 90 degrees rotation. On the basis of these unfavorable experiences and of theoretical analysis he reaches the conclusion that Spitz's "high back splint" should not be applied for the treatment of fractures of the humerus in the new-born. He advises that in fractures of the shaft of the humerus as well as in case of detachment of the proximal epiphysis the attachment of Desault's bandage should be preceded by the application of a splint consisting of a narrow strip of aluminum, which is bent in such a manner that it can be placed from the back and the outside on the padded arm. At the level of the fracture the strip should be bent anteriorly and inward, so that the convexity of the strip will counteract the rotation.

#### Zentralblatt für Gynäkologie, Leipzig

60:3009-3056 (Dec. 19) 1936. Partial Index

\*Action of Eclampsia Serum in Allergy Experiment. E. Junghans.—p. 3010.

\*Difficulty of Shoulder Delivery in Large Children and Suggestion for Counteracting Them. H. Tüscher.—p. 3012.

Significance of Menarche for Occurrence of Obstetric Complications. D. Risopoulos.—p. 3016.

Chorionepithelioma as Cause of Life Threatening Internal Hemorrhage. O. Burmester.—p. 3021.

Experiences with New Remedies in Therapy of Leukorrhea. K. Zinram.—p. 3022.

Trichomonas Cervicitis as Manifestation of Trichomoniasis. M. Rodecurt.—p. 3028.

#### Action of Eclampsia Serum in Allergy Experiment.

According to Junghans, Knepper succeeded in producing the characteristic eclamptic changes in the liver and kidneys of rabbits by the simultaneous injection of horse serum and of solution of posterior pituitary. His own experiments were undertaken in order to examine the action of eclampsia serum in the allergy experiment on pregnant animals. Studies of other investigators had revealed that a single injection of eclampsia serum produces no anatomic changes in the organs. The author injected subcutaneously into pregnant rabbits 2 cc. of sterile, inactivated serum from eclamptic women, repeating this procedure at intervals of five or six days. Beginning about three weeks after the first subcutaneous injection, the animals were given repeated serum injections into the vein of the ear. Some of the animals developed anaphylactic shock from which they recovered. At the end of the pregnancy the animals were



## TREATMENT OF MENSTRUAL MIGRAINE

WITH SMALL DOSES OF GONADOTROPIC  
EXTRACT OF PREGNANCY URINE

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As Critcheley and Ferguson<sup>1</sup> said before the Harveian Society, "Migraine has been the happy hunting ground of the theorist, and the problem has been attacked by representatives of all branches of medicine. Each in turn has discovered in migraine phenomena pertaining to his own specialty . . . has hit upon the true nature of the malady . . . has found the infallible remedy. Obviously, such mutually exclusive viewpoints cannot all be entirely correct, and the multiplicity and diversity of the hypotheses suggest that the problem is more complex than imagined, and probably one which presents a number of facets."

It is my purpose in this paper, which records the results of a hitherto unreported method of treatment, to shed more light on the nature of this puzzling malady and perhaps also to add something to our relatively meager knowledge of the gonadotropic factor extracted from pregnancy urine.<sup>2</sup> However, it must be kept in mind that only one of the many facets of the migraine problem is considered.

Space will not permit any detailed discussion of the theories as to the cause of migraine. Since Riley's<sup>3</sup> monumental review of the subject in 1932, excellent articles have been published by Critcheley and Ferguson<sup>1</sup> in England and by Bassoe<sup>4</sup> in America in which migraine is discussed in all its aspects, including the endocrine. It is generally believed that there is at least an endocrine factor in the production of menstrual migraine. Even allergists such as Andresen<sup>5</sup> postulate a "reaction resulting from sensitization to one of the products elaborated at the time of menstruation." But in the endocrine field again nearly every gland has at one time or another been accused of being overactive, underactive or dysfunctional, yet treatment directed at the supposed cause has rarely been as successful in the hands of others as the original report gave them hope to expect. Perhaps an exception should be made in the case of Thomson,<sup>6</sup> who in 1932 reported twenty-five cases of headache occurring particularly at menstruation, in seventeen of which some abnormality of the sella turcica was demonstrated radiologically, nine of them showing complete calcification of the interclinoid ligaments. He believes, as was previously suggested by Pardee<sup>7</sup> and by Timme,<sup>8</sup> that the periodic headaches were caused by a swelling of the pituitary gland in this confined space. He also suggested that in cases in which no sellar abnormality could be demonstrated radiologically there might possibly be a complete membranous covering without ossification. Since the admin-

istration of estrogen has been shown in animals to reduce the size of the pituitary body, Thomson used this substance in the treatment of menstrual headache. It is debatable whether this view of the cause of the headaches is tenable, but there is no question as to the results of his treatment with estrogen. Of the twenty-five cases he reported ten completely relieved, six markedly improved, five slightly improved and four in which there was no apparent effect. It is of interest to observe, however, that two of Thomson's patients, in whom estrogen therapy failed, were subsequently relieved by injections of extracts of the corpus luteum.

Then too there is the work of Blakie and Hossack,<sup>9</sup> who reported a series of twenty cases of menstrual migraine all of which were relieved by treatment with estriol complex (emmenin).

Stieglitz,<sup>10</sup> in describing the migraine physique, gives a remarkably accurate description of the physical appearance of the woman suffering from ovarian deficiency without, however, mentioning the similarity, and, in tabulating the characteristic manifestations in his 100 cases, lists cases under menses as follows: normal 6 per cent, marked intoxication 91 per cent, dysmenorrhea 63 per cent.

Finally there is the laboratory evidence offered by Riley, Brickner and Kurzrok,<sup>11</sup> who over a prolonged period made daily hormone studies on the urine of thirteen patients—eleven females and two males—suffering from migraine. In all the women of menstrual age the excretion of estrogen was far below normal, though there was no relationship between variations in the excretion of estrogen and the occurrence of headache. The whole group of patients experienced a total of twenty-nine attacks of migraine during the investigation and in twenty instances the headache was preceded or accompanied by the appearance of gonadotropic substance in the urine. Generally it appeared from one to six days before the headache and disappeared on the day of the attack. Occasionally it appeared without the subsequent development of headache. In two patients presenting status migrainicus the excretion of gonadotropic substance was practically uninterrupted. Nine female patients were injected with 2 cc. of gonadotropic factor from the urine of pregnancy and in seven an attack of migraine developed within four to twelve hours. The authors conclude: "The presence of [gonadotropic substance] in the urine is definitely related to the occurrence of migrainous seizure. Substantiation is given to the hypothesis that ovarian and presumably hypophyseal activities are closely related to the occurrence of migraine."

## REPORT OF CASES

CASE 1.—An unmarried woman, aged 38, complained of severe headache either unilateral or bilateral, accompanied by nausea and vomiting, which recurred every three weeks at the time of her menstrual period and lasted three or four days. She had been constantly under treatment for many years. The sinuses had been operated on three times and the uterus suspended twice. Antiallergic treatment had been carried out over a long period. For the past seven years she had been on endocrine therapy including anterior pituitary extract, solution of posterior pituitary and estrogen by hypodermic injection, and thyroid, pituitary and various ovarian preparations by mouth. In July 1933 she was still suffering from the headaches. At

From the Research Department of the Santa Barbara Clinic.

1. Critcheley, F. R.: *Migraine*, Lancet 1: 123 (Jan. 21), 1932.

2. The gonadotropic substance from pregnancy urine (folliculin) used in this study was generously supplied by E. R. Squibb & Sons through the courtesy of Dr. John H. Anderson, director of the Biological Laboratories.

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6. Thomson, A. P.: A Contribution to the Study of Intermittent Headache, Lancet 2: 229 (July 30) 1932.

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9. Blakie, N. H., and Hossack, J. C.: *The Treatment of Migraine with Emmenin*, Canad. M. A. J. 27: 45 (July) 1932.

10. Stieglitz, E. J.: *The Migraine Physique*, Am. J. M. Sc. 180: 359 (March) 1935.

11. Riley, H. A., Brickner, R. M., and Kurzrok, Raphael: *The Abnormal Excretion of Theelin and Prolan in Patients Suffering from Migraine*, Bull. Neurol. Inst., New York 3: 53 (June) 1933; J. Nerv. & Ment. Dis. 77: 516 (May) 1933.

9. Blakie, N. H., and Hossack, J. C.: *The Treatment of Migraine with Emmenin*, Canad. M. A. J. 27: 45 (July) 1932.

10. Stieglitz, E. J.: *The Migraine Physique*, Am. J. M. Sc. 180: 359 (March) 1935.

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## GONADOTROPIC HORMONE IN THE DIAGNOSIS OF CHORION- EPITHELIOMA

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The hormonal pregnancy test is important not only for the early diagnosis of normal pregnancy but also for the early recognition of pathologic changes in the placenta (hydatidiform mole, chorionepithelioma). In a lecture at the Viennese Biologic Society on April 15, 1929, I<sup>1</sup> reported that the excretion of gonadotropic substance in the urine in cases of hydatidiform mole is from two to three times as great as in normal pregnancy and that the concentration of this principle in the fluid of the mole is greater than in its wall. Thus I demonstrated that the production of gonadotropic substance in hydatidiform mole is greater than in normal pregnancy. In 1930 Robert Meyer<sup>2</sup> reported that the hormone excretion is also increased in chorionepithelioma. In a case of chorionepithelioma of the kidney a positive pregnancy test was obtained with only one-seventieth cubic centimeter of urine. Aschheim<sup>3</sup> had previously ascribed the formation of luteal cysts in the ovary in hydatidiform mole and chorionepithelioma to a secretion of the anterior pituitary. The question remained whether in hydatidiform mole and in pregnancy more hormone is actually produced or whether more is just retained.

That the demonstration of an increased excretion of gonadotropic substance in the urine is important for early diagnosis of chorionepithelioma is now acknowledged unanimously in the literature. Physicians are obliged to have the urine of every woman who has suffered from hydatidiform mole assayed for this factor. While the increased excretion of gonadotropic principle usually ceases about one week after delivery of a normal placenta, it may continue for from four to twelve weeks following discharge of a hydatidiform mole. I recommend the following procedure: In case the pregnancy test is still positive six weeks after the discharge of a hydatidiform mole and the content of gonadotropic factor in the urine increases progressively during this time, it is probable that a chorionepithelioma is present. Quantitative assay for gonadotropic substance is especially important in such cases. If a positive pregnancy test can be obtained at the same time with spinal fluid (undiluted or diluted), this is further confirmation of the diagnosis. As a further diagnostic

safeguard a carefully performed exploratory curettage is necessary. In case histologic examination of the curettage material is doubtful, which may sometimes be the case, assay of the urine for gonadotropic factor is of greater significance in the diagnosis than the histologic examination.

In case the pregnancy test has become negative following discharge of the hydatidiform mole, the patient's urine should be assayed at monthly intervals. If the negative reaction becomes positive again, the following possibilities must be considered: either there is a new pregnancy or the patient has a chorionepithelioma. I wish particularly to emphasize the possibility of a new pregnancy, because chorionepithelioma is usually the first thing thought of in these cases. There is always the danger of interrupting a normal pregnancy or even of extirpating the pregnant uterus of a healthy young woman. If gynecologic examination does not establish the presence of a new pregnancy, quantitative urinary assay for gonadotropic substance should be performed. In normal pregnancy the excretion of this factor is much less than in chorionepithelioma.<sup>4</sup>

**Method.**—Examination of urine and spinal fluid is performed with the methods usually employed for the pregnancy test. The content of gonadotropic substance being far greater in chorionepithelioma than in normal pregnancy, the urine as well as the spinal fluid must be correspondingly diluted with water. In a normal pregnancy reactions II and III ("blutpunkte" and luteinization) are obtained in mice with from 1.2 to 2.4 cc. of urine. In chorionepithelioma 0.001 cc. may be sufficient. Titration is performed in such a way that the amount of fluid to be examined is injected into infantile mice, divided in six doses in the course of forty-eight hours.

**Tissue Assay.**—For the diagnosis of chorionepithelioma, qualitative and quantitative tissue assay for gonadotropic substance is also important. This procedure<sup>5</sup> which I proposed in 1930, often gives valuable information; for this reason I am presenting it here as it is only rarely employed.

(a) **Implantation.**—The tissue to be examined is finely cut and amounts of up to 200 mg. are implanted into the femoral musculature of two infantile mice. This is the method by which I demonstrated the gonadotropic function of the anterior pituitary in July 1925. The implanted foreign tissue disintegrates in the musculature of the mouse and is absorbed.

(b) **Extraction.**—As one cannot be certain whether or not complete absorption occurs, which may lead to quantitative errors, I prefer the extraction method; this is performed as follows: The tissue to be examined is finely minced and left in ether for twenty-four hours; toxic substances are extracted by ether from tissue (as well as from blood and urine)<sup>6</sup> but not gonadotropic substance. The ether is then poured off and the tissue very energetically mixed to a mash with the addition of from two to three times the amount of sterile sea sand and ten times the amount of distilled water. The mixture is shaken for several hours (at least six, preferably twelve) in a shaking

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1. Zondek, Bernhard: *Endokrinologie* 5: 429-430 (Oct.) 1929.

2. Meyer, Robert: *Zentralbl. f. Gynäk.* 54: 431 (Feb. 15) 1930.

3. Aschheim, Selmar: *Zentralbl. f. Gynäk.* 52: 602 (March 10) 1928.

4. Zondek, Bernhard: *Hormone des Ovariums und des Hypophysenvorderlappens*, ed. 2, Vienna, Julius Springer, 1935, pp. 366-373, 552-556.

5. Zondek, Bernhard: *Zentralbl. f. Gynäk.* 54: 2306 (Sept. 13) 1930; *Hormone des Ovariums und des Hypophysenvorderlappens*, ed. 2, p. 554.

6. Zondek, Bernhard: *Zentralbl. f. Gynäk.* 54: 2307, 1930; *Hormone des Ovariums und des Hypophysenvorderlappens*, ed. 2, p. 556.

X-ray studies of the sella turcica were made in eleven cases. Four of these showed complete bony bridging of the interclinoidal space and three others showed small sellae almost bridged over, while only four were normal. It is not within the scope of this paper to enter the controversy concerning the possible connections between abnormal sellae and menstrual headaches, and this observation is entered merely as a matter of record.

#### TECHNIC EMPLOYED

What is here meant by a month's course of treatment? After experimenting with gonadotropic factor from pregnancy urine for the preceding two years, finally, early in 1933, I evolved the following routine: Beginning on the fifth to the seventh day after the onset of the menstrual flow a small dose, usually ranging from 2 to 6 rat units, is given; the dose is slightly increased daily until the tenth day, then rapidly increased, reaching a maximum of from 50 to 125 rat units on the fourteenth day, after which from 25 to 50 units is given daily until the onset of the next menstrual period.

#### COMMENT

The theory on which this routine was originally based was erroneous, as will appear later in the discussion, but the fact of relief of menstrual migraine remains. Psychic effect can be ruled out first because of the number of patients involved, all with a special type of migraine, and, secondly, because most of them had been previously treated without relief over a long period of time, some of them by me, and were pathetically accustomed to hypodermics. Patient 1 had some time previously been given 50 units of a similar pregnancy urine preparation three times weekly for four weeks without benefit.

What then is the action of gonadotropic substance from pregnancy urine in relieving menstrual migraine? At the time of its adoption the foregoing routine of administration was based on the then current theory<sup>12</sup> that small doses early in the menstrual cycle produce follicular stimulation and that the large doses induce ovulation and luteinization at the time they should normally occur, after which only small doses are needed to maintain luteinization. Viewed in the light of later experimentation this theory is probably invalid, since in the macaque monkey no ovarian stimulation is ever obtained,<sup>13</sup> and Geist<sup>14</sup> from his preoperative experiments on women concludes that "apparently there is no stimulation of the follicle, rather an arrest of follicular development." However, as Engle<sup>15</sup> pointed out, the macaque monkey never at any time even during pregnancy excretes gonadotropic substance in the urine and hence the analogy to the human being must not be too closely drawn. Also in Geist's experiments enormous doses of gonadotropic substance from the urine of pregnancy<sup>16</sup> varying from 600 to 2,200 rat units were given over a period varying from thirty-six to 100 hours, as much as 600 rat units being given in one day in divided doses. This is far in excess of any therapeutic dose, but even so it is of interest that Geist records that the intensity of reaction in the ovary seems to bear a direct relationship to the amount of substance injected. The effect of varying therapeutic doses of gonadotropic

factor on the human ovary needs further study before dogmatic statements can be made.

Moreover, recent experimentation led by Evans<sup>16</sup> and Mazer and Katz<sup>17</sup> has shown that the combination of gonadotropic factor from pregnancy urine and the "synergist" from the anterior pituitary produces much greater ovarian stimulation than could be accounted for by the simple sum of the two extracts. Is it not probable, then, that the women in the present report had sufficient pituitary activity of their own to obtain the clinical effect of this combined therapy? The fact that they were all menstruating more or less regularly shows that they did not have a severe form of pituitary deficiency. With this amendment to the original theory, it would seem that this may be a valid hypothesis.

This fits in well with Riley, Brickner and Kurzrok's conclusions that the fundamental mechanism in the production of migraine is "one of hypophyseal hyperfunction or of ovarian hypofunction." For if the technic employed stimulates the ovary to a greater production of estrogen, this through its claimed depressant action on anterior pituitary gonadotropic hormone production would correct a previously existing ovarian hypofunction and anterior pituitary hyperfunction and by restoring the balance between these hormones remove the cause of the migraine attack.

One other possibility must be mentioned. Perhaps lending some support to the allergist's view of migraine is the fact that of the seventeen women four, or 24 per cent, gave a family history of allergy; eight, or 47 per cent, had themselves one or more of the accepted manifestations of allergy; four, or 24 per cent, gave a family history of migraine, and two, or 12 per cent, had a family history of epilepsy. If the migraine attacks were due to a sensitization to gonadotropic factor, this technic of beginning with a small dose of gonadotropic factor extracted from the urine of pregnancy and increasing very gradually to the larger doses may have simply desensitized the patients to gonadotropic factor and thus prevented their attacks. On the other hand, here again it may have been an ovarian stimulation which prevented the excessive or unopposed production of gonadotropic substance at the time of menstruation.

Still unexplained, however, and seemingly ignored in published papers on the estrogenic-gonadotropic balance in migrainous women are two facts: first, that so many women subject to migraine have no attacks during pregnancy, when there is an excess of both the luteinizing factor and estrogen, and, second, that in most women the migraine attacks cease after the menopause, when there is little or no estrogen but an excess of follicle stimulating factor. The answers to these problems will have to await further study.

#### CONCLUSION

It must be reiterated that I am considering only one of the many facets of the migraine problem and am dealing with a highly selected group of patients afflicted with a particular type of headache. With this in mind it seems fair to conclude that the results here reported tend to confirm the hypothesis that a leading factor in the production of menstrual migraine is either an ovarian or an anterior pituitary dysfunction, and probably an ovarian hypofunction or pituitary hyperfunction.

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15. In this experiment antuitrin-S was used.

16. Evans, H. M.; Simpson, M. E., and Austin, P. R.: Further Studies on the Hypophyseal Substance Giving Increased Gonadotropic Effects When Combined with Prolan, *J. Exper. Med.* 58:545 (Nov.) 1933.

17. Mazer, Charles, and Katz, Benjamin: Clinical Evaluation of Combined Prolan and Anterior Pituitary Therapy, *Endocrinology* 17:777 (Nov.-Dec.) 1933.

readily. In the posterior vaginal wall there was a necrotic spongy, fetid tumor the size of an egg. The uterus was enlarged, corresponding to a three months' pregnancy. A piece of the tumor was taken with a curet from the uterus; the histologic examination showed an indisputable chorionepithelioma.

In this advanced case, with metastases in the vagina, the diagnosis was easily established clinically. The urine assay confirmed the diagnosis. The content of gonadotropic substance was exceedingly high, such as I had not observed before (more than 1,000,000 mouse units of follicle-stimulating and luteinizing hormone per liter of morning urine). The blood also contained an abundant supply of gonadotropic substance (500,000 mouse units of follicle-stimulating factor and 250,000 mouse units of luteinizing principle per liter of serum). In this case the spinal fluid was also examined (40,000 mouse units of follicle-stimulating factor and 6,666 mouse units of luteinizing substance per liter).

**Tissue Assay.**—As the vaginal metastasis was already necrotic, its content of gonadotropic principle was very small (600 mouse units of follicle-stimulating factor per gram. No luteinizing effect was obtained at all. In the uterine tissue, which also showed necrosis, I found 1,500 mouse units of follicle-stimulating substance and 300 mouse units of luteinizing factor per gram of tissue.

Two weeks after admission to the hospital the patient died with high fever and cerebral symptoms.

**CASE 3.**—This case has been reported elsewhere.<sup>11</sup> I mention it here because of the data furnished by tissue assay and investigations of the pituitary. This case was referred to me by Dr. James Heyman of Radiumhemmet during my stay in Stockholm. The patient was a woman, aged 27, in whom a hydatidiform mole of a size approaching the fourth month of pregnancy had been removed in November 1933. Jan. 1, 1934, severe hemorrhage occurred. In the introitus vaginae there was a plum-sized spongy, grayish-black, friable tumor which bled easily; a similar tumor was found in the posterior vaginal wall. The os uteri was open three finger breadths and was filled with an egg-sized, spongy, friable tumor. Histologically this was an indisputable chorionepithelioma. It metastasized rapidly, and death occurred Jan. 27, 1934. Autopsy showed metastases in the liver and in the lung.

Assay of the urine some days before death occurred had shown a value of 100,000 mouse units each of follicle-stimulating and luteinizing factors per liter. The blood contained 10,000 mouse units of each per liter. A quantitative assay of the primary tumor was impossible because of extensive necrosis, but assay of the metastasis in the lung gave 100 mouse units each of follicle-stimulating and luteinizing factors per gram of fresh tissue (extraction method).

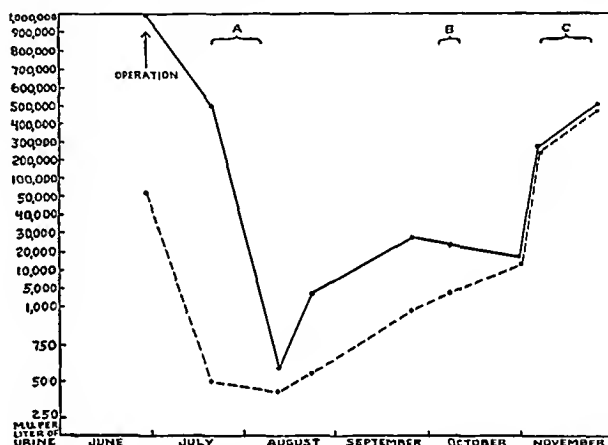
The pituitary gland was impressive macroscopically by its size. It was cut through sagittally; one half was examined histologically and the other half assayed biologically. The anatomic examination (performed by Professor Berblinger) revealed typical pregnancy cells in the posterior part of the anterior lobe; otherwise the cellular structure was normal. Assay of the pituitary was performed by the implantation method. Although ordinarily the pituitary from cases of chorionepithelioma is found to be free of gonad-stimulating effect, in this case gonadotropic substance was present; however, only a follicle-stimulating effect was obtained and this was less than that of the normal gland. About ten times the normal amount of gland was necessary (i. e., 50 mg.) to produce follicular maturation. A luteinizing effect could not be obtained even after implantation of 100 mg. of tissue.

#### COMMENT

The three cases here reported demonstrate the value of the hormonal pregnancy test in the diagnosis of chorionepithelioma. The differential diagnosis between normal pregnancy and hydatidiform mole and chorionepithelioma is rendered possible by the fact that production and excretion of gonadotropic substance is greatly increased in the latter instances. Production of gonadotropic principle is greatest at the beginning and in the early months of pregnancy; it diminishes in

the latter months (Aschheim and Bernhard Zondek). In early pregnancy the content of this substance amounts to an average of 10,000 mouse units per liter of blood and from 5,000 to 30,000 mouse units per liter of morning urine. Production of gonadotropic principle may also be increased in gestation toxicosis (G. van S. and O. W. Smith<sup>12</sup>) in such a fashion that amounts near those obtaining in hydatidiform mole may be discharged in the urine. The increased excretion therefore indicates the presence of a hydatidiform mole only if toxemia of pregnancy can be excluded. The symptoms of toxicosis are clinically so clear that an error should not arise from this source. Chorionepithelioma does not occur until weeks or months have passed after discharge of the placenta or a hydatidiform mole. As I have already mentioned, differential diagnosis of a new normal pregnancy must always be considered.

The pregnancy test is based on the occurrence of blood points (reaction II) or corpora lutea (reaction III) in the ovaries of mice; that means on the presence of the luteinizing principle ("prolan B"). Pregnancy is diagnosed when, by injection of undiluted urine, (six



Gonadotropic substance in urine in case 1. Solid line, follicle-stimulating factor; broken line, luteinizing principle. Postoperative treatment: A, intravaginal radium irradiation; high voltage roentgen therapy of the pelvis. B, C, high voltage roentgen therapy of the lungs.

injections of from 0.2 to 0.4 cc.) reaction II or III can be obtained; that is, if at least from 416 to 832 mouse units of luteinizing factor is present in a liter of morning urine. The presence of this quantity of follicle-stimulating factor ("prolan A") is not sufficient for the diagnosis of pregnancy, as such amounts also occur in urine apart from pregnancy; namely, in disturbances of the ovarian function<sup>13</sup> and in certain tumors.<sup>13</sup> While working out the pregnancy test I observed, on the occasion of a wrong diagnosis (mistaken for myoma), that reaction I (follicle maturation) may not be used for the pregnancy test; the margin of error would amount to 10 per cent if reaction I were considered a positive test.

In chorionepithelioma the production of follicle-stimulating factor may be so immensely increased, and such immense amounts of hormone may be present in the urine, that the occurrence of follicle maturation in the test animal may also be used for diagnosis to a certain degree, but only when at least 500,000 mouse units of follicle-stimulating factor is present in a liter of

11. Zondek, Bernhard: *Hormone des Ovariums und des Hypophysenvorderlappens*, ed. 2, p. 371.

12. Smith, G. van S., and Smith, O. W.: *Soc. Exper. Biol. & Med.* 30: 918 (April) 1933.

13. Zondek, Bernhard: *Klin. Wchnschr.* 9: 393 (March 1), 679 (April 12), 1207 (June 25) 1930; 11: 1839 (Oct. 29) 1932.

follicles were present; in two instances there were no unruptured follicles and only one ruptured follicle. The percentage of cases in this series which showed ruptured follicles was 67.67 and the average number of ruptured follicles when present was only 0.77. The average number of unruptured follicles was also small (2.9).

(d) When 2.5 cc. of blood serum was given in one injection and the doe killed thirty-six hours later, the test was positive in eight instances and both ruptured and unruptured follicles were present in each case (though there was only one ruptured follicle in three cases).

TEST CONDITION	NO OF TESTS	Avg. no of rupt. follicles per test	Avg. no of unrupt. follicles per test	Percentage of cases with ruptured follicles
1 MODIF. FRIEDMAN	75	1.55	6.18	70.67
2 ORIG FRIEDMAN	27	1.70	8.70	70.37
3 10 cc---36 HOURS	9	1.077	2.90	67.67
4 2.5 cc---BLOOD SERUM	8	1.75	2.50	100.00
5 5 cc---BLOOD SERUM	11	0.82	5.82	54.50
6 1000-1360 GRAMS	26	1.10	5.85	53.84
7 1380-2700 GRAMS	28	1.77	7.07	88.48
8 SG 1.006-1.010	14	1.28	7.57	64.28
9 SG 1.014-1.024	14	1.50	7.56	78.57
10 ALKALINE URINE	15	1.80	5.13	80.00

Summary of results under ten test conditions.

The average number of ruptured follicles was 1.75 and the average number of unruptured follicles was 2.5.

(e) When one injection of 5 cc. of blood serum was made and the animal killed thirty-six hours after the injection, the test was positive in eleven instances. In six cases there were ruptured follicles, unruptured follicles also being present (54.5 per cent). The average number of ruptured follicles was 0.82 and the average number of unruptured follicles was 5.82.

2. *Age and Weight of Test Animals.*—It is said to be desirable to use rabbits that are at least 6 months old. Since we did not raise our own test animals we had no way of being certain how old each animal was. Therefore we depended on the weight. Here again consideration must be taken of the fact that different breeds mature at different weights. It is often stated that the test animal should weigh at least 4 pounds (1,814 Gm.).

We ran a series of twenty-six does of three breeds (New Zealand, Belgian and Chinchilla) in which no animal weighed more than 3 pounds (1,363 Gm.). The weights ranged from 1,000 to 1,360 Gm. and the average weight was 1,272.88 Gm. Only two of the animals weighed less than 1,200 Gm. (1,000 and 1,025 Gm.).

Fourteen of these animals were subjected to the Friedman 10-10 modification and eight to the original Friedman test; four were given one 10 cc. injection and killed in thirty-six hours.

The test was positive in every case. In fourteen instances there were both ruptured and unruptured follicles. In twelve cases there were no ruptured follicles, though unruptured follicles were present. Unruptured follicles were present in every case.

The average number of ruptured follicles was 1. The average number of unruptured follicles was 5.85.

Ruptured follicles were present in 53.84 per cent of the cases. For the purpose of comparison, twenty-six results with rabbits weighing more than 3 pounds (from 1,380 to 2,700 Gm.; average, 1,754.61 Gm.) were averaged. In eleven the Friedman modification was used, in seven the original Friedman test, in two the injection of one 10 cc. quantity killing the animal in thirty-six hours, in three 2.5 cc. blood serum and in three 5 cc. of blood serum. The average number of ruptured follicles was 1.77, unruptured 7.07, and in 88.48 per cent ruptured follicles were present. It can readily be seen that quantitatively the results were better with the heavier rabbits.

3. *Specific Gravity of Urine.*—Selecting eight instances with urines of specific gravity each of 1.010, four with 1.008, one with 1.007 and one with 1.006, we found that the test was positive in each case for an average of 1.28 ruptured follicles, 7.57 unruptured and with ruptured follicles in 64.28 per cent of the tests. In the 1.007 specimen there was only one ruptured follicle and none unruptured. In the 1.006 specimen there were no ruptured follicles and five were unruptured. The tests were negative in four instances with specific gravities of urine from pregnant women of 1.007, 1.006, 1.005 and 1.005.

For comparison, fourteen tests were selected in which the specific gravity of the urines ranged from 1.014 to 1.024, with an average of 1.018. The average number of ruptured follicles was 1.5 and of unruptured follicles 7.56, and ruptured follicles were present in 78.57 per cent of the tests.

While this record is not much better than that of the 1.006 to 1.010 group, the negative tests in the 1.005 to 1.007 group are significant.

4. *Reaction of Urine.*—In fifteen of our tests the reaction of the urine was alkaline. The average number of ruptured follicles was 1.8 and of unruptured 5.13, and there were ruptured follicles in 80 per cent of the cases. These results do not compare unfavorably with those given in 1 a and 1 b.

This is in accordance with the observations of Elden and Fellows,<sup>2</sup> who found that although the anterior pituitary-like hormone of the urine is most potent at a  $pH$  of from 6.1 to 7.3 and that the potency is reduced by alkali content, their observations in no way affected the Friedman modification of the Aschheim-Zondek test because large quantities of urine (from 5 to 10 cc. on each injection) are used.

Some of our test animals died during or immediately after injections and we considered the possibility of alkalosis as a cause of death. In order to test this point seven does were injected with alkaline urines of  $pH$  from 7.4 to 8.4, but none of them showed any untoward effects from the injections.

#### CONCLUSIONS

1. The presence of one or more ruptured follicles in either ovary or both ovaries in this test constitutes a positive reaction. The presence of several unruptured hemorrhagic follicles in both ovaries (usually two or more in each ovary) is also a positive reaction. Unruptured hemorrhagic follicles are red; black follicles of all sizes have no significance and must be disregarded. (Corpora lutea visible to the naked eye do not develop within forty-eight hours, nor can they be seen with the

2. Elden, C. A., and Fellows, M. D.: Relation of Potency of Anterior Pituitary-like Hormone to Hydrogen Ion Concentration, *Proc. Soc. Exper. Biol. & Med.* 32: 1597 (June) 1935.



in the tumor tissue in a dysgerminoma, but it was present in the chorionepitheliomatous areas in large quantities. One can also get some idea of the malignancy of a particular tumor by means of these assay methods: hormonal tissue diagnosis and hormonal urine analysis. The latter seems to me to be confirmed by the investigations of Ferguson.<sup>19</sup> I am, however, skeptical whether the anatomic structure of a tumor can be ascertained by the hormone excretion as accurately as Ferguson appears to believe.

It is interesting that both in normal pregnancy and in cases of chorionepithelioma the pituitary gland has been found to be free of gonadotropic substance (Philipp, Zondek, Fels). In contrast to these observations, assay of the anterior pituitary in case 3 indicated the presence only of follicle-stimulating but not of luteinizing factor. But the content of the former was diminished by 90 per cent. The question has frequently been discussed whether the large increase of gonadotropic hormone occurring in pregnancy has its origin in the pituitary gland or in the placenta. Because in pregnancy this substance is not found in appreciable quantity in the anterior lobe but does occur in large amounts in the placenta, the conclusion has been drawn that it originates in the placenta. It is difficult to understand why the function of the anterior pituitary should so change in pregnancy as well as in chorionepithelioma and malignant testicular tumors. The reduced content of hormone in the gland does not in my estimation prove absence of function. It would exceed the scope of the present paper to go into this question which I have considered elsewhere.<sup>20</sup> One point may be mentioned here, however. Hohlweg and Junkmann<sup>21</sup> and Schoeller<sup>22</sup> have suggested the existence of a cerebral sexual center, which is regulated by the estrogenic hormone. Reduction in or absence of estrogenic hormone would lead—by influence on the center—to an increased activity of the pituitary gland; increased production of follicular hormone would in the same way inhibit secretion by the anterior lobe. The rise in the level of the estrogenic hormone in pregnancy so affects the sexual center that the anterior pituitary ceases its production of gonadotropic hormone. However, in chorionepithelioma and in malignant testicular tumor the anterior pituitary contains little or no gonadotropic hormone. In these conditions the amount of estrogenic substance is not increased; consequently anterior pituitary function cannot be interrupted in these instances by estrogenic hormone. If the negative hormone finding in the pituitary of pregnancy is explained by the increased level of estrogen, the negative hormone finding in the pituitary gland in chorionepithelioma and in testicular tumor is inexplicable on this basis. The absence of gonadotropic hormone in the pituitary of pregnancy cannot be considered proof of the existence of a sexual center controlled by estrogenic hormone. As I have demonstrated recently by experiment,<sup>23</sup> the function of the anterior pituitary (gonadotropic hormone, growth hormone) can be impaired by estrogen; however, the production of gonadotropic hormone in the cells of the anterior pituitary is not inhibited, but only delivery of the hormone into the blood stream.

## SUMMARY

1. In the pathologic placenta (hydatidiform mole, chorionepithelioma) the production and excretion of gonadotropic substance may be immensely increased. The hormone appears in greatly increased amounts in the blood, urine and spinal fluid.

2. A diagnosis of hydatidiform mole cannot be considered as established unless, in repeatedly performed examinations, at least 200,000 mouse units of luteinizing principle is found in the urine and, in addition, a positive luteinizing reaction is obtained from the spinal fluid, preferably diluted. It is necessary to rule out toxemia of pregnancy, as in this condition large amounts of luteinizing substance are also excreted in the urine. However, in the latter case only a follicle-stimulating effect is obtained in spinal fluid.

3. If the pregnancy test still remains positive six weeks after the discharge of a hydatidiform mole, and if the content of gonadotropic substance in the urine has progressively increased in this period, it suggests a diagnosis of chorionepithelioma particularly if a positive reaction is also found in the spinal fluid. For confirmation of the diagnosis, exploratory curettage is necessary. If the result of the histologic examination is doubtful, the result of biologic assay of the urine and the spinal fluid is of great significance.

4. In case the pregnancy test has become negative after the discharge of the hydatidiform mole and once more becomes positive within some time there is either a new pregnancy or a chorionepithelioma. Differential diagnosis must be established by clinical observation and, in addition, by quantitative urine assays.

5. The assay of urine for gonadotropic substance is of importance not only for diagnosis but also for prognosis in chorionepithelioma. If the pregnancy test has become negative following therapeutic measures, and if luteinizing substance occurs once more in the urine, this indicates that the malignant process is proceeding. Apparent clinical improvement may often be deceiving in such cases.

6. A considerable reduction in excretion of follicle-stimulating hormone occurring suddenly without therapeutic measures is clinically a threatening sign, although when this occurs following therapy it is usually considered a favorable sign.

7. As the normal placenta is rich in gonadotropic material, the presence of 800 mouse units of luteinizing substance per gram of fresh tissue obtained by curettage must be established before one can diagnose a malignant condition. If 100 mouse units per gram is found in extra-uterine tumors, this indicates that the tumor is a metastasizing or extragenital chorionepithelioma.

8. Chorionepithelioma of the testicle or testicular teratoma with chorionepitheliomatous inclusions lead to a strongly increased production and discharge of follicle-stimulating and luteinizing factors. This increased excretion may also occur occasionally with other testicular tumors. It is absent in dysgerminoma. Tissue assay of testicular tumors furnishes valuable information as to the nature of the tissue. Dysgerminomas do not contain gonadotropic substance; the chorionepitheliomatous parts contain much of this factor.

9. The anterior pituitary in normal pregnancy as well as in chorionepithelioma and in malignant testicular tumor contains little or no gonadotropic hormone.

19. Ferguson, R. S.; Downes, Helen R.; Ellis, Edward, and Nicholson, Mary E.: *Am. J. Cancer* 15: 835 (April) 1931. Ferguson, R. S., *ibid.* 18: 269 (June) 1933; *Am. J. Roentgenol.* 29: 443 (April) 1933; *J. Urol.* 31: 397 (March) 1934.

20. Zondek, Bernhard: *Hormone des Ovarium und des Hypophysenvorderlappens*, ed. 1, chapter 36.

21. Hohlweg, Walter, and Junkmann, Karl: *Klin. Wchnschr.* 11: 321 (Feb. 20) 1932.

22. Schoeller, W.: *Deutsche med. Wchnschr.* 60: 21 (Jan. 5) 1934.

23. Zondek, Bernhard: *Lancet* 2: 842 (Oct. 10) 1936.

ing a three year survival of a patient with a melanotic sarcoma of the skull, and another section was removed from the specimen and studied. It was then diagnosed cavernous hemangioma. Cushing stated that "although

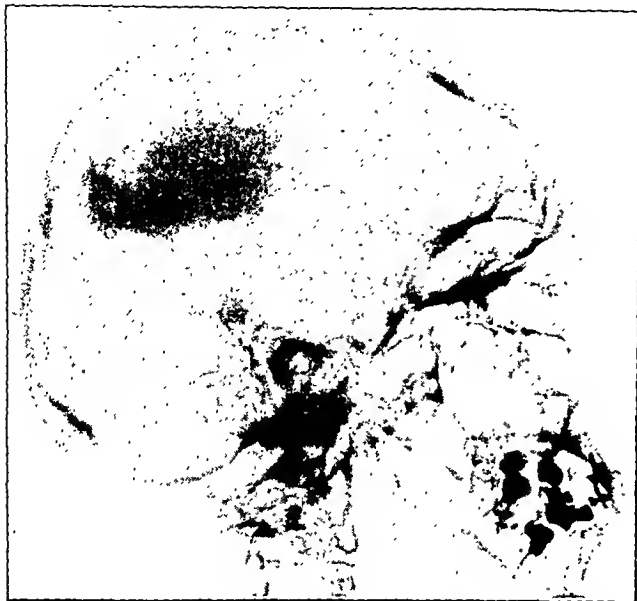


Fig. 2.—Same case as in figure 1 fifteen years later. The tumor is larger and contains relatively more bone. The anterior and posterior trephine openings are still evident. Vessel grooves are prominent.

clinically and histologically the diagnosis of malignancy seemed warranted, the x-ray did not tend to confirm this diagnosis."

The patient under discussion in the present report fared better eventually than the majority of other

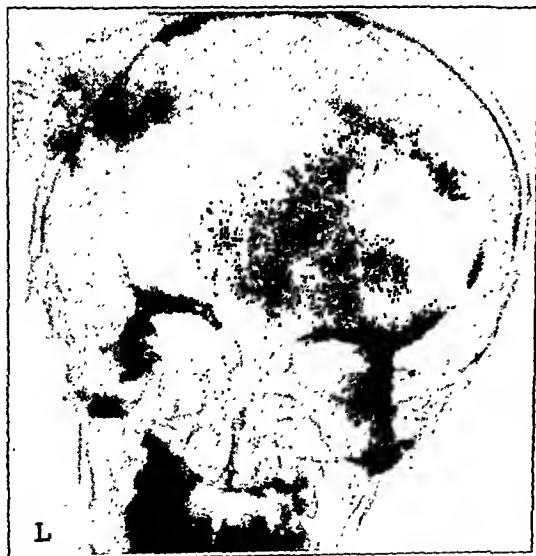


Fig. 3.—Anteroposterior view at 11 years. The tumor mass does not encroach on the brain because the inner table is preserved.

reported cases.<sup>4</sup> Because of Montgomery's last minute decision not to remove the tumor, the patient is living

and enjoying good health, and there is no void in the skull tables. On account of the profuse hemorrhage, which could hardly be controlled, it is unlikely that she would have survived had the operation been carried to completion.

The published roentgenograms of proved cases of hemangioma of flat bones have for the most part shown strikingly similar patterns of density. This was nicely brought out in Bucy and Capp's<sup>4</sup> study of their own cases and their review of previously recorded cases. It has been my privilege to see a roentgenogram of one of their cases, in which there was a large sunray hemangioma of the scapula, six years after their report. The growth is no larger and the bone is of increased density on the roentgenograms, apparently because of a greater deposit of bone. These changes occurred rapidly following roentgen therapy and no growth has been noted since the first course of roentgen therapy.

The same change seems to have occurred in the case here reported, but at an unusually slow rate, requiring fifteen years (figs. 2 and 4) without roentgen therapy. It seems most likely that the tumor would have resolved into a small solid mass of bone early in its course had roentgen therapy been given early when the tumor was predominantly vascular. It is interesting, in reviewing the published cases, to find in most instances when hemangiomas were mistaken for malignant neoplasms that flat bones were involved. Sarcoma of flat bone is less prone to present a sunray appearance. Sometimes a coral reef pattern of density is presented by heman-

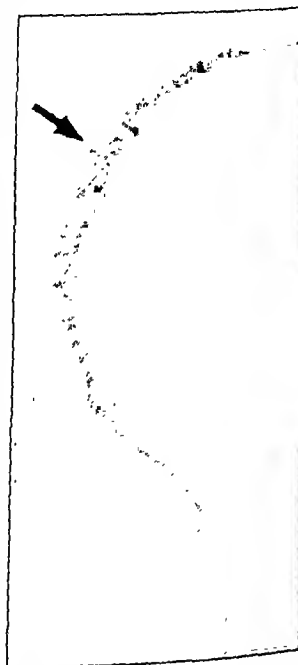


Fig. 4.—Anteroposterior view at 26. Lighter exposure shows coarse bony spicules maintaining the "perfect" sunburst pattern.

gioma and only infrequently has there been erosion of bone by pressure producing a smooth defect. When a smooth defect is produced, the roentgenogram is of little value in differentiating hemangioma from other large primary tumors within the skull. Occasionally hemangioma, like meningioma, burrows its way along the skull tables, but when spicule formation has taken place in meningioma the spicules most often do not radiate from a central point but are more parallel and cover a larger area on the skull.<sup>2</sup>

Tumors with radiating spicules of bone have been found most often in roentgenograms of long bones and have proved to be malignant neoplasms (osteogenic sarcoma). Likewise, hemangiomas of long bones have produced evenly spaced divergent trabeculations, as well as the so-called soft soap bubble appearance, loculations with paper-like thin walls. In both hemangioma and sarcoma the periosteum is elevated gradually by the new growth, and spicules of bone are formed which elongate at right angles to the advancing periosteum. Usually in sarcoma the growth has occurred too rapidly

4. Bucy, P. C., and Capp, C. S.: Primary Hemangioma of Bone with Special Reference to Roentgenologic Diagnosis. *Am. J. Roentgenol.* 23: 1-35 (Jan.) 1930. Cushing, H.: Hemangioma of Cranium: Two Cases. *Deutsche Zts.* 1932. Ehrmann, G.: Ueber einen Fall von Os Occipitale. *Beitr. z. path. Anat. u. z. allg. Path.* 1903. Erös, G.: Multiples Hämangiom der f. allg. Path. u. path. Anat. 43: 532-538 (Oct. 1903). Lehrbuch der speziellen pathologischen Anatomie für Studierende und Aerzte, Berlin, W. de Gruyter & Co., 1922, p. 937. Schinz, H. R., and Uehlinger, E.: *Ergebn. d. med. Strahlenforsch.* 5: 418-424, 1931.

this time an x-ray study of the sella turcica showed a complete bony bridging between the anterior and posterior clinoids. Daily treatment with gonadotropic factor from pregnancy urine was instituted. Ten days later she menstruated and complained of only a slight headache. The next month routine therapy, as described later, with the same preparation was given and she had a period entirely without symptoms. Treatment was continued during the succeeding nine months with the frequency of the dose gradually reduced. The menstrual cycle increased to twenty-six or twenty-seven days, very occasionally with a slight transient headache but usually with none at all. She then discontinued treatment for four months but since the headaches returned and she found that a single small dose of gonadotropic factor from pregnancy urine (18 rat units) would relieve them, she has taken this amount about twice a month during the past year.

CASE 2.—An unmarried nurse, aged 43, whose headaches had been growing progressively more severe for several years, was given anterior pituitary extract and solution of posterior pituitary with no effect on her headaches. For about two years she was considerably relieved by injections of a commercial ovarian extract. For the last six months her headaches had failed to be so relieved, had become practically continuous and were so severe that she was taking daily from 3 to 4 grains (0.2 to 0.25 Gm.) of codeine in addition to large doses of acetylsalicylic acid and aminopyrine. She was given daily injections of estrogen but her headaches became so much more severe that this was discontinued and from Jan. 6 to 22, 1934, she was given daily injections of gonadotropic factor extracted from the urine of pregnancy. From January 9 until July she remained free from headaches. When last seen in May 1936 she was still comfortable, though she had taken an occasional short course of treatment with gonadotropic factor from the urine of pregnancy when the headaches appeared to be returning.

CASE 3.—A married woman, aged 44, complained that her periods since their onset at the age of 17 had always been accompanied by a severe headache, either unilateral or bilateral, beginning from three to four days before the flow and associated with nausea, faintness, nervousness, the passing of urine every few minutes, and loose movements. For many years she had been given thyroid and ovarian and pituitary preparations without relief. In March 1933 she was given estrogen for two months with considerable relief, but not freedom, from headaches. In May she was changed to gonadotropic factor extracted from the urine of pregnancy five days before the onset of menstruation, which was accompanied by a three day headache. The following month she had a full course of the gonadotropic factor, which has since been continued in reduced dosage, and she has gone three years with only an occasional slight transient headache except on one occasion when she had been without treatment for three months.

CASE 4.—A married woman, aged 31, just before the appearance of the catamenia at 10½ years had the first of many attacks of unconsciousness diagnosed at various times as epilepsy and major hysteria. These attacks had disappeared in recent years but had been replaced by severe headaches occurring chiefly preceding her menstrual periods, which were slightly late and very short and scanty. She had for twenty years been continuously under treatment of various sorts, including thyroid and pituitary preparations, without relief. In the past year her headaches had become practically continuous and she was utterly exhausted. A report of an x-ray study made in 1929 read "The sella turcica appears to be smaller than normal and the posterior clinoids are prominent." For part of the first month she was given a small dose of thyroid by mouth and gonadotropic factor from pregnancy urine by hypodermic injection with slight improvement. The second month she was given estrogen both by mouth and by hypodermic injection with moderate improvement. The third month, June 1933, she was given a full course of gonadotropic factor, and this treatment is still, in May 1936, being continued in reduced dosage. During the past three years her periods have been more normal in amount and without suffering. She has very rarely had a headache and never a severe one except during a period of time when treatment was discontinued for two months. Whereas she was previously an invalid, she has for the past three years been running the household for a large family.

CASE 5.—A married woman, aged 28, had severe menstrual cramps until her first pregnancy, which was terminated at three and one-half months by a therapeutic abortion because of pernicious vomiting. After this she had no cramps but instead each month a severe headache with nausea on the last day of her period. The duration of this complaint had been over a year, when in August 1933 she was given one course of gonadotropic factor from the urine of pregnancy. In February 1936 she reported that she had not had a headache since that time.

CASE 6.—A girl, aged 17, complained of a severe headache every month just before or after her periods, which began at 12½ years. During the past year the headaches had been much worse and appeared at other times of the menstrual cycle also. In October 1933 she was given one course of gonadotropic factor from pregnancy urine, following which she was entirely free from headaches except during one menstrual period, until last seen one and one-half years later.

CASE 7.—A nurse, aged 31, single, had been variously treated for headaches, often accompanied by nausea and vomiting, which always recurred two or three days before menstruation. In September 1933 she was given thyroid and one course of gonadotropic factor from the urine of pregnancy, which was followed by three symptom-free periods. The next month, while she was still taking thyroid, the headache recurred, though it was not so severe as originally. Following a second short course of gonadotropic therapy her periods remained symptom free and regular until July 4, 1935, when eighteen days after the onset of the previous period uterine bleeding began, which lasted for twenty-eight days and ceased after she received daily doses of from 1 to 2 cc. (125 to 250 rat units) of gonadotropic factor from pregnancy urine. It is of interest that after each of the first few of these large doses headache developed, the first headache of any sort she had had for nearly two years. X-ray studies of the patient's sella turcica show a complete bony bridging between the anterior and posterior clinoids.

#### COMMENT

Further detailed histories would be wearisome, but seventeen patients with menstrual migraine have been similarly treated and followed over a period of three years. All were relieved although some, usually those who had suffered most severely over the longer periods of time, have been unable to discontinue treatment entirely. This does not mean that all patients with such headaches would be relieved or even so treated. Many respond favorably to other methods of treatment, notably either the estrogen or estriol complex (emmenin). Others have suffered local and general reactions so that treatment was discontinued, as in the following case: A woman, aged 25, amenorrheic for two years, had migraine attacks usually at intervals of from four to six weeks. Repeated attempts were made to treat her with gonadotropic substance from pregnancy urine diluted with ten times the usual amount of distilled water. Treatment was begun with as little as 0.2 rat unit, but usually when a dose between 2 and 4 units was reached she would have a severe reaction with fever as high as 103 F. It was subsequently found that an injection of an estrogenic preparation would quickly relieve her headaches, which eventually after four years of amenorrhea disappeared spontaneously. She also had a small, completely bridged sella, not included in the summary of x-ray studies which appears later.

Therapy with gonadotropic factor from pregnancy urine has also been tried in cases of migraine not associated with menstruation, without relief; in one case there was a decided aggravation of the attacks.

Of the seventeen women, eight had previously had estrogen therapy. Of these, four had been moderately benefited, three were unimproved and one complained that her headaches were much worse.

ing roentgen evidence. Roentgen or radium therapy has the same favorable effect on hemangioma of bone as on hemangioma of soft tissue if treatment is early before dense bone is deposited within the tumor. Even later it is of definite benefit in arresting growth. The sensitivity of benign hemangioma to roentgen therapy must not be interpreted as evidence favoring malignancy.

1150 North State Street.

## LOCALIZATION OF VENTRICULAR EXTRASYSTOLES

IN A HUMAN HEART WITH RIGHT  
AXIS DEVIATION

MYRON PRINZMETAL, M.D.

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The localization of the origin of ventricular extrasystoles and of the lesion in bundle branch block is still subject to dispute. Three separate ideas prevail:

1. The classic interpretation based on the fundamental studies of Lewis<sup>1</sup> and of Rothberger and Winterberg<sup>2</sup> is that the main ventricular deflection in left ventricular extrasystoles and in right bundle branch block is upright in lead I and inverted in lead III. Right ventricular extrasystoles and left bundle branch block have an opposite configuration. This conception is based on experimental work performed on dogs.

2. The new terminology based on the observations of Barker, MacLeod and Alexander,<sup>3</sup> Oppenheimer and his collaborators<sup>4</sup> and Wilson<sup>5</sup> is exactly the opposite of the classic interpretation. This conception has been accepted by most but not by all authorities in this field.

3. Finally there is the opinion of Katz<sup>6</sup> that localization of extrasystoles and bundle branch block is impossible in man.

The recent observations of Kountz and his co-workers<sup>7</sup> are of interest. Human hearts were revived immediately after death and studied in regard to localization of ventricular extrasystoles and bundle branch block.<sup>7a</sup> In all eight instances in which the

human heart was stimulated the experimentally produced extrasystoles were similar in configuration to those found by Barker, MacLeod and Alexander.<sup>3</sup> The right and left bundle branches were cut in five instances and the results confirmed the observations of Oppenheimer and his co-workers<sup>4</sup> that the common type of bundle branch block is due to a lesion of the left bundle branch, while the unusual type is due to lesions of the right branch. Their studies seem to be a complete confirmation of the new terminology of the electrocardiogram. It was later found<sup>7b</sup> that when a dog's beating heart was placed in the human pericardial cavity so that a normal or left axis deviation resulted, the electrocardiograms of experimentally produced extrasystoles and bundle branch block were similar to those found in the human hearts. However, if the dog's heart was rotated so that a right axis deviation resulted, the configuration of the electrocardiograms of the extrasystoles and bundle branch block corresponded to the classic interpretation and was opposite to that found in the presence of left axis deviation. Recently Abramson and Weinstein<sup>8</sup> showed in cats that the direction of the major ventricular deflection in lead I changes at a line of transition which does not strictly divide the left from the right ventricle. A shift in this line of transition on the heart occurred with rotation of the heart and

change in electrical axis. Because of these observations it was felt important to study experimentally produced ventricular extrasystoles in the living heart with a right axis deviation. Recently we have had such an opportunity and the results of these observations form the basis of this report:

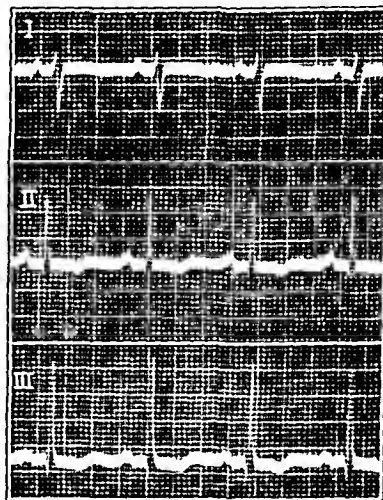


Fig. 1.—Electrocardiogram before operation, showing right axis deviation.

A laborer, aged 38, entered the Mount Sinai Hospital complaining of ascites of about eighteen months' duration. His present illness began one and

a half years before admission, at which time he noticed tenderness of the abdomen, vague pains in the epigastrium and swelling of the ankles. Fluid soon began to accumulate in the right pleural cavity. Mercurial diuretics and repeated tapping of the chest and abdomen were resorted to.

On physical examination on admission the patient was pale, thin and slightly cyanotic but not dyspneic or orthopneic. The veins of the neck were distended and were observed to fill during inspiration. The heart was of normal size and shape and the sounds were of good quality. There was no shift of the heart in any position. No systolic retraction was seen. The blood pressure was 105 systolic, 85 diastolic. No pulsus paradoxus was present. The liver was enlarged 5 cm. below the costal margin and ascites and dependent edema were present. The electrocardiogram (fig. 1) showed a regular sinus rhythm and a right axis deviation. The T wave was iso-electric in lead I and inverted in leads 2 and 3. In the right lateral position a slight shift in axis deviation occurred, but none occurred in the left lateral position.

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Dr. Prinzmetal is Richard and Ella Hunt Sutro Fellow for Cardiovascular Research and Dr. Dack is Research Fellow in the Cardiographic Laboratory.

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## SUMMARY

1. The result of treatment with gonadotropic factor extracted from the urine of pregnancy in seventeen cases of menstrual migraine followed over a period of three years was relief in all. These were selected cases, all with a special type of migraine.

2. In only four of the eleven cases studied roentgenologically was a normal sella turcica found.

3. To explain the results, the following hypothesis is submitted: These seventeen women were all menstruating more or less regularly and therefore could not have had a severe form of pituitary deficiency. Consequently administering gonadotropic substance from pregnancy urine to them was equivalent to the combined therapy of this factor and the "synergist" from the anterior pituitary, which combination has been shown to produce maximum ovarian stimulation.

4. The results tend to confirm the hypothesis that a leading factor in the production of menstrual migraine is an ovarian hypofunction, perhaps associated with an anterior pituitary hyperfunction.

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## A QUANTITATIVE STUDY OF THE FRIEDMAN TEST FOR PREGNANCY

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What constitutes a positive reaction of the ovaries of the rabbit in the Friedman<sup>1</sup> modification of the Aschheim-Zondek test for pregnancy? Of what age and weight must the test animals be? What effect does the specific gravity and the reaction of the urine have on the outcome of the test? May the ovaries be examined always by the naked eye with the assurance of correct interpretation? Which is superior in accuracy, the original or the modified Friedman technic? How much blood serum must be used instead of urine when indicated and how accurate is the result? These and other questions occur to those using this important diagnostic procedure and, while numerous articles have been published about the Friedman test, the answers are not all available from one source.

In this study between 175 and 200 doe rabbits were employed. A few of these died before routine ether extraction of urine was begun. Urine specimens were obtained through the outside obstetric service from patients known to be pregnant. Blood serum was also obtained from such patients. The following data were recorded in each test: the animal's weight, color and breed, the patient's clinic number, which pregnancy and number of months, the specific gravity and reaction of urine, the exact technic, and the number of clear, ruptured and unruptured hemorrhagic follicles. In every case the ovaries were examined by the senior author with the aid of a low power binocular microscope (magnification about 12 diameters).

In extracting with ether, about 2 ounces (60 cc.) of the urine is placed in a separatory funnel with an equal quantity of ether and shaken thoroughly, after which

the urine is drawn off. This should be done as a routine unless the specimen is known to be quite fresh. Extraction is especially desirable when the specimen has been shipped from a distance with tricresol or saponated solution of cresol as a preservative (2 drops to the ounce).

In examining the ovaries with the low power binocular one must look for the crater of the follicle where the ovum escaped. It is worth while to insert the tip of a teasing needle into the crater and to manipulate the albuminous material that clings to the crater and lies on one side of the ruptured follicle. It is also important to remember that ruptured follicles may not be hemorrhagic but at times are quite pale. In many instances ovaries would be read as negative without such careful examination. The discovery of only one ruptured follicle in only one ovary must be considered as a distinctly positive reaction.

The efficiency of the Aschheim-Zondek pregnancy test as well as of the Friedman modification has been so well established that in this study no attempt has been made to appraise its value. Consequently no mention is made of negative tests when of no significance in the quantitative investigation.

The urine or blood serum was injected into the marginal ear vein in the usual manner and the animals were killed in the majority of cases by injection of from 5 to 10 cc. of air into the vein, though a few were killed by trauma.

## RESULTS

1. *Number of Ruptured and Unruptured Follicles.*—(a) There were seventy-five positive tests with the common modification of the Friedman test of administering 10 cc. of urine twice with a twenty-four hour interval and killing the animal forty-eight hours after the first injection. In fifty-three instances the ovaries presented both ruptured and unruptured follicles; in twenty-two cases there were no ruptured follicles though unruptured follicles were present; in only one case was there no unruptured follicle when ruptured follicles were found. In the entire series the average number of ruptured follicles per test (both ovaries) was 1.55; the average number of unruptured follicles per test (both ovaries) was 6.18. The percentage of animals with ruptured follicles was 70.67. In no instance was a corpus luteum visible to the naked eye. Corpora haemorrhagica are not transformed into corpora lutea (visible to the naked eye) in the ovary of the rabbit within forty-eight hours after copulation or the injection of urine from pregnant women.

(b) When the original Friedman method of injection was used (4 cc. three times a day for two days, killing the animal forty-eight hours after the first injection) the results were positive in twenty-seven instances. In nineteen cases the ovaries were found to have both ruptured and unruptured follicles; in eight cases there were no ruptured follicles, though unruptured follicles were present; in no instance were unruptured follicles absent. The average number of ruptured follicles was 1.7 and the average number of unruptured follicles was 8.7.

The percentage of cases in this series that showed ruptured follicles is almost identical with the percentage in series a: 70.37 per cent compared with 70.67 per cent.

(c) In a series of nine cases the test was positive when the doe was killed thirty-six hours after one injection of 10 cc. of urine. In six cases there were both ruptured and unruptured follicles; in three cases there were no ruptured follicles, though unruptured

From the Department of Anatomy and the Department of Obstetrics and Gynecology, University of Georgia School of Medicine.

1. Friedman, M. H., and Lapham, M. E.: A Simple, Rapid Procedure for the Laboratory Diagnosis of Early Pregnancies, *Am. J. Obst. & Gynec.* 21: 3405 (March) 1931.



In the remaining eleven cases<sup>11</sup> in which the human heart was directly stimulated and in which a normal or left axis deviation was present, the results were uniform and support the newer terminology. It is thus concluded that the newer terminology should be retained only in the presence of a normal electric axis or of a left axis deviation.

From the observations reported here, it may follow that the lesion in bundle branch block in hearts which previously had right axis deviation may be on the side opposite to that postulated by the new terminology. A certain amount of clinical and experimental evidence is in harmony with such a point of view.

The electrocardiographic configuration of right bundle branch block, according to the new terminology, is much more common in patients with conditions that ordinarily are associated with right axis deviation, such

block develops it conforms to the usual type,<sup>15</sup> whereas if a right axis deviation has been present and bundle branch block develops, what is thought to be a right bundle branch block according to the newer terminology occurs.<sup>14</sup> Katz and his co-workers have shown that the configuration of bundle branch block in man<sup>16</sup> and in dogs<sup>17</sup> can be reversed by changing the position of the heart, a procedure which alters axis deviation.<sup>18</sup> When the heart of a dog with experimentally produced right bundle branch block was rotated so that the right ventricle was anterior, a complete reversal in the form of the bundle branch block occurred. This procedure has been shown to cause a right axis deviation.<sup>14</sup> In mitral stenosis the heart is frequently rotated in this direction because of the large right ventricle.

#### CONCLUSIONS

1. Left ventricular extrasystoles were experimentally produced during a surgical operation by direct electrical stimulation of the upper part of the left ventricle about 3 cm. lateral to the septum, in a patient whose electrocardiogram showed right axis deviation. Following the operation right ventricular extrasystoles were mechanically induced by tapping four points on the chest wall overlying the right ventricle.

2. The major ventricular deflection of the extrasystoles induced from certain sites on the left ventricle was upright in lead 1. The major deflection of the extrasystoles arising from the right ventricle was inverted in lead 1 at three of the four points stimulated.

3. These observations do not conform to the newer terminology now widely used in the interpretation of the electrocardiogram. They lead us to believe that the newer terminology can be safely applied only in the presence of a normal electrical axis or of left axis deviation.

Fifth Avenue and One-Hundredth Street.



Fig. 4.—Chest wall of patient showing the four arbitrary points A, B, C and D at which extrasystoles from the right ventricle were induced by tapping.

as mitral stenosis,<sup>12</sup> congenital heart disease<sup>13</sup> and cor pulmonale.<sup>14</sup> It is rare in conditions associated with left axis deviation. Follow-up studies of patients with left axis deviation have demonstrated that if bundle branch

11. Barker, MacLeod and Alexander.<sup>3</sup> Kountz, Prinzmetal and Pearson.<sup>12</sup> Marvin, H. M., and Beats Resulting from Di Heart J. 7: 471 (April) 1933. Produced by Mechanical S: 807 (Aug.) 1933.

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**The Tuberculin Reaction.**—After a period of from three to seven weeks of tubercle formation enough tuberculo-protein has been liberated by the bacilli, through disintegration and other processes, to result in sensitization of the tissues to this substance. Up to this time there has been no way of determining the presence of tubercle bacilli and tubercle formation in the body. There are no symptoms or abnormal physical signs, the tuberculin test is negative and roentgenograms give no aid. Indeed, before sensitization appears, tubercle formation is sufficiently under way to control the tubercle bacilli at least temporarily and often for the lifetime of the patient. After sensitization is established a most valuable diagnostic aid is available in that tuberculin or pure tuberculo-protein applied to an abrasion of the skin or administered intracutaneously results in a reaction which reveals the presence of sensitization to tuberculo-protein. As far as is known there is nothing which is taken into the body which results in such sensitization except tubercle bacilli which have caused tubercle formation. Thus, a positive reaction to tuberculin is highly diagnostic of the first infection type of tuberculosis somewhere in the body.—Myers, J. A.; Diehl, H. S.; Boynton, Ruth E., and Trach. Benedict: Development of Tuberculosis in Adult Life, Arch. Int. Med. 59: 1 (Jan.) 1937.

low power binocular microscope. Only high magnification of histologic sections could show them.)

2. In many cases the low power binocular microscope is necessary in order to reach a correct decision and will prevent repetition of the test in such cases. For recognizing ruptured follicles its use should be a routine.

3. The common modification of the Friedman test is satisfactory, though the original Friedman technic gives better quantitative results. One 10 cc. injection of urine with examination in thirty-six hours is not nearly so successful as the double injection, and better results would be obtained with two injections and examination in forty-eight hours.

4. Rabbits weighing more than 3 pounds will give better results than those weighing less, and 3 pounds is a safe minimum.

5. It is not necessary to acidify the urine, though it is better to do so, as the hormone present is more active in an acid medium. Urines do not kill test animals because of alkalinity.

6. It is safer not to use urines with a specific gravity of less than 1.008. If it is necessary to use such urines, the quantity injected in each instance should be increased at least 50 per cent.

## SUNRAY HEMANGIOMA OF BONE

WITH SPECIAL REFERENCE TO ROENTGEN SIGNS

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Only twenty-one cases of hemangioma involving the skull have been found in the literature. Of 1,831 neoplasms of bone recorded at the bone registry, thirteen have been hemangiomas. Of these, only three have involved the skull. In Christensen's<sup>1</sup> collection of 918 neoplasms of bone, less than 1.5 per cent were hemangiomas. Geschickter and Copeland<sup>2</sup> report only twelve cases of hemangioma of all types of bones in a group of more than 1,700 neoplasms of bone. These authors call attention to the fact that most of the earlier reports failed to distinguish hemangioma from sarcoma. It is interesting, in this respect, that the case which I am about to report was thought to be sarcoma when first seen in 1921. The clinical course and roentgen appearance of hemangioma of the skull over a long period is of moment, as tumors of this character, as a rule, have been considered malignant and removed fairly early.

### REPORT OF CASE

F. S., a girl, aged 11 years, came to the Children's Memorial Hospital in 1921 because of a swelling on the left side of the scalp. This had first been noticed four years previously, following a slight bump on the head while playing. There was very little pain at that time and the swelling did not attract special attention until just before the patient came to the hospital. At this time a mass protruded from the left parietal bone for a distance of 3.5 cm. The patient was well developed and well nourished and appeared healthy in every way. The mass on the head was not tender and its surface was smooth to touch. There was no exophthalmos and the movements of the eyes were normal. The blood pressure was 118 systolic, 84 diastolic, the pulse 84, the temperature 98.6 F.

After one week's observation in the hospital, during which time roentgenograms of the skull (figs. 1 and 3) had been

secured and showed radiating spicules of bone within the tumor mass, it was thought that an osteogenic sarcoma most likely accounted for the tumor mass. Under ether anesthesia, removal was attempted by Dr. A. H. Montgomery. Trephine holes were made in the skull. These were followed by profuse bleeding, which could not be controlled with Horsley's wax. The bone was then cut between the trephine openings, following which the bleeding became so severe and so difficult to control that it was decided to discontinue the operation. The patient received 1,800 cc. of saline solution under the breast immediately while on the operating table, and one hour later 1,600 cc. intravenously. Two hours later she was given 150 cc. of citrated blood. Six hours later 10 cc. of horse serum was given into the buttocks. After ten hours the patient improved slightly, but the oozing of blood continued and the patient was given 2 cc. of hemostatic serum intravenously. Although slight bleeding continued for several days, the condition finally improved and the patient left the hospital at the end of five weeks. The parents were advised to have the patient return for roentgen therapy. This they failed to do.

The patient was lost track of until 1936, then 26 years of age. In the meanwhile, the x-ray films, presenting the "sunray" pattern, had been noted, and because of previous experience with "sunray" tumors involving flat bones, which had been proved to be hemangiomas, I thought that that condition most likely accounted for the x-ray appearance in this case and that the patient was still living. She was ultimately located and additional roentgenograms of the skull were made (figs. 2 and 4). The patient, now 26 years of age, is married and has a child 2 years old. She believes that the tumor has not grown in the past six years. The tumor is covered with normal soft tissue and has not interfered with the patient's health.

### COMMENT

The "sunburst" appearance on roentgenograms of tumors of bone have in the past played an important part in facilitating a preoperative diagnosis of osteogenic sarcoma. Many of the earlier reported cases in which the skull was involved were mistakenly called

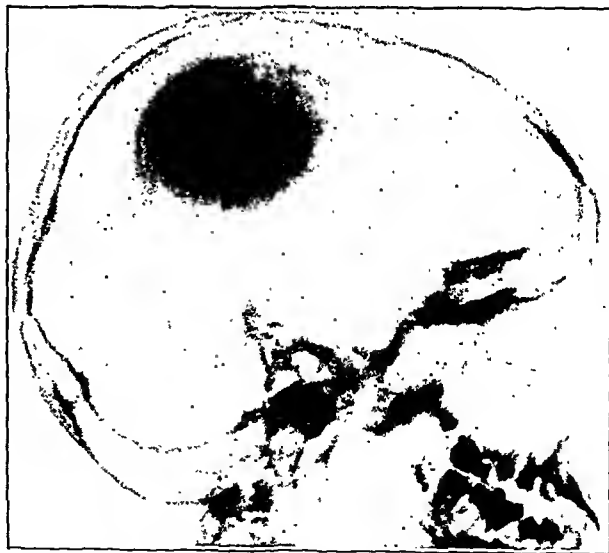


Fig. 1.—F. S., aged 11 years, showing sunray hemangioma of the left parietal bone. Growth started four years previously, following a bump on the head.

sarcoma. Occasionally the histologic diagnosis was changed to hemangioma after the patient continued to live beyond the expected period. A typical example was given by Cushing<sup>3</sup> in 1923 of a patient still living three years after a postoperative histologic diagnosis of melanotic sarcoma. Cadman expressed doubts regard-

From the X-Ray Department of the Children's Memorial Hospital.

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3. Cushing, Harvey: *Surgical End Results in General, with a Case of Cavernous Hemangioma of the Skull in Particular*, *Surg., Gynec. & Obst.* 32: 303-308 (March) 1923.

the abdomen revealed no gross abnormalities. The pelvic organs showed a cervical laceration. The knee jerks were hyperactive.

The basal metabolic rate was plus 6 October 31 and minus 6 November 12. X-ray examination revealed no evidence of substernal goiter. There was a slight enlargement of the cardiac shadow to the left. Blood count showed erythrocytes 4,400,000, leukocytes 7,400, hemoglobin 14.2 Gm., polymorphonuclears 63 per cent, lymphocytes 37 per cent. The urine was normal. Blood sugar was 100 mg. and blood urea 11 mg. per hundred cubic centimeters. The patient was considered to have a colloid goiter and was given desiccated thyroid gland 2 grains (0.13 Gm.) three times a day on the apparent evidence that the thyroid enlargement was in a sense due to work hypertrophy. November 22, after the patient had taken thyroid extract for three weeks, the basal metabolic rate had risen to plus 20. The desiccated thyroid was reduced to 1 grain (0.06 Gm.) three times a day, during which time abdominal pain developed in



Fig. 2.—Section under low power showing acini that are widely dilated and filled with colloid. In some of these there is proliferation, forming papillary projections into the acini.

the right lower quadrant. This was constant and associated with headache and pain in the right side of the neck at the site of the "goiter nodules." Twelve hours later cramps developed in the region of the umbilicus and the patient vomited. Toward late afternoon the cramplike pain extended to both lower quadrants of the abdomen but was more marked on the right side. There was also some tenderness and rigidity over the lower part of the abdomen. Peristalsis was hyperactive. The basal metabolic reading December 10 (at the time of abdominal symptoms) was plus 57. The blood count on the day when the pain was most severe was leukocytes 20,200, polymorphonuclears 67 per cent, lymphocytes 33 per cent. A surgical consultation with Dr. Eliason at this time suggested acute appendicitis. The patient was treated conservatively because of her extreme nervousness and her high basal rate. Hypodermoclysis was given. Twenty-four hours later abdominal pain ceased. There was some tenderness and rigidity over the lower right quadrant of the abdomen. The blood count showed white blood cells 29,000, polymorphonuclears 75 per cent, lymphocytes 25 per cent. At this time a persistent diarrhea

developed and the patient became quite restless. Dr. Eliason again saw her and suggested the probability of an appendiceal abscess and advised surgical intervention.

The appendix was removed and found on microscopic examination to be essentially normal, except for a slight activity of the lymphoid follicles and slight infiltration of the submucosa by small round cells. The patient became quite toxic and mentally disturbed. In view of the fact that there was neither any abdominal nor other inflammatory process found to account for her acute illness, and in view of a previous history of administration of thyroid extract, the last basal metabolic reading being plus 57, it was felt that the entire symptom complex was due to a thyrotoxicosis. In view of this she was placed on compound solution of iodine 15 minims (1 cc.) three times a day and saline hypodermoclysis. Seven days later the patient's general conditions had improved, the toxicity had decreased and the patient was returned to the medical ward in preparation for final thyroidectomy. Jan. 23, 1930, after three weeks on compound solution of iodine, the basal metabolic reading had decreased to minus 5. Six days later a subtotal thyroidectomy was done. After a stormy convalescence, during which the pulse rate went up to 180, she recovered completely and was discharged, January 28, from the surgical ward with a pulse rate of 88 and a basal metabolic rate of minus 11.

Histologic examination of the thyroid tissue reported on by Dr. W. P. Belk revealed the following: Sections gave rather an unusual picture. Certain areas showed widely dilated acini filled with colloid which had the normal acidophilic properties found in simple colloid goiter. In some of these there was proliferation, forming frondlike papillary projections into the acini. In other areas were numerous small closely packed acini, the lining of some of which was made up of rather tall columnar cells instead of the normal flat or cuboidal type, these areas being indicative of toxicity. Still other areas give the impression of having been stimulated to toxic proliferation with subsequent regression, an occurrence which sometimes results from administration of thyroid extract to patients with colloid adenoma.

The diagnosis was regressing toxic adenoma.

The patient was given thyroid extract with the hope of reducing the colloid tumor. The administration of desiccated thyroid resulted in acute thyrotoxicosis, the basal metabolic rate having risen to plus 57 from minus 6. During the thyrotoxicosis acute abdominal symptoms developed that resembled acute appendicitis. The appendix proved histologically to be normal. Subtotal thyroidectomy resulted in amelioration of the patient's thyrotoxic symptoms.

One of us knows of a patient who was admitted to the Mount Sinai Hospital of Philadelphia in the summer of 1933 with persistent vomiting, obstipation of nine days' duration and abdominal pain. The diagnosis of intestinal obstruction was made. A barium sulfate enema revealed marked spasticity of the rectum and sigmoid but no obstruction. After the acute emergency was over a more careful medical survey showed clinical signs of hyperthyroidism with a basal metabolic rate of plus 57.<sup>8</sup> A differential diagnosis cannot always be made. The patient's condition before operation suggests a widespread abdominal pathologic process.

CASE 2.—*Thyrotoxicosis with abdominal symptoms simulating appendicitis. Administration of compound solution of iodine relieved symptoms of thyrotoxicosis and abdominal pains. With omission of iodine therapy the abdominal pain recurred.*

Miss H. S., aged 17, came to Temple University Hospital Oct. 17, 1931, with palpitation, pain in the loin and a gain in weight (23 pounds [10.4 Kg.] in the past few months). The patient stated that she had been well until nine months before, when she commenced to put on weight. Gradually she became drowsy and less active. She ate moderately but drank large quantities of water. Menstruation began at the age of 14 and

8. Scarf, M.: Personal communication to the author, paper to be published in the Journal of Laboratory and Clinical Medicine.

and there has been too much destruction of preexisting bone for the perfect "sunburst" effect noted in the benign, slowly growing hemangioma. The fact that sarcoma of the long bones has been more often encountered no doubt accounts for the frequently mistaken diagnosis when the sunray hemangioma of flat bones has been present. Hemangioma of long bones only seldom has produced the more imperfect "sunburst" of sarcoma. As a rule its structure has been more complete, resembling more an osteochondroma or an overgrown cystlike structure, often suggesting its benign character. The cortex of involved bone is not broken into bits but is replaced by the hemangioma in a slow, most orderly fashion.

An almost constant x-ray appearance has been produced, according to numerous recent reports,<sup>5</sup> when hemangiomas involve vertebral bodies. Vertical streaks of parallel densities are seen on the roentgenograms somewhat resembling corduroy cloth. Older persons are especially prone to have this type of tumor. Only

involvement. Secondary involvement of bone by large, soft tissue hemangiomas are apt to erode bone, leaving a smooth edged defect, as in other tumors (fig. 4). Growth is apt to occur rapidly, and there is no spicule formation.

#### SUMMARY

The roentgenographic changes of hemangioma of the skull in a child aged 11 years, first observed in 1921 and again fifteen years later, were studied. Excepting for



Fig. 6.—W. M., aged 6 years. Anteroposterior view showing a circular area of decreased density of the frontal bone. There is loss of the inner table due to erosion by contact from the tumor (meningioma) within the skull. This appearance should not be confused with hemangioma showing growth from cancellous space. Soft tissue hemangioma and primary brain tumors as well as meningioma have been known to produce this type of bone erosion.



Fig. 5 (case reported by T. D. Overend).—Hemangioma of occipital bone, showing the typical radiating spicules which arise from the space between the skull tables, as in the case here reported. (Hemangioma of Occipital Bone, Brit. J. Radiol. 6: 626 [Oct.] 1933.)

rarely do the early vertical striations change to a "blown-out" appearance or to a "mushrooming" of the vertebra. No other benign tumor has so uniformly produced these parallel densities.

The tendency for hemangioma of bone to produce a somewhat characteristic picture on roentgenograms seems to be due in part to the type of bone involved. Hemangioma of bone should be considered a possibility in all "sunburst" tumors of bones, but a malignant neoplasm should be considered equally probable when there is a sunray pattern on roentgenograms of long bones, especially if there has been active destruction of bone. Sharply defined, well organized trabeculae or spicules favor hemangioma. No tumor of this sort should be removed without a biopsy first, with the surgeon and pathologist both thinking of a benign hemangioma as a possibility.

Although gross evidence in many surgically removed hemangiomas of bone favors primary involvement of bone, opinions of pathologists seem to favor secondary

a large mass on the head, the patient's health has not been impaired in any way. Hemangioma of flat bones produces a beautiful sunray formation on roentgenograms. Hemangioma of long bones often produces a "loose soap bubble"

appearance but almost as frequently the sunray pattern of density. The latter is often confused with osteogenic sarcoma of bone, which also produces divergent spicules of bone. While hemangioma is less destructive, slower growing and less painful and produces the more clearly outlined trabeculation, a biopsy should be

obtained before removal is attempted. Rarely should hemangioma of bone be removed. When hemangioma involves vertebrae, a vertical striated appearance is produced which is almost characteristic of this one type of tumor. Therefore the kind of bone involved by the tumor in a given case is of prime importance in weigh-



Fig. 7.—Lateral view of same case as shown in figure 6.

5. Bailey, Percival, and Bucy, P. C.: Cavernous Hemangioma of the Vertebrae, J. A. M. A. 92:1748 (May 25) 1929. Ireland, J.: Hemangioma of a Vertebra, Am. J. Roentgenol. 28: 372-375 (Sept.) 1952

One week after her discharge from the hospital she was readmitted with a loss of a few pounds, and the basal metabolic rate the following day was plus 39. The patient was placed on compound solution of iodine 10 minims three times a day, rest, sedatives and forced liquids. In the course of three weeks the basal metabolic rate again declined to plus 22, and although the pulse rate was elevated the patient was considered to be in a suitable condition for thyroidectomy. The latter was done Jan. 22, 1935. The day following the operation the pulse rate rose to 170, the temperature to 104 F., and stridor developed as a result of the edema of the glottis. In spite of tracheotomy she died twenty-four hours after operation. The microscopic examination of the thyroid by Dr. Custer was as follows: The majority of the acini were of normal size with slightly less than the usual concentration of colloid. The lining epithelium had reverted to the cuboidal type almost exclusively but still showed stratification in some acini; the epithelium was rather markedly degenerated in general as a result of iodine therapy. Lymphocytosis was not prominent. There was no evidence of neoplastic change.

The pathologic diagnosis was hyperplastic toxic goiter with iodine regression.

Autopsy by Dr. Morton McCutcheon, January 24, revealed the following gross anatomic diagnosis: slight edema of the larynx, heart normal except for enlargement of pulmonary conus. The lungs, spleen, liver and kidneys were normal. The right ovary was the seat of a unilocular cyst. There was chronic salpingitis of the tubes.

The histologic diagnosis was acute laryngitis, liver normal, ovarian cyst with hemorrhage, chronic salpingitis.

The cause of death was edema of the larynx following thyroidectomy.

The occurrence of syphilis in this patient, it would appear, was coincidental with the presence of hyperthyroidism rather than causative of thyroid overactivity. The antisiphilitic treatment failed to produce any great improvement, but delay of the appropriate treatment aggravated the patient's condition. The failure to respond to antisiphilitic treatment is an important factor against the assumption that the patient suffered from a syphilitic hyperthyroidism as described by Lévy-Franckel.<sup>9</sup> Then again the histologic examination of the thyroid gland showed no evidence of a syphilitic involvement.

The enlargement of the spleen as elicited clinically is not an unusual finding in hyperthyroidism. It is to be looked on as a part of the general picture of the status thymicolymphaticus described by Chvostek Jr.<sup>10</sup> and Warthin.<sup>11</sup> At the postmortem examination the spleen weighed 140 Gm., which is moderately large for the spleen of a Negro.

It is interesting to note that the abdominal pain disappeared when the thyrotoxic symptoms decreased, and it reappeared with a recurrence of signs of hyperthyroidism. That the abdominal pain was not due to a tabetic crisis is evident from the fact that the patient had no neurologic signs of cerebrospinal involvement and that the pain was not of the character seen in *tabes dorsalis*.

#### SUMMARY

It should be appreciated that hyperthyroidism may play an important part in the production of signs and symptoms referable to the abdomen. They may be so severe as to suggest a surgical catastrophe. In two of three such cases the abdominal signs mimicked acute appendicitis. One of these patients was operated on and a normal appendix was found by the surgeon. The pains in the third patient were localized in the left

upper quadrant of the abdomen. Postmortem examination showed no abdominal pathologic condition to account for the pains.

Differentiation is not always possible, since hyperthyroid patients may harbor lesions of the gastrointestinal tract. When appropriate therapy is applied, the abdominal symptoms disappear with other signs of hyperthyroidism. In the surgical cases the signs and symptoms usually progress.

327 South Seventeenth Street—1727 Pine Street.

## TREATMENT OF ORGANIC ARTERIAL OBSTRUCTION BY ALTERNATING SUCTION AND PRESSURE

A DEVICE TO RELIEVE INCIDENTAL ARTERIOSPASM

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Suction pressure therapy, in common with most forms of treatment of organic arterial obstruction, has as its aim the dilatation of the smaller arteries and arterioles, thus promoting a circulation collateral to the obstructed large arteries. There seems to be no reason to believe that such therapy can have any effect on spasm of these vessels. Nevertheless, such spasm is present in many cases of organic disease and adds materially to the obstruction caused by the organic lesion. Moreover, this spasm actually tends to keep contracted the very vessels that the treatment hopes to dilate and is therefore antagonistic to the treatment.

This spasm is prominent in the acute obstructions, especially embolism and thrombosis. Indeed, experience shows that when embolism occurs in a peripheral artery, if only the factor of spasm is removed, the collateral circulation may spontaneously become adequate to avert gangrene. In the case of thrombosis, one is dealing not with a separate disease entity but usually with a condition which occurs at some time or other in the course of almost every case of chronic arterial disease. With the access of this condition, arteriospasm supervenes on the organic obstruction and may continue for weeks or months.

In considering spasm in the chronic diseases, I shall but briefly mention arteriosclerosis, as this disease is almost free of arteriospasm, except at the infrequent times when thrombosis occurs. Thrombo-angiitis obliterans, on the other hand, is frequently complicated by a great deal of arteriospasm. This is probably due to the fact first that, unlike arteriosclerosis, it entails an inflammation of the vessels from its very start, and secondly that thrombosis is frequent and extensive.

There is also a tendency to contraction of the arterioles and capillaries of the treated limb as the result of physical changes in the suction pressure treatment proper. This is due to cooling of the skin first by the creation of a partial vacuum and secondly by the increase in evaporation of the perspiration, caused by air currents in the treatment cylinder, or "boot." The first item is not great. The temperature of the air in the cylinder as measured by the electric thermocouple falls from 0.5 to 0.7 C. during the suction phase and rises from 0.1 to 0.3 C. during the pressure phase. This fluctuation is greater when the air is at room

9. Lévy-Franckel, A.: Des syndromes basedowiens apparaissant au cours de la syphilis. *Ann. d. mal. vén.* 6: 415-440, 1911.

10. Chvostek, F.: Morbus Basedowi und die Hyperthyreosen, Berlin, 1917.

11. Warthin, A. S.: *Ann. Int. Med.* 2: 553 (Dec.) 1928.

From the Departments of Surgery, the Boston City Hospital and Tufts College Medical School, aided by a grant from the Charles A. Research Fund.



A diagnosis of chronic constrictive pericarditis (concretio cordis) was made and partial pericardiectomy was performed on two occasions by Dr. Harold Neuhof. At the first operation the heart was exposed through an anterior mediastinal incision, after removal of the second to sixth left costal cartilages and adjacent portions of ribs and part of the sternum. The entire heart was found encased in a white, fibrous, immobile membrane about 0.5 cm. thick. The fibrous tissue was dissected away down to the epicardium from the apical region of the left ventricle and anterolateral surface of the right ventricle. The total area of removed pericardium measured about 8 cm. in diameter. An effort was now made to stimulate the right

axis deviation during this procedure is not as marked as in the other tracings, owing to the rotated position of the patient.

2. Right ventricular extrasystoles: Mechanical stimulation of the right ventricle gave the following results (fig. 3): In three locations, points A, B and C, the main ventricular deflection was inverted in lead I and upright in lead 3. The main deflection of the extrasystoles resulting from stimulation of point D was upright in lead I and inverted in lead 3.

#### COMMENT

These observations demonstrate that the configuration of ventricular extrasystoles in the presence of right axis

deviation does not conform to the newer interpretation, which postulates that the major ventricular deflection in lead I is always inverted in left ventricular extrasystoles and upright in right ventricular extrasystoles. An analysis of the literature reveals that there are two other cases in which extrasystoles were experimentally produced in the presence of a right axis deviation, and in both of these instances, as in the present one, the resulting electrocardiograms did not conform to the criteria of the new terminology. In the case reported by Lundy and Bacon<sup>9</sup> in which the heart was directly

stimulated, extrasystoles arising from the apex of the left ventricle conformed to the new terminology. Extrasystoles induced by them by stimulating the basal part of the left ventricle were similar to those obtained in the present study on stimulating approximately the same area; in both the major deflection was upright in lead I. In the report of Oppenheimer and Stewart,<sup>10</sup> in which a right axis deviation was also present, the

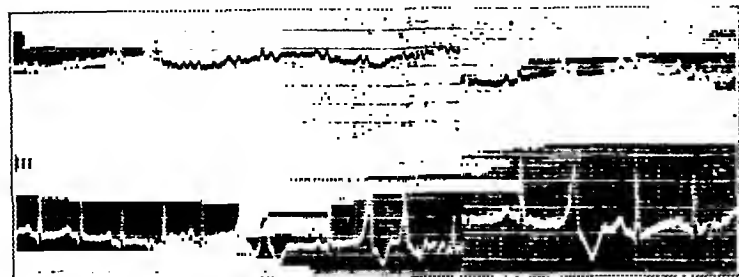


Fig. 2.—Extrasystoles produced experimentally by stimulation of the upper lateral region of the left ventricle.

ventricle, but no extrasystoles were induced because of insufficient stimulating current (15 volts).

Since there was very little improvement following this procedure, a second operation was performed. The heart was now approached through a left lateral transpleural incision and the thick pericardium removed from the anterolateral surface of the left ventricle for an area of from 6 to 8 cm. in diameter. The heart's action improved distinctly, and the pulsations, which were scarcely visible at the beginning of the operation, were now pronounced and strong. The systolic blood pressure, which was previously 105 mm., rose 20 mm. at this stage of the procedure.

An attempt was made to stimulate the left ventricle, which was now completely exposed over a wide area. The stimulating electrode was similar to the one devised by Barker, MacLeod and Alexander.<sup>3</sup> A current of 20 volts repeated sixty times a minute was first used. Since no extrasystoles occurred, the voltage was gradually increased to 45 volts. The upper part of the left ventricle in a region about 3 cm. to the left of the septum was stimulated. This area was somewhat more lateral to points designated 1 and 2 by Barker, MacLeod and Alexander. Extrasystoles occurred immediately following the stronger electrical stimulus. Leads 1 and 3 were recorded simultaneously with a two-string galvanometer. For a control period of five minutes with lesser voltage and another period of five minutes immediately after the operation, no extrasystoles were found. Nor were spontaneous extrasystoles ever present in eleven routine electrocardiograms taken before and after the operations.

Following the second operation a marked clinical improvement occurred and the signs of obstruction of venous return to the heart disappeared. The latter was now covered only by a thin layer of skin and subcutaneous tissue, and a well marked precordial pulsation could be seen and felt. It had been observed during both operations that the surface of the heart in contact with the chest wall between the sternum and the left nipple consisted mainly of the right ventricle. It was now found that extrasystoles could easily be induced by tapping the thin chest wall overlying the right ventricle. Four points within the nipple line were arbitrarily chosen (fig. 4). This procedure was carried out on four separate occasions.

#### RESULTS

1. Left ventricular extrasystoles: The electrocardiograms resulting from the extrasystoles induced by electrical stimulation of the left ventricle are shown in figure 2. Eleven ventricular extrasystoles, all of similar configuration, occurred in the two minute period during stimulation with 45 volts. It may be seen that the main deflection is slightly but definitely upright in lead I (approximately 2 millivolts in height) and also upright in lead 3 (approximately 10 millivolts in height). The right

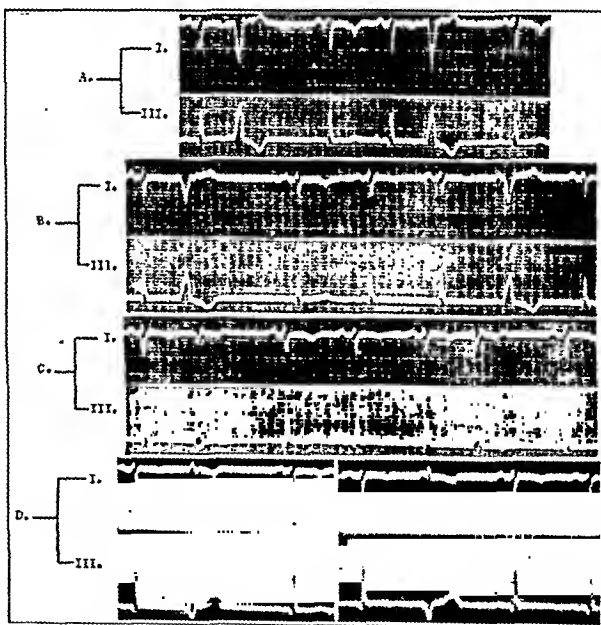


Fig. 3.—Extrasystoles produced by tapping points A, B, C and D on the anterior chest wall overlying the right ventricle.

extrasystoles corresponded to the classic interpretation and were distinctly opposite to that of the newer terminology. In their case the heart was not exposed but was stimulated through the skin, and so some uncertainty existed as to the exact location stimulated.

9. Lundy, C. J., and Bacon, C. M.: Premature Left Ventricular Beats from Electrical Stimulation of Exposed Human Heart, *Arch. Int. Med.* 52: 30 (July) 1933.

10. Oppenheimer, B. S., and Stewart, H. J.: Dependence of the Form of the Electrocardiogram upon the Site of Stimulation of the Ventricles, *J. Clin. Investigation* 3: 593 (Feb.) 1926.

increase in metabolism caused by local heat is of distinct benefit in increasing the processes of slough and repair. He reports favorable results in the healing of ulceration and in the demarcating of gangrene by using the preheated air during the treatment.

With these considerations in mind, I have been using a device for warming the limb during treatment in the suction pressure apparatus shown in the accompanying illustration. The device consists of two 75 watt tubular warmers, each suspended in the center of a wire guard. Thus protected, each warmer is bolted on either side of the interior of the treatment chamber. The current to the warmers is regulated by a bimetallic thermostat of conventional design, to give a controlled temperature range from 90 to 110 F. (32.2 to 43.3 C.). For use with direct current a condenser of 1 microfarad is further connected to the thermostat to cut down arcing at the contact points.

The use of this controlled local warmth of the treated limb seems to bear out the theoretical considerations, since with it the suction pressure treatment seems to be more effective.<sup>12</sup> This is true even in cases of arteriosclerosis in which no appreciable spasm is present. Here one must consider, I believe, that above the level of maximum ischemia there are still dilatable vessels; that is, in the region of the knee and thigh.<sup>13</sup> It is in order that these vessels may be influenced by the suction and the warmth that one should insist on inserting the limb far enough into the cylinder so that the cuff lies well up on the thigh.

Freeman has pointed out that pain is one of the best indications that heat around a limb is excessive; that is, that the metabolic increase caused by the heat is in excess of the increase in blood flow. Thus the temperature chosen for any patient is that which the patient finds most comfortable and is never above 110 F. Such relatively high temperatures are comfortably endured because the suction is able to increase the blood flow beyond the increased demands of the metabolism. There are some patients whose smaller vessels are so badly obstructed that the suction results only in a very slight increase in the circulation. The same is true of some sudden obstructions, as by thrombosis. In such instances it is safest to keep to very low temperatures, about 90 F., and, if the temperature cannot be increased without causing pain, to seek further vasodilatation by means of drugs or nerve block.

#### SUMMARY

In cases of both acute and chronic organic arterial obstruction there is apt to be an associated spasm of the collateral vessels. This spasm counteracts the effect of the suction-pressure therapy and is not relieved by the treatment.

A device is here described to furnish warmth to the affected extremity while it is treated by suction-pressure. Such locally applied warmth is capable of maximum vasodilatation and increases the effectiveness of the suction. Moreover, the local increase in metabolism caused by the raised temperature assists in the processes of healing.

330 Dartmouth Street.

12. Theis and Freeland (J. A. M. A. 107: 1097 [Oct. 3] 1936) have concluded that warming the upper limbs during the suction pressure treatment gives better results than when the suction pressure treatment is used without such warming. They have additionally concluded that this combination is better than heating the lower limbs directly during the treatment. The latter point seems inconclusive, so far as their published work goes; and it is at variance with the experimental work quoted by me.

13. Edwards, E. A.: The Arteriographic Comparison of Thrombo-Angiitis Obliterans and Arteriosclerosis, New England J. Med. 213:616 (Sept. 26) 1935.

## THE CAUSE OF JOINT PAIN

OCCURRING DURING ACTIVE IMMUNIZATION WITH  
SCARLET FEVER STREPTOCOCCUS TOXIN

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It has been observed that, during the course of immunization of young adults against scarlet fever, approximately 3 per cent complain of joint pains following one or more doses. These pains are sometimes associated with swelling of the joints involved. They usually develop within twelve hours following a dose of scarlet fever streptococcus toxin and last from a few hours to several days, when they disappear, leaving no residual effect. The question arises Do these pains occur as a direct result of the action of the streptococcus toxin on the joint tissue or do they occur because the involved joint tissue has at some time become sensitized to the protein contained in the toxin solution? In the latter case has the protein concerned resulted from the growth of the streptococcus or is it protein present in the broth used for production of the toxin? The following experiments were undertaken in an attempt to clarify these questions:

#### FIRST EXPERIMENT

To five young adults who complained of joint pains during the course of immunization against scarlet fever, sterile veal broth culture medium was given. This broth was from the identical lot that was employed in the

TABLE 1.—Joint Pains Occurring on Two or More Occasions  
Following Administration of Scarlet Fever Toxin;  
No Joint Pains Following Administration  
of Veal Broth Medium

Previous History	Patients
Streptococcal sore throat 2-3 weeks previous to dose of toxin	2
causing joint pains	1
Scarlet fever as a child with no arthritis	1
Frequent sinusitis before removal	1
Growing pains and occasional sore	1

production of the toxin being used in the immunization. One week after the administration of the dose of toxin that produced the joint pains, a dilution of the broth that was given containing the same concentration of medium that was present in the next larger dose of toxin. The following week the corresponding dose of immunizing toxin was given. The reaction was noted after each dose and the procedure was repeated each time the patient reported joint pains. No information was given the patient concerning the content of the doses. A history was obtained pertaining to the previous occurrence during their lives of joint pains, "arthritis," "rheumatism," growing pains when a child, chorea and cardiac symptoms as well as frequency and severity of sore throat and tonsillitis.

Table 1 indicates five persons who had joint pains at least twice following the administration of scarlet fever streptococcus toxin with no joint pain on the subsequent administration of veal broth medium diluted to contain the concentration of broth protein to be found in the next larger dose of toxin. In one of these persons the arthralgia started with the second dose and continued through the fifth dose of toxin, alternating regularly with no joint pain when the subsequent dose of veal broth medium was given.

From the Scarlet Fever Committee and the John McCormick Institute for Infectious Diseases.

## HYPERTHYROIDISM MASKED BY SYMPTOMS OF ACUTE ABDOMINAL CATASTROPHE

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AND

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Cases of acute abdominal pain occurring during the course of thyrotoxicosis have been reported in the continental literature by Stern,<sup>1</sup> Kraus<sup>2</sup> and Desbouis.<sup>3</sup> The American literature contains scant reference to it. Horsley and Rosebro<sup>4</sup> reported a case of hyperthyroidism in which the chief complaints on admission to the hospital were indigestion, pain in the abdomen and bearing down in the pelvis. Operation revealed, however, a chronic adherent appendicitis and pathologic condition of the pelvis. Lahey<sup>5</sup> states that he has never seen a condition similar to the one dealt with in this presentation.

The practicing physician is well aware that abdominal pain suggestive of acute abdominal disease may merely express pain impulses from disease of the thoracic viscera. The "ruptured gastric ulcer and acute appendicitis" have not infrequently turned out to be a frank pneumonia, to the chagrin of the surgeon and the internist. The nausea, vomiting and pain in the right upper quadrant with the local spasm and tenderness of the rectus muscles so characteristic of an acute gallbladder attack have often mimicked coronary thrombosis or angina pectoris. The masquerading of such medical conditions as intra-abdominal disease is well known to the experienced physician. That metabolic disturbances will often mimic intra-abdominal lesions is not generally appreciated. Recently one of us<sup>6</sup> emphasized that the acidosis of diabetes mellitus requires differential consideration in abdominal catastrophes. In hyperthyroidism patients may likewise exhibit acute attacks of vomiting and abdominal pain which may be erroneously construed as arising from an acute intra-abdominal surgical lesion. Unless the examiner is familiar with this symptom complex and looks for other signs of hyperthyroidism, his attention will be riveted to an intra-abdominal organ or organs not responsible for the disease. The patient may thus be subjected to the grave risk of an unnecessary exploratory operation.

It is to be borne in mind that in patients with hyperthyroidism there is a rather high incidence of duodenal and gastric ulcers,<sup>7</sup> which may be the cause of acute abdominal symptoms in some patients.

This presentation, however, deals with instances in which the acute symptoms and signs referable to the abdomen are due entirely to the overactivity of the thyroid gland.<sup>7a</sup>

From the Medical Service of the Philadelphia General Hospital and Department of Medicine, Temple University School of Medicine.

1. Stern, R.: *Differentialdiagnose und Verlauf des Morbus Basedowii und seiner unvollkommenen Formen*, Vienna, Franz Deuticke, 1909.

2. Kraus, Carl: *Zur Klinik des Morbus Basedowii und seines Grenzgebietes*, Med. Klin. 1: 171 (Jan.) 1911.

3. Desbouis, G.: *Crises entéralgiques au cours d'une maladie de Basedow*, Bull. et mém. Soc. méd. d. hôp. de Paris 37: 811, 1914.

4. Horsley, J. S., and Rosebro, B. M.: *An Atypical Case of Hyperthyroidism*, New York M. J. 95: 267 (Feb. 10) 1912.

5. Lahey, F. H.: Personal communication to one of the authors.

6. Wohl, M. G., in discussion on Lick, Maxwell: *Differential Diagnosis of Abdominal Tragedies*, Pennsylvania M. J. 39: 421 (March) 1936.

7. Robertson, H. G., and Hargis, E.: *M. Clin. North America* 8: 1080 (Jan.) 1925.

7a. Hyperthyroidism masked by chronic abdominal symptoms has been commented on by one of us: Wohl, M. G.: *Masked Hyperthyroidism*, M. Clin. North America 16: 134 (July) 1932.

## REPORT OF CASES

CASE 1.—*Acute thyroid crisis masked by abdominal symptoms of acute appendicitis. Operation revealed a normal appendix.*

Miss M. B., a Negress, aged 19, admitted to the Philadelphia General Hospital, service of Dr. William E. Robertson, Oct. 18, 1929, complained of swelling of the neck and nervousness. The patient had been perfectly well until five years before admission. At that time her menstrual cycle began, and with this she first became aware of a small uniform enlargement at the base of the neck. It did not give rise to local discomfort, but nervousness developed at this time. Three years later, at the age of 17, she became pregnant. After delivery of a full term child she observed that the lump in her neck suddenly became larger; with the delivery of a second child one year later she noticed



Fig. 1.—Section under low power from the appendix, showing slight activity of lymphoid follicles and some round cell infiltration of the submucosa.

that the growth became nodular. At the time she experienced a heavy oppressive sensation over the neck, and with it she became quite nervous and irritable. Excessive perspiration and hypersensitiveness to heat developed. Three weeks prior to admission to the hospital the patient noted cardiac palpitation with oppression in her neck. There was no loss of weight, although there was ready fatigability in the last few months.

The immediate past history was irrelevant.

The patient was well nourished. She was not acutely ill but was emotionally unstable. The skin was moist. She had suffered several attacks of urticaria. There was widening of the palpebral fissures with slight exophthalmos, especially of the left eye. The tongue was tremulous and protruded in the midline. There was marked and total enlargement of the thyroid gland. Several nodules the size of marbles were palpable in both lateral lobes. In the isthmus there was a large nodule the size of a small egg. The heart was of normal size and the sounds were of good quality, the apical rate being 90. The blood pressure was 116 systolic, 90 diastolic. Examination of

in childhood and one with growing pains and possible symptoms of mild cardiac involvement. Growing pains were reported in six other patients in the group of twenty-three, occurring either alone or in combination with frequent sore throat, tonsillitis or cardiac difficulty. Seven more patients of the twenty-three reported sore throat or tonsillitis, in one instance associated with cardiac symptoms. Four patients in this group gave no history of the foregoing symptoms.

Group 3. Those patients who complained of joint pains after injection of unmodified toxin and who had less pain on injection of heated toxin.

Table 4 indicates the eleven persons in this group. They exhibited joint pain following a dose of unheated toxin, but joint pain was present also in a lesser degree on administration of heated toxin. Four of these patients had had previous joint pain, one twelve years previously following pneumonia and more recently following tonsillitis, one associated with growing pains, tonsillitis and sinusitis as a child, one associated with severe growing pains, tonsillitis, mastoiditis and a cardiac murmur, and one following scarlet fever at 6 years. Two of the eleven reported growing pains, one associated with chorea as a child, and one with frequent sore throat as a child. One patient gave a history of frequent sore throat before the removal of tonsils. Four in the group of eleven gave no history of the foregoing symptoms.

Group 4. Those patients who had irregular occurrence of joint pains after injection of heated as well as of unheated toxin.

Table 5 indicates these five persons. Their joint pains were irregular, occurring at times with greater severity following the administration of heated than of unheated toxin. Three of these patients had had previous joint pains, two associated with "influenza" and one with a streptococcic sore throat three months previously. One of these five patients had a streptococcic sore throat during the time she was receiving doses, and the remaining patient gave a history of frequent attacks of sore throat as a child and had had a severe generalized protein reaction with some of the doses. Heated toxin was not continued in this instance because of the severe discomfort of the patient.

#### SUMMARY

1. Joint pain was caused in sixty-three young adults by the subcutaneous injection of sterile, filtered streptococcus toxin in broth solution.

2. Of these sixty-three patients fifty-three, or 84.1 per cent, gave a history of previous occurrence of joint pain or of symptoms suggestive of rheumatic infection or previous streptococcic infection.

3. In forty-seven, or 74.6 per cent, the joint pain produced by the injection was due to the toxin alone.

4. In eleven, or 17.4 per cent, toxin was the chief factor in the causation of joint pain.

5. In five, or 7.9 per cent, the joint pains were not caused by the toxin but were attributable to protein contained in the broth solution or to coincident active foci of infection in these patients.

#### COMMENT

Subcutaneous injection of sterile filtered scarlet fever streptococcus toxin into the upper arm may produce a painful reaction in the joints of persons who give a previous history of joint pain or of symptoms suggestive of rheumatic infection or previous streptococcic infection. Infrequently painful joint reactions occur when such a previous history cannot be elicited.

The fact that in most instances pain caused by sterile filtered streptococcus toxin in broth solution could not be reproduced when the toxin in the solution was destroyed by heating or when diluted broth was given indicates that the pain was most frequently due to toxic action and not to sensitization to protein resulting from the growth of the streptococcus or to protein present in the broth used in the production of the toxin.

#### CONCLUSION

In persons who have previously suffered an infection involving the joints, acute temporary recurrence of the joint pains may be elicited by absorption of sterile streptococcus toxin produced in many instances by a type of organism probably not responsible for the primary infection.

629 South Wood Street.

### EFFICACY OF VARIOUS MEDICAMENTS IN THE TREATMENT OF VIN- CENT'S STOMATITIS

REPORT OF SEVEN HUNDRED AND NINETY-  
FOUR CASES

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AND

W. A. McNICHOLS, M.D.  
DIXON, ILL.

Vincent's stomatitis is becoming recognized as a distinct clinical entity. This disease may appear as the end result of many debilitating diseases. More often it appears in healthy individuals, but its main requirement to appear in epidemic form is poor mouth hygiene and crowded quarters.

Confronted by an epidemic of Vincent's stomatitis in an institution in which end results could be observed, we decided to give nearly every logical treatment a fair trial and observe the results.

It had been proved that Vincent's organisms are obligate anaerobes and cannot exist in the presence of oxygen; consequently we would resort to oxidizing agents for assistance when our cases did not do well. The pathogenicity of these organisms is still questioned, but destruction of these organisms eradicated the pathologic condition.

Leeuwenhoek<sup>1</sup> in 1683 told the Royal Society about a new kind of creature that he found in the mouth of a virtuous but dirty individual. This mouth was host to an organism that slid among the others, bending its body in graceful curves. Two hundred years later Pasteur<sup>2</sup> discovered that each infectious disease is produced by a specific organism. In 1883 Willoughby D. Miller, an American dentist, described fusiform bacilli and spirochetes. He stated that "pathogenetic properties of these organisms had already been described by Verneuil and Clado." Plaut<sup>3</sup> in 1894 reported cases of nondiphtheric membranous angina in which he found the organisms described by Miller. He called these "Miller's organisms." He attributed them to be the causative factors in the angina because the organisms were present in such great numbers. The organisms are found beneath the free margin of the gums in almost every mouth.

1. Leeuwenhoek, Antonius, cited by de Kruif, Paul: *Microbe Hunters*. New York, Harcourt, Brace & Co., Inc., 1926, p. 89.  
2. Vallery-Radot, Pasteur: *The Life of Pasteur*, New York, Doubleday, Page & Co., 1927.  
3. Plaut, H. C.: *Studien zur bakteriellen Diagnose der Diphtherie und den Anginen*, Deutsche med. Wchnchr. 20: 920 (April) 1894.

was regular until seven months before admission; since then she had missed four periods. There was frequency of urination during the day and nocturia two or three times a night. Increasing fatigue and nervousness were noted. She was conscious of "throbbing in the heart region." Palpitation was aggravated by exertion.

In the last few months pain developed in the right lower quadrant of the abdomen sufficiently severe to force her to seek admission to the hospital. There were no digestive disturbances.

The patient was obese with face flushed, skin moist and hands showing fine tremors. There was a suggestion of exophthalmos with some widening of the palpebral fissures. The neck showed rather moderate fulness, but not out of proportion to the rest of body configuration. The palms of both hands were moist. The heart showed left ventricular hypertrophy, the apex beat forcible and diffuse, tachycardia, the first sound loud, and no murmurs. The blood pressure was 150 systolic, 75 diastolic. There was muscular relaxation throughout the abdomen. No areas of plus tension were present and no masses were palpable. There was some tenderness on digital palpation in the lower right quadrant. There was uniform fat distribution with predominance over the hips and upper part of the thighs. The pelvic organs were normal. Roentgenograms of the chest showed slight prominence of the left border of the heart in the region of the left auricle. Otherwise the chest appeared normal. The sella turcica was normal on x-ray examination.

The laboratory examination revealed normal urine, a lymphocytosis of 40 per cent, Wassermann reaction negative, and sugar tolerance, fasting, 86 mg. per hundred cubic centimeters of blood, one-half hour 190 mg., one hour 150 mg., and two hours 144 mg.

Because of the tachycardia and nervousness and easy fatigability a basal rate was taken and found to be plus 43 and plus 47 on two different occasions.

The patient was placed on compound solution of iodine 0.6 cc. three times a day. At the end of twelve days the pain in the right lower quadrant of the abdomen ceased; nervousness was diminished. The basal rate had fallen to plus 2. The patient left the hospital and continued to report to the metabolic clinic for three weeks in a much improved state. Because of some "quarrels at home" she became nervous and irritable, with a return of all the former symptoms. The patient was advised to return to the hospital for thyroidectomy. She refused and failed to return to the clinic.

That the abdominal pain simulating an acute appendicitis is due to hyperthyroidism is evident from the facts that the pains were not associated with digestive disturbance, and administration of compound solution of iodine and the general improvement of the hyperthyroid state were followed by complete cessation of abdominal symptoms. With a return of hyperthyroid symptoms the pain in the right lower quadrant reappeared.

The cause of abdominal symptoms is not well understood; however, they may be due to disturbances of the vegetative nervous system. The existence of a disturbed vegetative nervous system in hyperthyroidism is well known and is evidenced by the dermatographism and easy blush that the hyperthyroid patient shows.

It is quite possible that the abdominal pains are conditioned by the patient's constitutionalanlage, associated with disturbed gastric hypersecretion and spastic bowel. The hyperthyroid state merely aggravates the abdominal signs. The existence of a complicating intra-abdominal surgical lesion is difficult to exclude without an exploratory laparotomy. However, the fact that the abdominal symptoms disappear with other signs of hyperthyroidism when iodine is given and reappear with symptoms of thyrotoxicosis when iodine is omitted would lead one to assume that they are related to hyperthyroidism.

*CASE 3.—Hyperthyroidism masked by pain in the left upper quadrant of the abdomen; complicated by constitutional syphilis; antisyphilitic treatment failed to relieve the abdominal pain; compound solution of iodine abolished abdominal symptoms.*

Mrs. J. B., aged 24, a Negress who had two living children and had had one miscarriage, admitted to the Philadelphia General Hospital in the service of Dr. H. D. Jump, Oct. 22, 1934, complained of violent pain in the left side of the abdomen near the umbilicus. The pain had been of two days' duration, was localized in the midabdomen with no area of transmission, was associated with belching and was made worse by the intake of food, especially fried food. There was no nausea, but she vomited once because she took large quantities of sodium bicarbonate to induce vomiting for the relief of pain. The bowels were obstinately constipated.

She stated that for the past twelve months she had been feeling generally out of sorts and unusually nervous and fidgety, having frequent attacks of palpitation and vague, diffuse complaints. The digestive upsets were usually worse during menstruation. One month before admission, during menstruation, pain developed in the epigastric region. There were copious eructations of gas. Two days prior to her admission to the hospital she was seized with acute pain in the upper left side of the abdomen. The appetite was good; she drank large quantities of water and had lost 20 pounds (9 Kg.) in the last year.

Examination revealed that the patient was very thin and nervous and weighed 76 pounds (34.5 Kg.). The skin was warm but dry. The eyes showed some widening of the palpebral fissures. The thyroid was definitely enlarged, the right lobe more so than the left; it was firm and smooth and was not adherent to the underlying structures. The heart was of normal size and overactive; with a soft systolic murmur over the apical and pulmonic areas. The lungs were clear throughout. The blood pressure was 170 systolic, 100 diastolic. The pulse ranged from 100 to 120. The abdomen was scaphoid in type; peristalsis was hyperactive. The liver was of normal size. There was tenderness on deep palpation in the left upper quadrant. The spleen was palpable. The deep tendon reflexes were exaggerated. There were no clinical signs of neurosyphilis. The pelvic organs were normal.

X-ray examination of the chest showed normal lung fields and cardiac silhouette except for an enlargement of the pulmonary conus. Both diaphragms were normally outlined. There was evidence of splenic enlargement. Urinalysis was normal. The blood count showed a secondary hypochromic type of anemia, the red blood cells being 4,520,000 and the hemoglobin 60 per cent. (Dare hemoglobinometer). The blood sugar was 100 mg. per hundred cubic centimeters, the blood urea nitrogen 12 mg. The Kahn and cholesterol antigen was 4 plus. The basal metabolic rate was plus 85 per cent. The electrocardiogram showed sinus tachycardia.

The patient was given compound solution of iodine 10 minims (0.65 cc.) three times a day, rest in bed, sedatives and high carbohydrate diet. This regimen was continued for two weeks. The abdominal symptoms disappeared and the spleen was no longer palpable. The pulse rate came down to 80, blood pressure to 135 systolic, 80 diastolic, and she gained about 4 pounds (1,814 Gm.). The basal metabolic rate decreased to plus 34 per cent.

It was suggested that the syphilitic infection might be the underlying factor for the hyperactivity of the thyroid gland. Compound solution of iodine was stopped and antisyphilitic treatment was administered, consisting of biweekly intramuscular injections of bismuth potassium tartrate for three weeks. The patient's pulse rate rose to 110; she became nervous and the basal metabolic rate became elevated to plus 45. The pain in the abdomen recurred, although not in as severe a degree as when the patient was first admitted to the hospital. The antisyphilitic treatment of weekly intravenous injections of nearsphenamine 0.6 Gm. and a bismuth compound intramuscularly was continued for two weeks. The patient gained weight but the pulse rate remained accelerated and the basal metabolic rate remained high (plus 33). Potassium iodide was administered and one week later the basal metabolic rate decreased to plus 17. She left the hospital over the Christmas holidays in a much improved state.



when solution of hydrogen peroxide was used as a gargle. Therefore we have limited the scope of this paper to Vincent's stomatitis, with which we have had a great deal of experience. We feel that this disease is very common and, if recognized and properly and promptly treated, the results will be excellent and the patients will not be endangered either by the complications or by overmedication.

In the last two and one-half years, 3,800 patients have been examined at least ten times. We never found Vincent's ulcer in a mouth from which the teeth have all been extracted. This was also observed by Bloodgood.<sup>8</sup> Our edentulous patients numbered 325. We have never found Vincent's infection in the mouth of a tobacco chewer. This agrees with Moriarty.<sup>10</sup> In our series ninety tobacco chewers have given negative results at each examination. Smokers seem to be more susceptible to infection and reinfection. The constant use of cigarettes sets up a gingivitis in the lower anterior region which makes the individual very susceptible to Vincent's infection.

Of 450 slides taken of patients with mild to severe gingivitis, 212 showed numerous Vincent's organisms without ulceration. This occurred some fourteen months ago. These patients have been carefully watched and of this number Vincent's stomatitis developed in only twelve. The others are clear at this date. Therefore we conclude that Vincent's organisms can be found in many normal mouths and are not indicative of the disease. This agrees with Tenny, Lichtenberg, Werner and Lueck<sup>7</sup> and others.

Irritation and gingivitis from poor fitting dentures, poor alinement of the teeth and broken down teeth, according to Harrell,<sup>11</sup> are anaerobic incubators and provide excellent spots for the infection to start. In our observations we also find that pyorrhea pockets, overhanging fillings and gingival tissue flaps also are contributing factors. We had six patients who were under heavy arsenic treatment for syphilis and developed Vincent's infection. Sutton<sup>12</sup> and others have observed the same phenomenon.

Poor nutrition may be a factor, according to Fantus,<sup>13</sup> but in our patients we could not attribute it to such a lack, since our epidemic was not from certain wards but from the whole institution. From the wards caring for patients of the lowest mentality and where the younger patients are confined, among whom the personal hygiene is at the lowest ebb, we found the largest number of cases. While the epidemic was at its height we had a corresponding increase in our private practice.

Eight patients were examined for blood calcium during acute infections, and eight others who had had the infection and who had been dismissed as cured were also examined. The blood calcium content in all cases, both acute and cured, was within normal limits. At the same time a complete blood count was taken in the active cases and all were within normal limits, a few cases showing a slight polymorphonuclear leukocytosis.

Vincent's infection in cases of even the most severe type does not establish any immunity, as many patients return with new infection.

The following is a summary of our results with the recognized methods of treatment. In spite of the fact

that we had six syphilitic patients under active anti-syphilitic treatment with arsphenamine in whom Vincent's stomatitis developed, we decided to try twenty-three patients on neoarsphenamine, 3 Gm. in three doses, and allow these patients to use their ordinary mouth hygiene.

CASE 1.—One of the patients with Vincent's stomatitis was given intravenous injections of neoarsphenamine; the infection healed rapidly and negative smears were obtained from his mouth. He was dismissed as cured. In about fourteen days he returned with a cellulitis on the right side of the face and throat, the free margin of gums and cheeks showing a characteristic Vincent's ulcer from which positive slides were obtained. He was then treated with hydrogen peroxide 10 per cent, neoarsphenamine and glycerin, but the ulcer persisted and enlarged. A dull red spot appeared on the external surface of the cheek in thirty-six hours and changed to black. This rapidly started to slough away and with it sequestrums of the maxillary bone, deciduous teeth and unerupted permanent teeth. This extensive destruction of tissue was not accompanied by hemorrhage. There was a characteristic foul odor from the patient, which could hardly be tolerated even in the presence of disinfectants. The patient did not complain but persisted in picking at the ulcerated part. The diagnosis was noma. On the sixth day following the onset of the infection the patient died.

While on the subject of noma we will give brief outlines of two other cases that came under our observation:

CASE 2.—A white girl, aged 12 years, who had been under treatment for Vincent's infection, had been dismissed as cured after the mouth had cleared up and all symptoms had disappeared. Two months later she returned to the office for treatment. She had a small ulcer the size of a dime (18 mm.) in the buccal mucous fold on the upper right side of the mouth with some ulceration of the gums, an oral temperature of 101 F., marked fetid odor of the breath and diarrhea. She was given one injection of neoarsphenamine and treated with 10 per cent neoarsphenamine and glycerin followed by spraying with solution of hydrogen peroxide, U. S. P., every two hours. In spite of all treatment, however, the patient grew rapidly worse. The ulcer progressed rapidly, eating through the soft tissue into the bone, causing the loss of several teeth. Finally it penetrated into the antrum. The sixth day after the institution of the treatment, death occurred. The entire right cheek including the eye was sloughing away when death occurred. Positive slides were removed from the ulcer.

CASE 3.—A Negro boy, aged 10 years, presented a clinical picture identical with that just reported except that the ulcerative spot was on the lower left side. Considerable cellulitis was present. Under anesthesia we did a radical extirpation of the ulcerated area. We then cauterized the area with 50 per cent trichloroacetic acid. A two-hour treatment with solution of hydrogen peroxide was instituted and in two weeks complete resolution was obtained. Up to the present time the patient has never had a recurrence. He has been examined ten times since the treatment, so we will suppose that he is completely cured.

Of the other cases under neoarsphenamine treatment, the condition in four cleared up and remained well. Several others showed a marked change for the better in from two to four days. However, this treatment did not go to complete resolution but responded to local treatment by solution of hydrogen peroxide. Any medication that is as widely acclaimed as the arsenics should be a specific for this condition. We feel that it has little therapeutic value intravenously. This agrees with a statement in *THE JOURNAL*:<sup>14</sup> "Intravenous injection of neoarsphenamine has never been justified in the treatment of Vincent's infection, either theoretically or clinically."

In the treatment of a large number of cases with a limited staff it would be impossible to use sodium per-

10. Moriarty, L. J.: *Clin. Med. & Surg.* 36: 108 (Feb.) 1929.  
11. Harrell, Voss: *The Present Status of Plaut-Vincent's Infection*, *Arch. Otol.* 14: 1-8 (July) 1931.  
12. Sutton, I. C.: *Vincent's Angina Occurring in a Patient Under Treatment for Syphilis*, *J. A. M. A.* 83: 1919 (Dec. 13) 1924.  
13. Fantus, Bernard: *The Therapeutics of the Cook County Hospital*, *J. A. M. A.* 104: 741-742 (July) 1934.

14. *Vincent's Infection of Mouth, Queries and Minor Notes*, *J. A. M. A.* 102: 639-640 (Feb. 24) 1934.

temperature and is minimal when the air is warmed. The effect of the air currents in increasing evaporation from the skin may be considerable. It should be minimized by a deflector over the entrance of the hose from the pumping unit, so as to prevent the full blast of the suction and pressure from striking the limb.

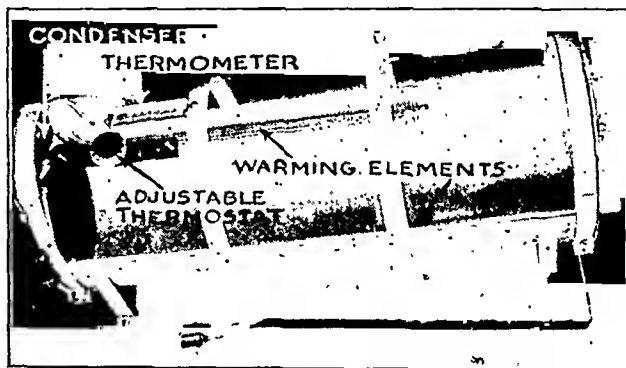
That the cooling of a limb will normally cause considerable contraction of the arterial system has been known for some time,<sup>1</sup> and Reid and Herrmann<sup>2</sup> have pointed out that cooling may produce an actual blanching in the presence of diseased arteries.<sup>3</sup>

There are various methods for the relief of vasospasm. Fever therapy, while an excellent method, is not suited for repeated daily use. The same is true of anesthesia (local, spinal or paravertebral). Vasodilating drugs are unsatisfactory: mechlorin, the most powerful, is too expensive for routine use, theobromine is too uncertain and alcohol is too weak. One is left with the increase of environmental temperature as by the warming of the body by blankets and heaters<sup>3</sup> or by the heating of one or two of the limbs not being treated; e. g., heating the arms when the legs are treated<sup>4</sup> or, finally, by the heating of the diseased limb itself. For actual use during suction pressure treatment two methods have been used to give vasodilatation through heat. Landis and Gibbon<sup>5</sup> put to use the mechanism of their vasodilatation test and immersed the arms in warm water while the legs were in the apparatus. Later Landis and Hitzrot<sup>6</sup> used an electric heating pad around one arm as the source of heat. Reid and Herrmann<sup>1</sup> use preheated air at from 102 to 105 F. to heat the treated limb and in addition prescribe whisky.

A perusal of the measurements of the increase in blood flow caused by these various vasodilating procedures leads one to believe that the most powerful of all these agents is heat applied to the treated limb. Mosso's<sup>7</sup> graphs demonstrate that when both forearms are placed in separate plethysmographs, and only one is heated, both pulse waves increase in height but the increase is much more marked on the heated side.<sup>8</sup> Lewis,<sup>9</sup> by measurements of the digital pulse volume, and Hewlett and his associates,<sup>8</sup> by measurements of blood flow in the forearm and hand, have shown that

the application of local heat will increase the blood flow from four to eight times. Freeman<sup>10</sup> has also measured blood flow by a plethysmographic method modified from the latter authors. His curves show the same rise of blood flow with increase in local heat, and it can be seen that as soon as the local heat reaches 30 C. (86 F.) or higher this increase greatly surpasses that from sympathectomy. Normally there continues to be an increase in blood flow with rise in temperature at least up to the point where the local heat reaches 50 C. (122 F.).<sup>11</sup>

There are reasons for believing that unless blood flow is additionally increased by other means, as by suction, the exposure of limbs with organic arterial obstruction to high levels of heat is harmful and may be dangerous. This can be demonstrated in an exaggerated degree by comparing the effect of large doses of diathermy when used on a live normal limb and the effect of the same amount of current on a piece of beef. In the live limb the heat is carried away as it is formed, while the heat remains in the piece of beef because there is no circulating medium to carry it away, and the interior of the beef becomes cooked. In considering lesser degrees of heating and its effect on the tissues



The device, attached within the treatment cylinder, to warm the limb undergoing suction-pressure treatment. (Made by Warren E. Collins, Inc., Boston.)

in the presence of organic arterial obstructions, Freeman<sup>10</sup> has considered that such heating is distinctly harmful. His reasoning follows from his conclusion that local heat produces vasodilatation because the heat increases the local metabolism of the tissues. When the arteries are normal, the increased need for nutriment is upheld by the augmented blood supply. When organic obstruction is present, however, the increased metabolism causes a quicker utilization of whatever blood can enter the limb. This being already inadequate, tissue starvation is increased. In this way local heat may cause considerable increase in the symptom of pain and may initiate or increase gangrene.

While it is certainly necessary to keep this in mind, the increase in blood flow during suction in the apparatus is ordinarily quite adequate to take care of the increase in metabolism caused by local heating. An important aspect of using heat during the time that a sufficient blood flow is enabled to enter the limb is that emphasized by Herrmann.<sup>1</sup> He points out that the local

10. Freeman, N. E.: The Effect of Temperature on the Rate of Blood Flow in the Normal and in the Sympathectomized Hand, *Am. J. Physiol.* 113: 384 (Oct.) 1935.

11. When increase in circulation is obtained by producing general artificial fever, Johnson and others have shown that a maximum increase in the height of the pulse wave is reached when the body temperature lies between 103 and 104 F. and seemingly will go no higher when the fever temperature is raised beyond this point (Johnson, C. A.; Osborne, Stafford, and Scupham, George: Studies of Peripheral Vascular Phenomena: IV. The Effect of Artificial Fever on the Pulse Volume Changes of the Finger, *Am. J. M. Sc.* 190: 485 [Oct.] 1935).

1. Mosso<sup>7</sup> measured the height of the pulse of the hand and forearm by immersing the limb in a plethysmograph in which the temperature of the water could be changed. He used temperatures as low as 13.8 C. Hewlett, van Zwaluwenburg and Marshall<sup>8</sup> used a similar plethysmograph but took measurements of the amount of arterial inflow per unit of time. Using water at low temperatures, down to 12 C., they noted a fall in the circulation rate of from one-fourth to one-half the flow at ordinary room temperatures.

2. Reid, M. R., and Herrmann, L. G.: The Nonoperative Treatment of Peripheral Vascular Diseases, *Ann. Surg.* 102: 321 (Sept.) 1935. Herrmann, L. G.: Nonoperative Treatment of Inadequate Peripheral Distribution of Blood, *J. A. M. A.* 105: 1256 (Oct. 19) 1935.

3. Hewlett, A. W.: The Effect of Room Temperature upon the Blood Flow in the Arm, with a few Observations on the Effect of Fever, *Heart* 2: 230, 1911. Lewis, Thomas, and Pickering, G. W.: Vasodilatation in the Limbs in Response to Warming the Body, *Heart* 16: 33 (Oct.) 1931. Collier, F. A., and Maddock, W. G.: The Differentiation of Spastic from Organic Peripheral Vascular Occlusion by the Skin Temperature Response to High Environmental Temperature, *Ann. Surg.* 96: 719 (Oct.) 1932.

4. Gibbon, J. H., Jr., and Landis, E. M.: Vasodilatation in the Lower Extremities in Response to Immersing the Forearms in Warm Water, *J. Clin. Investigation* 11: 1019 (Sept.) 1932. Landis, E. M., and Gibbon, J. H., Jr.: A Simple Method of Producing Vasodilation in the Lower Extremities, *Arch. Int. Med.* 52: 785 (Nov.) 1933.

5. Landis, E. M., and Gibbon, J. H., Jr.: The Effects of Alternate Suction and Pressure on Blood Flow to the Lower Extremities, *J. Clin. Investigation* 12: 925 (Sept.) 1933.

6. Landis, E. M., and Hitzrot, L. H.: The Clinical Value of Alternate Suction and Pressure in the Treatment of Advanced Peripheral Vascular Disease, *Am. J. M. Sc.* 189: 305 (March) 1935.

7. Mosso, Angelo: Die Diagnostik des Pulses, in Bezug auf die lokalen Veränderungen desselben, Leipzig, Veit & Co., 1879.

8. Hewlett, A. W.; van Zwaluwenburg, J. G., and Marshall, Mark: The Effect of Some Hydrotherapeutic Procedures on the Blood Flow in the Arm, *Arch. Int. Med.* 8: 591 (Nov.) 1911.

9. Lewis, Thomas, and Kerr, W. J.: Experiments Relating to the Peripheral Mechanism Involved in the Spasmodic Arrest of the Circulation in the Fingers: A Variety of Raynaud's Disease, *Heart* 15: 7 (Aug.) 1929.

by Abramson,<sup>2</sup> who had observed eight such patients. Toomey<sup>3</sup> has recently reported the occurrence of the disease in seventy patients.

Considerable controversy has arisen with regard to the possible etiology. Many clinicians hold to the belief that the disease is a form of epidemic encephalitis or of poliomyelitis, while others consider it to be a separate and distinct disease. There have been few

TABLE 1.—Distribution of Patients According to Season, Sex, Color and Age

Season	January	June	July	August	September	October		
	1	2	7	10	1	1		
Sex and Color							Black	White
Male.....							2	12
Female.....							4	4
Age in years.....	3	4	5	6	7	8	9	10
Number of patients.....	1	3	2	2	1	2	2	4

TABLE 2.—Summary of Symptoms and Physical Signs

Total Number of Patients, 22				
Symptoms	Number of Cases	Per Cent		
Headache.....	21	95		
Vomiting.....	17	77		
Infection of upper respiratory tract..	14	64		
Abdominal pain.....	12	55		
Drowsiness.....	9	41		
Physical signs	Present	Suggestive	Absent	
Rigidity of neck.....	15	5	2	
Brudzinski.....	7	10	5	
Kernig.....	9	5	8	

reports concerning the etiologic factors of this disease. Eckstein<sup>4</sup> injected the cerebrospinal fluid of three patients having this type of meningitis into the spinal canals of monkeys and observed a meningomyelitis in one animal but no changes characteristic of poliomyelitis or encephalitis. Rivers and Scott<sup>5</sup> were able to produce in animals a meningeal reaction with an increase in the number of mononuclear cells by injections of cerebrospinal fluid obtained from two patients with aseptic meningitis. These patients slowly developed in the blood serum antibodies to this virus. The strain of virus obtained in these experiments was similar to that found by Armstrong and Lillie,<sup>6</sup> who isolated from patients of the St. Louis epidemic of encephalitis a strain that produced a choriomeningitis in animals. Subsequently Armstrong and Wooley<sup>7</sup> reported that they had found two additional strains of this virus in experimental animals and that specific antibodies had been discovered in the blood serum of some uninoculated animals and in one person who had recovered from an attack of choriomeningitis eleven months previously.

Our purpose in this report is to present the characteristics of an epidemic of atypical meningitis in Cincinnati in 1935. Twenty-two children were observed in the Children's Hospital and in the pediatric wards of the Cincinnati General Hospital.

2. Abramson, J. L.: Acute Lymphocytic Meningitis, Arch. Neurol. & Psychiat. 31: 1235 (June) 1934.  
3. Toomey, J. A.: Acute Lymphocytic Meningitis? J. Pediat. 8: 148 (Feb.) 1936.  
4. Eckstein, A., quoted by Abramson.  
5. Rivers, T. M., and Scott, T. F. McN.: Meningitis in Man Caused by a Filtrable Virus, Science 81: 439 (May 3) 1935.  
6. Armstrong, Charles, and Lillie, R. D.: Experimental Lymphocytic Choriomeningitis of Monkeys and Mice Produced by a Virus Encountered in Studies of the 1933 St. Louis Encephalitis Epidemic, Pub. Health Rep. 49: 1019 (Aug. 31) 1934.  
7. Armstrong, Charles, and Wooley, J. G.: Studies on the Origin of a Newly Discovered Virus Which Causes Lymphocytic Choriomeningitis in Experimental Animals, Pub. Health Rep. 50: 537 (April 19) 1935.

REPORT OF EPIDEMIC

All but three patients of the group of twenty-two contracted the disease in the summer months. The disease was fairly uniformly distributed throughout the various age groups (table 1). Several adults in the community were said to have developed symptoms of this illness during the same period but none of them came under our observation and are not included in this report. The racial distribution was similar to that of the average population of our two hospitals.

The majority of the children were referred to the hospital because of suspected meningitis. The onset of illness was reported by the parents to be sudden in twelve cases and in no instance had the child been sick more than a week before admission to the hospital. The frequency of the symptoms and physical signs of the illness are recorded in table 2.

Headache, practically always present, was located in the frontal region in eight children, but in no instance was the symptom as severe as usually encountered in

TABLE 3.—Summary of Laboratory Data

	Number of Patients
Tuberculin reactions	
Negative.....	15
Positive.....	2
Not done.....	5
Cerebrospinal fluid	
Appearance	
Clear.....	17
Slightly turbid.....	4
Cloudy.....	1
Globulin	
Negative.....	11
Trace.....	10
Greatly increased.....	1
Cell counts	
50 to 200 cells (inclusive).....	17
300 to 600 cells (inclusive).....	3
900 to 1,100 cells.....	2
Type of cell	
Predominance of lymphocytes.....	12
Predominance of polymorphonuclears.....	6
Chlorides	
Normal (720-750 mg. per 100 cc.).....	6
Lower than normal.....	1
Not done.....	16
Sugar*	
(Qualitative) present.....	21
(Qualitative) absent.....	1
(Quantitative) normal (50-75 mg. per 100 cc.).....	4
Ratio of quantitative sugar of the cerebrospinal fluid to that of the blood	
Normal (45-70 per cent.).....	6
High.....	1
Not done.....	15
Wassermann or Kahn test	
Negative.....	4
Not done.....	15
Gold curve	
No reaction.....	3
Not done.....	19
Blood serum reaction (Wassermann or Kahn)	
Negative.....	17
Positive (known syphilitic).....	1
Not done.....	3

\* Ratios on blood and cerebrospinal fluid taken simultaneously under postabsorptive conditions. (Peters and Van Slyke: Quantitative Clinical Chemistry, Baltimore, Williams and Wilkins Company 1: 192, 1917.)

meningococcic meningitis. The pain was alleviated by the withdrawal of from 10 to 50 cc. of the cerebrospinal fluid, which was usually found to be under greater pressure than normal. Vomiting was not projectile and tended to disappear as the general condition of the patient improved. Mild sore throat, rhinitis and nasopharyngitis were noted in fourteen patients and were included under the heading of infections of the upper respiratory tract. Otitis media was not present imme-

Two of these five persons had streptococcic sore throat while the doses were being given, in both instances from two to three weeks previous to the dose causing the joint pains. One of the patients had scarlet fever as a child. One had frequent sinusitis of unknown etiology before her tonsils were removed, and one gave a history of growing pains with occasional sinusitis as a child.

These results indicated that the joint pains were not produced by protein contained in the veal broth used in preparation of the toxin. The following experiment was undertaken to learn whether the arthralgia was caused by substances other than the soluble toxin produced during growth of scarlet fever streptococci in the broth:

#### SECOND EXPERIMENT

Fifty-eight young adults who had positive Dick tests and who were being immunized against scarlet fever reported the occurrence of joint pains. One week after the administration of the dose that produced the joint pains the next larger dose was given, but this toxin was heated before injection by immersion in a bath of boiling water during one hour. This length of time has been shown to be sufficient to inactivate all soluble toxin in the solution. The following week the same dose was given. However, on this occasion the material was unheated and therefore contained active toxin.

The reaction was noted after each dose and the foregoing procedure was repeated each time the patient reported joint pains. To eliminate so far as possible the subjective element, the patients were given no information concerning the boiled toxin injections. They assumed that all doses contained unmodified toxin. A

TABLE 2.—*Joint Pains Occurring on Two or More Occasions Following Administration of Unheated Toxin; No Joint Pain Following Administration of Heated Toxin*

Previous History	Patients
Rheumatic fever with joint involvement.....	1
Joint pains following scarlet fever.....	1
Joint pains following recurrent tonsillitis of unknown etiology..	1
Definite growing pains when children.....	4
Definite growing pains associated with frequent tonsillitis.....	1
Frequent sore throats before removal of tonsils; evidence of cardiac involvement.....	3
Uncomplicated sore throats and tonsillitis.....	6
No history related to rheumatic syndrome.....	2
Total .....	19

TABLE 3.—*Joint Pains Occurring on One Occasion Following Administration of Unheated Toxin; No Joint Pain Following Administration of Heated Toxin*

Previous History	Patients
Joint pains following scarlet fever.....	2
Joint pains following accidental injury to knee.....	1
Joint pains associated with growing pains, sore throat or cardiac difficulty .....	3
Definite growing pains occurring either alone or associated with sore throats, tonsillitis or cardiac difficulty.....	6
Sore throats and tonsillitis.....	6
Sore throats and tonsillitis associated with cardiac difficulty .....	1
No history related to rheumatic syndrome.....	4
Total .....	23

history similar to that in the first experiment was obtained. The patients in this experiment fell into four groups:

Group 1. Those patients in whom joint pains occurred on injection of unmodified toxin and were absent after the injection of heated toxin, with recurrence of pains on one or more subsequent injections of unheated toxin.

Table 2 indicates the nineteen persons in this group. Their joint pains, when they occurred, were severe and definite, coming on within twelve hours after unheated toxin was administered and lasting for from one to five

TABLE 4.—*Joint Pains on One or More Occasions Following Administration of Unheated Toxin; Joint Pains Present but Less Severe Following Administration of Heated Toxin*

Previous History	Patients
Joint pains following pneumonia and later following tonsillitis	1
Joint pains associated with growing pains, tonsillitis and sinusitis .....	1
Joint pains associated with severe growing pains, tonsillitis, mastoiditis and cardiac murmur .....	1
Joint pains following scarlet fever.....	1
Growing pains associated with chorea.....	1
Growing pains associated with sore throat.....	1
Frequent sore throats before removal of tonsils.....	1
No history related to rheumatic syndrome.....	4
Total .....	11

TABLE 5.—*Joint Pains Following Administration of Heated Toxin as Severe as Following Administration of Unheated Toxin*

Previous History	Patients
Joint pains associated with influenza.....	2
Joint pains with streptococcic sore throat.....	1
Joint pains with streptococcic sore throat while receiving doses .....	1
Severe sore throats as child; generalized protein reaction with doses .....	1
Total .....	5

days. At the end of a seven day period joint pains had completely disappeared and did not recur in any degree whatever following the administration of heated toxin. After another week had elapsed a dose of unheated toxin again caused marked joint symptoms similar to those observed at the first occurrence among these patients. Three of the nineteen patients gave a history of previous definite joint involvement; in one instance rheumatic fever had occurred four years previously; in one instance "arthritis" had been associated with scarlet fever twelve years previously, and in another instance "arthritis" had been associated with recurrent tonsillitis of unknown etiology. Three of the nineteen patients reported frequent sore throats before removal of the tonsils and gave evidence of cardiac involvement, two of the three presenting systolic murmurs. Five of the nineteen patients gave a history of definite growing pains as children, in one instance associated with sore throat and tonsillitis, while six of the nineteen had apparently had uncomplicated sore throat or tonsillitis, three frequently and three occasionally. Two patients gave no history of any of the foregoing symptoms.

Group 2. Those patients in whom joint pains occurred on injection of unmodified toxin and who had no pain after injection of heated toxin and no recurrence of pain on subsequent injection of unmodified toxin.

Table 3 indicates the twenty-three persons in this group. They had definite joint pains once during the course of immunization followed by the absence of such pain after the administration of heated toxin, but they had no joint pain after the next dose of unheated toxin. Six of these twenty-three persons gave a history of previous joint involvement, two of them following scarlet fever in one instance twenty-five years previously and the other fifteen years previously and more recently following sinusitis, one following accidental injury to a knee, two associated with growing pains or sore throat

*Differential Diagnosis.*—Several diseases involving the central nervous system resemble in their symptomatology the type of illness described in this group of children. In the presence of an epidemic of poliomyelitis we would have suspected an abortive form of this disease, but the absence of a single case of paralysis in the community led us to doubt such a diagnosis. Negative Wassermann or Kahn tests of the cerebrospinal fluid tended to eliminate the presence of syphilis of the central nervous system. The blood of one patient, known to have syphilis, gave a positive Kahn reaction but his cerebrospinal fluid was negative with both the Kahn and the colloidal gold test. Only two patients had positive tuberculin tests on admission and there were no signs of tuberculous infection in this group except one instance of suspected hip joint infection. The absence of tubercle bacilli in the cerebrospinal fluids of the patients examined and the normal quantitative sugar determinations of the fluids indicated the absence of tuberculous infections. Several guinea-pigs inoculated with the material obtained from lumbar puncture remained well. The rapid recovery of this group of patients likewise spoke against tuberculosis. The diagnosis of encephalitis was more difficult to clinimate, but opposed to it were (1) the facts that cranial nerve involvement was absent except in the two instances of ptosis and unilateral facial weakness mentioned, (2) meningeal symptoms and signs predominated, and (3) the patients made rapid and complete recoveries.

*Treatment.*—Besides the removal of cerebrospinal fluid to relieve the intracranial pressure, treatment was limited to sedatives. Phenobarbital, codeine and morphine were used to relieve the headache and discomfort of lumbar puncture. It was necessary to continue treatment for only a day or two and the symptoms were much more mild and of shorter duration than those accompanying meningococcic meningitis.

*Residual Symptoms.*—Four children were examined at fourteen day intervals for a period of six weeks after the onset of their illness. These children had made complete recoveries and the cerebrospinal fluids were entirely normal at each examination. Twelve of the group of children were examined from six to eight months after they had recovered from their attacks of benign lymphocytic meningitis. In no instance was there found any change in cranial nerve function, in the deep and superficial reflexes, or in the muscle power and coordination. The children were in a satisfactory state of nutrition, had shown no abnormalities of behavior and had performed their school work in the usual fashion. Similar information was obtained from the physicians or parents of two additional children.

#### COMMENT

The characteristics of this disease indicate that it is a clinical entity. The criteria suggested by Wallgren for the diagnosis of the condition were fulfilled in this epidemic. We prefer the designation "benign lymphocytic meningitis" to "aseptic meningitis." Benign lymphocytic meningitis may have occurred much more frequently than the reports in the literature indicate, and without doubt this symptom complex has frequently been diagnosed as an abortive form of poliomyelitis, encephalitis or meningococcic meningitis. Occasionally benign meningeal reactions diagnosed as serous meningitis or lymphocytic meningitis occur in children coincident with such diseases as pneumonia,

otitis media or mastoiditis, typhoid fever or streptococcic infections, but they do not belong in the category of benign lymphocytic meningitis. Whether or not the etiologic agent of this type of meningitis is related to that of poliomyelitis or of encephalitis will have to await further bacteriologic investigation. It is certain that the clinical symptoms, as we have observed them, differ in many ways from either of these diseases.

The disease does not appear to be contagious. Two of our group of patients were siblings of the same family and developed the disease one week apart. One child, who lived directly across the street from another patient, developed the illness several weeks after any possible exposure to the illness. Otherwise the children came from widely separated parts of the community with little likelihood of contact with one another.

During the winter preceding the epidemic of benign lymphocytic meningitis there was an unusually high incidence of meningococcic meningitis in the community. In the spring of that year a few patients had meningeal symptoms associated with mumps. At the peak of the epidemic of benign lymphocytic meningitis, more than seventy children who had contracted pleurodynia were observed in the two hospitals. One of the patients, who developed benign lymphocytic meningitis, had recovered from an attack of pleurodynia one week before the onset of the meningeal symptoms. At the same time a severe form of diarrhea developed in newly born infants in the nurseries of several hospitals, and this disease was accompanied by a severe toxemia and a high mortality rate.

The incidence of other diseases in the community was about the same as in other years. No cases of poliomyelitis were reported in the community for a year before or after the epidemic of benign lymphocytic meningitis, and only an occasional patient with encephalitis was observed during the same period of time.

#### SUMMARY

1. Symptoms of benign lymphocytic meningitis were observed in a group of twenty-two children during the year 1935.
2. The peak of this small epidemic occurred in the months of July and August. The disease developed in widely separated areas of the community except in two instances, so that contact with known patients could not have been responsible for its spread.
3. Characteristic symptoms of the disease were headache, vomiting and abdominal pain. On physical examination rigidity of the neck and positive Kernig and Brudzinski signs were most frequent.
4. Most of the cerebrospinal fluids contained from 50 to 200 cells, chiefly lymphocytes, and the globulin content was greater than normal in about half of the group. The fever was of short duration, and in nineteen of the twenty-two cases the leukocytes of the blood were not increased above normal figures.
5. Recovery was rapid and complete. More than half of the group were examined from six to eight months after recovery from the disease but no evidence of residual symptoms and signs or of changes in behavior could be discovered.
6. The mildness of the infection, its epidemic characteristics and the absence of any other disease in the patients or in the community to account for the illness has led us to suspect that it was a definite disease entity, possibly of a virus nature.



In 1898-1899 Vincent<sup>4</sup> described two diseases of the mucous membrane of the mouth and pharynx which he ascribed to a spirochete. The first was mild stomatitis, with superficial ulcerations, with a subfebrile course lasting two weeks. The second was more severe. In the mild case he found only the fusiform bacillus and in the more severe he found the bacillus associated with the spirillum. He was unable to cultivate the organisms and satisfactorily test their pathogenicity, being unable to produce the disease in the mouth or vagina of animals. Weaver and Tunnick<sup>5</sup> in 1905 described the presence of the fusiform bacillus and spirillum in ulcerative stomatitis and succeeded in cultivating the bacillus anaerobically.

Smith,<sup>6</sup> in an attempt to prove the pathogenicity of these organisms, was unable to produce abscesses in the groins of guinea-pigs without first traumatizing the tissue. In 20 per cent of some 100 animals Smith produced lung abscesses by intratracheal injections of bloody scrapings from pyorrhea under ether anesthesia. He concluded that lung abscess was commonly caused by a mixture of anaerobic organisms, the fusiform bacillus, spirochetes, vibrios and a hemolytic streptococcus. Smith made spirochete cultures of these organisms and injected guinea-pigs with pure culture singly and combined. Only a mixture of *Treponema microdentium*, a small fusiform bacillus, a vibrio and hemolytic streptococcus would produce the typical foul smelling pus.

Lichtenberg, Werner and Lueck,<sup>7</sup> at the suggestion of Dr. Joseph Brennemann, have made some of the most significant observations with regard to the clinical course of treatment and the failure of many works to establish the pathogenicity of these organisms. They had sixteen ulcerative cases presenting positive Vincent's organisms which cleared up without treatment. It has been our observation, however, that the manifestations of the disease became more acute the longer they were allowed to progress without treatment; finally the patient would refuse food and drink, owing to the pain caused by the ordinary processes of mastication and swallowing.

Vincent's stomatitis is a mildly contagious disease which commonly affects the gums and in the more severe cases the lips, cheeks and lateral and dorsal aspects of the tongue. This may be followed or preceded by Vincent's angina and involvement of the entire respiratory and gastro-intestinal tract.

The disease is as Bloodgood<sup>8</sup> so aptly described it:

The mucous membrane lining the three communicating chambers—oral cavity, fauces and pharynx—may be diffusely involved or there may be only a single spot a few millimeters in diameter. The single spot is the unit, and the diffuse lesion is only a multiplicity of single spots. The single spot is at first a red area of irregular outline, never sharply defined, of such a peculiar redness that it may be called the erysipelas of the mouth. The center of the red area may be covered with a whitish or grayish patch which is really due to the superficial destruction or necrosis of the red mucous membrane. Beyond this superficial slough there is still a red zone. It is not unlike a minute gumma in which a central zone of necrosis, surrounded by the red zone of collateral anastomoses of increased vascularity, is recognized. In this stage, because of the little

gray or whitish slough, the condition may be confused with leukoplakia, but the latter is never surrounded by an inflamed and reddened mucous membrane. Leukoplakia and Vincent's angina may appear together. In the next stage the slough comes away and leaves an ulcer. Thus there may be, in this infection called Vincent's angina, single or multiple red areas, single or multiple areas covered with a superficial slough, or single or multiple ulcers. Now and then one or more of these ulcers may be quite large, although rarely more than 18 mm. in diameter; usually the single unit areas are only a few millimeters in diameter. The ulcer never looks like a mucous patch, and it never has the ragged excavated edge of the tuberculous ulcer or the induration of the cancerous ulcer. In the very extensive cases there may be a fibrous exudate not unlike diphtheritic inflammation.

The disease as we observed it clinically was characterized by pain and swelling of the gums, hyperemia, and fetid odor of breath. The gums were often covered with a gray pseudomembrane, more common in the interproximal spaces than elsewhere. The removal of this membrane produced profuse bleeding. The interproximal papillae are destroyed by ulceration and sloughing, producing a characteristic punched out appearance which persists even after resolution. There is a septic type of temperature varying from 97 to 103 F. at no fixed time or period. Chills and fever are sometimes present and in more severe cases there is a marked diarrhea accompanied with a loss of weight due to dehydration. The saliva is thick, ropy and excessive. The patient is listless and irritable and refuses to eat in most cases.

Vincent's stomatitis must be differentiated from syphilis, diphtheria and malignant growths, less frequently from scurvy, pernicious anemia, aplastic anemia, acute leukemia, bismuth or mercurial stomatitis, and mouth manifestations of erythema multiforme and pellagra. This differentiation must be accomplished by examination of the blood, and biopsy as well as by negative or positive smears.

In our series of 704 institutional cases (349 females and 355 males) and ninety private cases there were many complications with six deaths. We found it to attack the larynx, the tracheal bronchial tree, as Jackson<sup>9</sup> has observed, producing bronchopneumonia and lung abscesses. It also produced acute suppurative otitis media and two fatal cases of noma. In private practice we were called to see three patients who were dying following the extraction of teeth in the presence of a mild Vincent infection. These patients had extensive ulcerations involving the rectum and genitals, from which pure cultures of Vincent's organisms were obtained. Their blood streams did not show the Vincent organisms. These patients seemed to die of severe toxemia and dehydration due to excessive diarrhea.

Our original intention was to record Vincent's infection in all its phases. However, as the data accumulated we were faced with a limited number of each type of complication. For instance, we had three patients with lung abscess presenting pure culture of Vincent's organisms who recovered with the aid of bed rest and bronchoscopic and postural treatments. We also had many patients with acute otitis media who readily recovered with douchings of solution of hydrogen peroxide. In one case suppurative mastoiditis developed; the patient was operated on and recovered with the usual surgical treatment plus douchings of solution of hydrogen peroxide in the wound. In other cases angina developed, usually accompanied with a stomatitis. The patients with angina would recover promptly

4. Vincent, M. H.: Recherches bactériologiques sur l'angine à bacillus fusiformis, *Ann. Inst. Pasteur* 13:

5. Weaver, G. H., and Tunnick: Cultures of Fusiform Bacilli and Spirilla in Connection with Morbid Processes, *J. Infect. Dis.* 2: 446-459 (June) 1905.

6. Smith, D. T.: Fusospirochetal Disease of the Lungs Produced with Cultures from Vincent's Angina, *J. Infect. Dis.* 46: 303 (April) 1930.

7. Lichtenberg, H. H., Werner, Marie, and Lueck, Esther Volekmann: The Pathogenicity of the Fusiform Bacillus and Spirillum of Plaut-Vincent, *J. A. M. A.* 100: 707-711 (March 11) 1933.

8. Bloodgood, J. C.: Oral Lesions Due to Vincent's Angina, *J. A. M. A.* 88: 1142-1145 (April 9) 1927.

9. Jackson, Chevalier: Ulcerative Bronchitis Due to Vincent's Infection, *J. A. M. A.* 83: 1845 (Dec. 6) 1924.

trose were given by hypodermoclysis and two hours later 50 cc. of 50 per cent dextrose intravenously. Shortly thereafter, 5 cc. of liver extract derived from 500 cc. of whole liver was injected intramuscularly. Four hours after admission a tracheotomy was performed, giving immediate relief from dyspnea and cyanosis. Despite intensive treatment, which included two blood transfusions of 500 cc. each, the parental administration of liver extract, pentnucleotide and elyses of saline solution and dextrose, the patient became progressively worse and died on the day following admission. He remained conscious and rational to the end.

**Autopsy.**—Postmortem examination, performed by Dr. Lincoln Oppen of the department of pathology, was made two hours and fifty minutes after death. Jaundice was pronounced. There was marked nonfluctuant swelling of the anterolateral aspects of the neck, which appeared to involve the chains of anterior cervical lymph nodes. The posterior chains of cervical lymph nodes also were somewhat enlarged. The uvula, posterior third of the tongue, tonsils, epiglottis and pharynx as far down as the larynx were covered with a green-black sheet of necrotic exudate, which was unusually thick, measuring several millimeters in places. At a few small points this exudate had sloughed off, revealing tissue that had a red and hemorrhagic appearance. On examination of a preparation of the laryngeal portion of the pharynx taken from an area that was only moderately involved in the process, the tissue was seen to be completely denuded of its necrotic, stratified, squamous epithelium. A dense band of pink fibrin filled the loose meshwork of connective tissue. The walls of almost all the small vessels were necrotic. The muscle tissue in this region had lost its striations and in many places stained a smudgy gray-blue. The complete absence of the type of cell, the neutrophilic leukocyte, usually observed in a necrotizing process of this kind, was striking. A few lymphocytes and an occasional plasma cell were seen. A preparation from another portion of the pharynx presented a similar picture, but it included a portion of a lymph node which was completely necrotic in its central portion.

The edges of the tracheotomy wound were gray, ragged and necrotic. There were small subepithelial hemorrhagic zones about the wound. Microscopic examination of a section of the trachea revealed a relatively intact epithelial lining, beneath which, however, the connective tissue was filled with extravasated red blood cells, but there was a complete absence of neutrophilic leukocytes.

Except for extreme engorgement of the right side, particularly the right auricle, the heart was normal. It weighed 340 Gm.

The right lung weighed 450 Gm., the left 600 Gm. The extreme apexes of both lungs were puckered, firm to palpation and apparently fibrous. The absence of yellow-white or gray formations in the clotted blood in the pulmonary vessels, as well as within the heart chambers, was striking. There were extensive subepithelial hemorrhages in the bronchi and particularly the bronchioles. The lumens of these structures contained moderate amounts of tenacious, yellow-red, mucoid material, but the epithelium of the bronchi did not appear grossly necrotic. Microscopic preparations of the deeper lung portions revealed a blurring of the alveolar architecture due to the extreme extravasation of blood edema fluid and large amounts of fibrin into the alveolar spaces. The absence of white blood elements everywhere was striking. Many bacteria were found in the bronchial lumens and within the alveolar spaces. In several places the bronchial epithelium was sloughed off and necrotic.

The spleen was moderately large and very firm. It weighed 290 Gm. On the cut surface the parenchyma had an unusually homogeneous deep red appearance. Microscopically, the malpighian corpuscles appeared normal in number but were definitely smaller and less cellular than usual. The reticulo-endothelial architecture of the red pulp stood out prominently, owing to the complete absence of nucleated blood cells within the sinusoids. These contained only red blood elements.

The liver extended 5 cm. below the costal margin in the mid-clavicular line and 6 cm. below the tip of the xiphoid. It weighed 2,165 Gm. The cut surface of the liver was homogeneous and chestnut brown. On microscopic examination the sinusoids and central veins were seen to be enormously dis-

tended. Cell necrosis was marked about the central veins, but there was no increase of fibrous connective tissue to replace the destroyed cells. The remaining hepatic cells lay singly and contained much yellow-brown pigment in their cytoplasm. Nuclei were frequently missing. In the peripheral portions of the lobules, the cords of cells were relatively intact. The periportal tissue was free of cellular infiltration. The gall-bladder and bile ducts were not remarkable.

The pancreas, stomach and intestine were not remarkable.

The kidneys were unusually large; the right weighed 230 Gm. and the left 250 Gm. On the cut surface the cortices were unusually wide, measuring 8 mm. Microscopically an occasional hyalinized glomerulus was seen. The tubular epithelium was everywhere swollen and the cytoplasm of the cells was granular in appearance. The cell nuclei were frequently absent, and many pink hyaline casts were seen in the tubular lumens. The interstitial tissue was loose and extremely edematous. The adrenals together weighed 20 Gm. and were not abnormal. The pelvic organs were not remarkable.

Examination of the bone marrow was made by Dr. Robert M. Thomas. The usual amount of marrow tissue was present, with no obvious hyperplasia or hypoplasia. The erythroid group was represented by a predominance of normoblasts, with some early and late erythroblasts present but not in unusual numbers. The total number of red cell elements seemed to be from 30 to 40 per cent of the total. There was a marked increase in the number of megalokaryocytes, which were seen in all stages of growth and senescence. Four or five in a low power ( $\times 100$ ) field was the average. These cells were for the most part poorly stained and fragmented, with only the younger mononuclear and binuclear forms staining well. There were a moderate number of large phagocytic cells which contained cellular and other debris within their vacuoles.

The striking feature of the marrow was the absence of mature polynucleated cells, metamyelocytes and myelocytes type C. The bulk of the marrow was composed of young myelocytes, classified as type B, with just enough granules to make up a small clump in one side of the cell. These cells were strikingly uniform in their level of development. It appears as if cell maturation as well as cell multiplication had come to a resting point at a low level.

On postmortem bacteriologic examination the following organisms were isolated: heart blood, *Streptococcus viridans*; lungs, *Staphylococcus aureus*, *Streptococcus viridans*, *Bacillus influenzae*, diphtheroids; liver, *Bacillus coli*, *Streptococcus viridans*; spleen, *Bacillus coli*, *Streptococcus viridans*; kidneys, *Bacillus coli*, *Streptococcus viridans*; trachea, *Staphylococcus aureus*, *Streptococcus viridans*, *Bacillus influenzae*, diphtheroids.

**Anatomic Diagnoses.**—Primary: Acute necrotizing tonsillitis, glossitis, epiglottitis, pharyngitis, cervical lymphadenitis, hypoplastic bone marrow, edema of larynx, wound of tracheotomy, acute bronchitis, pulmonary congestion and hemorrhage, cloudy swelling and edema of kidneys, generalized jaundice. Clinically: Novaldin (aminopyrine derivative) poisoning.

#### COMMENT

There is a growing commercial practice to market familiar drugs or combinations of drugs under trade names with labeling that fails to give a clear and understandable description of the ingredients. In many instances, such as the present case, the true nature of the article is further masked by the introduction of minor chemical alterations. The representations made for these products, sold under distinctive names, are not infrequently beyond those that could be made for the simple drug under its recognized title and, of course, much more difficult to refute. This case serves as an illustration of the harm that may result from this practice.

One may ask the question, as it has been asked for cinchophen,<sup>4</sup> "Is there a safe method for administering aminopyrine and aminopyrine derivatives?" The abrupt onset without warning and the culminating course of this case, and others that I have seen, lead inescapably to the same conclusion that there is no entirely safe method of administering aminopyrine.

New Haven Hospital.

4. Palmer, W. L., and Woodall, P. S.: Cinchophen—Is There a Safe Method of Administration? *J. A. M. A.* 107:760-765 (Sept. 5) 1936.

borate as a paste. It would be impracticable, owing to the amount of time necessary to pack each patient's interproximal spaces satisfactorily. In a resistive or lower grade patient it would be almost impossible to apply this medication properly because of lack of cooperation. We require a remedy that can be used on the most uncooperative patient with the least amount of difficulty. This automatically rules out the application of sodium perborate paste.

Neosarsphenamine and glycerin 10 per cent was used in sixty-five cases; in half of this number the condition cleared up promptly and the patient remained well. The remaining portion were treated with the arsenic plus solution of hydrogen peroxide, with good results, and all were cured.

Fifteen per cent chromic acid without any oxidizing agent was tried in 281 cases. This had to be abandoned before any cures were effected because after two treatments the procedure proved to be too drastic, causing vomiting, nausea and severe sloughing of the gum tissue. However, when we combined it with solution of hydrogen peroxide we had many recoveries. The disadvantage of this procedure was that the teeth became badly stained and the nausea and sloughing persisted even when the solution of hydrogen peroxide was used in conjunction with the chromic acid.

In private practice ultraviolet rays have been applied in about ten cases, which all cleared up promptly, but solution of hydrogen peroxide, U. S. P., was used every two hours, day and night, in conjunction with the ultraviolet rays. None of these patients had recurrences. The lamp used was water cooled and the light was applied with a quartz applicator. This agrees with the observations of Rasmussen.<sup>15</sup> However, the same reasons we advanced as making the use of sodium perborate impracticable in institutional work apply to the use of the water-cooled ultraviolet ray lamp.

On some 140 cases we tried aconite, iodine and chloroform. After a thorough trial this was discarded because of the extremely bad taste, though not until we had tried it out thoroughly. In the cures we had under this treatment solution of hydrogen peroxide was used in conjunction with the aconite, iodine and chloroform.

Solution of potassium arsenite was not used owing to the lack of cooperation of patients and the poisonous properties of the treatment. It had been recommended by Smith in his book "Fusospirochetal Diseases" but was not practical for our purposes.

We tried aniline dyes in more than 110 cases, namely, gentian violet in fifty-five and methylene blue in fifty-five, with hardly any success. Only a few cases cleared up and in all cases that did clear up we had used solution of hydrogen peroxide as an adjunct to the treatment. These aniline dyes penetrate the cracks in the enamel and discolor the teeth. This also holds true in the case of porcelain and synthetic fillings. This is a definite contraindication of its use.

We tried tincture of benzoin in thirty-five cases. This treatment did no good whatever and was discarded.

#### CONCLUSIONS

1. The severity of the case is determined by the resistance of the individual and the virulence of the infecting organisms. This is aptly illustrated in the different types of patients we handle, the lower grades and younger defective children always being more susceptible.

2. In all cases and under all types of treatment, in order to get a proper lasting cure, we feel that thorough prophylaxis and scaling of the teeth, accompanied by the removal of all mechanical irritations, is as necessary a requisite in the treatment of this disease as the medicinal side of the treatment.

3. Abstinence from cigaret smoking and alcohol is to be recommended during the infection.

4. The slightest surgical procedure, even in the presence of the mildest types of Vincent's infection, is to be avoided.

5. In most cases the disease becomes more acute the longer it is allowed to progress without treatment.

6. Solution of hydrogen peroxide, U. S. P., is the prime factor in curing Vincent's infection. However, some of the cases may be assisted by the use of other medicaments, but one cannot be sure of a cure in all cases unless solution of hydrogen peroxide is used in conjunction with the other medicaments. We also feel that it cannot be used to excess. In referring to the use of solution of hydrogen peroxide in this paper it was always used at least four times a day, full strength. The recoveries were quickened in some cases when it was used more frequently; that is, every two hours, instead of four times daily.

Dixon National Bank Building.

## BENIGN LYMPHOCYTIC MENINGITIS

(ASEPTIC MENINGITIS)

CLYDE M. DUMMER, M.D.

ROBERT A. LYON, M.D.

AND

FRANK E. STEVENSON, M.D.

CINCINNATI

Since the beginning of this century a benign disease characterized by headache and meningeal symptoms has been reported in Europe. Local epidemics of such a disease in France in the years 1910 and 1913 were thought to be abortive forms of poliomyelitis, and in 1922 to 1924 similar epidemics in Europe were ascribed to encephalitis. Wallgren<sup>1</sup> reviewed these reports in 1925 and suggested that the disease, which frequently occurred in epidemics, might be a separate clinical entity and he called it "acute aseptic meningitis." He also suggested that a virus might be the etiologic agent. The criteria he considered necessary for such a diagnosis were (1) an acute onset of meningeal symptoms; (2) changes in the cerebrospinal fluid characteristic of meningeal irritation, with a slight or moderate increase in the number of cells, especially of lymphocytes; (3) sterility of the fluid, both on direct examination and in appropriate culture mediums; (4) a short, mild course of the disease with no complications; (5) the absence of any condition that might lead to meningeal irritation, such as otitis media, sinusitis, trauma, and especially of any acute or chronic infection; (6) the absence in the community of any disease that characteristically involves the central nervous system.

Since Wallgren's review, numerous reports of the disease have been made in this country as well as in Europe. This material has been reviewed completely

From the Department of Pediatrics, University of Cincinnati College of Medicine, the Cincinnati General Hospital and Cincinnati Children's Hospital Research Foundation.

1. Wallgren, A.: Une nouvelle maladie infectieuse du système nerveux central? Acta paediat. 4: 158, 1925.

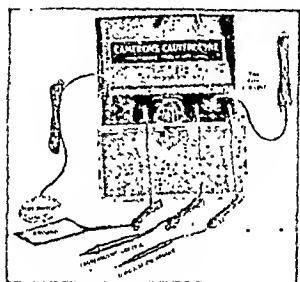
This apparatus has a very limited field of usefulness and probably therefore does not belong in the armamentarium of the average physician. It belongs more in the realm of hospital equipment, since most of these rare arterial diseases are hospital cases.

In view of the satisfactory performance of this unit with reference to the treatment of acute vascular occlusion, freezing, and in vascular diseases with major involvement of the large vessels, the Council on Physical Therapy voted to include this apparatus in its list of accepted apparatus.

### CAMERON CAUTERODYNE, MODEL H, ACCEPTABLE

Manufacturer: Cameron Surgical Specialty Company, Chicago.

This is a surgical diathermy unit recommended by the manufacturer for cutting, coagulating, dehydrating, desiccating and fulgurating. It is of the tube type construction and is said to be capable of cutting and coagulating under water. It comes equipped with foot switch and electrodes.



Cameron Cauterodyne, Model H.

The machine operates on alternating current and the wavelength is about 125 meters, or 2,400 kilocycles. The power consumption varies from 150 (2.5 amperes) for cutting to 220 watts (3.5 amperes) for coagulation. The maximum temperature developed inside the cabinet

in using the machine for one hour—one minute on and one minute off—is 150 F.

This unit has been in service under practical conditions for six months in a clinic acceptable to the Council and has been found to be satisfactory.

In view of the favorable report on this unit, the Council voted to include the Cameron Cauterodyne, Model H, in its list of accepted devices.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**PROTAMINE ZINC INSULIN.**—A preparation of insulin modified by appropriate addition of protamine and a zinc salt. When this modified preparation in its precipitated form is brought into uniform suspension, each cubic centimeter contains 40 units of insulin together with from 0.30 to 0.50 mg. of protamine and from 0.08 to 0.10 mg. of zinc. The preparation contains, in addition, sufficient disodium acid phosphate to maintain its hydrogen ion concentration at not more than that corresponding to  $pH = 7.1$  and not less than that corresponding to  $pH = 7.4$ . This buffering agent, in terms of its anhydrous salt ( $Na_2HPO_4$ ), represents not less than 0.15 per cent and not more than 0.20 per cent of the final product. The preparation also contains approximately 1.6 per cent of glycerin as an agent for achieving of isotonicity, and 0.20 per cent of cresol or 0.25 per cent of phenol as a preservative.

**Actions and Uses.**—The effects of protamine zinc insulin are as described under Insulin-N. N. R., except that the blood-sugar-lowering action of unmodified insulin becomes maximal in from two to three hours, whereas the blood-sugar-lowering action of protamine zinc insulin is prolonged and has its greatest effect in about twelve to twenty-four hours after administration.

Protamine zinc insulin may be used in the case of any patient where regulation of diet is incapable of removing the cardinal objective symptoms of diabetes mellitus, and may replace, wholly or partly, the use of unmodified insulin in the treatment of the patient. In some cases the use of unmodified insulin alone is desirable; in others, protamine zinc insulin alone is indicated; while in others, the use of both preparations gives best results.

In view of the prolonged action of protamine zinc insulin, the chief indications for its use are in those cases where unmodified insulin is unable to provide control, without being administered in several doses daily, or is unable to provide adequate control unaccompanied by frequent hypoglycemic reactions, ketosis, or evidence of pronounced fluctuations in blood sugar levels. The usefulness of protamine zinc insulin in cases of diabetic coma, in diabetes complicated by infection, or in the event of surgical operations has not been definitely established. In such instances, therefore, the use of protamine zinc insulin to supplant the use of unmodified insulin is not recommended.

**Dosage.**—The general principles underlying the administration of protamine zinc insulin are the same as those governing the administration of unmodified insulin (see Insulin-N. N. R.).

Protamine zinc insulin is to be injected *only subcutaneously*. In most cases its administration more often than once a day is not required. The initial dose should be from about two-thirds to equal the number of units that would be needed daily to maintain the patient "sugar free" under treatment with unmodified insulin. In some instances glycosuria may follow owing to the slow absorption and consequent delayed action of protamine zinc insulin. Hence on the first few days when protamine zinc insulin is being used, it may be advantageous to administer a separate dose of unmodified insulin. It is usually possible to discontinue the use of unmodified insulin after the first or second day, though in some instances the administration of both preparations requires to be continued indefinitely.

Protamine zinc insulin is generally administered either in the morning (from one-half to one and one-half hours before breakfast), or in the evening (one hour before supper or one hour before retiring). Diet must be adjusted with the prolonged blood-sugar-lowering effect of the product in mind, and a redistribution of food among individual meals is usually desirable. In particular, the carbohydrate content of the meal following the injection of protamine zinc insulin may require to be limited in order to avoid *hyperglycemia*. The carbohydrate of the diet not included in this meal is divided between the other meals of the day in such a manner as to prevent *hypoglycemia* at times when the dose of protamine zinc insulin is exerting its greatest effect.

Symptoms of hypoglycemic reactions following administration of protamine zinc insulin are similar to but may be less obvious than those following injection of unmodified insulin, and may consist merely of a feeling of pronounced fatigue unwarranted by the activities of the patient. When a hypoglycemic reaction is occasioned by protamine zinc insulin, the reaction may be prolonged, and despite its having been treated, it may repeat itself owing to the continuing effect of the dose administered. It is therefore advisable to use both a soluble and a more slowly digestible carbohydrate in treating such reactions, for example, corn syrup with bread or bread with honey. Alternatively, and even though the patient may appear to be restored to normal through use of a soluble carbohydrate food such as orange juice, it is advisable to provide additional carbohydrate after the lapse of one or two hours. Soda biscuits and milk are suitable at that time. In severe reactions, it may be desirable to inject from 15 to 20 Gm. of dextrose in sterile solution intravenously, followed later by food.

In protamine zinc insulin, the insulin component is derived from batches previously tested and approved in their unmodified form; the protamine component is derived from sperm or mature testes of fish belonging to the family Salmonidae, genus *Oncorhynchus*, *Salmo* or *Trutta*; and the zinc component is derived from a solution of zinc chloride (0.17 mg. of  $ZnCl_2$  provides 0.08 mg. of zinc). Protamines are basic proteins of simple composition. These substances are prepared according to methods described by Kossel. (Kossel, A.: The Protamines and Histones, in Monographs on Biochemistry, translated by W. U. Thorpe, 1928 ed., pp. 18-19).

Protamine zinc insulin is supplied in vials. The filling of each vial includes two distinct operations in that an accurately measured approximate quantity of a sterile acidic solution (insulin, protamine and zinc) is placed in the vial, followed, separately, by an accurately measured, appropriate quantity of a sterile alkaline solution (buffer).

The resultant product is a suspension of finely divided particles. Each filling of protamine zinc insulin is subjected to sterility tests as prescribed for turbid or precipitated biological products intended to be used parenterally. A sample of each batch of the preparation is tested by comparison with a sample of some other batch of the product that has proved satisfactory in laboratory and clinical trials. The sample under test is considered satisfactory only if, upon comparison by suitable methods of biological assay, its effects are shown to be essentially the same as the effects given by the other sample.

To estimate its zinc content, transfer about 1 cc. accurately measured, of the well mixed protamine zinc insulin to a 25 cc. platinum dish, add 0.3 cc. of 1:1 mixture of sulfuric acid and water; evaporate and ignite residue slowly (begin with the muffle door open, then increase the heat to around 650° with the door closed). After cooling, add 15 cc. of water and 7 cc. of 3 normal hydrochloric acid. Evaporate the solution to one-half volume on the steam bath and filter into a 50 cc. Erlenmeyer flask. Wash the residue until the

diately before or during the illness. Abdominal pain was a symptom in twelve instances. The pain was located in the epigastrium in four children, in the left lower quadrant in one, and generalized in the other seven. Localized abdominal tenderness was not elicited by palpation in any patient. It is important to note that abdominal tenderness was the outstanding symptom in the epidemic of pleurodynia occurring in this city at

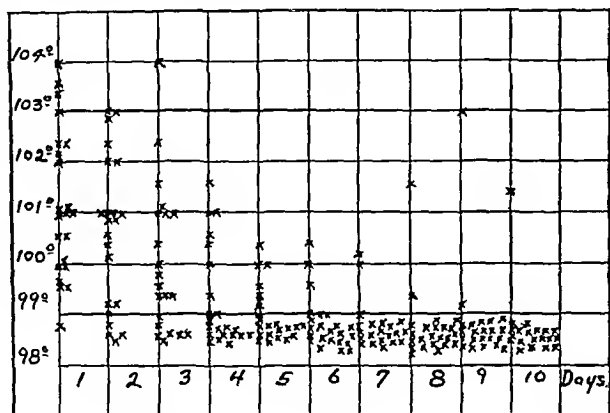


Chart 1.—Composite chart of daily temperature readings of the entire group.

the same time.<sup>8</sup> However, in the patients with the latter disease the pain was located characteristically along the costal margin and their cerebrospinal fluids were normal. Drowsiness was noted in less than half of the group of patients but it never was a marked symptom and no child lapsed into coma or delirium. Convulsions, diarrhea or constipation did not occur in any patient.

**Physical Examination.**—The usual conditions found were stiffness of the neck and positive Kernig and Brudzinski signs. One or more of these tests was positive in all but one child and all three signs were present in five children. In the one instance in which none of these tests were elicited the symptoms of vomiting and headache led to the suspicion of the illness, and the contents of the cerebrospinal fluid confirmed the diagnosis. In other respects the neurologic examination of these patients was negative except for the finding of a ptosis of the eyelids in one child and a weakness of the facial muscles on one side in another. Since these changes were noted during the initial examination and the parents had not noticed any change in the children's facial expression, it was questionable in each case whether such lesions were recent or had been present before the onset of the illness.

**Fever.**—The highest temperatures were 104 F. on admission to the hospital. Defervescence was rapid and complete by the end of seven days except in the instance of one patient who had a secondary rise of temperature on the ninth day as the result of a serum reaction. This patient had received antimeningococcus serum because of the suspicion that the illness was due to the meningococcus. The majority of patients were sick only one to three days before admission to the hospital and never more than seven days, so the duration of the fever may be said to be two weeks; while in the majority of patients fever lasted only about one week. Chart 1 indicates the composite picture of the duration of fever.

**Blood Leukocytes** (chart 2).—The total number of leukocytes in the blood ranged between 7 and 18 thousand per cubic millimeter with ten children of the group (45 per cent) having less than 10 thousand. In fourteen (64 per cent) the proportion of polymorphonuclear neutrophils was increased above normal. In only one patient did the lymphocytes constitute more than 50 per cent of the total number of cells.

**Cerebrospinal Fluid** (table 3).—The fluid was generally clear, the globulin content was increased above normal in about half the number of patients and the number of cells present was from 50 to 200 in the majority of instances but reached as high as 1,100. The cell counts dropped to 10 or less within one to three weeks after the onset of the illness, and the cerebrospinal fluids of two patients examined more than a month later were normal. Lymphocytes were the predominant cells. In five patients the initial differential count showed a predominance of the polymorphonuclear neutrophils, but after a few days the lymphocytes were more numerous. In the early part of the epidemic a few patients were referred to the hospital with the diagnosis of probable meningococcic meningitis and were treated with specific antiserum before the cerebrospinal fluid could be examined. Subsequent cell counts of the cerebrospinal fluid of these patients, of course, showed a reaction to the serum but these results were not included in the table. Examinations and cultures of the fluids in nutrient blood agar, dextrose ascites agar and brain broth<sup>9</sup> were negative for microorganisms in every instance.

Dr. T. F. McNair Scott of the Rockefeller Institute examined the blood serums of three patients for anti-

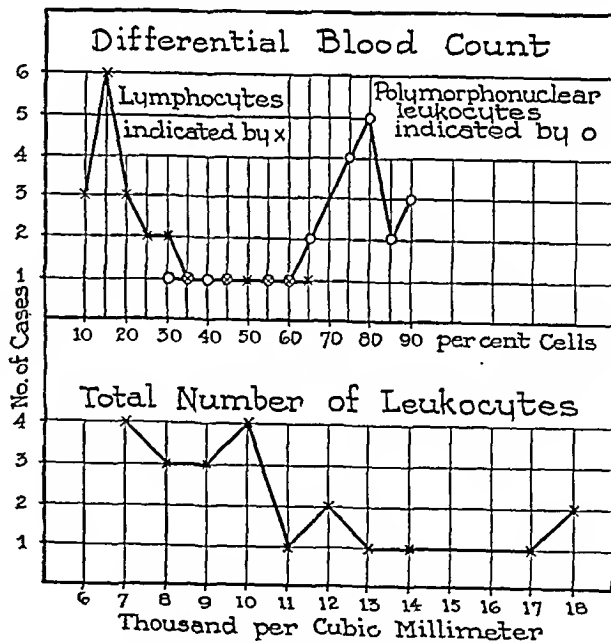


Chart 2.—Total number of leukocytes and the differential counts.

bodies of the virus isolated by Dr. Rivers and himself.<sup>6</sup> The serums were collected about seven months after the patients had recovered from their illnesses and the specimens of two patients showed a weakly positive neutralizing power against the virus. The serum of the third patient was negative.

8. Harder, F. K.: Epidemic Myalgia or Pleurodynia in Southwestern Ohio, *Am. J. M. Sc.* 191:678 (May) 1936. Howell, Barbara A.; Macdonald, R., and Cooper, M. L.: Pleurodynia, to be published.

9. Cooper, M. L.; Keller, Helen M., and Johnson, Barbara: Acute Enteritis in Infants and in Young Children, *Am. J. Dis. Child.* 47:388 (Feb.), 596 (March) 1934.



# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 20, 1937

## SURGICAL TREATMENT OF MALIGNANT HYPERTENSION

In his classic monograph "Ueber den Zusammenhang von Herz und Nierenkrankheiten," Traube postulated in 1856 the compensatory theory of the development of elevated arterial pressure in diseases of the kidneys. He considered the elevation of the arterial pressure an effort on the part of the organism to overcome the mechanical resistance against blood flow and an effort to maintain the excretory function of the kidneys. With the introduction of accurate measurement of the blood pressure, hypertension was found to be one of the most frequent complications of renal disease. The conclusion was drawn that renal influences in some way contributed to the hypertension.

In an attempt to determine the nature of renal influence in hypertension, Page and Heuer<sup>1</sup> performed bilateral renal denervation on a patient suffering from essential hypertension uncomplicated by recognizable renal involvement and with but slight evidence of anatomic changes in the circulatory system. The level of the arterial blood pressure remained unchanged. The renal efficiency, as measured by the urea clearance test and the ability of the kidneys to concentrate, remained unchanged. They concluded that renal denervation is not effective in treatment of essential hypertension and that the hypertension does not originate in the nervous mechanism of the kidneys. Page<sup>2</sup> showed in clinical studies of cases of malignant hypertension, in cases of moderate hypertension and in cases with hemorrhagic nephritis that the efficiency of the kidneys, as measured by the urea clearance test, is not altered by a fall in the arterial blood pressure occurring spontaneously or induced by sodium thiocyanate administered by mouth. Neither was it controlled by colloidal sulfur administered intramuscularly in patients suffering from essential hypertension. He concluded that the abnormal elevation of blood pressure in these cases does not

appear to assist in the maintenance of renal efficiency. This evidence does not support the compensatory theory of the cause of hypertension in patients suffering from nephritis or from essential hypertension.

The newest experimental procedure in hypertension is sympathectomy. Leriche demonstrated in extensive clinical material that vasodilatation can be produced and maintained by arterial sympathectomy. Brünig in 1923 suggested sympathectomy for control of hypertension. Adson and Brown<sup>3</sup> demonstrated that sympathetic ganglionectomy and trunk resection produce an increased blood flow, as measured in degrees of increased elimination of heat. They also found that following cervico-thoracic ganglionectomy the caliber of retinal arteries and veins, as determined by the ophthalmoscopic micrometer, has been increased from a third to a half of the preoperative size. In their attempt to alter the vasomotor control of arteries below the diaphragm, the authors conceived the idea of sectioning the anterior spinal roots bilaterally from the sixth thoracic to the second lumbar, inclusive. The effect of this procedure would be to interrupt the thoracolumbar sympathetic outflow below the fifth thoracic segment and to paralyze the abdominal muscles. The authors hoped by this procedure to sympathectomize sufficient arteries to modify arterial responses, to sympathectomize thoroughly the suprarenal glands and to remove the effects of intra-abdominal pressure. They obtained a favorable result in a severe case of hypertension and felt that better results could be accomplished in younger patients with more flexible vascular systems. Page and Heuer<sup>4</sup> performed the same operation on a girl with a high arterial blood pressure but with a still flexible vascular system. The blood pressure level fell quickly to normal and has remained normal for seven months.

Freyberg and Peet<sup>5</sup> now report forty-eight cases in which the operation of splanchnicectomy, as devised by Peet, was carried out. The operation consists of a bilateral sectioning of the major and minor splanchnic nerves and of the lower dorsal sympathetic chain, including the tenth, eleventh and twelfth ganglions, supradiaphragmatically. In almost every case there was a sharp fall in blood pressure to normal or below immediately after the operation. The result was permanent in some and less permanent in others, while the blood pressure rose to the preoperative level in still others. The authors stress the fact that splanchnicectomy performed on patients with primary hypertension does not interfere with the functional efficiency of the kidneys, as measured by concentration and urea clearance tests, whether or not significant decrease in blood pressure results. When hypertension is greatly relieved by the

1. Page, I. H., and Heuer, G. J.: The Effect of Renal Denervation on the Level of Arterial Blood Pressure and Renal Function in Essential Hypertension, *J. Clin. Investigation* 14: 27 (Jan.) 1935.

2. Page, I. H.: The Effect on Renal Efficiency of Lowering Arterial Blood Pressure in Cases of Essential Hypertension and Nephritis, *J. Clin. Investigation* 13: 909 (Nov.) 1934.

3. Adson, A. W., and Brown, G. E.: Malignant Hypertension: Report of a Case Treated by Bilateral Section of Anterior Spinal Nerve Roots from the Sixth Thoracic to the Second Lumbar, Inclusive, *J. A. M. A.* 102: 1115 (April 7) 1934.

4. Page, I. H., and Heuer, G. J.: A Surgical Treatment of Essential Hypertension, *J. Clin. Investigation* 14: 22 (Jan.) 1935.

5. Freyberg, R. K., and Peet, M. M.: The Effect on the Kidneys of Bilateral Splanchnicectomy in Patients with Hypertension, *J. Clin. Investigation* 16: 49 (Jan.) 1937.

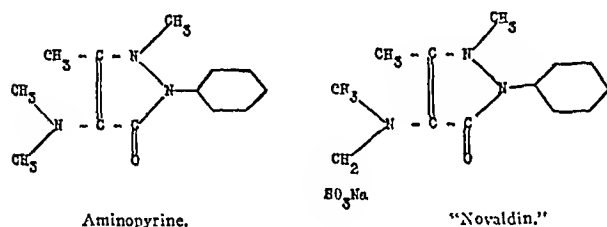
## Clinical Notes, Suggestions and New Instruments

### AGRANULOCYTOSIS ASSOCIATED WITH THE ADMINISTRATION OF "NOVALDIN," A DERIVATIVE OF AMINOPYRINE

THEODORE G. KLUMPP, M.D., NEW HAVEN, CONN.

That aminopyrine is capable of causing agranulocytosis is now generally recognized. There is ample evidence that because of this danger informed physicians have either wisely stopped prescribing aminopyrine or are using it with the utmost care. In Denmark, where the medical profession has been induced to refrain from the prescription of the drug, not a single case of angina agranulocytica has occurred.<sup>1</sup>

On the other hand, most physicians are not organic chemists and when confronted with "Novaldin, Brand of Dipyrone (Sodium phenyldimethylpyrazolon methylaminomethane sulphonate),"<sup>2</sup> cannot be expected to know that it is a derivative of aminopyrine and contains the chemical radical that has been etiologically related to agranulocytosis. "Novaldin" is in fact aminopyrine with the substitution of the sodium salt of methyl sulfonic acid for one of the methyl groups attached to the amino nitrogen. This simple chemical maneuver, called "sulfonation," is commonly employed to increase the solubility of a compound without materially altering its chemical and pharmacologic properties. The essential similarity of aminopyrine and "Novaldin" is evident from the structural formulas:



Theoretically "Novaldin" should share with aminopyrine the potentiality of causing agranulocytosis. That this is true is suggested by the experiment of Benjamin and Biederman.<sup>3</sup> These authors administered 10 grains (0.6 Gm.) of "Novaldin" to a volunteer who had had several attacks of agranulocytic leukopenia due to aminopyrine and were able to produce a prompt neutrophilic leukopenia accompanied by malaise, headache, backache and slight pyrexia.

In the following report the occurrence of a fatal case of agranulocytosis associated with the administration of "Novaldin" is recorded, with autopsy.

#### REPORT OF CASE

**History.**—N. A. B., a white man, aged 43, married, Swiss-American, an inspection engineer, was admitted to the New Haven Hospital, Jan. 28, 1935, at 4 p. m., because of difficulty in breathing.

For approximately twenty years the patient had been troubled with minor digestive disturbances and frontal headaches associated with emotional upsets, anxiety or eyestrain. Otherwise he had been in good health.

Five months before admission the patient consulted his physician because of headaches. The physician warned him against aminopyrine, because of the danger of agranulocytosis, and prescribed instead "Novaldin." The patient took this drug every day, with occasional omissions. The exact dosage taken, however, is not known. In December 1934 phenobarbital, one-third grain (0.02 Gm.) three times a day, was prescribed for the patient's minor digestive disturbance.

From the Department of Internal Medicine of Yale University School of Medicine and the New Haven Hospital.

1. Granulocytopenia and Aminopyrine, Netherlands Letter, J. A. M. A. 107:591 (Sept. 12) 1936.

2. Winthrop Chemical Company.

3. Benjamin, J. E., and Biederman, J. B.: Agranulocytic Leukopenia Induced by a Drug Related to Aminopyrine, J. A. M. A. 107:493-494 (Aug. 15) 1936.

January 23, five days before admission, the patient was exposed to the cold during a six hour automobile trip. On his return home he felt chilly, unusually fatigued, and went directly to bed. The next day he continued to feel chilly and developed a headache, which persisted throughout the illness. After an alcoholic drink he returned to bed. During the night he perspired profusely. The following day, three days before admission, his throat felt sore, his tonsils seemed swollen, and a temperature of 102 F. by mouth was recorded. His condition grew rapidly worse and a physician was called, who swabbed his throat with a 3 per cent solution of silver nitrate and prescribed a gargle containing potassium chlorate and ferric chloride and morphine one-eighth grain (0.008 Gm.). The patient also took a number of acetylsalicylic acid tablets.

The day before admission slight jaundice and rapidly increasing obstruction to breathing appeared. Cyanosis developed and on the day of admission it was feared that he would choke to death. Hospitalization was ordered.

**Physical Examination.**—On admission the body temperature was 104.5 F., pulse 143, respiration 40, and blood pressure 130 systolic, 80 diastolic. The patient was desperately ill, perspiring freely, restless, apprehensive and quite unable to talk. Inspiratory stridor, cyanosis and dyspnea were pronounced. The accessory muscles of respiration were brought into play. The breath had a foul, gangrenous odor. The tonsils and oral pharynx were inflamed and boggy and showed ulcerative necrotic lesions covered with a firmly adherent, dirty, grayish black membrane. When this was removed in part, it left an ulcerated surface with many bleeding points. Except for inflammation and edema, the uvula, soft palate and anterior pillars were not conspicuously involved. The soft tissues of the neck were edematous and the tonsillar and anterior cervical lymph nodes were greatly enlarged. No abnormalities were discovered on examination of the lungs. Except for tachycardia, the heart appeared normal. The liver edge was felt 2 cm. below the costal margin. The spleen could not be felt.

**Laboratory Examination.**—Blood studies were as follows: red blood cells 5.0 million; hemoglobin 90 per cent of 15.4 Gm.; white blood cells 150. On examination of the smear only 20 leukocytes were seen, of which 2 were monocytes and the remainder lymphocytes. These cells did not appear abnormal. The red blood cells and platelets were normal in number and appearance. Fluctuations in the number of leukocytes are given in the table.

#### Fluctuation in Number of Leukocytes

Leukocytes			Differential Count
1/23	4:00 p. m.	150.....	20 cells: 18 lymphocytes, 2 monocytes
	9:00 p. m.	230.....	10 lymphocytes
	10:00 p. m.	Transfusion 500 cc.	
	11:30 p. m.	100.....	4 lymphocytes
1/23	8:30 a. m.	450.....	No neutrophils seen
	11:00 a. m.	Liver extract from 500 Gm. of liver	
	12:00 noon	Transfusion 500 cc. blood	
	1:30 p. m.	1,950.....	10 lymphocytes, 2 monocytes
	3:00 p. m.	600.....	7 lymphocytes, 2 monocytes

The urine was deep amber, acid, had a specific gravity of 1.018, albumin 4+, sugar 0, bile 2+, no sediment, and the Kahn test was negative. The icteric index was 100. Blood non-protein nitrogen was 81 mg. per hundred cubic centimeters. Throat cultures revealed nonhemolytic streptococci +, Staphylococcus aureus +, diphtheria bacilli 0. Blood cultures revealed Streptococcus viridans +, a gram-negative bacillus, probably B. coli, +. The direct smear from the throat was chiefly remarkable for its complete absence of leukocytes.

**Clinical Course and Treatment.**—On admission to the hospital, the patient was immediately placed in a steam room and kept there for three hours. Because of his critical condition and the possibility of fulminating diphtheria, which could not be definitely dismissed at this time, 20,000 units of diphtheria antitoxin was given intravenously and 40,000 intramuscularly shortly after admission. One hour after entry into the hospital 1,500 cc. of saline solution and 100 cc. of 5 per cent dex-

zinc sulfate solution has a better effect and is more satisfactory than the picric acid-alum solution; this evidence has been developed wholly on monkeys, and human experiments are not yet available to prove the efficacy of the zinc sulfate method in the human being. In his conclusion DeKruif recommends that physicians apply the zinc sulfate prevention method on a large scale wherever epidemics threaten next year and that health departments everywhere organize for the purpose. Time will no doubt show whether or not the method is as good as DeKruif seems to think it is.

The series of publications and educational activities associated with the periodical *Time* are devoting themselves in a serious manner to aiding the campaign against cancer. The current issue of the talking motion picture *March of Time* presents a lecture and a series of pictures which have received favorable comment from the medical profession wherever they have been shown. They would seem to be invaluable in educating the public regarding the nature of research against cancer, regarding the use of radium, the x-rays and surgery, and regarding the menace of cancer quackery. Advance reports indicate a special article on cancer which will appear in the March issue of *Fortune* magazine, and a photographic educational series which will appear in an early issue of *Life*. Already the *March of Time* broadcast on the radio has reflected to the public the new campaign against cancer. The headquarters of the Association has cooperated in these productions. This type of cooperation in the education of the public is important for the medical profession, and the publications concerned are hereby tendered the thanks of THE JOURNAL for the manner in which the work has been carried on.

A considerable contrast to the efforts previously described is the utter folly represented by the series of articles now being published in the *Cosmopolitan* magazine under the authorship of Rex Beach, who has promoted two foot manipulators, a cataract charlatan, a dietary quack and other exploiters of strange notions in the field of health and healing. Conspicuous also are the trumpery, charlatanism and pure silliness involved in such medical articles as have been published from time to time in *Esquire* and which are more recently being published in *Coronet*. It is inconceivable that either the publisher or the editor of these periodicals has even a reasonably competent understanding of the articles that are being published and certainly it is inconceivable that any competent physician is advising them. The promotion of Duncan and his system of autotherapy was, of course, utterly without any scientific warrant and disgusting besides.

The most recent explosion in relationship to medical economics was in the *Literary Digest* for January 30. The article seemed to average one or two errors of fact in every few paragraphs, varying from its exaggeration of the number of physicians on relief to one relative to the membership of the American Medical

Association. The article stated that at one time there were 400 physicians on relief in Chicago, whereas it is doubtful that the number ever exceeded seven. Indeed, Harry Hopkins himself stated that the number for the whole country was approximately 675 physicians on relief. The article stated that the American Medical Association had 120,000 members, whereas it boasts of 104,000 members out of approximately 130,000 practicing physicians and 165,000 licensed physicians in the country. A complete statement has been sent to the *Literary Digest* relative to the disputed points in this article, and the editors of that periodical promise an extended consideration of the subject in a future issue.

## Current Comment

### PROTAMINE AND INSULIN PREPARATIONS

From its introduction fourteen years ago, insulin underwent relatively little modification until Hagedorn<sup>1</sup> and others of Denmark showed that the blood-sugar-lowering action of insulin was prolonged when it was combined with protamine.<sup>2</sup> The product was first called "Protamine Insulinate," "Insulin Protaminat," or "Insulin Protamine Compound." Later the generally accepted term was Protamine Insulin. Following the announcement of Hagedorn's results, much experimental work was undertaken. Scott and Fisher,<sup>3</sup> working at the University of Toronto, found that the addition of a zinc salt to a protamine and insulin mixture enhanced the prolongation effect of insulin in diabetic patients. Until recently the product given to investigators for clinical trials consisted of two vials. The contents were mixed by the physician before use. Various investigators in collaboration with the University of Toronto group have aided in the development of a pharmaceutically improved product of insulin, modified by the presence of protamine and zinc, which may be dispensed in a single vial. This product has now been designated "Protamine Zinc Insulin." Elsewhere in this issue appears a description of Protamine Zinc Insulin, now being manufactured under license by a number of pharmaceutical concerns. Physicians should read the epitomized description of the product and its actions, uses and dosage.<sup>4</sup> Protamine Zinc Insulin does not replace insulin (unmodified) in all cases or under all circumstances. Protamine Zinc Insulin may be used alone or used concurrently with the administration of unmodified insulin; or in some cases unmodified insulin may be used to advantage without employing Protamine Zinc Insulin. The choice of technic of administration depends on such factors as the diet of the patient, exercise, and pathologic complications. Further clinical experience may indicate certain limitations and advantages not yet recognized, and undoubtedly advances in the manufacture of this

1. Hagedorn, H. C.; Jensen, B. N.; Krarup, N. B., and Wodstrup, I.: Protamine Insulinate. *J. A. M. A.* 106:177 (Jan. 18) 1936.

2. For the definition of Protamine, see the N. N. R. description of Protamine Zinc Insulin.

3. Scott, D. A., and Fisher, A. M.: Studies on Insulin with Protamine. *J. Pharmacol. & Exper. Therap.* 58:78 (Sept.) 1936.

4. Protamine Zinc Insulin, N. N. R. department of THE JOURNAL, this issue, p. 640.

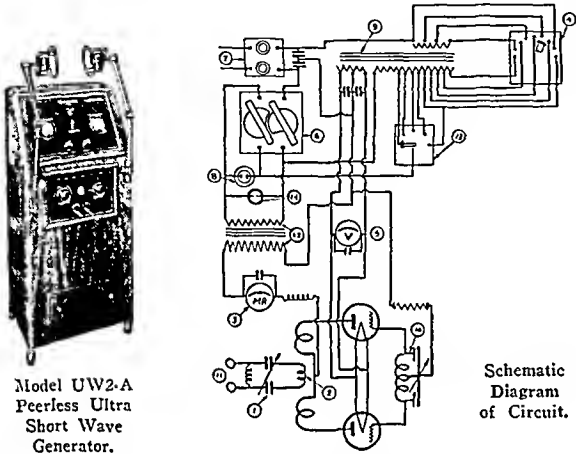
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORTS.      HOWARD A. CARTER, Secretary.

PEERLESS ULTRA SHORT WAVE  
GENERATOR, MODEL UW2-A,  
ACCEPTABLE

Manufacturer: Peerless Laboratories, Inc., New York.

The Peerless Ultra Short Wave Generator, Model UW2-A, is recommended for medical and surgical diathermy. It is a two-tube machine with a fixed wavelength of about 6 meters. The patient's circuit is inductively and capacitively coupled to the oscillator circuit for medical and surgical diathermy.



Tuning of the patient's circuit is accomplished with a double condenser. Electric field electrodes of various sizes are provided as regular equipment. Evidence for the air-spaced electrodes and induction coil was not submitted. Only the cuff electrodes are considered herein.

For consistency of performance and maximum life to tubes and other component parts, a switching arrangement is incorporated in the machine which enables the physician to adjust the operating voltages on filament, grid and plate to line voltage variation within a range of from 105 to 135 volts in the power supply line.

When this machine is operated under full load it draws from the alternating current supply line not more than 1,200 watts. Since no reliable method has been proposed to measure the output energy available to the patient, the value is not given.

Averages of Eight Observations with Cuff Electrodes

Intramuscular Temp. F.		Subcutaneous Temp. F.		Rectal Temp. F.	
Initial	Final	Initial	Final	Initial	Final
97.0	105.5	93.2	103.5	99.4	99.7

The firm was asked to obtain evidence from a reliable investigator to substantiate the claims made for the unit. Using human subjects, the heating effect of the tissues in the thigh was observed. The cuff electrode method of application was investigated. Four vigorous men ranging in age from 23 to 35 years were obtained for the experiments. Temperature measurements were observed by means of thermocouples of the hypodermic type, before and after a twenty minute treatment. The temperature measurements were read on a potentiometer. Thermocouples were calibrated by a standard thermometer in degrees Fahrenheit. The intensity of the diathermy current was governed by the patient's skin comfort. Rectal temperatures were also observed. Cuff electrodes of size 3.8 by 37.5 cm.

were wrapped around the thigh, one electrode at the proximal thigh and the other at the distal. The distance from center to center of the cuff electrodes was 2.3 cm. and the spacing of felt and toweling between the leg and cuff was about 2.5 cm.

Two observations were made on each patient, one on the right thigh and the other on the left, making a total of eight observations. The depth of insertion of the point of the thermocouple was approximately 2 inches, or until the femur was encountered. The subcutaneous temperature was taken at a depth of about one-eighth inch below the skin surface. Anesthetics were not used prior to insertion of the thermocouple.

Each item given in the accompanying table is an average of eight observations, application by cuff electrodes.

The results indicate that the temperature rise with the aforementioned method of application is considerably above what can be expected in the application of conventional diathermy—with a metal electrode on the medial aspect of the thigh and another metal electrode on the lateral aspect—the method of application that has been adopted as a minimum standard of acceptance.<sup>1</sup>

The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. The shipping weight of the apparatus is about 150 pounds. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is less than with conventional diathermy, employing metal electrodes.

The machine was used in a clinic acceptable to the Council and was operated under actual clinical conditions. It was reported as giving satisfactory service. In view of the favorable report based on the performance of this unit when employing cuff electrodes, the Council on Physical Therapy voted to include the Peerless Ultra Short Wave Generator, Model UW2-A, in its list of accepted devices.

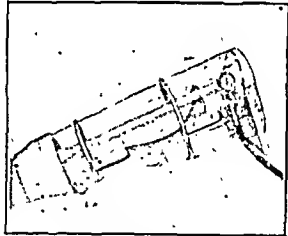
EMERSON SUCTION PRESSURE APPARATUS  
ACCEPTABLE

(For Treating Peripheral Vascular Diseases)

Manufacturer: J. H. Emerson, Cambridge, Mass.

This apparatus is recommended by the firm for the treatment of peripheral vascular diseases of the extremities by alternating positive and negative pressure.

Essentially, the apparatus consists of an air compressor and vacuum pump, a "boot" or chamber in which the patient's limb is confined. The boot is of noninflammable celluloid and weighs 15 pounds. The cuffs are made of molded solid rubber and there are a number of smaller cylinders telescoping inside one another. In addition to the regular adjustments to set the amount of positive and negative pressures, there is an adjustment provided for altering the duration of the cycle of pressure change between ten and sixty seconds, and an adjustment for varying the time ratio of positive to negative pressure. The compressor is compact and movable and the shipping weight of the combined apparatus is about 200 pounds.



Emerson Suction Pressure Apparatus.

The apparatus was investigated in a clinic acceptable to the Council, and the investigator reported that the unit was capable of increasing collateral circulation.

The types of cases benefited by this type of apparatus appear to be acute vascular occlusion, frost-bite, and vascular diseases with major involvement of the large vessels. The contraindications appear to be thrombophlebitis, cellulitis or lymphangitis (acute or subacute), extensive destruction of the arteriolar or capillary vessels, advanced thrombo-angiitis obliterans with capillary stasis, and advanced arteriolar sclerosis with capillary stasis, and venous thrombosis.

1. Mortimer, Bernard, and Osborne, S. L.: Tissue Heating by Short Wave Diathermy, J. A. M. A. 104: 1413 (April 20) 1935.

in the business of insurance against the need for medical and hospital services and to regulate the manner in which such business is conducted. The bill states that it "is intended to govern all contracts between physicians and surgeons and other persons, which provide that for certain regular sums, or for a stated sum for a stipulated period the physician and surgeon or association of physicians and surgeons will furnish to the other person all medical and surgical services, including hospitalization and nursing, which may be required by such person, irrespective of the actual value of the services furnished." A. 1721 proposes to prohibit the retail sale or other retail distribution of contraceptives and any devices, appliances, or medicinal agents used in the prevention of venereal disease, except by a licensed pharmacist or by a licensed physician or licensed osteopath. A. 1783, to supplement the business and professions code, by the addition of a section 114 to that code, proposes to authorize courts to enjoin (1) the unlicensed practice of any profession or vocation and (2) a licensee from committing any act the doing of which constitutes a cause for revocation or constitutes unprofessional conduct. A. 1472 proposes to establish a board of naturopathic examiners and to regulate the practice of naturopathy. The bill proposes to define naturopathy as "diagnosis of all human ailments and abnormalities and the practice of physiological and mechanical sciences such as mechano-therapy, electro-therapy, physio-therapy, articular manipulation, hydrotherapy, mineral baths and dietetics, which shall include the use of foods of such chemical tissue-building products and cell salts as are found in the normal body; and the use of oils, dehydrated and pulverized fruits, seeds, barks, non-narcotic herbs, roots and vegetables." A. 1196 proposes to permit the governing authorities of city, county, or city and county hospitals to admit and care for nonindigent patients and to establish rates or fees to be charged such non-indigent patients for services rendered and supplies furnished. S. 781 and S. 783 propose to authorize courts to restrain the unlicensed practice of medicine or of osteopathy. A. 2029, to amend the workmen's compensation act, proposes to make silicosis, asbestosis and pneumoconiosis compensable under certain conditions. A. 1880 proposes to authorize city and county boards of education to grant health and development certificates to "physicians and surgeons holding certificates issued by the California state board of osteopathic examiners." The present law permits the issuance of such certificates only to holders of certificates to practice medicine and surgery issued by the board of medical examiners. S. 731, to amend the medical practice act, proposes to include as unprofessional conduct, which is a cause for the revocation of a license, "advertising or holding out to the public that professional services of a specified nature will be rendered for a particular, definite or fixed price." A. 2011, to amend the workmen's compensation act, proposes to permit an injured worker to "select any person licensed to render the type of treatment or service required." A. 1320, to amend the medical practice act, proposes to designate as unprofessional conduct, which is a ground for revoking a license, "the actual practicing of any system or mode of treating the sick or afflicted which is intended or has a tendency to deceive the public or impose upon credulous or ignorant persons, and so be harmful or injurious to public moral[s] or safety." A. 1333 proposes to prohibit the manufacture, or sale or offering for sale of any adulterated, mislabeled or misbranded cosmetics. The term cosmetic is to apply to all "substances and preparations intended for external or oral use in cleansing, or altering the appearance of, or promoting the attractiveness of, the person." A cosmetic will be deemed adulterated if its standard of purity, strength or quality fall below the standards provided by the state board of health or if its purity, strength or quality fall below the professed standard of purity, strength or quality under which it is sold or if it contains any poisonous or deleterious substance in such quantity as may render it injurious to the user under the conditions of use prescribed in the labeling thereof, or under such conditions of use as are customary or usual. A cosmetic will be deemed mislabeled or misbranded if its package or label bears any statement which is false or misleading in any particular whatsoever or if the efficacy of the article or its ingredients are falsely or deceptively advertised. A. 1253, to amend the act prohibiting the manufacture, sale or transportation of adulterated, mislabeled or misbranded drugs, proposes to define "drug" so as to include (1) devices intended to be used for the cure, mitigation or prevention of disease and (2) all chemicals or substances of whatever nature used in the treatment of obesity. The bill proposes that the standard of purity of drugs not listed in the United States Pharmacopeia or in the National Formulary shall be the standard of strength, quality or purity established by the state board of health. A drug is to be deemed to be mislabeled or misbranded if adver-

tising matter used in connection with its sale contains any statement regarding its curative or therapeutic effect that is false and fraudulent. The bill further proposes to prohibit the advertisement of drugs, treatments or cures for venereal diseases, impotence, self abuse, cancer, tuberculosis, diabetes or heart trouble, except such advertisements as are disseminated to the medical and pharmaceutical professions. A. 1089 proposes to require the state board of health to establish and maintain a bureau of venereal diseases to cooperate with physicians and surgeons, medical schools, hospitals, dispensaries, clinics, schools, penal and charitable institutions, local health officers and boards, and federal health authorities in the control, prevention and cure of venereal diseases.

## COLORADO

**Bill Introduced.**—H. 364, to amend the law prohibiting the production, manufacture, possession or distribution of marihuana, proposes to make a violation of the provisions of the act punishable by imprisonment in the state penitentiary for not less than one nor more than ten years.

**Annual Registration Due Before March 1.**—Every person licensed to practice any form of the healing art in Colorado, is required by law to register annually before March 1, with the secretary-treasurer of the Board of Medical Examiners, and to pay a fee of \$2, if a resident of Colorado, or \$10, if a nonresident. Failure to pay this fee within the time stated automatically suspends the right of a licensee to practice while delinquent. If he nevertheless continues to practice, he is subject to the penalties provided by law for practicing medicine without a license. Failure to pay this fee for three consecutive years results in the automatic cancellation of a delinquent practitioner's license to practice.

**Dr. Hall Honored.**—Dr. Josiah N. Hall, professor of medicine, emeritus, University of Colorado School of Medicine, Denver, will be guest of honor at a testimonial dinner given February 20 by Dr. Hubert Work, formerly Secretary of the Interior. Dr. Hall has recently announced that he will retire from active practice March 1. He is 77 years of age. A native of Chelsea, Mass., Dr. Hall graduated from Harvard University Medical School in 1882. The following year he began practice in Sterling, remaining there until 1892. He has been in Denver since that time. He was major and surgeon in the medical reserve corps of the U. S. Army in 1917, and chief of medical service, Base Hospital, Camp Logan, Texas. Later he served as consultant in internal medicine to the sixteen southwestern military hospitals during the war. Organizations of which he has been president include the Colorado State Board of Medical Examiners, 1891; the state board of health, 1903-1904; state medical society, 1900, and the American Therapeutic Society, 1916-1917. He was mayor of Sterling, 1888-1889. He served on the Judicial Council of the American Medical Association from 1921 to 1931 and was a member of the House of Delegates at various times from 1903 to 1921. He wrote the section on Gun-Shot Wounds, Burns and Scalds in Peterson and Haines' A Text-Book of Legal Medicine and Toxicology, 1903, and is the author of Borderline Diseases, 1915. In 1933 the Medical Society of the City and County of Denver held a dinner to observe his completion of fifty years in the practice of medicine in Colorado. Tribute was paid to Dr. Hall in 1936 at the annual meeting of the state medical society when the banquet and president's reception was dedicated to him in recognition of his fiftieth year of attendance at the annual sessions of the society.

## CONNECTICUT

**Bills Introduced.**—S. 425 and H. 629, to amend the law regulating the conduct of maternity hospitals, proposes that such hospitals be licensed by the state department of health rather than by the appropriate local health officer, as the present law provides. S. 419 proposes to appropriate \$100,000 to the state department of health to be used for the treatment of indigent typhoid and paratyphoid germ carriers. S. 373 proposes to require the governor to appoint a commission, to consist of five members, to investigate the subject of social health for insurance and to report its findings, with recommendations for legislation, to the next session of the general assembly. H. 773 and S. 565, to amend the workmen's compensation act, propose to limit the liability of an employer to furnish "medical and surgical aid or hospital service" to an injured employee to the first sixty days after an industrial injury. S. 800 proposes to add \$2 to each annual motor vehicle registration fee to create a state fund with which to pay for medical expenses rendered to indigent residents of Connecticut injured in a motor vehicle accident occurring on the highways of the state. S. 1027 proposes that in the distribution of a decedent's estate the claims of



volume of the filtrate is approximately 25 cc., add 3 drops of solution of bromophenol blue, followed by stronger ammonia water until the solution assumes a blue color, then add just enough hydrochloric acid to make the solution slightly yellow. Add approximately 5 cc. of sodium citrate buffer (12 Gm. sodium citrate, 23 Gm. citric acid in 100 cc. water) and adjust the entire mixture to a  $pH = 3.0$ . The solution should now have a gray color—neither yellow nor blue. Warm the solution on a steam bath and rapidly pass in hydrogen sulfide for two minutes. (Iron may be reduced in slightly acid solution by using a little  $SO_2$ ). Add 0.05 Gm. of acid and alkali washed talcum. Filter the solution through a Whatman filter No. 1 (7 cm.), wash with 10 cc. hydrogen sulfide saturated water containing 5 cc. of 90 per cent formic acid in 1 liter. After the filter is dry, elute the zinc with approximately 15 cc. 1 normal hydrochloric acid and transfer into a flat bottom Nessler tube. Add 2 cc. of 5 normal sodium hydroxide and fill up to 20 cc. Add 2 drops of 2 per cent potassium ferrocyanide, and compare with standards containing 0.05 mg. to 0.1 mg. zinc (nephelometrically): One cc. of protamine zinc insulin containing 40 units per 1 cc. should yield the equivalent of not less than 0.07 mg., nor more than 0.10 mg. of zinc. The zinc standard is made by dissolving 1 Gm. of pure zinc in concentrated hydrochloric acid, diluting it to 1 liter.

Patents and trademarks—See Insulin, N. N. R. Additional patents applied for.

**Protamine, Zinc & Iletin (Insulin, Lilly).**—A brand of protamine zinc insulin.

Manufactured by Eli Lilly and Company, Indianapolis, under license from the governors of the University of Toronto.

**Protamine, Zinc & Iletin (Insulin, Lilly), 10 cc.:** Each cubic centimeter contains 40 units of insulin, together with protamine and approximately 0.08 mg. of zinc.

**Protamine Zinc Insulin.—Squibb.**—A brand of protamine zinc insulin.

Manufactured by E. R. Squibb & Sons, New York, under license from the governors of the University of Toronto.

**Protamine Zinc Insulin.—Squibb, 10 cc.:** Each cubic centimeter contains 40 units of insulin together with protamine and approximately 0.08 mg. of zinc.

## REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.  
PAUL NICHOLAS LEECH, Secretary.

### ICHTHYOL READMITTED TO N. N. R.

Ichthyol, marketed by Merck & Co., Inc., Rahway, N. J., was included in New and Nonofficial Remedies until 1924. It was omitted because unwarranted claims were made for the product, as explained in a report published in THE JOURNAL (Feb. 16, 1924, p. 565). Merck & Co., Inc., requested reconsideration of Ichthyol in 1935 and has revised its advertising claims to conform with the Council's views as to the action and uses which are expressed in the article "Sulphoichthyolate Preparations and Substitutes," New and Nonofficial Remedies, 1936. Accordingly, the Council has reaccepted Ichthyol for inclusion in New and Nonofficial Remedies as a brand of Ichthammol, N. F.

## Council on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

### NORTH EAST BRAND TOMATO JUICE

**Manufacturer.**—North East Preserving Works, Inc., North East, Pa.

**Description.**—Tomato juice containing in high degree the natural vitamin values. Seasoned with salt.

**Manufacture.**—Selected tomatoes are harvested at the proper degree of maturity, inspected, graded, washed and again sorted, trimmed and cored by hand. The tomatoes are then chopped and heated in steam jacketed coils without exposure to air or live steam, after which they are forced through screens to extract the juice. Salt is added to the reheated expressed juice and it is immediately bottled or canned and processed.

**Analysis** (submitted by manufacturer).—Moisture 93.7%, total solids 6.3%, ash 0.7%, fat (ether extract) 0.1%, protein

(N  $\times$  6.25) 1.3%, reducing sugars as dextrose 2.8%, sucrose 0.2%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 3.9 and  $pH$  4.9.

**Calories.**—0.21 per gram; 6 per ounce.

**Vitamins.**—The equipment and method of manufacture is such as to make possible the retention to a high degree of the vitamin content.

**Claims of Manufacturer.**—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C; for infant feeding and general table use.

(B) BAKER'S MAL-DEX PLAIN

(A) BAKER'S MAL-DEX WITH 2%  
SODIUM CHLORIDE

(C) BAKER'S MAL-DEX WITH 3%  
POTASSIUM BICARBONATE

**Manufacturer.**—The Baker Laboratories, Cleveland.

**Description.**—(B) Essentially a mixture of maltose and dextrans.

(A) Essentially a mixture of maltose and dextrans with 2 per cent sodium chloride added.

(C) Essentially a mixture of maltose and dextrans with 3 per cent potassium bicarbonate added.

**Manufacture.**—(B) The starch base is prepared from starch cereal from which the hulls and hearts have been removed. High diastatic malt (1 pound to each 100 pounds of cereal base) is added to the starch base, and the conversion extended until a definite ratio of maltose to dextrans is obtained (53% maltose to 44% dextrans), after which the liquid is filtered from the residue. The filtrate is decolorized, dehydrated and packed in tins.

(A) Essentially the same as (B) with 2 per cent sodium chloride added before the drying process.

(C) Essentially the same as (B) with 3 per cent potassium bicarbonate added after the dextrin and maltose mixture has been reduced to powder form.

**Analyses** (submitted by manufacturer).—(B) Moisture 3.0%, total solids 97.0%, ash 1.0%, protein (N  $\times$  6.25) 0.3-0.5%, maltose 52.5%, dextrin 43.5%, carbohydrates (by difference) 95.7%.

(A) Moisture 3.0%, total solids 97.0%, ash 1.0%, protein (N  $\times$  6.25) 0.3-0.5%, sodium chloride 2.0%, maltose 51.5%, dextrin 42.5%, carbohydrates (by difference) 95.7%.

(C) Moisture 3.0%, total solids 97.0%, ash 1.0%, protein (N  $\times$  6.25) 0.3-0.5%, maltose, 51.0%, dextrin 42.0%, potassium bicarbonate 3.0% and carbohydrates (by difference) 95.7%.

**Calories.**—3.84 per gram; 109 per ounce.

**Claims of Manufacturer.**—Carbohydrate supplements for the general diet of infants and invalids.

### BISQUICK WITH WHOLE WHEAT

**Manufacturer.**—Gold Medal Foods, Incorporated, a wholly owned subsidiary of General Mills, Inc., Minneapolis.

**Description.**—A self-rising white and whole wheat flour containing vegetable shortening, acid phosphates, sucrose, skim milk powder, salt and baking soda; especially prepared for biscuits.

**Manufacture.**—The nonfat ingredients are thoroughly mixed in a batch-mixer; the shortening is added and all are again thoroughly mixed.

**Analysis** (submitted by manufacturer).—Moisture 9.5-10%, total solids 90.5-90%, ash 7.0-7.3%, fat (ether extract) 13.0-13.7%, protein (N  $\times$  5.7) 8.5-10.5%, crude fiber 1.3-1.4%, sucrose 3.2-3.4% and carbohydrates other than crude fiber (by difference) 60.7-57.1%.

**Calories.**—3.94 per gram; 112 per ounce.

**Claims of Manufacturer.**—A self-rising flour containing shortening already worked in and requiring only admixture with water or milk for the preparation of biscuits; the baked product has a whole wheat flavor.

subscribers to the said plan under a contract which entitles each subscriber to certain hospital care in the event of sickness. H. 129 proposes that coroners be duly qualified licensed physicians.

### KANSAS

**Course on Neuropsychiatry.**—The third annual graduate course on neuropsychiatry in general practice, conducted by the staff of the Menninger Clinic, Topeka, will be held April 19-24. This year the course will include a brief introduction to the fields of neurology and psychiatry and a specific application of this knowledge to the large group of cases of psychoneuroses, psychoses and psychogenic and neurologic disorders which the physician meets in everyday practice.

**Bills Introduced.**—H. 256 proposes to create a state pedopragic board of examiners and to regulate the practice of pedopragic. Pedopragic is defined by the bill as "the diagnosis and treatment of all illnesses of the human foot." H. 162, to amend the workmen's compensation act, proposes to make compensable any injury or disease which arises out of or in the course of any employment. H. 226 proposes that all applicants for licenses to practice any form of the healing art, as a condition precedent to their right to present themselves to their respective professional boards for examination and licensure, must pass examinations in anatomy, physiology, chemistry, bacteriology and pathology, to be given under the direction of the state board of education. To aid it in conducting these examinations the state board of education is to be empowered to employ professors, associate professors or assistant professors from the science departments of accredited colleges and universities of the state, provided, however, that no such person may be selected from the University of Kansas or its School of Medicine or be a practitioner of any healing profession.

### MARYLAND

**Bills Introduced.**—S. 61 proposes to grant to hospitals, treating persons injured through the negligence of others, liens on all claims, rights of action, compromises, and judgments accruing to the injured persons because of their injuries. H. 137 proposes to empower equity courts to authorize the sexual sterilization of incurable idiots, imbeciles or morons, residents of the state whether inmates of state institutions or not.

**Dr. Eagle Awarded Prize.**—Dr. Harry S. Eagle, passed assistant surgeon, U. S. Public Health Service, at present stationed at Johns Hopkins Hospital and lecturer in medicine at the Johns Hopkins University School of Medicine, Baltimore, has received the Alvarenga Prize for 1936 of the College of Physicians of Philadelphia, for his essay on "The Present Status of the Blood Coagulation Problem." Dr. Eagle graduated from Johns Hopkins University School of Medicine in 1927. Until recently he was assistant professor of bacteriology at the University of Pennsylvania School of Medicine. At the annual meeting of the Society of American Bacteriologists in Indianapolis, Dec. 29, 1936, Dr. Eagle was presented with the \$1,000 prize and gold medal of Eli Lilly and Company, for accomplishments in research on various diseases, notably syphilis. The Alvarenga Prize was established through a legacy received by the College of Physicians of Philadelphia in 1888 from the late Pedro Francisco da Costa Alvarenga, Lisbon, Portugal, an associate fellow of the college. The interest from this fund constitutes a prize which is given to the author of the best unpublished, competitive essay on any subject in medicine.

### MASSACHUSETTS

**Bills Introduced.**—H. 1489 proposes a system of compulsory and voluntary sickness insurance, whose benefits are to consist of cash and all forms of medical and dental services. Persons employed at "other than manual labor" and receiving wages in excess of \$60 a week, farm laborers and persons employed by an employer having less than three employees in personal or domestic services, are to be excluded from the compulsory insurance of the bill but are to be entitled to participate in the voluntary insurance. This bill appears to be identical with the so-called Epstein bill, prepared by the American Association for Social Security, Abraham Epstein, secretary. H. 1163 proposes to establish a board of magnetic healers examination and registration and to regulate the practice of magnetic healing. The bill proposes that "the system, method or science commonly known as magnetic healers [sic], or the practice of magnetic healing, is defined to be the science of reviving and producing life and circulation in the nerve system and cells, so as to heal all nerve affections." Apparently no educational requirements

whatever are to be exacted of applicants for such a license and an applicant need only to show that he is 21 years of age and "capable of examining nerve conditions by his magnetic power." H. 1200, appendix XXXV, proposes to prohibit the retail sale of barbituric acid or of dinitrophenol except on the written prescription of a physician. H. 1200, appendix L, proposes to prohibit the establishment, maintenance or operation of hospitals except by virtue of an annual license issued by the department of public health. No such license will be issued by the department unless the appropriate local board of health shall have first certified to the department that the hospital is approved as to location and equipment by such board. The department is to have supervision of all such hospitals and is authorized to make necessary rules for their regulation. H. 1200, appendix LI, proposes to prohibit the establishment, maintenance or operation of nursing homes except by virtue of a license issued by the department of public health. No such license will be issued by the department unless the local board of health shall have first certified to the department that the nursing home in question is approved as to location and equipment by such board of health. H. 1200, appendix LV, authorizes the admission of inebriates and drug addicts to institutions under the supervision of the department of mental diseases. H. 1200, appendix LVI, proposes to establish a commission of five members, to be appointed by the governor, to investigate and study all aspects of occupational diseases and any methods or ways or means of reducing or controlling the hazard or the likelihood of contracting occupational diseases.

### MICHIGAN

**Bill Introduced.**—H. 127, to amend the workmen's compensation act, proposes, in effect, to make compensable "any disease . . . proximately caused by and arising out of and in the course of" employment.

**Dr. Edmunds Chosen Russell Lecturer.**—Dr. Charles W. Edmunds, professor of materia medica and therapeutics, University of Michigan Medical School, Ann Arbor, has been selected to give the Russell Lecture for 1937 at the university. The lectureship is awarded annually to a member of the faculty of the University of Michigan who has distinguished himself by outstanding scholarship. Dr. Edmunds is the twelfth lecturer and the fourth to be chosen from the medical faculty. The lecture will be given sometime in the spring and the subject one related to Dr. Edmunds' specialty.

### MINNESOTA

**Bill Introduced.**—S. 479, to amend the chiropractic practice act, proposes to make the annual renewal of a license to practice chiropractic contingent on the attendance of the licensee during the preceding year at "at least one of the two-day educational programs as conducted by the Minnesota American Chiropractic Association, Inc., the subjects of such programs being under the supervision of the State Board of Chiropractic Examiners."

### MISSOURI

**Bill Introduced.**—H. 188, to supplement the osteopathic practice act, proposes to require licensed osteopaths to register annually and to pay annual renewal fees of \$2.

**New State Health Commissioner.**—Dr. Harry Field Parker, Warrensburg, has been appointed health commissioner of Missouri, succeeding Dr. Elmer T. McGaugh. Dr. Herman S. Gove, Linn, has been serving as temporary health officer since Dr. McGaugh's resignation. Dr. Parker graduated from Washington University School of Medicine, St. Louis, in 1906.

**Operative Clinics.**—The Kansas City Southwest Clinical Society announces the inauguration of operative clinics each Tuesday morning at the Allied Hospitals of Greater Kansas City. Tuesday was selected to afford visiting physicians the opportunity to attend that evening the meeting of either the Jackson County or the Wyandotte County Medical Society.

**Dr. Yancey Retires as Medical Director of Railway.**—Dr. Edwin F. Yancey, Sedalia, has retired as medical director of the Missouri-Kansas-Texas Railroad Company, effective February 1, it is reported. Dr. Yancey has served continuously with the company since 1885, taking over the duties of chief surgeon on Jan. 1, 1891. A native of Missouri, Dr. Yancey is 78 years of age. He graduated from Missouri Medical College in 1882.

**Joint Meeting on Gynecology.**—The St. Louis Gynecological Society and the Chicago Gynecological Society held a joint meeting in St. Louis, February 13. Dr. Joseph L. Baer, Chicago, discussed "Selective Treatment of Prolapse of the

splanchnicectomy, renal function that has been previously impaired improves and may even return to normal.

In view of the extremely unfavorable prognosis of malignant hypertension, experimental attempts at its relief by surgical procedures, although still uncertain, appear to be justified in selected cases. Reports of further experience in institutions where such cases may be studied completely will no doubt yield evidence on which a definite evaluation of the method may be based.

#### CONTINUOUS DRIP BLOOD TRANSFUSION

Rapid introduction into the blood stream of a number of substances was shown by Hyman and Hirshfeld<sup>1</sup> in animal experiments to result in a state of shock characterized by a rapid fall of the blood pressure, irregularities of respiration and lack of coagulability of the blood. The reaction depended not so much on the nature of the substance as on the speed with which it was introduced. They therefore referred to it as "speed shock." They have also shown the tremendous tolerance on the part of the body to large intravenous doses of many substances and to the introduction of a great bulk of fluid, provided the rate of flow is reduced to 2 or 3 cc. per minute. Applying the drip method in clinical practice, these authors found it of great value in the prophylaxis and treatment of shock and hyperthyroidism, hemorrhage, coma, uremia and sepsis. They recommend that the flow be regulated to from 30 to 35 drops per minute.

Along with the brilliant results obtained with the method of blood transfusion, the clinician has encountered a number of failures. There is a group of cases characterized by a severe acute anemia and a lowered regenerative hematopoietic function in which the customary single so-called massive transfusion of a pint of blood fails to produce the desired effect. A still larger single dose is not safe, because of a possible embarrassment to the cardiovascular system. For such cases Marriott and Kekwick,<sup>2</sup> working in the Middlesex Hospital, London, conceived of the advisability of administering larger amounts of blood by the continuous drip method. They define "drip transfusion" as a large transfusion administered very slowly. They suggest that the dose of blood transfused be regulated by hemoglobin determination with the purpose of restoring the hemoglobin percentage to the neighborhood of the lower limits of normality—80 per cent. In the average adult, a pint of blood is equivalent to 10 per cent of the total hemoglobin and can increase the total percentage present only by that amount. The donors should all be compatible with the recipient and of the same group as one another to avoid agglutination.

Eighty-seven intravenous drip transfusions were performed at the Middlesex Hospital during 1935. The

principal technical difficulty encountered in the use of citrated blood for drip transfusion was that the corpuscles tend to sediment in the reservoir and block the drip bulb. The authors have overcome this difficulty by bubbling a continuous stream of filtered oxygen through the blood, thus accomplishing a continuous stirring. They recommend a rate of flow of 40 drops per minute. The average amount infused per hour amounted to 133 cc., or 1 liter in seven and one-half hours. The largest single transfusion amounted to 6.3 liters, and the longest transfusion occupied sixty-two hours. The method was applied in cases of hematemesis and melena from peptic ulcer, in acute anemias from hemorrhage, in acute hemorrhagic colitis, as a preoperative measure, and in leukemia and purpura. They were able by this method to raise the hemoglobin from 20 or 25 to 90 or 100 per cent. The results were excellent and in some of their cases extraordinary.

Vinograd-Finkel, Dulcin and Yurovskaya,<sup>3</sup> reporting from the Central Institute of Hematology in Moscow, while essentially agreeing with the English workers, stated that in all their cases transfusions were accompanied by a febrile reaction. One or two hours from the beginning of the transfusion, when the patient had received about 200 cc. of the blood, there was a chill followed by a rise of temperature to 39 or 40 C. (102 to 104 F.). The febrile reaction lasted until the end of the transfusion and returned to normal in twenty-four hours. In spite of the protracted reaction, no untoward symptoms were noted in their sickest patients. The authors were particularly impressed with the safety of the slow method of blood transfusion. The advantages of the method appear to be that it allows introduction of much greater amounts than heretofore practiced and in its greater safety and more pronounced therapeutic effects.

#### HEALTH AND DISEASE IN THE MAGAZINES

In the *Ladies' Home Journal*, March 1937, Paul DeKruif writes on "The New Weapon Against Infantile Paralysis." In brief the article points out that infantile paralysis invades the body by way of the nose, presumably passing from the olfactory nerves to the brain and the spinal cord; that Armstrong and several other workers in the United States Public Health Service have shown that the spraying of these nerves with a picric acid-alum mixture prevented infection in monkeys, and that in mass experiments in the Southern states the method seemed to have value in human beings. The article indicates that workers in the University of Michigan determined that in most instances, unless the spraying was done in an exceedingly accurate manner, the spray failed to reach the olfactory nerves and thus failed of its purpose. It concludes with the evidence recently developed by Schultz and his co-workers in Stanford University that a 1 per cent

1. Hyman, H. T., and Hirshfeld, Samuel: Studies of Velocity and the Response to Intravenous Injections, *J. A. M. A.* 96:1221 (April 11) 1931.

2. Marriott, H. L., and Kekwick, A.: Continuous Drip Blood Transfusion, *Lancet* 1:977 (April 27) 1935.

3. Vinograd-Finkel, Dulcin and Yurovskaya: *Sovet. khir.*, 1936, No. 7.

service, and pass examinations to be conducted by the board. A chiropractor may not designate himself as a physician or surgeon but may use the prefix "Doctor" before his name, provided his name is followed by the word "Chiropractor." S. 160 provides for the prevention, treatment, cure and control of venereal diseases. It proposes (1) to prohibit the employment of any person handling food products or drinks unless such person is free from venereal disease; (2) to make it a felony for a person infected with a venereal disease in a contagious form to marry or to expose any other person by the act of copulation to such venereal disease; and (3) to make it a condition precedent to the issue of marriage license for both parties to the proposed marriage to present a physician's certificate that the parties are not infected with any venereal disease in a contagious form. A physician examining any person for a venereal disease must charge a reasonable fee therefor, one dollar of which is to be set aside in the county treasury of the county in which the examination was made, in a special fund to be used for the enforcement of the act. The bill also proposes that any person not a licensed physician who undertakes for pay to treat or cure any person infected with venereal disease shall be guilty of a felony. S. 190, to amend the chiropractic practice act, proposes, among other things, to define "chiropractic" as "a system of adjustment consisting of Palpation, Radiograph or other Method to ascertain Vertebral Subluxations of the Spinal Column, or the Articulations of the Skeletal frame, followed by the adjustment of them by Hand alone in order to relieve interference with the normal Nerve Force from the Brain to the rest of the body. This definition is inclusive and any and all other methods are hereby declared not to be Chiropractic." H. 270, to amend the medical practice act, proposes that (1) the governor appoint the seven members of the board of medical examiners from the schools of practice commonly known as the regular, the eclectic, the homeopathic and the physio-medical schools and that at no time shall there be a majority of one school represented on said board; (2) the license of a physician cannot be revoked before a trial of charges by the board of medical examiners nor before the decision of the board of medical examiners becomes final; (3) in revocation proceedings, failure of the accused physician to file a written answer with the secretary of the board within twenty days after the services of charges on him shall work a revocation of his license; (4) the term "cappers and steersers," the employment of whom by a licentiate is unprofessional conduct and grounds for the revocation of a license, shall not be construed to apply to persons soliciting contracts for professional, surgical, medical or hospital services to be rendered in the future on behalf of organized groups, hospitals, clinics or cooperative organizations, and (5) appeals from orders of the board of medical examiners revoking or suspending licenses be taken, not directly to the supreme court as the present law provides, but to the district court of the county in which the accused resides or to the district court of the county in which the hearing on the revocation proceedings was had, and that on such appeal to the district court the matter be tried de novo by a jury.

### OREGON

**Bills Introduced.**—H. 143 proposes that in any action in which the mental or physical condition of a party is involved, the trial court may order him to submit to an examination as to his physical or mental condition. S. 182 proposes that before any state-aided home or institution, caring for venereally infected children under 21, can receive any state aid, said home or institution must first obtain a license from the state child welfare commission. H. 243, to amend the law relating to examinations in the five fundamental sciences required of all applicants to practice any form of the healing art as a condition precedent to their right to present themselves for examination and licensure by their respective professional boards, proposes that it shall not be necessary for an applicant to secure a passing grade in all of the required subjects in any one session of examinations held by a state board of higher education. The bill proposes that any applicant who obtains a passing grade of 75 per cent in each of three or more of the required subjects in any session of examinations shall thereafter be examined only in the subjects in which he failed. H. 272 proposes that when any clinic, institute, or any group or combination of persons practice the healing art and use an assumed name, or "clinic," "institute," "specialist" or other title, there shall be likewise added after such title on any written or printed material, or in connection with any advertising, the names and correct designations of the persons connected with the group. H. 352 proposes to make it a misdemeanor for a hospital, exempt from taxation, to deny the use of its facilities to any reputable or qualified licensed physician, solely on the ground

that such physician is not a member of a local, state or national medical society or association, or to refuse to make such facilities available to such physician on the same basis as they are used or made available for the use of physicians who are members of any local, state or national society or association.

**Bill Passed.**—H. 246, to amend the medical practice act, has passed the house. It proposes (1) to authorize the board of examiners to maintain a suit for an injunction against any unlicensed person practicing medicine; (2) to make it the duty of every licensed physician to display his certificate of annual registration in some conspicuous place in his office; (3) that if a licentiate fails to pay his annual registration fee his license shall be revoked by the board on twenty days' notice given him of the time and place of considering such revocation, and that no license shall be revoked for such nonpayment if the licentiate so notified pays before or at the time of such consideration the fee required and such penalty as may be imposed; and (4) to designate various additional acts as unprofessional conduct, which is a ground for revoking a license, such as employing solicitors, or paying or presenting any person with money or anything of value for the purpose of securing patients; holding oneself out to treat human ailments by making false statements, by specifically designating any disease, or group of diseases and making false claims of one's skill or of the efficacy of one's medicine; advertising in any manner, either in his own name or in the name of another person or clinic or concern, actual or pretended professional superiority to that possessed by fellow physicians, the restoration of lost manhood, the treatment of private diseases peculiar to men or women, or the advertising or holding himself out to the public in any manner as a specialist in the diseases of the sexual organs or the diseases caused by sexual weakness, self abuse or excessive indulgence; and aiding or abetting the practice of any of the healing arts by an unlicensed person.

### PENNSYLVANIA

**Bills Introduced.**—H. 458 proposes to establish a state board of chiropody examiners and to regulate the practice of chiropody. The bill proposes to make "chiropody" and "podiatry" synonymous and proposes that the terms mean "the diagnosis and treatment of the human foot and leg (amputation of the leg, foot or toes excepted), the making of models of the human foot, and the palliative, manipulative, electrical and mechanical treatment of the foot and leg as taught and practiced in the schools or colleges of chiropody recognized by the State Board of Chiropody Examiners." H. 490 proposes to establish in the department of public instruction a board of chiropody examiners, to consist of the superintendent of public instruction, ex officio, and three chiropodists, to be appointed by the governor. H. 622 proposes a system of compulsory and voluntary sickness insurance whose benefits are to consist of cash and all kinds of medical and dental services. All employees are embraced in the compulsory insurance of the bill except farm laborers and personal or domestic servants of an employer having less than three employees engaged in such service, which persons, however, are to be entitled to participate in the voluntary insurance.

### RHODE ISLAND

**Bill Introduced.**—S. 35 proposes to grant to physicians, hospitals, nurses or dentists, treating persons injured through the negligence of others, liens on all claims, judgments or compromises accruing to the injured persons by reason of their injuries.

### TEXAS

**New State Health Officer.**—Dr. George W. Cox, Del Rio, has been named state health officer to succeed Dr. John W. Brown, who has served four years. Dr. Cox is 57 years old and was graduated from Tulane University of Louisiana School of Medicine in 1906.

**Society News.**—At a meeting of the Dallas County Medical Society, February 11, the speakers were Drs. Elliott Mendenhall, on "Modern Concepts in the Treatment of Tuberculosis"; Alfred I. Folsom and Harold A. O'Brien, "Use of Mandelic Acid in Urinary Infections," and George T. Caldwell, "Systemic Torulosis."

**Bills Introduced.**—H. 325 proposes to reorganize the executive department of the state government. Among other things, the bill proposes to create in the department of public health a bureau of licensing which is to assume all the functions heretofore vested in the state boards of medical examiners, of nurses, of barber examiners, of chiropody examiners, of dental examiners, of embalming, of pharmacy, and of optometry. The bureau to be created is to be provided with a staff qualified

or similar products will occur. For the sake of consistency in nomenclature and to avoid confusion in medical literature, physicians and investigators should bear in mind distinctions between the following terms: Insulin as a term for the unmodified insulin of commerce. Protamine Insulin as a product essentially that described by Hagedorn, to which no zinc salt has been added.<sup>5</sup> Protamine Zinc Insulin for the product modified by the addition of protamine and a zinc salt, with other substances, and commercially available under the name Protamine Zinc Insulin.

### OSTEOPATHY SEEKS FEDERAL APPROVAL

Maybe Congress will say that osteopathic manipulations and similar performances are good enough for sick and injured employees of the federal government. It is asked to do so by enacting a bill recently introduced by Senator Burke of Nebraska, S. 1233, and Representative Drew of Pennsylvania, H. R. 4650. Employees of the federal government are now entitled, under the United States Employees Compensation Act of 1916 as amended, to the services of qualified physicians, at government expense, when they are disabled by injury or disease arising out of the discharge of duty. The bill proposes to define the term "physician" so as to include osteopaths and to define the phrase "medical, surgical and hospital services and supplies" so as to include the services and supplies of osteopaths and osteopathic hospitals. If the Committees on the Judiciary of the Senate and the House of Representatives, to which this bill has been referred, give it serious consideration they will no doubt make the kind of investigation made in Great Britain to determine the soundness of the osteopathic hypothesis. They should find out how the practice of osteopathy today differs from the practice of medicine. They should look into the adequacy of osteopathic education and the suitability of osteopathic hospitals for the care of government employees. Without such investigations, intelligent action will be impossible. Notwithstanding the wide legislative recognition that has been given to the osteopathic cult, neither Congress nor any state legislature has ever seriously investigated it. The recent investigation by a select committee of the House of Lords resulted in the ignominious retreat and surrender of the osteopathic proponents of legislation then pending in parliament; they retired when they were confronted with the necessity for justifying the existence of osteopathy as a specific method of treating the sick. If the bill is passed, we may expect efforts to procure an osteopathic corps for the army, including an osteopathic veterinary corps, osteopaths in the naval service, an osteopathic public health service, an osteopathic bureau in the Veterans' Administration, and possibly osteopathic veterinarians in the Department of Agriculture. The farmers would find it interesting and amusing to apply osteopathic prophylaxis, diagnosis and treatment to sick and injured horses, cattle, sheep and swine.

5. Prior to the adoption of the name "Protamine Zinc Insulin" some preparations comprising protamine, zinc and insulin were supplied and referred to in publications under various designations, including the designation, "Protamine Insulin."

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ALABAMA

**Bills Passed.**—S. 54 XX has passed the Senate, proposing to create a board of medical technician examiners, to regulate the practice of medical technicians and to prohibit a person from practicing as a medical technician unless licensed by the board. The bill proposes to define "medical technician" as "a person who is engaged in the practice of standardized or experimental technical procedures, the results of which are interpreted by the physician in the diagnosis of disease. Provided, that this shall not apply to assistants employed by physicians to make laboratory tests whose results are to be used by such physicians in their private practice of medicine and who assume responsibility for the work so performed." H. 330 XX has passed the house proposing to impose an annual occupational tax on a person engaged in the practice of medicine, bacteriology or roentgenology of \$25, if the licensee practices in cities or towns of over 5,000 inhabitants; of \$10, if the city or town in which the practice is carried on is from 1,000 to 5,000 inhabitants; and of \$5, if the practice is carried on elsewhere.

### ARKANSAS

**Bill Passed.**—S. 123 has passed the senate, proposing to create a chiropody examining board and to regulate the practice of chiropody. "Chiropody (sometimes called Podiatry)," the bill provides, "shall for the purpose of this act, mean diagnosis, medical, electrical, mechanical and surgical treatment of ailments of the human feet and massage and manipulation in connection therewith."

**Arrest of Fraudulent Representative.**—Albert Herschel Craven, self-styled student of criminology, was arrested January 26 when police were informed that he accepted \$5 from Dr. James A. Foltz, Fort Smith, in payment for a cooperative insurance policy. Craven had been calling on physicians in Arkansas in the interest of the Cooperative Automobile Association, Inc., of Nashville, with a plan for legal medical and mechanical assistance to automobile owners which involves the listing of approved garages, attorneys and physicians. His "sales activities" were described in the Organization Section of THE JOURNAL, January 16, page 24B, and it is to this notice that Craven's apprehension is attributed. Dr. Davis W. Goldstein, Fort Smith, called the secretary of the Arkansas Medical Society, Dr. William R. Brooksher, Fort Smith, who notified the sheriff. The Cooperative Automobile Association, Inc., of Nashville, is not licensed to do insurance business in either Tennessee or Arkansas and is not authorized to do business in Arkansas as a service corporation. Craven and his wife were charged with bringing a stolen car into Fort Smith and with attempting to obtain money under false pretenses from physicians in the community, newspapers reported. He declared that he was willing to be committed to Tucker prison farm so that he could continue his study of criminology. In referring to his insurance scheme, Craven explained that he selected his prospects carefully, preferring doctors and lawyers. He said it was interesting to see how the public can be fooled and how many people get taken in on schemes. He admitted having collected about \$500 in this "racket."

### CALIFORNIA

**Bills Introduced.**—A. 1640 proposes to repeal the act for the regulation and control of corporations organized for the purpose of operating nonprofit hospital service plans, approved July 5, 1935. A. 1132 and A. 1641 propose to regulate and control corporations organized for the purpose of operating nonprofit hospital service plans and hospitals rendering services under any such hospital service plans. S. 605 and A. 1491 propose to authorize the organization of medical service associations, to regulate their operation and to invest the commissioner of insurance with supervisory and regulatory power over them. The bills propose to authorize such associations to enter into "medical service contracts" with subscribers, which contracts are defined by the bill as agreements "to provide to the beneficiary named therein, in consideration of a sum certain, the professional services of physicians and surgeons for a specified period in the event that the beneficiary is in need thereof." A. 1283 proposes to authorize persons or associations to engage



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Jan. 16, 1937.

#### Elaborate Preparations Against Attacks with Poison Gas

Britain will soon be the first country in the world to have gas masks available for the whole of the civil population of the capital. Scientific and technical experts have worked out a difficult and new problem: how to produce a simplified and improved gas mask, which can be made by the million by mass production methods. At a factory established by the government the output will soon be half a million masks a week and it is proposed to make 30 million, sufficient for the whole civilian population. The components of a gas mask are a light metal container filled with activated charcoal, several pieces of wire gauze, a thick wad of absorbent cotton, some layers of muslin fabric, metal springs and a rubber mask or face piece into which the container is fixed. The mask fits securely under the chin over the mouth, cheeks and eyes. A cellulose acetate window permits vision. The mask is fixed to the head by easily fitting elastic straps.

At the formal opening of the factory for assembling the containers of gas masks, Mr. Lloyd, parliamentary undersecretary for the Home Department, said that the government considered that in time of war every one ought to have a gas mask, whether he had money to buy it or not. That was the reason why the factory had been established for mass production of gas masks. It was hoped that they never would be needed, but if they were the government would issue them free of charge to every one in danger. The face pieces of the mask, being of rubber, are stored in an inert gas, which will protect the rubber from deterioration for a long time, but there will be periodic tests of the face pieces and containers to ensure that they are in good condition. The charge in the container will last in use against a gas attack from thirty-six to forty-eight hours. Regional depots for gas mask storage are being established.

In the case of an air raid the government considers that the right place for a civilian is indoors in a room in which certain simple precautions have been taken—pasting paper over openings and stopping up cracks with sodden newspaper. Such a refuge room would be the first line of defense. But the government thinks it vital to have a second line of defense, in the shape of the gas mask, for use in case the gas-proof room is damaged, or to enable a person caught outdoors in poison gas to go to a place of safety. Arrangements will be made for any person who wishes to try on the new mask to do so. The masks have been tested and found efficient against every poison gas known to the government. Though vitally important, their provision is only one form of a great national defense against air raids which is being built up all over the country. The local authorities will soon be asking for volunteers to help in air raid precaution organizations.

A census has been taken of the slum property in London where the houses cannot be made gas proof. In the event of an air raid it is proposed to have a voluntary and organized evacuation. This is being worked out with railway companies. By the system of giving warning of air raids, all the country should know in from seven to ten minutes that raiders have passed the coast. Arrangements are being made for getting convalescent cases out of hospitals that are likely to be required for air raid casualties and moving them from the more vulnerable sections of the metropolis to remoter institutions. Consultations are taking place between the government and the authorities of the hospitals. What the government considers an excellent provision has been made by the Westminster Hos-

pital, which is being rebuilt and is in a particularly dangerous position, near the houses of parliament. A covered road will run through the hospital, so that casualty cases can be sheltered at once from further bombing, instead of having to wait outside unprotected. This road will be air locked and have paths communicating direct with the wards, rendering admission of poison gas impossible.

#### Research on Cancer

The director of the Imperial Cancer Research Fund, Dr. W. E. Gyc, has presented in his annual report a review of the present position of cancer research in this country. Interest has now shifted from the study of transplanted tumors to carcinogenesis. Among the influences that can excite cancer formation are ultraviolet radiation, x-rays, radium, purely physical agents, a wide range of chemicals such as arsenic, aniline, tars, dyestuffs, complex hydrocarbons and gross animal parasites. Some of the chemical carcinogenic compounds are of exceptional interest, as their chemical structure is closely related to that of substances, the sterols, which occur in the body. The best known and commonest sterol is cholesterol, a complex alcohol, which occurs in all cells and is a constituent of gallstones. By slight change in the sterol molecule bile acids are produced, and the chemical study of these acids and their derivatives and degradation products has provided a link with cancer-producing hydrocarbons. In 1933 Wieland and Dane obtained from the bile acid deoxycholic acid, a product that has assumed great importance in the study of cancer. It is methyleholanthrene and when painted on mice produces cancer more quickly than any substance known. Its dominant interest is the fact that it is produced from substances always present in the animal body. Moreover, the series of chemical reactions by which it is obtained in the laboratory are of the kind that occur in the body under the influence of cell enzymes. The conception has arisen that normal cells when placed under abnormal conditions produce abnormal derivatives of sterols which are carcinogenic.

Even if this hypothesis should be proved to be true it would not afford a complete explanation of cancer. It is now known that cancer begins as a change in a single normal cell or small group of normal cells, which acquire the power of autonomous growth. In the previous annual report of the fund it was emphasized that numerous experimental observations show that the factors which confer on a cell the property of autonomous growth reside within it and cannot be attributed to agents acting from without, though these may be a remote cause. A list of the remote causes has been given. They prepare the area on which they act for the intrinsic changes of cancer. In other words, they produce a "precancerous" condition.

#### The Physical Training of Medical Students

Much attention is being given in this country to physical training. Dr. Donaldson has brought forward a scheme for the students of St. Bartholomew's Hospital. In an editorial, *St. Bartholomew's Hospital Gazette* asks: Is the physique of the average medical student bad? And if it is bad, is this due to lack of physical training? The *Gazette* answers thus: The standard is much above the general average, but it lends itself to great improvement. The second question raises more difficult issues. As he advances in his course the medical student has little leisure, much less than that of the average artisan or city worker. A recent investigation shows that the average medical student at the hospital spends only 14 cents on his midday meal. As the majority of students live in inexpensive lodgings where food is often far from being either good or adequate, the *Gazette* asks whether food is not the crucial problem to be settled in any reform of student physique. The proposed scheme of physical training is to be entirely voluntary; any other form would be quite unacceptable. But those most in need of physical culture are those who would not dream of

physicians and surgeons for services rendered during the last sickness shall be given priority over all other claims, except expenses of settling the estate and funeral expenses. S. 1069 proposes a procedure whereby hospitals may be reimbursed for the care and treatment rendered indigent persons injured in automobile accidents. The reimbursement, however, is to be limited to \$6 for each day of care rendered each indigent patient. H. 640 proposes to require every physician having knowledge of any person suffering from poisoning from lead, phosphorus, arsenic, brass, wood alcohol or mercury, or from anthrax or compressed air illness or any other disease contracted as a result of employment, to report the facts within forty-eight hours after obtaining such knowledge to the state department of health. The bill proposes also that a physician making such a report shall receive a fee of 50 cents from the state department of health.

#### DELAWARE

**Bill Introduced.**—H. 88, to amend the workmen's compensation act, proposes to make compensable "such disease or infection as naturally results directly" from employment.

#### DISTRICT OF COLUMBIA

**Medical Bills in Congress.**—*Changes in Status:* S. 84 and S. 989 have passed the Senate, proposing, respectively, to provide for the issuance of a license to practice the healing art in the District of Columbia to Dr. Ralph Charles Stuart and Dr. Clarence Quinton Pair.

#### GEORGIA

**Bills Introduced.**—H. 186 proposes to repeal the existing workmen's compensation act and enact in its stead a new workmen's compensation act. The bill proposes to make compensable not only injuries arising out of and in the course of an employment but also such diseases as can be attributed to the employment. The employer is to furnish such medical, surgical and other attendance or remedial treatment, nursing and hospital service for such period as the nature of the injury or the process of recovery may require. The employee is to be permitted to select his own physician only in the event that the employer fails to provide one. H. 250 proposes to authorize the formation of nonprofit corporations to furnish group hospitalization service to members of subscribers through such hospitals as may be approved by the state board of health, the medical association of Georgia and the Georgia hospital association. The bill proposes to authorize the insurance commissioner to regulate and supervise such corporations and their contracts. Such corporations are not to contract to furnish to their subscribers physicians or any medical services nor to practice medicine in any manner, nor are such corporations to control or attempt to control the relations existing between a member or subscriber and his physician, but such corporations must confine their activities to rendering hospital service only.

#### IDAHO

**Bill Passed.**—H. 123 has passed the house proposing, as a condition precedent to the issuance of a license to marry, that both parties to the proposed marriage present the certificate of a duly licensed physician, dated within ten days prior to the application for a license to marry, showing that each party is free from venereal disease in a contagious stage and is not afflicted with feeble-mindedness or insanity. The bill moreover proposes to limit the fee a physician may charge for executing such a certificate to \$1, including the examination on which the certificate would be based.

**Lectures for Practicing Physicians.**—A group of lectures for physicians in six towns was presented recently under the auspices of the Idaho State Medical Association by Drs. Arthur F. Abt and Garwood C. Richardson and Arthur I. Kendall, Ph.D., all of the faculty of Northwestern University School of Medicine, Chicago. The towns were Pocatello, Twin Falls, Boise, Lewiston, Moscow and Coeur d'Alene. In each town the visiting lecturers addressed one or two meetings for physicians, as time permitted, and one meeting for the public. Dr. Abt's technical lectures were on "Prophylaxis and Treatment of Contagious Disease" and "Mortality and Care of the New-Born." Dr. Richardson spoke on "Infections in Pregnancy and the Puerperium" and "Operative Obstetrics"; Dr. Kendall on "Filterable Viruses," "Intestinal Bacteria," and "Immunization Against Scarlet Fever." Subjects of the public lectures were:

Dr. Abt, Care of the Infant and Child.  
Dr. Richardson, Prevention of Maternal Mortality.  
Dr. Kendall, Conquest of Disease in the Tropics, and How Colonel Gorgas Cleaned Up Panama.

#### ILLINOIS

**Bills Introduced.**—S. 8 proposes to grant to physicians and hospitals, treating persons injured through the negligence of others, liens on all claims, verdicts, judgments or decrees accruing to such persons by reason of their injuries. H. 21 proposes to authorize the sexual sterilization of persons convicted of forcible rape, incest, sodomy or taking indecent liberties with children. The bill also provides that nothing therein contained is to be construed to authorize the operation of castration or the removal of sound organs. H. 95 proposes to authorize the emasculation of persons convicted of the crime of rape, incest, taking indecent liberties with children, sodomy or the crime against nature. H. 97 proposes to appropriate \$200,000 for the purchase of radium and radium equipment for the research and educational hospitals in Chicago.

**Society News.**—Dr. Ralph C. Hamill, Chicago, was reelected president of the Illinois Society for Mental Hygiene at its annual meeting, January 21.—Dr. Ralph B. Bettman, Chicago, addressed the Whiteside County Medical Society at Sterling, January 18, on "Surgical Treatment of Empyema of the Chest."—At a meeting of the Will-Grundy County Medical Society at Joliet, January 20, Dr. Milton Mandel, Chicago, spoke on pneumonia.—The La Salle County Medical Society was addressed, January 21, by Drs. Robert S. Berghoff and Eustace L. Benjamin, Chicago, on heart disease and pathology of the common lesions of the heart, respectively. In the afternoon Dr. Berghoff conducted a heart clinic.—Dr. Daniel L. Sexton, St. Louis, addressed the Madison County Medical Society, Madison, January 8, on "Endocrinology in General Practice."—Dr. Mark T. Goldstine, Chicago, addressed the Peoria City Medical Society, February 2, on "Pelvic Infections."—At a meeting of the Christian County Medical Society in Taylorville, January 27, Dr. Earl O. Latimer, Chicago, spoke on "Abdominal Pain from a Surgical Standpoint."

#### Chicago

**Discussion on Syphilis.**—The Chicago Medical Society devoted its meeting, February 3, to a discussion on syphilis with the following speakers:

Dr. Benjamin Barker Beeson, The History of Syphilis.  
Dr. Frank J. Jirka, state director of health, The General Picture of Syphilis.  
Dr. Guy Howard Gowen, Springfield, Ill., assistant epidemiologist, state department of health, Epidemiology.  
H. J. Shughnessy, Ph.D., chief of laboratories of the state department, Springfield, Wassermann Test and Its Interpretation.  
Dr. Francis J. Gerty, Syphilis and Insanity.

**Joint Orthopedic and Roentgen Meeting.**—The Chicago Orthopedic Society and the Chicago Roentgen Society held a joint meeting at the Palmer House, February 15, with the following speakers: Drs. John A. Siegling, "Studies on the Development and Growth of the Epiphyses of the Long Bones"; John D. Camp, Rochester, Minn., "Roentgenologic Observations Concerning Intraspinous Protrusion of the Intervertebral Disk in Patients with Sciatic and Low Back Pain," and Myron O. Henry, Minneapolis, "Chip Grafts in Orthopedic Surgery."

**American Medical Association Night.**—The Chicago Medical Society designated its meeting, February 17, "American Medical Association Night." The guests of honor included Dr. John H. J. Upham, Columbus, Ohio, President-Elect, and the following past presidents: Drs. William Allen Pusey, Arthur Dean Bevan, Chicago, and Walter L. Biering, Des Moines. The speakers included Dr. Olin West, Secretary and General Manager of the Association; Dr. Austin A. Hayden, Secretary of the Board of Trustees; Dr. Edward H. Cary, Dallas, Texas, chairman, Committee on Legislative Activities; Dr. Charles Gordon Heyd, New York, President, and Dr. Morris Fishbein, Editor of THE JOURNAL.

#### IOWA

**Bills Introduced.**—S. 31, to amend the laws relating to the election and term of office of boards of trustees of city hospitals, proposes that none of the members of such boards may be physicians or licensed practitioners. H. 117, to amend the workmen's compensation act, proposes to require an employer, with notice or knowledge of an industrial injury, to furnish to the injured employee reasonable surgical, medical, nursing and hospital services, or any other appropriate treatment without limit as to time or amount. Under the present law the employer's liability to furnish such services and treatment is limited in time to the first four weeks of incapacity of the employee and in amount to \$100. H. 124 proposes to authorize the formation of corporations to operate nonprofit hospital service plans whereby hospital care may be provided by the corporation, or by any hospital, to such of the public as become

The third paper in the symposium was "Treatment by Humoral Modification," by Pasteur Vallery-Radot, Haguenau and Hamburger, who reported that the attacks are favored by certain humoral modifications that are still but little known. Certain empirical methods seem to be capable of preventing recurrence of attacks and should be used in all cases of undetermined origin, especially those in which there is a concomitant urticaria or an asthma, and when there is a relation between the attacks and a specific hypersensitivity to certain foods. The methods mentioned were (a) peptone by mouth in doses of 0.5 Gm. one hour before each meal, (b) autohemotherapy, (c) antirabic virus-vaccine, (d) sodium thiosulfate or magnesia, and (e) intravenous injections of sodium carbonate, calcium salts or magnesium sulfate.

The fourth paper on migraine was by Professor Aubertin of Bordeaux, on hepatic treatment. During the past fifteen years, functional disturbances of the liver have been of ever increasing importance, in his opinion. In cases of migraine associated with biliary stasis, the attacks are characterized by excessive vomiting of bile, followed a few days later by a slight icterus, urobilinuria and acholic stools. In the intervals between the attacks, one observes symptoms of digestive disturbances in the form of recurrent nausea and slight tenderness over the region of the gallbladder. The most convincing evidence that the migraine is related to biliary stasis is the amelioration following the use of the duodenal tube combined with magnesium sulfate. About 30 per cent of all cases of migraine are benefited by this treatment. If no other cause, and no evidence of hepatic dysfunction can be found for the attacks of migraine, Aubertin advises a prolonged hygienodietetic disintoxication cure and stimulation of hepatic function. Whether this treatment is specific or not, it cannot do any harm and in his experience has greatly benefited 30 per cent of the cases.

### BERLIN

(From Our Regular Correspondent)

Jan. 2, 1937.

#### Pharmaceutic Substances, Therapeutic Plants and Therapy

For years there has existed a continuous fight between the pharmaceutical industry on the one hand and the pharmacists on the other. The latter have sought to maintain a strong position as the sole dispensers of pharmaceutic substances. Yet, owing to the huge number of ready-made substances now on the market, the pharmacist has been shoved further and further into the background. Then too the fact that the sick insurance societies prefer in their practice the prescription of inexpensive ready-made preparations and recommend these products through the official insurance publications has tended progressively to detract from the importance of the pharmacists. With the coming into power of the National Socialists the pharmacists expected the new régime to undertake drastic measures for the amelioration of the situation and to put an end to this perpetual commercial warfare, through which many of their number had been made to feel real economic distress. But of course the legislators had to consider the sick insurance societies, the total expenses of which must of necessity be commensurately increased if more prescriptions of the type to be filled by pharmacists were to be issued. Nevertheless the new governmental supervisors of medicine and pharmacy are accomplishing far more than their predecessors with regard to administering to the needs of the pharmacist. To be at one and the same time equally just to the two sides is a virtual impossibility and hence any change in the status quo tends naturally to be at the expense of the pharmaceutical industry.

This favorable official attitude toward the pharmacists was further expressed during a recent convention of German pharmacists, at which the governmental representative went so

far as to speak of the ready-to-use products of pharmaceutical houses as "konfektion." This term, which in the German language denotes ready-made merchandise, also may convey a suggestion of inferiority and the speaker no doubt intended that it should do so on this occasion. From the medical point of view there can be scarcely any question that in many cases the personal written prescription to be filled by the pharmacist has its advantages over the recommendation of a ready-made product, but from the same standpoint it is equally incontestable that in other cases the product of the pharmaceutical industry may be just as efficacious as the substance prepared by a private pharmacist on a physician's prescription and in some instances the ready-made product may even be more reliable. A few days ago a pact was concluded between the two rival groups. Under the terms of this agreement the association of pharmaceutical manufacturers and the German Pharmacists' Association are to organize a permanent joint administrative board. It shall be the duty of this board to work out the solution of particular problems and to adhere to the principle of a friendly interchange of views. It is to be hoped that this arrangement will serve the best interests of all concerned. It is interesting to note in view of this recently effected reconciliation that the pharmaceutical industry has composed a "List of New Pharmaceutic Specialties" in which all new pharmaceutical products placed on the German market will find mention. By "new" specialties is meant actual innovations and not mere imitations of products already manufactured and sold by other firms. Pharmaceutic substances which are permitted to be sold elsewhere than at a pharmacy must bear on the package a notice to that effect. No list of such substances can however be complete, as many products are governed by differing regulations according to the use to which they are put. All special substances free sample packages of which are furnished to physicians must carry the plainly visible legend "Sample. Not to be sold." A plethora of physicians' free samples is likewise to be guarded against. Samples of a specialty newly placed on the market shall, after a three year introductory period, be given out only on the request of a particular physician, and unsolicited samples will no longer be supplied. Pharmacists may not accept physicians' samples from the physicians themselves, even as gifts. On the other hand, pharmacists are forbidden to engage in the industrial fabrication of pharmaceutic substances which bear proprietary trade names or otherwise to engage in the wholesale drug trade. The number of differently sized packages of a particular product is also to be curtailed, as these variations have been a source of annoyance to both manufacturer and pharmacist.

The great vogue for so-called therapeutic plants, especially marked in Germany, has also been the subject of previous detailed reports. A "first German Congress of Herbal Medicine" was recently held at Munich in conjunction with an exhibition of pertinent material. The specific results of this congress are not known. In an interesting article that appeared recently in the *Münchener medizinische Wochenschrift* it was suggested that in view of the present increased use of domestic herbs and plants in the manufacture of pharmaceutic substances the utmost care must be exercised in the collection and particularly in the selection of medicinal plants. Dr. Patschkowski has lately described a case of poisoning from "decoction lignorum." The beverage ingested was one of the German medicinal herb teas, the product of an "herb house"; namely, a firm that deals principally in various kinds of therapeutic herbs. The decoction was shown on analysis to contain substantial quantities of root of *Atropa belladonna*. Although only one teaspoonful had been boiled with one cup of tea, manifestations of poisoning appeared three and a half hours after ingestion. In this case, as happens not infrequently, burdock root (*Arctium lappa*) had been mistaken for the root of *Atropa belladonna*.

Uterus"; Noble Sproat Heaney, Chicago, "Operative Indication in Gynecology," and William C. Danforth, Evanston, Ill., "Management of Breech Presentation." Clinical programs were conducted at the Firmin Desloge and St. Louis Maternity hospitals.

### NEBRASKA

**Bill Introduced.**—H. 135 proposes to legalize, under conditions stated in the bill, the administration of euthanasia to persons desiring it and who are suffering from illness of a fatal and incurable character involving severe pain.

### NEW HAMPSHIRE

**Bill Introduced.**—H. 277 proposes that no license to marry shall issue until both parties to the proposed marriage present to the appropriate town clerk a statement signed by a licensed physician that each party has submitted to a Wassermann or Kahn or other similar standard laboratory test and that, in the opinion of the physician, neither party is infected with syphilis or gonorrhea in a stage that may become communicable.

### NEW MEXICO

**Hospital to Be Opened in Taos.**—Mabel Dodge Luhan, Taos writer, has deeded to the Sisters of the Holy Family of Nazareth an \$80,000 house for a hospital. The building, a two-story dwelling with six acres of ground, has been remodeled to accommodate twenty-five patients, with some private rooms, a men's ward and a women's ward. There will be an operating room, x-ray facilities, delivery room and nurses' quarters. The new hospital was to be dedicated January 30 with the name Holy Cross Hospital. Drs. Ashley Pond III, Gertrude U. Light and Warner A. Onstine, all of Taos, make up the medical board.

**Bills Introduced.**—H. 40 proposes to repeal the present workmen's compensation act and to enact in its stead a law creating a state compensation fund to insure employers against liability for compensation and to assure injured workmen of obtaining the compensation to which they are entitled. Workmen, apparently, are to receive compensation only for injuries received in the course of their employment and are to receive such medical, surgical and hospital or other treatment, nursing services, medicines and surgical supplies as may be reasonably required at the time of the injury and within ninety days thereafter, which term may be extended to one year by the industrial commission. S. 70 proposes to create a state department of public health, to consist of the state board of public health, a director of public health, and such other subordinate officers and employees as are authorized. The department is to be responsible for the administration of the public health activities of the state. The state board of health is to consist of five members appointed by the governor and is to formulate all policies, rules and regulations for the conduct of the department's affairs. The director of public health is to be appointed by the board and is to be the administrative head of the department. H. 69 proposes to provide for the hospitalization and treatment of indigent tuberculous persons in hospitals throughout the state having beds available for the hospitalization and medical care of patients suffering from pulmonary tuberculosis and acceptable to the director of public health. The state will pay such hospitals for the care and treatment given accepted patients at the rate of \$2.50 per patient daily.

### NEW YORK

**Award for Research in Ophthalmology.**—The University of Buffalo annually awards a gold medal to the author of some work in ophthalmology. Details can be obtained from Dr. Harold W. Cowper, 543 Franklin Street, Buffalo.

**Bills Introduced.**—S. 481, to amend the pharmacy practice act, proposes to make the provisions of the pharmacy practice act applicable to the sale of proprietary medicines. A. 581 proposes to make it unlawful for any person to grow or permit to be grown on any land any marihuana except as permitted by the bill. The bill authorizes the commissioner of agriculture and market to license persons to grow marihuana on designated land, provided the marihuana is to be used in the manufacture of a commercial product. A. 804 proposes to prohibit a person from practicing as a clinical laboratory technician unless licensed by the education department. The bill defines "clinical laboratory technicians" as "any person who performs any technical laboratory procedures, including bacteriology, bio-chemistry, hematology, clinical pathology, immunology, parasitology, histology or tissue technic, or basal metabolism, which are used for the purposes of diagnosing, investigating or treating any disease, illness or infection."

### New York City

**Laboratory of Industrial Hygiene.**—A laboratory to carry on scientific and industrial work in chemical, bacteriologic and public health problems was recently incorporated under the name "Laboratory of Industrial Hygiene." The officers are Dr. William H. Park, president; Kaufman George Falk, Ph.D., vice president, and Miss Grace McGuire, secretary. The service at present includes units for certified milk, vitamin testing, clinical diagnosis, chemistry and bacteriology.

**Dr. Chapin Honored.**—Dr. Henry Dwight Chapin, professor emeritus of pediatrics at the New York Post-Graduate Medical School and Hospital, was the guest of honor at the annual dinner of the Faculty Association of the school, January 23, at the Hotel Biltmore. The occasion celebrated the fiftieth anniversary of Dr. Chapin's appointment as professor of pediatrics and his eightieth birthday, which was February 4. The speakers at the dinner included Drs. Arthur F. Chace, president of the board of directors; Frederic E. Sondern, former president of the Medical Society of the State of New York; Adolph G. G. De Sanctis, president, and Walter T. Dannreuther, former president, of the Medical Society of the County of New York, and Charles Gordon Heyd, President of the American Medical Association. The faculty association presented to Dr. Chapin a silver loving cup. A native of Ohio, Dr. Chapin graduated from Columbia University College of Physicians and Surgeons in 1881. He is the founder of the Speedwell Society, an organization that has fostered the plan of caring for orphan children in small groups as distinct from the mass care in large institutions. With Mrs. Chapin he also founded the Chapin Adoption Nursery in their New York home. He is a charter member of the American Pediatric Society, of which he was president in 1910. He has been active in many social welfare organizations in New York and in 1933 received a medal from Columbia University "for outstanding contributions to problems relating to the care of children and as a pioneer in hospital social service." He retired from his professorship in 1920. He is the author of numerous books and other contributions relating to pediatrics.

### NORTH DAKOTA

**Society News.**—The Northwest District Medical Society met in Minot recently; Dr. Arthur C. Kerkhof, Minneapolis, spoke on "Gastric Malignancy, Including Gastroscoopy and Supervoltage Therapy."

**Personal.**—Dr. John F. Regan, assistant superintendent of the North Dakota Hospital for the Insane, Jamestown, has resigned to become assistant superintendent of the State Hospital for Mental Diseases, Howard, R. I.

**Bills Introduced.**—H. 103 proposes to require the secretary of every board authorized to license persons to practice any profession in the future to file with the secretary of state a certified list of the persons to whom licenses have been issued within thirty days after the issuance of such licenses. H. 161, to amend the medical practice act, proposes to make the failure of a licensee to pay the required annual registration fee a misdemeanor punishable by a fine of not less than \$50 nor more than \$500, or by imprisonment in the county jail for not exceeding one year, or both. Under the present law a licensed practitioner who fails to register annually within the required time may have his license revoked but such license may be restored on the payment of the delinquent fee and such additional fee, not to exceed \$9, as the board of medical examiners may determine. The bill also proposes that any person convicted for a second time of violating any provisions of the medical practice act shall be guilty of a felony.

### OKLAHOMA

**Bills Introduced.**—S. 155 proposes to repeal the present chiropractic practice act and to enact a new act in its stead. The bill proposes to define chiropractic as "a system of adjustment consisting of Palpation, Spinograph or method to ascertain vertebral subluxations of the Spinal Column, followed by the adjustment of them by hand alone in order to relieve interference with the normal nerve force from the brain to the rest of the body." An applicant to receive a license to practice chiropractic must be 21 years of age, of good moral character, must possess preliminary education equivalent to a high school education, be a graduate of a chiropractic school or college teaching chiropractic and giving a course of instruction of at least three terms of six months each in anatomy, physiology, symptomatology, hygiene and sanitation, chiropractic analysis, chiropractic principles and practices, physical chemistry, histology, pathology, spinography, orthopedia and public health

### The Death of Dr. Van Lint

Dr. J. G. Van Lint died recently at the age of 69. A practicing physician in the city of Gorinchem, he was the founder of the Institute of the History of the Natural Sciences in the Netherlands and in addition he was the first professor of the history of medicine at the University of Leyden. He was president of the international congresses of the history of medicine held at Leyden and at Amsterdam. Dr. Van Lint was the author of excellent works on Vesalius, Boerhaave, Dodonaeus and van Leeuwenhoek. Only last year he gave a lecture on the medicine of ancient Egypt which attracted worldwide attention among groups interested in the historical development of medical science. He organized the historical exhibits of army medical services on the occasion of the sixth International Congress of Military Medicine and Military Pharmacy, held at The Hague in 1931.

### ITALY

(From Our Regular Correspondent)

Dec. 15, 1936.

### The National Congress of Internal Medicine

The forty-second National Congress of Internal Medicine, held recently at Rome, was attended by the directors of all the clinics of the Italian universities and by a large number of foreign professors, among whom were Drs. von Lexer of Munich, Schmieden of Frankfurt and Petit Dutaillys of Paris. Drs. Cesa-Bianchi and Calabresi of Milan were the official speakers on the topic "Physiopathology of Chronic Circulatory Decompensation." Professor Schiassi spoke on a form of chronic insufficiency of the peripheral circulation which originates only in the presence of adhesive pleuritis of the right pleura. The gravest forms are those caused by total adhesive right pleuritis with strong retraction of the right hemithorax, immobility of the right hemidiaphragm, partial stertorous respiration and normal mobility and expansion of the left hemithorax. The speaker believes that this form of circulatory insufficiency is due to pressure on the inferior vena cava and the suprahepatic veins, which are pulled by the left hemidiaphragm during inspiration.

The second official topic, "Nephritis and Nephrosis," was discussed in common by the internal medicine and the surgical societies. Dr. Silvestrini, professor of clinical medicine at the University of Perugia, the speaker for the internal medicine societies, made a critical review of Volhard's classification of nephritis. Inflammation frequently occurs in the nephrotic kidney; there may be different types of inflammation and different intensity of degeneration of the cells of the tubules in glomerulitis; a differentiation of benign from malignant nephrosclerosis is based on the speed of evolution of the disease. The speaker gave a report on experiments performed at the medical clinic of Perugia in which the curve of azotemia was determined, following administration of urea, in rabbits which had been subjected to an operation on the kidney. In cases of nephritis, the operation indicated is that which deals with the foci which cause inflammation rather than with the nephritic kidney. It is advisable, however, to resort to autovaccine treatment before deciding anything about an operation. Professor Mingazzini of Rome was the official speaker for the same subject in the surgical field. Nephritis and nephrosis are rarely treated by surgery. One difficulty is the lack of an exact classification of nephritis. Volhard's classification is still used for establishing surgical indications. The several types of renal operations are nephrectomy, nephrotomy, nephrolysis, decapsulation and innervation of the organ, decortication of the renal artery, chemical sympathectomy of the renal peduncle, paravertebral neurolytic injections and ramisection, which operations, with the exceptions of nephrectomy, nephrotomy and decapsulation of the kidney, are rarely performed. Decap-

sulation of the kidney is frequently done in treating chronic and subacute forms of nephritis. Pousson reported statistics of 153 cases. Decapsulation has not been satisfactory in nephrosis and in certain forms of nephritis. Decapsulation is indicated in hemorrhagic nephritis, which is controlled in all cases by the operation.

The third official topic was "Pathologic Leanness and Adiposity." Professor Galdi of the University of Pisa, with the collaboration of Professors Cassano, Monasterio and Lami, was the speaker. They deny the predominant rôle of appetite as the exogenous factor for the development of adiposity. Disturbances of appetite, which are frequent in persons who are underweight, play a pathogenic part in the development and evolution of leanness. The thyroid is the main motor in the system which produces organic combustion; next in importance are the adrenals. The anterior part of the hypophysis has a direct influence on the regulation of additional energy expended (the so-called luxury metabolism) and also an indirect influence on the basal metabolism by means of the thyrotropic hormone and on the intermediate metabolisms. The insular hormone produces combustion of glycogen, polymerization of dextrose into glycogen and transformation of dextrose into fat. Exogenous adiposity does not exist, regardless of the fact that hyperalimentation and inactivity seem to be of great importance. Hypo-alimentation is the main causal factor of leanness in many cases. In thyroid leanness and in certain forms of essential leanness the basal and additional (luxury) metabolisms are increased. Pathogenic forms of leanness may exist in certain cases regardless of a liberal allowance of energizing substances. Hypophyseal thinness seems to be due to anorexia originating in changes of the diencephalohypophyseal area, in which the center of appetite seems to be located. The origin of adiposity associated with hyperfunction of the hypophysis is unknown. In some cases it seems to be due to hyperadrenalism, secondary to hyperpituitarism. The physiopathology of the pineal body is not yet clearly understood. The thyroid does not play an etiologic part in adiposity. The conception of the existence of a thyroid adiposity is clinical. The rôle of thyroid disturbances in leanness is obvious. Adiposity which complicates gonadal insufficiency or sexual inactivity seems to depend on diencephalohypophyseal disturbances. Climacteric adiposity is constitutional. It is stimulated by the climacteric changes.

The next congress will take place at Turin, and the official topics will be "Chronic Colitis," "Pathology and Treatment of Neurohypophyseal Syndromes" and "Pathology of the Aged." The speakers for the first and third topics will be Professors Ferrata and Bastai, respectively. The second topic will be in common for the internal medicine and surgical societies. The speakers for this topic will be Professors Guglielmo and Chiasserini.

## Marriages

VICTOR E. BROWN, Washington, N. C., to Miss Frankie Lucille Ramsour of Winston-Salem, Nov. 26, 1936.

WILLARD CARDWELL, Greensboro, N. C., to Miss Amelia Martha Hall of New York, Nov. 18, 1936.

ELLA I. DUFF, Boston, to Mr. George Alvah Good of Fredericton, N. B., Canada, Nov. 17, 1936.

JOSEPH PETER MARKEY to Miss Mary Agnes Kretschmer, both of Saginaw, Mich., Nov. 26, 1936.

WILLIAM PERRY MOORE JR. to Miss Mary Elfrith Eggleston, both of Norfolk, Va., Nov. 14, 1936.

JACOB ZERN HEBERLING, Bangor, Pa., to Miss Norma Rebecca Nyce of Jenkintown, Nov. 7, 1936.

JOSEPH M. HITCH, Charlottesville, Va., to Miss Helen F. Goss of Cleveland, Nov. 7, 1936.

ROLAND LINCOLN KESLER, Chicago, to Miss Margaret Lee of Gordon, Neb., Nov. 14, 1936.



to specialize in testing technics and, with the advice and cooperation of members of the several professions and occupations involved, to devise and apply the most effective tests and testing procedures. An integrated field force is to cover the state and to make inspections covering all the occupations and professions subject to license by the bureau. S. 128, to amend the medical practice act, proposes to permit "the application or use of the principles, tenets or teachings of any church in the ministrations to the sick or suffering by prayer, *with or without compensation*, without the use of any drug or material remedy, provided the sanitary and quarantine laws and regulations are complied with."

#### UTAH

**Bills Introduced.**—S. 135, to amend the law prohibiting a physician from being examined in a civil action as to any information acquired by him in attending a patient which was necessary to enable him to prescribe or act for the patient, proposes to permit a physician to testify in probate proceedings concerning the mental condition of his patient. The bill further proposes that (1) where an action is brought for damages on account of the death of a patient, the patient's executor or administrator may consent to the physician's testifying and (2) where the patient brings an action to recover damages for personal injury, such action shall be deemed to constitute a consent by the patient that his physician may testify. H. 156 proposes to authorize the department of registration to license persons "to practice as a naturopathic physician in accordance with the tenets of the professional schools of naturopathy recognized by the department of registration."

#### WASHINGTON

**Bills Introduced.**—Senate Memorial No. 9 proposes to memorialize President Roosevelt and the United States Congress to provide for a survey under the supervision of the United States Public Health Service to determine the number of narcotic addicts in this country and to recommend methods of care and treatment of curable addicts and for a plan for dispensing narcotic drugs to incurable addicts. H. 266, to amend the workmen's compensation act, proposes to authorize "any licensed practitioner in the art of healing" to render the medical care and treatment required by the act to be furnished to injured workers. S. 198 proposes to prohibit the retail sale or distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of conception or venereal diseases except by licensees of the state board of pharmacy and "medical practitioners regularly licensed to practice in the state of Washington." H. 316, to amend the workmen's compensation act, proposes to make compensable "any and all occupational diseases."

#### WEST VIRGINIA

**Bill Introduced.**—H. 188 proposes that applicants for licenses to practice any form of the healing art, as a condition precedent to their right to present themselves for examination to their respective professional boards, must pass examinations in anatomy, physiology, bacteriology, pathology, hygiene and public health, and chemistry, to be given by a board of examiners in the basic sciences. No person may serve as a member of the board who is not a full-time professor, or associate or assistant professor, teaching one or more of the basic sciences, in some university or college in the state accredited by the North Central Association of Secondary Schools of Colleges. No member of the board shall be actively engaged in the practice of healing or licensed to practice healing.

#### WISCONSIN

**Bill Introduced.**—A. 29 proposes to repeal the law requiring antenuptial physical examination.

**Society News.**—Drs. Ernest A. Pohle, Madison, and Merle Q. Howard, Wauwatosa, addressed the Medical Society of Milwaukee County at a joint meeting with the Milwaukee Roentgen Ray Society, January 8, on "The Indications for and the Practical Application of X-Ray Therapy" and "The Suicide Problem" respectively.—Drs. Louis Brachman and Ralph T. Rank addressed the Milwaukee Oto-Ophthalmic Society, January 12, on "Near Vision Problems Confronting the Ophthalmologist" and "Newer Methods of Nasal Therapeutics" respectively.—Dr. Solon Marx White, Minneapolis, addressed the Chippewa County Medical Society, Chippewa Falls, December 8, on "Depression and Increased Irritability in Heart Muscle Function" and "Management of Early Hypertension."

#### GENERAL

**Medical Bills in Congress.**—*Change in Status:* S. 5 has been reported to the Senate, with numerous amendments, proposing to prevent the adulteration, misbranding and false advertising of food, drugs, devices and cosmetics. *Bills Introduced:* S. 1233, introduced by Senator Burke, Nebraska, and H. R. 4650, introduced by Representative Drew, Pennsylvania, propose to amend the United States Employees' Compensation Act so as to provide that the term "physician" shall include osteopathic practitioners and that the term "medical, surgical, and hospital services and supplies" shall include services and supplies by osteopathic practitioners and hospitals. S. 1399, introduced by Senator Chavez, New Mexico, proposes to prohibit the transportation of anhalonium, commonly known as peyote, into any state, territory, or possession of the United States, for delivery, possession, sale, or use in any manner, either in the original package or otherwise, in violation of any law of such state, territory, or possession. The bill further provides that all packages containing any anhalonium, when transported in interstate commerce, shall be plainly and clearly marked, so that the name and address of the shipper, the name and address of the consignee, the nature of the contents, and the quantity of anhalonium contained therein may be readily ascertained on an inspection of the outside of such package. H. R. 1810, introduced by Representative Haines, Pennsylvania, proposes to authorize the President to present a medal of honor to Dr. George E. Holtzapfel, "who administered oxygen in the treatment of pneumonia for the first time on record, March 6, 1885." H. R. 4475, introduced by Representative Voorhis, California, proposes to increase from \$8,000,000 to \$20,000,000 the appropriation authorized by the Social Security Act to assist states, counties, health districts, and other political subdivisions of the states in establishing and maintaining adequate public health services. The bill also proposes to increase from \$2,000,000 to \$5,000,000 the appropriation authorized in the Social Security Act for expenditure by the United States Public Health Service for investigation of disease and problems of sanitation. H. R. 4483, introduced by Representative Rogers, Massachusetts, proposes to authorize an appropriation of \$1,400,000 to construct a veterans' hospital and diagnostic center at or near Boston. H. R. 4485, introduced by Representative Green, Florida, proposes to authorize an appropriation of \$1,000,000 to construct a marine hospital at Jacksonville. H. R. 4598, introduced by Representative Celler, New York, proposes to make it unlawful to sell certain spirits containing alcohol produced from materials other than cereal grains. H. R. 4602, introduced by Representative McKeough, Illinois, proposes to add the name of Gustaf E. Lambert to those listed in the act recognizing the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. H. R. 4608, introduced by Delegate King, Hawaii, proposes to authorize an appropriation of \$500,000 to erect a veterans' facility in Hawaii. H. R. 4716, introduced by Representative Peterson, Florida, proposes to authorize an appropriation of \$1,500,000 to erect a marine hospital in Florida, the site to be selected by the Federal Board of Hospitalization.

### Government Services

#### Dr. McCoy Relieved as Director of National Institute of Health

Dr. George W. McCoy has been relieved as director of the National Institute of Health, effective January 31. Dr. McCoy had held the position since 1915, when the institute was known as the Hygienic Laboratory. A native of Cumberland Valley, Pa., Dr. McCoy is 60 years of age and a graduate of the University of Pennsylvania School of Medicine, class of 1898. He was appointed assistant surgeon of the Public Health and Marine Hospital Service in 1905 and, in 1913, surgeon in the public health service. He was named medical director in the service July 1, 1930. Dr. McCoy was in charge of the U. S. Plague Laboratory, San Francisco, from 1908 to 1911, and director of the U. S. Leprosy Station, 1911-1915, concurrently serving during this period as sanitary adviser to the Hawaiian Government. He was president of the Washington Academy of Sciences in 1935. He has written numerous papers on bacteriology and public health subjects. Dr. McCoy will be assigned to investigations on leprosy, it is reported.

House of Representatives and of the school committee of Providence; aged 67; died, Dec. 24, 1936, in the Jane Brown Memorial Hospital, of heart disease.

**Herbert Ong Calhoun**, Denver; University of Colorado School of Medicine, Denver, 1920; for many years on the staff of the Agnes Memorial Sanatorium; aged 43; died, Dec. 17, 1936, in the Swedish National Sanatorium, Englewood, of pulmonary tuberculosis.

**John Dawson Carty**, Portsmouth, N. H.; University of Vermont College of Medicine, Burlington, 1906; formerly city physician, health inspector and bacteriologist; trustee of the New Hampshire State Hospital, Concord, for ten years; aged 60; died Dec. 20, 1936.

**Henry Robertson Conway** ♂ Marshall, Mo.; University Medical College of Kansas City, 1912; past president of the Saline County Medical Society; aged 51; on the staff of the John Fitzgibbon Memorial Hospital, where he died, Dec. 14, 1936, of heart disease.

**Samuel Louis Weber** ♂ Chicago; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888; on the staff of the Hospital of St. Anthony de Padua; aged 75; died, Dec. 18, 1936, of coronary embolism and arteriosclerosis.

**Edwin F. Winegar**, Chicago; Chicago Physio-Medical College, 1898; member of the Illinois State Medical Society; formerly on the staff of the Illinois Central Hospital; aged 70; died, Dec. 8, 1936, in a hospital at Phoenix, Ariz., of meningitis.

**Peter Frailey Wells** ♂ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1881; aged 77; died, Dec. 16, 1936, in the Graduate Hospital of the University of Pennsylvania, of carcinoma of the hepatic flexure of the colon.

**Samuel Lee Edwards**, Tuscaloosa, Ala.; University of Maryland School of Medicine, Baltimore, 1899; served during the World War; on the staff of the Veterans Administration Facility; aged 65; died, Dec. 30, 1936, of coronary thrombosis.

**Oscar Francis Shewmaker**, Louisville, Ky.; University of Louisville Medical Department, 1907; member of the Kentucky State Medical Association; on the staff of the Veterans Administration; aged 53; died, Dec. 20, 1936, of heart disease.

**Thomas J. Pendergast** ♂ Milwaukee; Northwestern University Medical School, Chicago, 1893; on the staff of St. Mary's Hospital and St. Vincent's Infants' Asylum; aged 73; died, Dec. 22, 1936, in St. Joseph's Hospital, of heart disease.

**Clement C. Collins** ♂ Roachdale, Ind.; University of Louisville (Ky.) Medical Department, 1892; past president of the Putnam County Medical Society; aged 66; died, Dec. 29, 1936, in a hospital at Crawfordsville, of uremia and nephritis.

**Joseph Reagan Hamlin**, St. Louis; Washington University School of Medicine, St. Louis, 1910; member of the Missouri State Medical Association; aged 51; died, Dec. 27, 1936, in the Missouri Baptist Hospital, of coronary occlusion.

**Samuel Allen Oren**, Lewistown, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; State University of Iowa College of Homeopathic Medicine, Iowa City, 1878; aged 82; died, Dec. 9, 1936, of diabetes mellitus.

**Robert L. Thomson**, Almota, Wash.; Kentucky School of Medicine, Louisville, 1880; member of the Washington State Medical Association; aged 80; died, Dec. 10, 1936, in Lewiston, Idaho, of heart disease.

**Thomas W. Treharne**, Zimmerman, Ohio; Detroit College of Medicine, 1892; past president of the Greene County Medical Society; aged 73; died, Dec. 26, 1936, of myocarditis and bronchopneumonia.

**Ralph Dana Goodwin** ♂ East Pittsburgh, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1908; aged 56; died, Dec. 14, 1936, in the Mercy Hospital, Pittsburgh, of coronary thrombosis.

**John R. Cox**, North English, Iowa; State University of Iowa College of Medicine, Iowa City, 1880; aged 83; died, Dec. 22, 1936, in the University Hospital, Iowa City, of arteriosclerosis.

**Henry Middleton Woolman**, Asbury Park, N. J.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1890; aged 69; died, Dec. 5, 1936, of cerebral hemorrhage.

**Leyden Frederick Wilson**, New Kensington, Pa.; University of Pittsburgh School of Medicine, 1912; aged 48; died, Dec. 13, 1936, in the Citizens General Hospital, of septicemia.

**Wilhelm Nobbe**, St. Louis; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1895; aged 67; died, Dec. 11, 1936, in the Missouri Baptist Hospital, of intestinal obstruction.

## Bureau of Investigation

### MARMOLA

The Federal Trade Commission, in a release dated January 25, stated that it had ordered the Raladam Company of Detroit to cease and desist from certain misrepresentations in the sale of its product "Marmola."

Marmola is an old timer in the obesity-reducing field and has been in difficulties before with the federal authorities. In 1926 the postal authorities were about to issue a fraud order against the Marmola Company when the manufacturer submitted an affidavit declaring that he would absolutely discontinue the Marmola enterprise on April 1, 1927. The manufacturer did discontinue the sale of Marmola through the mails at that time but created the Raladam Company, which continued to sell the product through the retail drug stores—a method not inter-



**GOOD NIGHT, SISTER!  
HAVE A GOOD TIME!**

**SHE WAS TOO FAT!**

**And then she made up her mind to get thin and did, without hard exercise or starvation diet**

Nobody loves a fat girl—but why mope about it when you can so easily get rid of that excess fat by means of a tried and true corrective, known and recommended by physicians the world over?

Many years ago medical science discovered that obesity—when an abnormal condition—is caused by the

The excess fat has simply slipped away, revealing the trim and slender figure underneath.

Sounds like a miracle, but thousands of women who have taken Marmola as directed—4 tablets a day—might well tell you it's a demonstrated fact. Indeed, since 1907, more than 20 million packages of Marmola have been purchased—proof positive that nothing succeeds like success. Marmola is put up by one of the leading medical laboratories of America.

Start today! You will soon experience Marmola's benefits. When you have gone far enough, stop taking Marmola. And you will bless the day when you first discovered this marvelous reducing agent.

Marmola is on sale at all dealers—from coast to coast.

selves out with exercising, do not starve themselves, nor drain their systems with drastic purgatives. Yet day by day they have felt lighter, more alert, more energetic. Soon they find their weight satisfactory.

quently employed by "patent medicine" houses in order to stay in business after the issuance of a Post Office fraud order.

In February 1928 the Federal Trade Commission issued a complaint against the Raladam Company, and hearings were held in Chicago, Detroit and Washington, D. C. At the close of the hearings the Federal Trade Commission ordered the Raladam Company, its officers, agents, representatives and employees, to cease and desist from certain representations in connection with the advertising, offering for sale, and sale in commerce in the several states of the United States of the product Marmola (THE JOURNAL, May 4, 1929, p. 1541).

However, the Federal Trade Commission's cease and desist order against the Raladam Company was vacated by the United States Circuit Court of Appeals on June 28, 1930 (THE JOURNAL, Aug 2, 1930, p. 359). The Raladam Company, being freed from the Federal Trade Commission's action, has continued unhampered to dispense its tablets containing desiccated thyroid to the obese.

The present action of the Federal Trade Commission prohibits the representation "that thyroid deficiency is a common or the usual cause of obesity or excess fat or that, if a person

indulging in it unless compelled to do so. There is the difficulty that daily training cannot be carried out without taking time from the hospital curriculum, which is already so full that it sometimes costs the student his midday meal.

#### Dr. J. W. McNee Has Gone to Glasgow

Dr. J. W. McNee, physician to University College Hospital, London, and the leading authority in this country on diseases of the liver, has, at the age of 50, been appointed regius professor of medicine in the University of Glasgow. He has followed the example of Dr. J. A. Ryle, who a year ago exchanged the position of physician to Guy's Hospital for that of regius professor of physic in the University of Cambridge. Dr. McNee has abandoned an assured and leading position in London consulting practice. His student career was passed at Glasgow, so that he has returned to his old school. In 1912 he received a Carnegie traveling fellowship and went to Freiburg, where he studied under Professor Aschoff and made his important observation on experimental jaundice in geese, which is the basis of the modern views of the function of the liver and the reticulo-endothelial cells in the formation of bile. In the war he did important work on trench nephritis, the gas bacillus, wound infection and trench fever. For this he received the D.S.O. He is joint author (with Rolleston) of "Diseases of the Liver, Gallbladder and Bile Ducts" and is associate professor of medicine and associate physician of Johns Hopkins University.

#### PARIS

(From Our Regular Correspondent)

Jan. 21, 1937.

#### Annual Meeting of International Union Therapeutic Society

The International Union Therapeutic Society held its annual meeting at Paris Oct. 14, 1936. The presiding officer, Prof. Maurice Loeper, who is founder of the society, stated that thirty-four countries were represented. The American guests were Drs. Desjardins and Krusen of the Mayo Clinic.

The first paper was by Mouriquand and Viennois of Paris on cevitic acid and its therapeutic indications. The action of this acid on vitamin C deficiency is prophylactic in the stage of nonevident dystrophy and curative in the eutrophic stage. Aside from such indications (vitamin C deficiency) cevitic acid is also useful in hemorrhages of capillary origin, probably because of its aiding the nourishment of the intercellular cement between the endothelial cells of the capillary walls. In certain toxic-infections, such as diphtheria, the toxin of which accelerates the excretion of the cevitic acid of the adrenals, another indication exists. The general resistance of the organism in septicemias is greatly augmented by cevitic acid, which seems to act by supporting the cellular oxy-reductions that are so greatly altered in septicemia. It seems to be important for the organism that the nervous and reticulo-endothelial systems should conserve their normal cevitic acid content.

A paper on methods of resuscitation was presented by Cordier of Alfort. Based on experimental work, such as the measurement of pulmonary ventilation and variations of the intracardiac pressure, the Silvester method holds first place among the normal methods of artificial respiration. It must, however, be applied with the subject lying on his back, a fatiguing process for the person who is employing this method, which is still popular in Germany, where it is combined with massage of the heart. The Schafer method ranks very low, if one bases its value solely on the results of experimental work. It is, however, much easier to use than that of Silvester and much less fatiguing for the operator because there is no muscular resistance and the subject lies with the face downward. The feeble action of this method on the ventilation of the lungs and the general circulation can be supplemented by having the arms

raised by a second operator, as suggested by Nielsen, synchronously with compression of the lower part of the thorax by the hands of the first operator, who sits astride the lumbar region of the asphyxiated person. The combined Schafer-Nielsen method has all of the advantages of the Silvester method and is easier to apply. If only one person is available to use resuscitation methods the Schafer method should be used, but if there are two persons available the Schafer-Nielsen method is indicated. Friction and the application of heat are of aid only if the encephalobulbar centers are still excitable.

Hyperpyrexia in gonorrheal complications was the subject of the next two papers, one by Charles Richet and Jean Facquet of Paris, the other by Desjardins and Krusen of the Mayo Clinic. In the first paper it was stated that of thirty-three cases of arthritis treated by hyperpyrexia following injection of dead bacteria there were twenty-eight (78 per cent) complete cures. The statement was made that this method acts more rapidly and is followed by fewer complications than any other. This is true for arthritis, orchitis, endometritis and salpingitis, and even in acute gonorrhea in the male.

Desjardins and Krusen described the Kettering hypertherm apparatus, with the aid of which treatments are given at the Mayo Clinic and in many other American hospitals. Bacteriologic studies have shown that in 99 per cent of the laboratory experiments gonococci were killed at a temperature of 41 C. (106 F.) in five hours and at a temperature of 42 C. (107.6 F.) in two hours. At present an internist, a bacteriologist and a pyretotherapist collaborate in every case. A rectal temperature of 41.2-41.7 C. (a little over 106 and about 107 F.) is maintained for a period of between six and seven hours and the sitting is repeated from one to five times at intervals of from two to three days. Ninety-two per cent of 100 cases (male and female) of gonorrhea (with and without complications) were cured during the past two years. The results were especially striking in gonorrheal arthritis.

In a symposium on the treatment of migraine, the first paper, on the endocrine treatment, was read by Prof. Gregorio Marañón of Madrid. Migraine is a syndrome the fundamental element of which is supposed to be a disturbance of the neuro-vegetative system, which is constitutional and hereditary in the majority of cases. The so-called predisposition to migraine is a vegetative instability, being analogous to the "epileptic predisposition" and also to that of asthma. As in the two last named diseases, the glands of internal secretion play an important part, none however a specific one. A dysfunction of the thyroid can be the underlying factor, or this may be equally true of the ovary, hypophysis, pancreas or other glands of internal secretion. All one can say is that there is a disturbance of equilibrium and not a definite hypofunction or hyperfunction. It is possible by reestablishing a normal hormone state to improve a case of migraine, but the underlying "predisposition" is not cured by such treatment. One ought not to employ the term "endocrine migraines" or speak of "endocrine cures."

The second paper on migraine was read by Professor Parhon of Bucharest, Rumania, and entitled "Rôle of Vascular Spasms and Importance of Antispasmodic Treatment." Parhon also believed that migraine is a constitutional disease, that is, on an endocrine basis, either a hypothyroidism or a hyperparathyroidism being responsible. In the latter, cerebral angiospasms are of much importance. Thyroid and parathyroid opotherapy modify the condition by liberating calcium and acting on the angiospasms. Bromides, phenobarbital, papaverine and the ordinary analgesics act especially on the attacks of migraine. When employed over a prolonged period they seem to have a more or less permanent beneficial effect on cerebral hyperexcitability and tendency to angiospasm and hence on the migraine attacks.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### NEUFELD METHOD OF TYPING PNEUMOCOCCI

To the Editor:—Would you kindly tell me of the Neufeld method of typing pneumococci. If you cannot detail it please tell me where I can find it. Please omit name.

M.D., Maryland.

ANSWER.—In the presence of homologous capsule swelling antibodies, the capsules of pneumococci swell.

The swollen capsule (Neufeld) test for the typing of pneumococci is performed by taking a fleck of sputum or fluid containing pneumococci and adding serums of rabbits made immune to the different types of pneumococci. The serums may be added singly or in groups of several types. When a group is found with which the capsule swells, the individual types contained are tested individually. It is customary to test for type I separately because at least one fourth of the cases are due to this type.

Standard alkaline methylene blue is either added to the mixed sputum and serums or the serum may contain the dye. Reliable serums for performing the test are obtainable from some manufacturers of biologic products (Lederle Laboratories; Parke, Davis & Co.) in capillary tubes or in small vials. Swelling of the pneumococcus capsules occurs with homologous horse serum, therapeutic serum, or serum from patients recovering from pneumonia of homologous type. Such serum may not possess the sharp type specificity of serum prepared in rabbits. Good swelling of the capsules with homologous serum may not appear either because too large an amount of sputum in proportion to the amount of serum is used or because too many organisms are in the exudate or culture in proportion to the amount of capsule swelling antibody. This difficulty is overcome by diluting the exudate with physiologic solution of sodium chloride prior to applying the serum. If all the organisms in a preparation are not swollen by the type applied, it is due to the fact that another type of pneumococcus is present.

When organisms are present in broth, a bile solubility test should be performed.

About three fourths of the cases of pneumococcic pneumonia may be typed directly by the Neufeld examination of the sputum; the remainder may require either mouse inoculation or other methods of study, such as blood culture or aspiration of lung juice. The type obtained by examination of the sputum is correct in 93 per cent of cases. The method is described in detail in the following reference, which gives a bibliography: Bullowa, Jesse G. M., with technical assistance of Somers, Mildred, and Turner, Edward: The Reliability of Sputum Typing and Its Relation to Serum Therapy, *THE JOURNAL*, Nov. 9, 1935, page 1512.

### THIRTEENTH CRANIAL NERVE—RESEARCH IN GROSS ANATOMY

To the Editor:—I have a keen desire to know whether there is anything to the discovery of a thirteenth cranial nerve. I heard some doctors mention it. Also I should like to know whether any gross anatomic discovery of any kind has been made since 1913, when I graduated from the Kansas Medical College—new nerves or glands, brain areas for example. Is any more research being done on gross anatomy and by whom if any? Is it a completely fully worked out subject?

HARVEY P. CHARLES, M.D., Kansas City, Kan.

ANSWER.—The "thirteenth," or extracranial, nerve has often been overlooked. It is the most anterior one (first) in the cranial series, being distributed (in man and mammals) to the upper and anterior part of the nasal septum. It is sensory, homologous with the dorsal spinal and lateral cranial nerves. It is well developed in *Amphioxus* (sensory from skin anterior end) and is present in practically all higher vertebrates, being easily demonstrable in the fetus of some (man, rabbit), also in the adult of others (horse, ox, dog, cat, squirrel). It consists in mammals of a number of filaments joined in a plexiform way, extending to the anteromedial part of the cribriform plate of the ethmoid, which it perforates in three twigs. It is continued (plexiform) on the lower surface of the olfactory bulb and tract. Behind the bulb its fibers enter the lower surface of the frontal lobe in a series extending back almost to the optic chiasma. It is probable that some sympathetic

fibers join it, as there are a number of tiny ganglions along it, one large one (ganglion terminale) lying on its upper course within the skull. A good account of it in mammals is given by Larsell (*J. Comp. Neurol.*, 1918). He says it is somatic sensory to the epithelium of the nasal septum, and visceral sensory and motor to local blood vessels.

Gross anatomy is not a "fully worked out subject." Formerly it was the chief field in anatomic research. During the last seventy years microscopic anatomy, embryology, neurology and tissue culture have attracted more attention. But work directed partly or entirely to gross anatomy has gone on steadily. The x-rays have afforded a valuable new method of study of living subjects and of changes in form and relations in activity.

Some of the lines along which progress has been made in this century and a few (only) of the workers are: anthropometry, Jackson, Todd, Hrdlicka; anatomy of the child, Symington; growth measurements, Donaldson, Scammon; life history, age and death, Minot, Rolleston, Williams; bone development, Pryor, Grumbach; joints, Fick; muscles and their action, Mackenzie, Wright; position of the viscera in living people, Moody; teeth, Schour; respiratory apparatus, Macklin; heart, MacCallum, Tandler; blood vessels, Adachi, Huntington, Senior; lymphatics, Sabin, Clark, Bartels, Moody, Van Nuss; brain and its growth, Donaldson, Herrick, Ranson; nerves, Bardeen, Tilney, Kerr; comparative anatomy and evolution, Huntington, Parker, Kingsley, Rand. References to recent literature may be found in the bibliographic cards of the Wistar Institute of Anatomy, the *Quarterly Cumulative Index Medicus* and the *Anatomischer Bericht*.

### BRUCELLA INFECTION OF OVARIES AND UTERUS

To the Editor:—Will you please give me what practical data you can on undulant fever. I am interested in whether or not the organism attacks the ovaries and the uterus. What importance do you place on a "positive" skin test when the agglutination is negative? What treatment?

CHARLES L. PHILLIPS, M.D., East Greenwich, R. I.

ANSWER.—There is evidence that *Brucella* organisms occasionally exhibit a predilection for the genital tract of human beings as in cows or bulls. Kristensen (*Ann. de med.* 26:339 [Nov.] 1929) isolated the abortus variety of the organism from the exudate, which covered the uterine site of the placenta of a seven months fetus. Carpenter and Boak (*THE JOURNAL*, April 11, 1931, p. 1212) recovered the organism from the tissues of a human fetus that was aborted at the end of the fourth month of gestation. Frei (*Schweiz. med. Wchnschr.* 59:334 [March 23] 1929) isolated *Brucella* organisms from the vaginal discharge of a woman who had aborted ten days previously. Leavell, Poston and Amoss (*THE JOURNAL*, Sept. 20, 1930, p. 860) and Kristensen (*Ugesk. f. læger* 90:869 [Sept. 6] 1928) have isolated pure *Brucella* cultures from infected ovarian cysts. Simpson (*Ann. Int. Med.* 4:238 [Sept.] 1930) recovered *Brucella* abortus from a draining sinus tract which extended from the globus major of the epididymis through the scrotal wall. The organism has also been isolated from a tubo-ovarian abscess which developed as a late complication in a case of brucellosis (undulant fever). Orchitis and epididymitis are not infrequent early manifestations of the disease.

The intradermal test, utilizing heat-killed or formaldehyde-killed *Brucella* organisms, or the standardized *Brucella* nucleoprotein suspensoid ("brucin") developed by Huddleson, as antigen, is of value in identifying individuals who have acquired cutaneous sensitiveness after the invasion of the tissues by living *Brucella* organisms. The skin test is of value in the diagnosis of brucellosis, particularly in those persons (about 5 per cent) in whom no agglutinins for *Brucella* are found in the blood serum after repeated testing and in those instances in which *Brucella* cannot be grown on culture of the blood, urine or stools. The skin test is also of value in those cases in which the agglutination reaction is doubtfully positive in low titer (from 1:10 to 1:100). In interpreting the results of the endermic reaction, consideration must be given to the fact that presumably normal persons may develop cutaneous hypersensitiveness without symptoms of illness as the result of previous subclinical (asymptomatic) *Brucella* infection. Consideration must also be given to the fact that cutaneous sensitiveness remains after recovery from brucellosis. Thus, a person who has cutaneous hypersensitiveness to *Brucella* antigen may be suffering from some other disease at the time the test is made. A positive skin test may be merely the result of asymptomatic or symptomatic brucellosis acquired some months or years previously.

The opsonocytaphagic test of Huddleson (*Am. J. Pub. Health* 23:917 [Sept.] 1933) appears to be of considerable value in determining the immunity status of individuals who develop a

But now a serious attempt has at last been made, by Dr. Vollmer of the Pharmacologic Institute of Breslau University, to combat the exaggerated emphasis that has been placed on herbal therapeutics. In an article contributed to the *Süd-deutsche Apotheker-Zeitung*, Vollmer makes the point that the question of therapeutic plants has not been nearly so neglected by academic pharmacology as frequent assertions would imply. Nor ought it to be. But the importance of therapeutic plants has in present-day Germany become most grossly exaggerated and one encounters much that is not of clinically verified value. Vollmer enumerates a whole series of plants which, although theoretically capable of producing the effects claimed for them, factually remain of dubious therapeutic worth. Scientific knowledge of the exact action of these substances on the organism is frequently deficient. The author also speaks of the "lack of a basis for the prescription" of such medicaments. All this zeal for herbal medicine is merely a flash in the pan. Many persons have rightly described this movement as a turning back of the clock of time. And all this quite apart from such things as the attribution to a certain plant (savin) of virtues effective only during the odd-numbered months. Furthermore, on the basis of correct enough pharmacologic analyses, incorrect generalizations are formulated. How can a physician retain faith in herbal medicine if at one and the same time four dozen different infusions are recommended to him as spring cures and if an equal number of infusions are recommended for the treatment of climacteric complaints? And all this without the inclusion of a single scientific description of the way in which these mixtures act.

The foregoing observations of a pharmacologist who has remained closely connected with the government are sound.

In addition, a sort of campaign against mysterious panaceas is to be conducted by the National Socialist Health Administration, a campaign against those products which carry neither on their wrappers nor in advertisements any description of the ingredients. Among these are included endocrine preparations, the advertising of which has developed into a nuisance. The most incredible virtues have been claimed for these products and all based on the presence of some mysterious anonymous principle.

Finally, mention should be made on this occasion of the recent trial of a homeopathic physician who was charged with criminal negligence in the deaths of three persons from diphtheria because of his failure to administer injections of serum. The defendant stated that he had treated some twenty other diphtheria cases according to homeopathic methods and none of these cases had ended fatally. In this particular instance, however, a mother and her two children had died, whereas the husband and father, who was ill at the same time, recovered. The physician had refrained from the use of serotherapy, as in his opinion this method of treatment exerts a harmful effect on the organism, whereas homeopathic remedies are innocuous. Moreover, he had refused to permit the calling in of a second physician. The prosecutor asked a sentence of ten months imprisonment but the tribunal acquitted the defendant. In the opinion of this court, a refusal to administer antidiphtheritic serum could not be construed as criminal negligence, since science itself has as yet arrived at no definite evaluation of the serum, a fact that is reflexed by the absence of any law compelling the administration of antidiphtheritic serum. On the other hand, said the court, homeopathy is as much a recognized science as any other (thanks to the present régime) and furthermore no expert had been able to testify that if timely injections of serum had been administered the three deceased persons would have survived. The judgment of this court and the reasons alleged therefor are characteristic of the present attitude toward medical science in Germany.

One more item should be reported. The national führer of pharmacists has introduced a uniform escutcheon for all Ger-

man pharmacists. It is an old Germanic runic device. It bears a heraldic letter A (for apotheker) in red and a so-called manes-rune in white at the intersection of the left side-bar with the fess. The manes-rune is intended to be a symbolic representation of strength, health and life. The new emblem of the pharmacists has been registered at the national patent office. It may be displayed by any proprietor of a public pharmacy who belongs to the German Pharmacists' Association. The new escutcheon will at the same time do away with the use of the varied signs, the serpent and the cup, for example, as well as the use of the older pharmacists' escutcheon, which was a reverse of that of the Red Cross; namely, a white cross on a red field. The latter happens to be the coat of arms of Switzerland and from January 1, 1937, it will enjoy legal protection as such. This means that it must disappear from German apothecary shops, although till now it has been extensively used as a distinguishing mark of the German pharmacists.

## NETHERLANDS

(From Our Regular Correspondent)

Jan. 8, 1937.

### Habitual Alimentation

Drs. Banning and Den Hartog have submitted to the health organization of the League of Nations a study of present-day alimentary habits in the different provinces of the Netherlands. In the last few years the amount of fats consumed in the Netherlands has been on the increase. It cannot be said that this increase has taken place at the expense of the carbohydrates and/or the proteins, for the balance between these two elements has been well enough maintained. This increased consumption of fat has resulted in a notable, even perhaps an excessive, increase in caloric values. The increase in fats may be ascribed to the fact that the last few years were more prosperous than the immediately preceding years. The amount of protein nutriment consumed appears to be quite sufficient: the proportion of animal proteins of a high caloric value is in any event considerable. In highly industrialized or stock-raising regions there is a much greater consumption of milk and butter than in regions where agriculture properly speaking is the population's principal means of sustenance, the province of Groningen, for example. In purely agricultural areas the need for fats is met by recourse to fat-containing foods other than dairy products; to bacon, for example. In Drente a much poorer region of small stock farms, a greater part of the necessary calories is obtained from the potato and from farinaceous foods. The huge quantities of legumes and fruits consumed in the little industrial town of Zaandam may be strikingly compared with the small amount of the same comestibles eaten by the country folk of Westzaan. The Zaandam people also consume a greater amount of sugar and of fancy goods. Any project for feeding the unemployed must take into account the accustomed alimentation of a given population. The inhabitants of industrial urban communities have acquired eating habits which differ to a degree from those of the rural population. The unemployed townsman feels and quite rightly that he should receive a different type of food supply than that which is suitable for his rural compatriot.

### Anti plague Vaccine

Dr. Otten, director of the Pasteur Institute at Bandoeng, is introducing a new type of his "Otten vaccine" against plague. The vaccine in use heretofore with favorable results has been prepared from the stock of "Tjiwidej" rats. This serum has, however, not been effective against buboes. Dr. Otten has found a new stock from which he obtains a vaccine composed of an antigen other than the "Tjiwidej" stock. This new vaccine is capable of preventing not only plague but tumefaction of the buboes as well. It will be placed in use during 1937.



stimulating treatment for the weakened muscles. For this purpose the sinusoidal-faradic current is advisable.

The azoospermia, according to the history, is undoubtedly testicular in character. The therapy of this condition is entirely experimental and it is impossible as yet to recommend the use of special extracts for this purpose. Both positive and negative results have been reported with preparations of the gonadotropic principle of pregnancy urine, such as antuitrin-S. There is no evidence that androstine-Ciba could be of any use for this purpose; the Council on Pharmacy and Chemistry reported this product to be practically devoid of potency (*THE JOURNAL*, June 20, 1936, p. 2150). Favorable results have been reported with the use of a gonadotropic product from the pituitary itself; but even when azoospermia can be corrected the resultant spermia may be abnormal and lead to abnormal products of conception (Moench, G. L.: A Consideration of Some Aspects of Sterility, *Am. J. Obst. & Gynec.* 32:406 [Sept.] 1936).

#### TAPEWORM INFESTATION DURING PREGNANCY

*To the Editor:*—Please advise me as to the treatment of tapeworm in a pregnant woman. A woman, aged 23, primipara, secundigravida, four months pregnant, has lost 3 pounds (1.4 Kg.) during the last month, although eating almost twice as much as normally, and during the previous months of her pregnancy she gained weight. The stools were of normal color although the bowels are very constipated and several times after enemas she has noticed broad white segments about one-fourth inch wide, varying in length from 3 to 4 inches. Without further examination I made a tentative diagnosis of tapeworm, most likely *Taenia saginata* or *Taenia solium*, as she gives no history of having eaten any fish all summer long. I requested her to bring in a stool for examination but as yet she has not done so; hence I cannot further substantiate my diagnosis. My problem is what treatment I should use to eradicate the worm if she continues to lose weight or becomes progressively anemic. Several of the textbooks that I have mention the fact that it should be treated conservatively during pregnancy. In *THE JOURNAL*, Sept. 1, 1934, in an article by Harold W. Brown entitled "Intestinal Parasitic Worms in the United States," it is stated that treatment with aspidium should be used with caution in pregnancy. He also mentions treatment with carbon tetrachloride but does not give pregnancy as a contraindication. Would this be the most acceptable form of treatment or would you recommend some other form? If printed, please omit name.

M.D., Minnesota.

**ANSWER.**—While aspidium and probably the other potent teniacides are contraindicated in pregnancy, pumpkin seed is not, as it is harmless in almost any dose. The seeds should, if possible, not be more than one month old. After the usual preparatory starvation the day before and the administration of a saline purgative the night preceding and again in the early morning, a very light breakfast may be taken. Two hours after this, one gives from 60 to 120 Gm. of pumpkin seed in three portions, two hours apart, the patient remaining in bed to avoid vomiting. The fresh seed should be beaten into a paste with water and finely powdered sugar, and water or milk added to make about 500 cc. If purgation does not occur within three hours after the last dose, a purgative—preferably castor oil—should be administered.

#### CONSTIPATION

*To the Editor:*—I should like to learn more of constipation and its management. I have the small book which you publish on cathartics but find this inadequate for the more obstinate cases. One patient is especially difficult, having been ill for a number of years and taken laxatives regularly during that time and has to take Empirin Compound frequently now because of pain. The liquid petrolatum preparations all cause so much distention that they cannot be used in his case. There seems to be a spastic condition in his colon and the bulk-providing laxatives are not effective. There is apparently no pathologic condition causing the constipation. It is due, I presume, to his inability to take exercise (his only exercise being walking a short distance each day), the long period of use of sedatives, and his highly nervous condition. None of these factors can be eliminated, and I should appreciate greatly any advice that you might be able to give, and any references you might give in which I could gain further information. Please omit name.

M.D., California.

**ANSWER.**—From the description it is reasonable to suppose that the patient is suffering from a condition of colon spasm in which irritative cathartics of all kinds are likely to make the condition worse. There are two problems to be solved: (1) to unlock the spasm and (2) to remove the cause.

In the symptomatic relief of the spasm, the use of oil is particularly indicated. When liquid petrolatum taken by mouth is not satisfactory, the use of oil enemas at bedtime is likely to be required. These consist of the patient *injecting into the rectum*, the last thing at night after he has gone to bed, as much warm olive oil as he can retain overnight. This usually is a cupful, more or less. Such enemas might be repeated every evening for several days until all hard lumps are elim-

inated from the stools and liquid petrolatum taken by mouth maintains a softness of scybala. In cases in which this combination is not satisfactory, daily teaspoonful doses of castor oil taken first thing in the morning have produced good results. While the patient is suffering pain due to the spasm, the employment of analgesics is advisable; but morphine must not be given. It is decidedly contraindicated in such cases. Bulk-providing diet is not tolerated at this stage, and a smooth, residue-poor diet is demanded. As this regimen is constipating and colon spasm is, after all, a variety of constipation, it is necessary to abandon this phase of treatment as soon as possible after the spasm has been satisfactorily relieved.

The removal of the cause is more difficult as well as more important. There are some cases in which the colon spasm is due to stasis in the proximal colon, which, in turn, is often dependent on minor organic abnormalities such as a low cecum or periceal adhesions. In these cases, after the spasm has been unlocked, the use of mild saline catharsis coupled with the most bulk-producing diet that the patient can tolerate is likely to produce satisfactory results. Such a diet might include, for instance, the more delicate cellulose-containing vegetables, such as spinach, asparagus and cauliflower, and possibly bran. While such a diet is not tolerated during the presence of active colon spasm, it is a preventive of its recurrence when the spasm has been relieved.

Another cause of the spastic colon is, no doubt, intestinal allergy and this requires the use of the so-called elimination diets and possibly skin tests, by means of which one might be led to the discovery of the offending food or foods.

The psychoneurotic background accompanying any one of these states, which acts as a predisposing factor, also needs to be taken care of. This requires a personality study to discover the nature and cause of the patient's maladjustment and the prescribing, based on the results, of the proper hygiene for that individual.

#### ENDOCRINE DISTURBANCE

*To the Editor:*—A man, aged 33, a physician, was 5 feet 8 inches (173 cm.) tall and weighed between 185 and 190 pounds (about 85 Kg.) at puberty, which was fully established between the thirteenth and fourteenth years, and up until the age of 18. He appeared to be suffering from a pituitary dysfunction. During this period the breasts were quite large and the lower part of the abdomen and the hips and thighs were well padded with fat. At the age of 19 years there was a marked loss in weight of 50 or 60 pounds (about 25 Kg.) preceding the removal of a gallbladder full of stones. Since the cholecystectomy and the loss in weight the patient, when clad, has appeared to be normal in body contour. He has attained a height of 5 feet 9½ inches (175.5 cm.) and has been averaging during the past ten years from 155 to 160 pounds (about 71 Kg.) in weight but at times has weighed 175 pounds (79 Kg.). The tendency, however, at present and during the intervening years has been to deposit fat in the parts of the body already mentioned. The pelvis, though less wide than the shoulders, strongly suggests the female type. The genitalia are of average size and the sexual urge is normal. The basal metabolic rate for the past six or seven years has been low, minus 15 to minus 20, and the pulse from 60 to 64. The patient's chief complaint regarding this condition is that of embarrassment at the time of bathing and showering. Kindly advise the course of treatment I should follow in the case. Are there any undesirable effects that may follow the administration of antuitrin in this patient? If you should advise its use, please indicate the method of administration and its frequency. If published, please omit name and address.

M.D., Pennsylvania.

**ANSWER.**—It is difficult to say with certainty whether the patient represents an organic abnormality or simply a physiologic disturbance. Certainly the description does not suggest the diagnosis of Frölich's syndrome. Suggestions for treatment are difficult because of our inadequate knowledge of the underlying causes for such conditions. If we were certain that the cause is a deficiency of the gonadotropic factor of the anterior lobe of the pituitary we could recommend the use of one of the commercial products now available. The respondent mentions "antuitrin" as a possible form of treatment. Presumably he refers to "antuitrin-S," a substance prepared from the urine of pregnant women which probably is formed by the chorionic villi and therefore is not of pituitary origin. Its action, however, is similar to the luteinizing fraction of the anterior lobe, and it has been given wider clinical use than any of the hormones obtained from pituitary tissue. Insufficient time has elapsed to say with certainty that no harmful result from its use, but harmful effects are unlikely. The size of the patient's prostate should be observed, and if a significant increase occurs the injections should be stopped. Whether the injections will produce any improvement is equally problematic. A suggested dosage would be 2 cc. (200 units) subcutaneously two or three times a week for from four to six weeks. The suggestion is made that some such cases improve with the use of thyroid. Sufficient should be given to maintain the basal metabolic rate between zero and minus ten.

## Deaths

**Frank Smithies** ☉ Chicago; Chairman of the Section on Gastro-Enterology and Proctology of the American Medical Association, 1919-1920, member of the House of Delegates, 1927-1930, and in 1930 appointed a member of the Council on Scientific Assembly for five years, died, February 9, in the Augustana Hospital, of a cerebral hemorrhage, aged 56. Dr. Smithies was born in Elland, Yorkshire, England, Dec. 21, 1880. He received the medical degree from the University of Michigan Department of Medicine and Surgery, Ann Arbor, in 1904, and later studied abroad. He had been assistant in the clinical laboratory, instructor in medicine and demonstrator in clinical medicine at his alma mater, assistant in medicine at Rush Medical College, Chicago, assistant in pathology at the University of Berlin, and attending physician to the University of Michigan Hospital. From 1910 to 1913 he was in charge of the gastro-enterologic laboratory and an assistant in one of the sections on medicine at the Mayo Clinic, Rochester, Minn. He was appointed gastro-enterologist in the Augustana Hospital, Chicago, in 1913, and attending physician in 1922. He became associate professor of medicine at University of Illinois College of Medicine in 1917 and professor of medicine in 1922. Dr. Smithies was a fellow and past president of the American College of Physicians and the American Therapeutic Society; member and past president of the American Gastro-Enterological Association; formerly secretary general of the American Congress on Internal Medicine, and past president of the American Society of Tropical Medicine. He was formerly physician in chief and head of the department of medicine at St. Elizabeth's Hospital, attending physician at the Henrotin Hospital, chief of clinic in digestive diseases at the Municipal Tuberculosis Sanitarium and consulting physician to the Chicago, Milwaukee, St. Paul and Pacific Railroad. During the World War he was consultant in medicine in the U. S. Public Health and Marine Hospital Service, Port of Chicago; secretary and consulting internist, Medical Advisory Board 3B, Chicago, and member of the Illinois State Board of Advisers in Administration of Draft. In 1930 he was appointed a foreign member of the Société médicale des hôpitaux de Paris and in 1933 was awarded the cross of the French Legion of Honor. Dr. Smithies was the author of "Cancer of the Stomach" and of numerous articles and was editor in chief of the *American Journal of Digestive Diseases and Nutrition* and on the advisory board of the *American Journal of Tropical Medicine*.

**John Francis Hagerty** ☉ Newark, N. J.; University of the City of New York Medical Department, 1892; member of the House of Delegates of the American Medical Association in 1926 and 1927 and from 1930 to 1936; past president of the Medical Society of New Jersey and the Essex County Medical Society; fellow of the American College of Surgeons; served during the World War; for many years medical director and attending surgeon to St. Michael's Hospital; attending surgeon to the Hospital and Home for Crippled Children; consulting surgeon to St. Peter's General Hospital, New Brunswick, St. Vincent's Hospital, Montclair, Presbyterian Hospital, Newark, and St. Mary's Hospital, Orange; in 1930 was awarded an honorary doctor of laws from Seton College, South Orange; was president of the High Point Park Commission, 1925-1936; aged 67; died, February 1, of pneumonia.

**Anexamander M. Hayden** ☉ Evansville, Ind.; Starling Medical College, Columbus, Ohio, 1875; member of the House of Delegates of the American Medical Association, 1906 and 1908; past president of the Ohio Valley Medical Association and the Vanderburgh County Medical Society, and vice president of the Indiana State Medical Association; fellow of the American College of Surgeons; member of the Medical Service Corps during the World War; for eight years president of the city board of health; for many years chief of staff of St. Mary's Hospital; formerly owner of a hospital bearing his name; aged 84; died, February 9, in the Methodist Hospital, Indianapolis, of arteriosclerosis.

**Arthur George Bennett** ☉ Buffalo; University of Buffalo School of Medicine, 1891; member of the House of Delegates of the American Medical Association in 1926; professor of ophthalmology, emeritus, at his alma mater; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; consulting ophthalmologist to the Children's, Deaconess, Lafayette General, Buffalo General and Columbus hospitals, Buffalo, and the J. N. Adam Memorial Hospital, Perrysburg; on the staff of the Craig Colony, Sonyea; aged 75; died, Dec. 28, 1936, of carcinoma of the lung.

**Orville O. Witherbee** ☉ Los Angeles; Northwestern University Medical School, Chicago, 1893; a founder and fellow of the American College of Surgeons; past president of the Los Angeles County Medical Society and the Los Angeles Clinical and Pathological Society; formerly professor of surgery and clinical surgery at the Medical Department of the University of Southern California; on the staff of the Los Angeles County Hospital; aged 72; died, Dec. 24, 1936.

**Rollin Otis Crosier**, Johnson City, N. Y.; University of Buffalo School of Medicine, 1900; member of the Medical Society of the State of New York and the Associated Anesthetists of the United States and Canada; health officer of Johnson City and school physician; on the staff of the Charles S. Wilson Memorial Hospital; aged 59; died, Dec. 17, 1936, of cerebral hemorrhage.

**Alfred H. Easterling**, Athens, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1897; member of the State Medical Association of Texas; president and formerly secretary of the Henderson County Medical Society; for many years member and secretary of the school board; formerly county health officer; aged 71; died, Dec. 29, 1936, of pneumonia.

**Walker Bourne Gossett**, Lexington, Ky.; Louisville Medical College, 1896; member of the Kentucky State Medical Association; at one time instructor in obstetrics at his alma mater; formerly on the staff of the Western State Hospital, Hopkinsville; aged 63; on the staff of the Eastern State Hospital, where he died, Dec. 27, 1936, of coronary occlusion.

**George Allen Grinde** ☉ Cumberland, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; founder of the Island City Hospital, now known as the Cumberland Hospital, of which he was part owner and one of the physicians in charge; aged 56; died, Dec. 13, 1936, of chronic nephritis and hypertension.

**George H. T. Sparling**, Grand Coulee, Wash.; University of Oregon Medical School, Portland, 1890; member of the Washington State Medical Association; at one time coroner and health officer of King County; formerly health officer of Clark County; health officer of Grand Coulee dam; aged 67; died, Dec. 26, 1936, of pneumonia.

**Caroline Sandford Finley** ☉ New York; Cornell University Medical College, New York, 1901; was decorated by both the French and British governments for bravery during the World War; served the New York Infirmary for Women and Children in various capacities; aged 61; died, Dec. 28, 1936, of heart disease.

**William Waddell Skinner** ☉ Geneva, N. Y.; University of Buffalo School of Medicine, 1887; past president of the Ontario County Medical Society; on the staffs of the Willard (N. Y.) State Hospital and the Geneva General Hospital; aged 76; died, Dec. 28, 1936, of cerebral thrombosis and acute suppurative otitis media.

**Charles David Weaver** ☉ Twin Falls, Idaho; Colorado School of Medicine, Boulder, 1897; president of the South Side Medical Society; city and county health officer; served during the World War; on the staff of the Twin Falls County General Hospital; aged 68; died, Dec. 22, 1936, of a streptococcal infection.

**Ralph Douglas Porch**, Sylacauga, Ala.; University of Louisville (Ky.) Medical Department, 1907; member of the Medical Association of Alabama; formerly secretary of the Talladega County Medical Society; on the staff of the Sylacauga Infirmary; aged 53; died, Dec. 27, 1936, at a hospital in Chicago.

**George Lewis Wetzel**, Union Mills, Md.; Southern Homoeopathic Medical College, Baltimore, 1906; member of the Medical and Chirurgical Faculty of Maryland; member of the county board of health and board of education; aged 50; died, Dec. 22, 1936, in the Hanover (Pa.) General Hospital, of cardiorenal disease.

**Jay Harvey Durkee**, Jacksonville, Fla.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; at one time secretary of the Fourth District of the Florida Board of Medical Examiners; for many years surgeon for the Southern Railway; aged 66; died, Dec. 29, 1936.

**Arthur Jacques Melchior Schneidenbach**, Leonia, N. J.; Maryland Medical College, Baltimore, 1901; veteran of the Spanish-American War; member of the board of health of New York City, 1905-1918; aged 60; on the staff of the Hackensack (N. J.) Hospital, where he died, Dec. 12, 1936, of acute ileus.

**Harry Clinton Crocker**, Providence, R. I.; Boston University School of Medicine, 1894; formerly member of the

Another possible source of the attack might lie in the sudden onset of an abnormal cardiac rhythm. A paroxysmal auricular tachycardia or fibrillation might produce a similar picture. As a rule, however, the arrhythmia can be definitely recognized if it persists or the symptoms rapidly disappear when the rhythm returns to normal.

Abnormal cardiac rhythm is not infrequently the sequel of coronary occlusion, so, all things considered, the diagnosis of coronary occlusion is the safest one to make in this instance.

#### OPHTHALMOPLAGIC MIGRAINE

*To the Editor:*—A strong, healthy man, now aged 23, has had three attacks of diplopia, the first when 15 years of age. The attacks all commence with a severe headache at the vertex, which lasts only a day or two, followed in twenty-four hours with diplopia, the muscle involved being always the right internal rectus, and there is no obvious squint. Diplopia in the first attack lasted eight weeks, in the second ten weeks, and in the present so far twelve weeks. His general health at present and in between the previous attacks has been perfect. There is no other abnormal neurologic change. The basal metabolic rate and the cerebrospinal fluid Wassermann reaction are negative. The fields of vision are normal and the skull roentgenogram is normal. Disseminated sclerosis seems to be ruled out by the headache. Can this be a leaking aneurysm? Please omit name.

M.D., England.

**ANSWER.**—The clinical description sounds like that of a true ophthalmoplegic migraine, a clinical entity that has been well known since 1877. There is the first stage of pain, which in this case is a vertex headache, followed immediately by the ocular paralysis of one branch of the third nerve. This phase may disappear in from one to six months or it may become permanent. Almost nothing has been added to our knowledge of the subject since the description that appeared on page 712 of "The Eye and the Nervous System," by Posey and Spiller.

#### BULIMIA—INSATIABLE APPETITE

*To the Editor:*—A white woman, aged 34, complains of insatiable hunger. This condition has existed for a period of two years. Prior to the onset of this condition, she had had an appendectomy and a right oophorectomy. Following this she first noticed constipation, and shortly afterward the insatiable hunger developed. This symptom became so pronounced at times that she has eaten as much as 6 quarts of cooked vegetables along with eighteen apples and thirty-eight graham crackers, in addition to cereal, bread and butter, milk and other food in one day. In January 1936, when I first saw her, there was no evidence of hyperthyroidism. The blood sugar was 89 mg. and the nonprotein nitrogen 35 mg. per hundred cubic centimeters, which ruled out a hyperinsulinism with a hypoglycemia. There were no intestinal parasites and not an excessive amount of undigested food in the stools. Gastric analysis showed a free hydrochloric acid of 72 per cent and total acidity 96 per cent. A barium sulfate meal showed no deformity of the stomach or duodenum. The stomach was of normal size and position and fairly normal tone and peristalsis. The colon was fairly normal. The transverse colon dipped down into the pelvis but the flexures are held up well in position. Other laboratory studies reveal a normal blood count, urinalysis negative and blood Wassermann reaction negative. Following a complete study the patient was placed on extract of belladonna one-sixth grain (0.01 Gm.) and a bland diet. Under this regimen she noted some improvement, but this continued for only about a month. In April 1936 the patient complained of marked constipation, tenesmus at stool and passing of large quantities of mucus. At this time attention was directed toward relieving the mucus by means of colonic irrigations. These have been continued over a period of four months. The mucus is relieved by the irrigations but the insatiable hunger persists. Attempt to control this by sedation and alkalis has been unsuccessful. I am at a loss to know what to attempt to do further for this patient and will be pleased to have any suggestions for future treatment. Please omit name.

M.D., Wisconsin.

**ANSWER.**—This patient obviously has what the Greeks called bulimia. A good review of the ancient literature on the subject can be found in an article by Baumann in *Janus* for September and October 1935. In making a diagnosis, one would want to know more of the mental status of the patient. Extreme forms of bulimia have been encountered in the psychopathic or the hysterical or the definitely insane. It would have been helpful to know if the patient is gaining rapidly in weight on the excessive intake of food. One would like to have one or more estimations of the basal metabolic rate, because bulimia is seen occasionally with an exophthalmic goiter so atypical as to be missed clinically. Perhaps the patient has a peculiar build or a male distribution of body hair or other signs of some disturbance in the functions of the ovary or of the pituitary gland. It is conceivable that some change in the pituitary gland secondary to the removal of the ovary has upset the hunger mechanism much as it appears to upset the thirst mechanism in diabetes insipidus. With the removal of the ovary was there much change in the menstruation suggesting a premature menopause? Because of the sequence of events, one would seek for the cause first in some disturbance in the

glands of internal secretion. In some cases of peptic ulcer with high acid such as this woman has, the patient is accused of eating too much when really her trouble is that she wants to eat every few hours. This woman's story is not that of ulcer. Diabetes has been ruled out and hyperinsulinism generally presents another type of syndrome. Further investigation for intestinal parasites should be made. The possible presence of protozoa, which are often extremely difficult to detect, should also be ruled out.

Certainly a story such as this is extremely uncommon and in making a diagnosis the physician can expect little help from the literature. One might try large doses of ovarian extract and as a long shot one might try the aminopyrine and solution of posterior pituitary that work such miracles in diabetes insipidus.

#### CODEINE ADDICTION—EFFECTS OF CODEINE ON MENTALITY

*To the Editor:*—1. Is codeine generally considered a habit-forming drug? 2. Would codeine over a period of one or two years in doses of 1 to 2 grains (from 0.0065 to 0.13 Gm.) given at bedtime for sleep in an old case of hypertension with a history of three attacks of hemiplegia be indicated or contraindicated, and would it in any way affect the mentality of such a patient (a woman, aged 78)? She had previously been given phenobarbital, but after a time that became ineffective and caused a so-called hangover the next day. The patient was under my continuous professional care for the past fifteen years and she recently died. The will, which was made about six months ago, is being contested, one of the points of those contesting the will being that codeine is a habit-forming drug, is contraindicated in hypertensive cases and so had affected her recovering, and the last will and testimony was influenced by it. Please omit name.

M.D., California.

**ANSWER.**—1. Codeine is less likely to produce habit than is morphine. Codeine addiction is rare and generally is easily broken.

2. It is not contraindicated. It has little or no effect on the heart or blood pressure. Its use may have been indicated in this case. The fact that it was effective for a year or more without increasing the dose speaks against habit—in the sense of morphine habit. We know of no acceptable evidence showing that codeine as used in this case influences mentality. It has been used habitually, from 0.065 to 0.2 Gm. (1 to 3 grains) each night for long periods, and its use discontinued with no more discomfort than follows the disuse of other sedatives such as the barbiturates.

#### HYPOPHYSECTOMY—FRÖHLICH'S SYNDROME

*To the Editor:*—A white boy, aged 12 years, has a definite Fröhlisch's syndrome. This diagnosis has been confirmed by several of the most eminent clinicians in this part of the country. There is no evidence of a pituitary tumor. I would appreciate any suggestions you might have to offer as to therapy in this case. Please specify the type of glandular extract indicated, the amount to be given at each dose, the time interval between doses and for approximately how long such therapy should be continued. I know that treatment for this disorder at the present time is not definite, but I feel that the patient at least deserves the benefit of a trial of some of the newer glandular preparations. Please omit name.

M.D., Tennessee.

**ANSWER.**—At the present time it is certain that Fröhlisch's syndrome is a hypopituitarism associated with a hypofunction of either the testicles or the ovaries. The following experimental regimen is suggested: 1. Prephynin (said to contain the follicle-stimulating principle of the pituitary gland) injected hypodermically three times a week in 1 or 2 cc. doses. 2. Thyroid, 0.03 Gm., from two to three times daily for three months. 3. Minute amounts of dried posterior pituitary powder used as a snuff. This may be used twice daily. The patient may quickly learn to regulate this dosage to the minimum necessary amount and frequency. The foregoing should be continued for at least ten to twelve weeks. In the meantime the patient should frequently be reexamined to determine the development of any definite changes such as loss in weight decrease in amount of urine, and increased basal metabolic rate. Each individual case requires a careful checking period to determine the exact amount of medication that is necessary to effect changes.

#### PAIN IN CHRONIC LEG ULCER

*To the Editor:*—What can you suggest to relieve persistent local pain in a small chronic varicose leg ulcer in a barber, aged 63, which is slowly healing under rest and topical local applications? Do not publish my name.

M.D., Pennsylvania.

**ANSWER.**—Intractable pain in a slowly healing chronic leg ulcer may be due to (1) deficient arterial circulation, (2) inflammatory exudate around the ulcer with indurated elevated margins, (3) topical application of various irritating substances, which often do more harm than good, and (4) neuroma forma-

is overweight, it is necessarily an indication of thyroid deficiency and that thyroid should be taken for reducing." The company is also directed "to cease asserting that all modern physicians use the reducing ingredient in Marmola in the treatment of obesity and that this method of treatment in all such cases is supported by the opinion of science and medicine the world over, or that this treatment is the remedy indicated in and best suited for the great multitude of cases or in the average case, or for all over-weight persons." The company is further ordered "to cease and desist representing that it makes a full and complete disclosure of the properties and effects of Marmola or its ingredients, unless and until it does in fact make such disclosure, including the following: That desiccated thyroid is a powerful and dangerous drug or product when used internally for reducing purposes . . . that cases of abnormal excess fat caused by deficiency of the secretion of the thyroid gland are rare and exceptional; that physicians prescribe and recommend the use of thyroid for treating obesity only in cases of actual deficiency of thyroid gland secretion; that in cases of excess fat not caused by thyroid deficiency, thyroid is not usually indicated as a proper treatment, and its use in such cases is apt to be and frequently is harmful to the user's health."

Medical and scientific opinion, on which the Federal Trade Commission based its conclusions, was to the effect that only a small proportion of cases of overweight result from thyroid deficiency; that in many cases Marmola cannot be safely used and, in any case, should be taken only on the advice of a physician.

In 1930 the Raladam Company of Detroit, under the claim "This prescription is based on 22 years of experience . . . prepared for us in a world-famous medical laboratory," published the following formula for Marmola:

1 grain	Extract Bladderwrack
1/2 grain	Extract Phytolacca
1/4 grain	Extract Cascara Sagrada P. 87 Spec.
1/2 grain	Desiccated Thyroid
1/4 grain	Phenolphthalein
16/1000 min.	Oleoresin Ginger
	Po. Saccharum special
3 grains	Calcium Carbonate Precipitated
1/24 min.	Methyl Salicylate
1/24 min.	Oil Anise
1/24 min.	Oil Sassafras
	Talc Brown
	Ivory Black
	Aqua for Extracts
	Po. Burnt Umber
	Red Oxide of Iron
	Syrupus Simplex
	Lubricating Solution
	Aqua for Granulating
	Liquid Petroleum colorless"

The "world-famous medical laboratory" was not identified. Imagination fails when attempting to visualize Marmola given another twenty-two years of experience. The present action of the Federal Trade Commission closes another interesting chapter in the Marmola story, but not necessarily the finale.

### KELPODINE TABLETS

#### Seaweed Tablet Exploiters Fined

The United States Department of Agriculture at Washington, in a release for Jan. 17, 1937, states that it has concluded its case and imposed fines against John Lee Clarke and William J. A. Bailey of New York, proprietors of the Lee Kelpodine Company, Inc., manufacturers of "Kelpodine Tablets." According to the report, which was entitled "Seaweed Tablets No Good in 30 Different Ways," the tablets "were made of compressed seaweed or kelp and were fraudulently offered for the treatment of 32 specific diseases and 'other conditions.'" The diseases and conditions for which Kelpodine Tablets were offered include many of the most stubborn disorders known to medicine. The report further states: "The complete list for which these fakers recommended their seaweed products is as follows: pyorrhea, headache, indigestion, tuberculosis, cancer of the liver, glandular trouble, nervousness, dental caries, underweight, anemia, constipation, general weakness, melancholia, digestive disturbances, asthma, rickets, bone diseases, chlorosis, eczema, stomach disorders, nervous breakdown, migraine, high blood pressure, stomach ulcers, hay fever, liver congestion, subnormal growth, mental exhaustion, neurasthenia, rheumatism, arthritis, obesity and other conditions."

The Lee Kelpodine Company, Inc., utilized in its pamphlets and form letters the health fad nonsense so popular at the present time with the itinerant "nutrition" lecturer: that mineral deficiency in the daily diet is the most serious problem in modern medical treatment. Little has appeared in scientific literature on the use of kelp in medicine, but kelp as a source of iodine has been known to chemists for a great many years. Kelpodine was found not admissible to "Accepted Dental Remedies" in February 1935 by the American Dental Association.

William J. A. Bailey formerly traded as the Bailey Radium Laboratories, East Orange, N. J., and exploited a dangerous radioactive preparation known as "Radithor," to which was attributed the death of a prominent citizen of Pittsburgh, Eben M. Byers. The death of Mr. Byers focused nation-wide attention on the dangers of Radithor and forced Bailey to cease marketing that product.

## Correspondence

### USE OF JOURNAL BY LUNCHEON STUDY CLUB

*To the Editor:*—Perhaps this might be of interest to THE JOURNAL: Our hospital staff formed a luncheon club. We meet the same day each week at 12:30. The club is known as the A. M. A. Club. Three of the most interesting articles of THE JOURNAL are chosen by the chairman of our club. One of these articles is given to each man to digest and present a summary of the article. He is given five or six minutes to do this. The chairman of the club also in a five or six minute talk gives a review of the principal articles of THE JOURNAL. The result of this has met with favor in that every man feels that he is missing a great deal when he neglects reading his copy of THE JOURNAL. Especially do the men whose duty it is to give a digest of the articles get a great deal from the subject discussed.

I just pass this on to THE JOURNAL as a suggestion for other hospital groups so that our mouthpiece, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, might be reviewed.

W. A. McMILLAN, M.D., Charleston, W. Va.

### FERROUS SULFATE FOR WORMS

*To the Editor:*—In view of the difficulty sometimes found in getting rid of *Trichuris trichiura* infestation, the following note may be of interest: I purchased a small sheep-dog pup from a famous kennel and was distressed to find a week later that he was infested not only with *Ascaris* and hookworm but also with whipworm. I treated him with a standard preparation of tetrachlorethylene and completely eliminated the *Ascaris* and hookworm but found no reduction in the quantity of whipworm eggs, which averaged 8 or 10 to a low power field in simple smear preparations. These eggs were invariably present on repeated examinations over several weeks. The dog suffered from severe colitis, passing mucus and blood in loose stools, and was obviously anemic. Having at hand samples of a well known preparation of coated tablets of ferrous sulfate 3 grains (0.2 Gm.), I gave the dog, which weighed 10 pounds (4.5 Kg.) one tablet daily for a fortnight, and finally two tablets one day. The following day he passed a mass of whipworms and since then, nearly two years ago, I have never found a whipworm egg in his stool. Subsequently I read, in Ashmont's *Kennel Diseases* (Boston, Little, Brown & Co., 1924, pp. 333-334), "A remedy for worms (*Ascaris*) which acts well as a rule with puppies, is the sulfate of iron. This is not only quite a potent vermifuge but an admirable tonic." I have had no subsequent opportunity to test the anthelmintic effect of ferrous sulfate, but as an iron tonic is frequently indicated in treating infested patients, it would seem worth trial and observation, by others.

MARY PUTNAM, M.D., Rye, N. Y.

to be loosened, and it has an all metal plunger, which should extend its usefulness over a long period of time. To use this device, it is held in the right hand and the locking collar is turned to the right until it is fully extended. Then it is filled with water by withdrawing the piston, and the frozen syringe is then placed as far as it will go into the rubber collar, after which the locking collar is turned tightly to the right. Pressure is then applied and the frozen plunger is loosened.

#### TREATMENT OF ANEURYSM

To the Editor:—I have a patient with an aneurysm of the arch of the aorta. It is quite obvious on his chest wall. I have explained to him that it is not amenable to surgical treatment. I will appreciate it if you will inform me if there is any recent surgical procedure which will benefit him.

PHILIP S. JOSEPH, M.D., Alice, Texas.

ANSWER.—No, there is no recent surgical treatment of value for aneurysm of the arch of the aorta.

#### HYPERPYREXIA IN TREATMENT OF SYPHILIS

To the Editor:—In Queries and Minor Notes in THE JOURNAL, January 9, M.D., California, writes of hyperpyrexia in the treatment of a case of syphilis resulting in the death of his patient.

From my experience in the treatment of a large series of cases with physically induced elevation of systemic temperature, and from the data contained in this communication, I feel that it is necessary to call attention to the following facts:

1. A mouth temperature of 106 F. is extremely dangerous because, while in the grand average of cases the systemic temperature as measured by rectal thermometer may be within 1 degree F. elevation beyond the mouth temperature, it not infrequently happens in an individual case that the rectal temperature may be as high as 2 degrees F. above that indicated in the mouth. Mouth temperatures must be taken very carefully because of the cooling effect of liquids ingested by the patient and because of the cooling effect of the air passing in and out of the respiratory tract. In other words, this patient's temperature may have been 108 F. or even higher by rectum. One-fourth grain (0.016 Gm.) of morphine sulfate was administered hypodermically after the patient's mouth temperature had been elevated to 106 F. There is no notation of temperature during the next thirty-five minutes. An increase in the temperature following the administration of morphine is usually observed unless steps are taken to increase heat loss or to diminish the amount of heat applied. It is also of interest to note that the pulse rate, which at 10:45, when the mouth temperature was 104.4 F., was 140 beats per minute, at 11:10, when the mouth temperature had risen to 106 F., diminished to 104 beats per minute.

2. In the narration of the management of the case, reference is made to the fact that a technician was left in charge of the case at these temperatures. The communication states that "stimulation was applied as much as a technician could apply." In my opinion it is imperative that a physician who is specially trained in the administration of physically induced temperature elevation be continuously present during treatment and until the temperature is permitted to recede to below 104 F. or, better still, to below 103 F. (rectal temperature). This is a major procedure wherein the development of changes leading to death may occur within a few minutes. This makes it necessary to observe the systemic temperature at frequent intervals—at least every ten minutes or, preferably, continuously by means of the special registering instrument available for the purpose. This instrument as well as clinical thermometers must be frequently checked because so much reliance is placed on the absolute fact of the temperature observed. The physician in attendance should also be prepared to administer emergency measures to forestall a fatal termination. It is hardly just to the technician to expect him or her to be possessed of all the necessary medical background as well as the exact information so as to be able to act in such emergencies. Certainly it does not appear to be just to the patient.

If patients are to continue to receive treatment such as that described and under the circumstances mentioned, one may reasonably expect an increasing number of deaths due to the exceedingly high temperatures employed rather than to any special peculiarities in the reactions of the patient. A therapeutic procedure that is showing much promise in the treatment of important diseases may well come to be thrown into the discard because of the lack of care used in its administration.

WILLIAM BIERMAN, M.D., New York.

#### HEIGHT-WEIGHT-AGE FORMULA

To the Editor:—Relative to the question asked by a New York physician in THE JOURNAL, January 16, page 227, regarding determination of normal weight when only age and height are known, I had a formula given me several years ago by an assistant medical director of an insurance company that for all practical purposes conforms to the usual "standard weight" tables issued by insurance companies. This formula is as follows: Multiply the number of inches above 5 feet by  $5\frac{1}{2}$  and add 110. This applies for adults from 18 or 20 to 35, and above 35 add 10 pounds. Thus for a person 25 years of age and 70 inches in height, 10 times  $5\frac{1}{2}$  plus 110 equals 165 pounds. Above 35 the addition of 10 pounds, 175. I found this formula to be of practical benefit in many insurance examinations during the time I was engaged in the practice of medicine, and while it is true that no "normal weight" is known, it will perhaps serve the inquirer for practical purposes.

MILTON THARP, M.D., Nashville, Tenn.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

- ALABAMA: Montgomery, June 29-July 1. Sec., Dr. J. N. Ed-  
519 Dexter Ave., Montgomery.
- ALASKA: Juneau, March 2. Sec., Dr. W. W. Council, Juneau.
- ARIZONA: Phoenix, April 6-7. Sec., Dr. J. H. Patterson, 826 Sec-  
Bldg., Phoenix.
- ARKANSAS: Medical (Regular). Little Rock, May 11-12. Sec. F.  
A. S. Buchanan, Prescott. Medical (Eclectic). Little Rock, May 1.  
Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.
- CALIFORNIA: Reciprocity. San Francisco, March 3. Sec., Dr. Charles  
B. Pinkham, 420 State Office Bldg., Sacramento.
- COLORADO: Denver, April 6. Sec., Dr. Harvey W. Snyder, 422 Sec-  
Office Bldg., Denver.
- CONNECTICUT: Hartford, March 9-10. Endorsement. Hartford, March  
23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.
- DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware.  
Dr. Joseph S. McDaniel, Dover.
- DISTRICT OF COLUMBIA: Basic Science. Washington, June 23-24  
(probable dates). Medical. Washington, July 12-13. Sec., Commis-  
on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washing-  
ton.
- FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett,  
Box 786, Tampa.
- IDAHO: Boise, April 6. Commissioner of Law Enforcement, H-  
J. L. Balderston, 205 State House, Boise.
- ILLINOIS: Chicago, April 6-8. Superintendent of Registration, Depar-  
ment of Registration and Education, Mr. Homer J. Byrd, Springfield.
- INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Regis-  
tration and Examination, Dr. William R. Davidson, 301 State House,  
Indianapolis.
- IOWA: Basic Science. Des Moines, April 13. Sec., Prof. Edward A.  
Benbrook, Iowa State College, Ames.
- KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, P.  
A. T. McCormack, 532 W. Main St., Louisville.
- MAINE: Portland, March 9-10. Sec., Board of Registration of Med-  
icine, Dr. Adam P. Leighton, 192 State St., Portland.
- MARYLAND: Medical (Regular). Baltimore, June 15-18. Sec., Dr.  
John T. O'Mara, 1215 Cathedral St., Baltimore. Medical (Homeopathy).  
Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.
- MASSACHUSETTS: Boston, March 9-11. Sec., Board of Registration in  
Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.
- MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Reg-  
istration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg.,  
Lansing.
- MINNESOTA: Basic Science. Minneapolis, April 6-7. Sec., Dr. J.  
Charnley McKinley, 126 Millard Hall, University of Minnesota, Minne-  
apolis. Medical. Minneapolis, April 20-22. Sec., Dr. Julian F. Du Boi,  
350 St. Peter St., St. Paul.
- MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr.  
R. N. Whitfield, Jackson.
- MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave.  
Helena.
- NEW HAMPSHIRE: Concord, March 11-12. Sec., Board of Registration  
in Medicine, Dr. Fred E. Clow, State House, Concord.
- NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire,  
28 W. State St., Trenton.
- NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward,  
Box 693, Santa Fe.
- NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1.  
Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 318  
Education Bldg., Albany.
- NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 173  
Professional Bldg., Raleigh.
- NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williams,  
4 1/2 S. 3d St., Grand Forks.
- OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr.,  
Frederick.
- OREGON: Basic Science. Portland, March 20. Sec., State Board of  
Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.  
Medical. Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selma  
Bldg., Portland.
- PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board  
of Medical Education and Licensure, Dr. James A. Newpher, Educat-  
Bldg., Harrisburg.
- PUERTO RICO: San Juan, March 2. Sec., Dr. O. Costa Mar-  
Box 536, San Juan.
- RHODE ISLAND: Providence, April 1-2. Chief, Division of Examin-  
Mr. Robert D. Wholey, 366 State Office Bldg., Providence.
- SOUTH DAKOTA: Rapid City, July 20-21. Dir., Division of Med-  
Licenses, Dr. B. A. Dyar, State Board of Health, Pierre.
- VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 2-  
Franklin Road, Roanoke.
- WEST VIRGINIA: Charleston, March 1. Sec., Public Health Comm-  
Dr. Arthur E. McClue, State Capitol, Charleston.
- WISCONSIN: Basic Science. Madison, April 3. Sec., Prof. Robert S.  
Bauer, 3414 W. Wisconsin Ave., Milwaukee. Medical. Milwaukee, June  
29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Mil-  
waukee.

#### NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special  
Boards were published in THE JOURNAL, February 13, page 532.

### Kansas December Report

Dr. C. H. Ewing, secretary, Kansas State Board of Medical  
Registration and Examination, reports the written examination  
held at Topeka, Dec. 8-9, 1936. The examination covered 100  
subjects and included 100 questions. An average of 75 per  
cent was required to pass. Six candidates were examined.



positive reaction to the skin test. The method involves the measuring of the phagocytic power of the polymorphonuclear leukocytes in an opsonocytaphagic system. The absence of marked phagocytic activity of the polymorphonuclear leukocytes in a patient with a positive skin test is believed to indicate active infection due to *Brucella* organisms and a lack of immunity. The presence of marked phagocytic activity would indicate either a developing or an established immunity. If marked phagocytic activity and a positive skin test are demonstrated in a patient with fever, it is likely that the fever is due to some disease other than brucellosis. Keller, Pharris and Gaub (*THE JOURNAL*, Oct. 24, 1936, p. 1369) have reported favorably on the practicability of the opsonocytaphagic test. In interpreting any of the tests for brucellosis, due regard must be given to the clinical symptomatology. If repeated agglutination tests are negative and if the intradermal test is negative, it is quite unlikely that the patient has or has had brucellosis.

*Brucella melitensis* vaccine (abortus, suis and melitensis variety), N. N. R. appears to exert a favorable influence in most cases of brucellosis. The vaccine is available through the usual trade sources. The vaccine may be used for the skin test by diluting 0.1 cc. of the vaccine with 0.4 cc. of sterile physiologic solution of sodium chloride. The intradermal test is made with 0.1 cc. of the diluted suspension, producing a wheal about 5 mm. in diameter. Dr. Lee Foshay of the Department of Bacteriology, University of Cincinnati, has developed an antiabortus serum, which is apparently effective during the first three months of the disease. I. F. Huddleson of Michigan State College, East Lansing, Mich., has utilized a bacteria-free broth filtrate of *Brucella* organisms, known as "brucellin," in the therapy of brucellosis, with apparently good results. Transfusions with blood from persons who have made a satisfactory recovery from brucellosis may be of benefit.

Prickman and Popp (*Proc. Staff Meet., Mayo Clin.* 11:506 [Aug. 5] 1936) have reported favorable responses in refractory cases of brucellosis to artificial fever therapy.

#### CHRONIC SINUSITIS

*To the Editor:*—I have under my care a patient with chronic sinusitis, affecting particularly the antrums, of five years' duration. The patient has had repeated irrigations, with temporary relief. Now the question arises as to what procedure holds the best possible chance of permanent relief. I am anxious to know definitely whether breaking down the medial walls of the antrum to make permanent drainage openings is a wise procedure in this case, whether continued irrigations through a small opening only when absolutely necessary is better, or whether these sinuses should be left alone entirely. Please do not mention name.

M.D., New York.

*ANSWER:*—The treatment of chronic sinusitis is influenced by several factors. If the acute exacerbations are not increasing in frequency or severity, if severe headaches are not present, and the patient is in no great distress or incapacitated when he has an acute attack, it is often difficult to decide whether any operative procedure is indicated. If, on the other hand, symptoms and signs become more distressing, more frequent or even continuous, some operative procedure is needed. When it is the maxillary sinuses that are especially involved, the possibility of a dental origin of the infection must always be considered. It is advisable to have x-ray films made especially of the upper bicuspids and molars. It is the first and second molars and second bicuspids that lie in close proximity to the floor of the maxillary sinuses. A roentgenogram of the sinuses then would likewise be indicated in order to determine to what extent changes have occurred in the sinus, mucosa or bone. If there is suspicion of the presence of polypi, injection of some radiopaque substance should be done, and x-ray films made to see if there are any filling defects. If there are marked changes in the sinus mucosa and especially if polypoidal formation is present, irrigations of the sinuses will give only temporary relief or none at all. If considerable pus is present but no polyps, one of several operations may be performed, such as making a large opening into the antrum by way of the inferior meatus. This procedure followed by a number of irrigations may suffice. As a rule, if polypi are present irrigations are of no avail, and it is necessary to perform a radical operation. Perhaps the most commonly employed is the Luc-Caldwell. Here the antrum is entered through the canine fossa, a large opening made so that the whole antrum may be inspected, any polyp or diseased mucous membrane removed, and a large counter opening made into the nose by way of the inferior meatus either with or without formation of a flap of the mucous membrane. The buccal mucosa is closed with sutures after the antrum has been packed with gauze of one type or another,

removable through the nose. Some operators insert large rubber tubing instead of gauze. The more radical Denker operation may be employed when the pathologic changes in the antrum are more extensive.

#### TREATMENT OF EDEMA IN CIRRHOSIS OF LIVER

*To the Editor:*—I have a case of cirrhosis of the liver with general anasarca and ascites. The patient is an alcoholic addict. Tapping, April 1, recovered a gallon of clear yellow fluid which on standing twenty-four hours assumed a greenish tinge (probably bile). May 8, tapping recovered 2 gallons of the same fluid. May 27, tapping recovered 2 gallons. The urine, May 22, contained 0.27 per cent of albumin, hyaline casts, a few red blood cells and a few white blood cells. The specific gravity was 1.025. Bile was present occasionally. His elimination is about 1 quart of urine a day and five bowel movements (small in amount). There is little or no perspiration. The blood chemistry is nearly normal except for a slight increase of blood sugar. About five years ago he had glycosuria and all the symptoms of diabetes. This cleared up by keeping his rum away from him. I concluded that his glycosuria was a toxic condition from alcohol. He also has a myocarditis as shown by dyspnea, irregular feeble pulse and considerable drop in blood pressure since I treated him. He has been incapacitated for work since January 8. I tap him only when pressure symptoms cause increased dyspnea. I should like to reduce the general edema of his skin. Diuretics, so far as I can see, keep his kidneys working but do not reduce the general edema. In view of the almost normal kidney function (as shown by blood chemistry) I have not restricted his diet very much, as attempts along this line have caused delirium and extreme weakness. Hot packs weaken him too much. In view of all this, would you suggest the use of salyrgan? I am a bit afraid to use it because of the heavy albumin. I did try half an ampule and he passed very little urine in twenty-four hours. Now with a little less albumin than formerly would you use the mercurials to promote diuresis? I am afraid of them in this case. How about you? How would you attempt to reduce the edema? Of course he had a few running sores where edema has been too much for his skin. Are any of the master clinicians using Southey tubes for the massive edema in these cases? I have never seen one used in my experience.

HENRY E. B. MEYER, M.D., Brooklyn.

*ANSWER:*—On theoretical consideration, the mercurial diuretics are used guardedly when there is a suspicion of renal damage. Actually they are used with excellent results in many cases of severe renal disease. In this case there seems to be no contraindication to the use of these agents. It has been found that the acid-base salts for three or four days preceding the mercurials greatly enhance their effect. Ammonium nitrate or ammonium chloride, in doses of from 6 to 8 Gm. a day, are recommended. A brisk saline purge on the second day following the mercurial is believed to reduce the possibility of mercurial enteritis. The use of Southey tubes or incision of the skin has been largely abandoned. The removal of edema in this case is certainly to be desired and it is possible that the abdominal taps may be less frequently required. If the mercurial diuretic fails to produce the desired result it is not wise to repeat it until an interval of one or two weeks has passed by. With the majority of mercurials that are on the market, a dose of 2 cc. is considered the optimum.

#### TREATMENT OF AZOOSPERMIA

*To the Editor:*—For the past three months I have been treating a man of 41 for premature ejaculation and aspermia (proved on two tests). My therapy consisted of antuitrin-S injections (1.5 cc. three times a week) and later a preparation called Androstine (Ciba). The patient has a small penis and small testicles and has been suffering from grand mal attacks since the age of 18. Aside from the foregoing he is absolutely negative to physical examination and history. He becomes easily aroused sexually and ejaculates even while dancing with a female partner. Could you advise further investigation or methods of therapy? Are there any new forms of male sex hormone available? Please omit name.

M.D., New York.

*ANSWER:*—The inquirer probably means azoospermia, as aspermia means no ejaculation at all during coitus and therefore it is impossible to have both aspermia and premature ejaculation. The most frequent cause for premature ejaculation is excessive ungratified sexual excitement, such as spooning, indulged in either before marriage or thereafter. In these cases the prostate and prostatic urethra are so congested that the reflex act of ejaculation takes place with the beginning of coitus. This condition can be verified only by examining the prostate by rectum and the prostatic urethra by cysto-urethroscopy. The treatment is sexual rest and getting rid of the local congestions by prostatic massage and instillations of weak silver nitrate solutions (from 1:3,000 to 1:500) into the prostatic urethra with the Bangs sound syringe. Generally seven or eight such treatments get the parts normal. Some patients are well as soon as the local congestions are removed, and some, especially if the condition has lasted a long while, need



If neither form of treatment produces improvement, the patient should be reassured that after all the condition is more damaging to the ego than it is damaging to health and that bathing in private is still practiced by a few more sensitive individuals. The normality of the genitalia and "sexual urge" should more than compensate for abnormal fat deposits.

#### ANGIONEUROTIC EDEMA AFTER SEXUAL INTERCOURSE

*To the Editor:*—A married man, aged 40, has noticed in the past year that, following intercourse, a moderate, symmetrical swelling of both hands appears. This swelling is noninflammatory, pits on pressure and is not painful. It persists from five to seven days. Edema is absent in other dependent parts of the body. Points in his past history include a gonorrheal infection ten years ago, more recently a peptic ulcer, which responded well to treatment, and occasional exacerbations of a chronic sinus infection. It seemed to me at first that this was evidence of cardiac insufficiency, though physical examination of the heart did not support this contention. Moreover, the edema persisted in spite of complete digitalization. There are no significant phenomena manifest in the head and neck. The blood pressure is 118 systolic, 72 diastolic, the lungs are clear, and the abdomen, external genitalia, prostate, other extremities, skin and reflexes are normal. The urine is normal, the hemoglobin is 96 per cent, erythrocytes are 4,900,000, leukocytes number 7,200, the differential count is normal, and the Wassermann and Kahn reactions are negative. Please omit name if published. M.D., Ohio.

**ANSWER.**—The brief history given suggests the possibility of angioneurotic edema as a cause for the swellings. No mention is made as to whether the penis is involved in these swellings. The treatment consists in a search for the causes of the condition. The many factors to be considered are:

1. Emotional disturbances may be either a primary cause of angioneurotic edema or may act as a predisposing cause in the presence of other etiologic factors.

2. Autosensitization to semen has been reported by W. L. Cooper (*J. Pediat.* 7:179 [Aug.] 1935). Such sensitization seems improbable in spite of this one report.

3. Asthma and dermatitis occurring during intercourse or apparently related to it have been traced by Vaughan and Fawkes (*THE JOURNAL*, Sept. 21, 1935, p. 955), to specific sensitization to such substances as orris root, silk, rubber and contraceptives. Rattner and Pusey (*THE JOURNAL*, Dec. 3, 1934, p. 1934), reported an interesting case of dermatitis due to perfume. A search of such contact possibilities that may occur during cohabitation (flaxseed in hair setting materials, perfumes), which may be used by either person, may prove helpful. In the Vaughan and Fawkes article, physical allergy due to effort and heat during coitus is mentioned as a possible factor for the attack. This, however, may be ruled out if other forms of exertion fail to produce the swellings.

4. A focus of infection has been considered as a cause for angioneurotic edema. The history of a gonorrheal infection suggests the possibility of a chronic prostatitis. Examination for this possibility and suitable treatment, if present, should be one of the first steps to be made in this case.

#### OBSCUR PROSTATIC DISORDER

*To the Editor:*—This question has to do with a prostatic disorder of apparently confirmed tuberculous origin. The patient has frequency, urgency and nocturia, but no hemorrhage in the urine has been observed. There is a history of tuberculosis of the chest fifty years ago. He is now 78 years of age. His blood pressure is 140 systolic, 80 diastolic, temperature 98 F., pulse 76, respiration 18, weight 140 pounds (63.5 Kg.). His chest is negative on physical and x-ray examination. The prostate is slightly nodular and slightly enlarged, the middle lobe more so than the lateral lobes. X-ray examination of the pelvis shows no metastatic involvement. The prostatic smear is negative. What is the best supportive treatment he can be given? I have advised against surgery. The blood Wassermann and Kahn reactions are negative. M.D., Pennsylvania.

**ANSWER.**—Active tuberculosis of the prostate gland without tuberculosis elsewhere in the genito-urinary tract would be exceedingly rare. If the condition is tuberculous, the existence of coincident tuberculosis in the kidneys or bladder would be necessary to cause the symptoms described. There are many other lesions in the urinary tract that might cause similar symptoms, such as tumor or diverticulum in the bladder, and any of the various forms of pyelonephritis and cystitis. Nodular changes in the prostate gland with enlargement may accompany any form of prostatic disorder.

The correspondent does not state whether the patient has any residual urine in the bladder. The bladder is sometimes found to be obstructed without symptoms of urinary difficulty. If there is obstruction caused by the prostate gland it would probably be due to hyperplasia, with or without secondary infection, rather than to tuberculosis. Chronic prostatitis, with or without

stones, may be present even though the first prostatic smear is negative and may also cause the clinical data described. The possibility of carcinoma is not excluded, even though the roentgenograms show no evidence of metastasis. If cystoscopic examination reveals obstructing prostatic tissue, transurethral resection may be indicated.

In order to make an exact diagnosis it would be necessary to make a careful study of the urine, including gram stains, stains for the bacillus of tuberculosis and cultures of the urine, and possibly inoculation of guinea-pigs. In addition, cystoscopy as well as roentgenographic and urographic studies of the urinary tract are essential.

#### VENEREAL VEGETATIONS

*To the Editor:*—For the past ten weeks I have had under treatment a 20 year old youth with venereal vegetations. He is a delivery clerk for a grocery. His general health has always been good. The foreskin is not long or tight; in fact, the foreskin is shorter than the average. He has never had a gonococcal infection. Before he came to me, another physician had removed the vegetations several times with nitric acid, but they returned each time. I have repeatedly removed the growths with trichloroacetic acid and have used various dusting powders, principally thymol iodide. The vegetations come off nicely in a few days, without giving more than a trifle of discomfort, but in about ten days they return. This has occurred repeatedly; consequently the young man is much discouraged. Can you suggest any effective treatment? Kindly omit name and address. M.D., Kansas.

**ANSWER.**—These vegetations should be removed by fulguration with the high frequency current. Even though the foreskin is neither long nor tight, secretions from under it may be the cause of the recurrences. Circumcision may prevent further recurrence.

#### CORONARY OCCLUSION

*To the Editor:*—A white man, aged 64, was suddenly seized with an attack consisting of dyspnea, weakness, dizziness and extreme anxiety. He was cyanotic and had a weak, thready pulse extremely variable in volume. There was no pain in his chest, but he did express a sensation of tightness. He has mild untreated diabetes and the blood pressure is 220 systolic, 110 diastolic. He also states that he has had trouble a great deal from time to time with a cough of the hacking type, with an occasional production of thick mucus, which he attributes to chronic bronchitis. There is also a history of some degree of albuminuria. He is a heavy smoker, using from four to six cigars a day, with some additional pipe smoking. Previous to his attack his pulse rate was about 62 beats a minute. His heart is enlarged to the left about 4 cm. beyond the nipple line and there is a slight enlargement to the right. There are no murmurs, and the tones are those which would be expected in one with a hypertension. Examination of the chest reveals a few moist râles at the bases of both lungs. There is some pitting edema of the ankles. Treatment consisted of absolute rest in bed and morphine sulfate one-eighth grain (0.008 Gm.) every four hours for relief of dyspnea. During the first thirty-six hours no relief was noted. There was a drop in the blood pressure to 162/100, but the pulse remained weak and rapid. Partial coronary occlusion was suspected in spite of the absence of pain, but the patient stated that he had previous attacks of this type even several years earlier, which were diagnosed as asthmatic. He was given 3 minims (0.18 cc.) of epinephrine hydrochloride 1:1,000 the third day, but instead of being relieved he was seized with a sharp pain in the region of the right pectoralis muscle, and the dyspnea was greatly increased; in fact, the whole syndrome was greatly accentuated and remained so for about thirty minutes, when he was allowed to inhale amyl nitrite, with almost immediate relief from his suffering. Following this he was put on theophylline with ethylene diamine, 1/4 grains (0.08 Gm.) six times daily, and continued to improve until, five weeks later, he refused to remain in bed any longer, at which time he began to return to look after his business, spending a few hours each day at his office. While he is not quite as well as he was while in bed, he states that he feels much better than he had previous to his attack. Would a diagnosis of partial coronary occlusion seem logical? What else might cause the same syndrome? Please omit name. M.D., Minnesota.

**ANSWER.**—A diagnosis of coronary occlusion not only seems logical in this case but is the most likely condition that would produce this picture. The setting for a coronary occlusion is an excellent one. A diabetic patient with hypertensive heart disease and a mild cardiac insufficiency is an excellent subject for such an accident. The resulting pain is not always severe and the sensation of tightness in the chest is quite as good a diagnostic point as pain. All the other symptoms mentioned form an almost perfect picture of coronary occlusion. If, in addition to the symptoms mentioned, there could be added an elevation of temperature, an elevation of the leukocyte count and a pericardial friction rub, nothing would be lacking.

The reproduction of the syndrome after the administration of epinephrine is confirmatory evidence. This drug has been used as a diagnostic agent to produce attacks of angina pectoris. Its use in this way has been abandoned because of the danger connected with it.

**Nogle røntgenbiologiske Forsøg, med et transplantabelt Muscarcinom og et transplantabelt Muselymfosarkom som biologiske Objecter.** Af Mogens Thrane. (Mit deutscher Zusammenfassung). Paper. Pp. 118, with 9 illustrations. Copenhagen: NYT Nordisk Forlag: Arnold Busck, 1935.

This monograph represents experimental work done by the author for his doctor's degree. It is of special interest to cancer students and those physicians who use radiation as a method of treatment in cancer. The author uses mice and has confined his work to mouse carcinoma and mouse lymphosarcoma. He first attempted to determine the lethal dose in each tumor in vitro and in doing so established the fact that the lethal dose is the same whether a single massive treatment is given or whether the dosage is divided and protracted as in Coutard's technic. He then gives up to ten times the lethal dose to the tumor and finds that on implantation of the irradiated tumor it still has the power of growth after twenty-four and forty-eight hours. Experiments were then conducted on the possibility of increasing the resistance of the host toward new growths by total irradiation of the animal. The conclusions reached are to the effect that irradiation does not, in itself, lead to increase of resistance on the part of the host. The literature is reviewed and a long bibliography is attached. Interested students should consult the original. Since many are not familiar with Danish, a summary in German is attached.

**Health Facts for College Students: A Text-Book of Individual and Community Health.** By Maude Leo Etheredge, M.D., Dr.P.H., Professor of Hygiene and Medical Advisor for Women, University of Illinois. With a foreword by Ray Lyman Wilbur, M.D. Second edition. Cloth. Price, \$2. Pp. 365, with 61 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

This contains certain revisions and additions which represent distinctive improvements over the first edition, valuable though that was. The author has had extensive experience in the teaching of hygiene to women students of the University of Illinois and through this book is offering to students and other teachers of hygiene the advantage of her rich and successful experience in this work. She uses a style that makes for relatively easy reading and tends to hold the interest surprisingly well in a book which in general make up conforms to the traditional textbook. The subject of individual and community health is comprehensively—possibly too comprehensively—covered for a small book. The important points are presented without a confusing mass of detail; the hosts of "dos" and "don'ts" of hygiene which college students so strongly resent have been largely omitted. The information presented is scientifically sound. For the purpose for which it is intended, that is, the presentation of health facts to college students, this book can be well recommended.

**Otosclerosis: A Résumé of the Literature—1928-1935. Volume III.** Edited by Arthur B. Duel, M.D., and Edmund F. Fowler, M.D. Issued by the Central Bureau of Research of the American Otological Society, Inc. Cloth. Price, \$3.50. Pp. 180. Saint Louis, Missouri: Annals Publishing Company, 1936.

This volume, which represents the third in a series on otosclerosis, presents a review of the literature from 1928 to 1935 inclusive. The American Otological Society, through its Central Bureau of Research, has done remarkable work on the subject of otosclerosis. The first two volumes were even more extensive than the present one. This volume has the subjects divided into fifteen chapters, including those on heredity, embryology, regression, bone pathology, endocrinology, metabolism, psychology and treatment. In the second section there is an index of the literature according to authors and an annotated bibliography. The subject of otosclerosis is so complicated, the theories regarding its pathogenesis so numerous, and the matter of treatment so nearly nonexistent that any information is highly welcome. This publication represents great labor, is most authoritative, and should prove as important and instructive as the two preceding volumes.

**Straalogenetik og klinisk Røntgenvirksomhed.** Af L. Østergaard Christensen. Paper. Pp. 177, with 3 illustrations. Aalborg: Knud Engsløgs Boghandel, 1935.

Shortly after the introduction of x-rays into clinical practice, it was observed that the cells of reproduction were especially sensitive to irradiation. This has led some observers to feel that children born from cells damaged by irradiation would show various developmental defects. This is the problem that

the author has been working on experimentally. His work was done on white mice. They were subjected to small doses of x-rays up to doses of 800 roentgens, after it had been determined that the sterilization dose was 1,000 roentgens. Some of the animals were subjected to direct irradiation, while some had only scattered irradiation, such as obtains when the animal is in the treatment cubicle but is not in the radiation beam. The author was unable to demonstrate any gene or chromatin effects in his material, but he did find profound effects on growth and longevity of the offspring. As a result of his work he concludes by saying that certain rules and regulations are in order in clinical radiology: 1. Therapeutic doses should not be applied to the organs of reproduction unless one is sure that a permanent sterilization is produced. 2. Radiation associated with diagnostic processes in the neighborhood of the reproductive organs should be reduced to a minimum. 3. X-ray technicians should avoid direct and secondary irradiation as much as possible. This piece of work should be of special interest to radiologists and students of morphology.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Medical Practice Acts: Prescribing Over the Radio; Prejudice of Members of Board in Revocation Proceedings.**—A complaint was filed with the Kansas state medical board April 28, 1930, seeking the revocation of Dr. John R. Brinkley's license to practice medicine in that state. The complaint contained eleven specific charges of fraud, immorality and unprofessional conduct. One charge was that Brinkley performed a "compound operation" on patients for the purpose of curing impotence, high blood pressure, epilepsy, dementia praecox, and diseases of the prostate gland and kidneys, and that the operation was of no value to patients. Another charge was that Brinkley gave talks over the radio—

for the purpose of enticing patients to his hospital and to induce persons to purchase medicines; that he diagnoses and prescribes for patients over the radio; that he gives prescriptions by numbers which have to be filled by and purchased at certain drug stores, from which he obtains a commission; . . . that such diagnosing and prescribing by radio are necessarily inaccurate and dangerous, carrying too great a hazard of error in misinterpretation of symptoms, inaccuracy or patients' statements of the location and character of complaints, the risk of misunderstanding the respondent's directions and confusion of numbers given of prescriptions, and lacking entirely in the information to be gained by the usual ordinary routine physical and laboratory examination of the patients, without doing which respondent is grossly negligent.

Brinkley was given notice of the charges and a hearing was held July 15, 1930. The hearing, with some adjournments, lasted until September 16 and included a session at which Brinkley performed the "compound operation" in the presence of the board. On Sept. 17, 1930, the board revoked Brinkley's license and on Dec. 30, 1931, he instituted proceedings in the United States district court, district of Kansas, to set aside the revocation order on the ground that it invaded rights guaranteed to him by the federal constitution. The district court, after a long trial, dismissed the action, July 15, 1935, and Brinkley appealed to the United States circuit court of appeals, tenth circuit.

Does this record disclose, asked the court, no more than a conflict of opinion among reputable surgeons as to the technic of operative procedure or as to when it is indicated? Or does it disclose that Brinkley was using his license to perpetrate a cruel hoax on the public by exacting extravagant fees for a trivial and worthless operation? Did Brinkley endanger the health of his patients by seducing them into the belief that serious diseases could be cured by a surgical hocus-pocus? Whether it is the one or the other, the court said, is a question peculiarly for the decision of men skilled in anatomy. There is, observed the court, a great volume of evidence in the record to support the latter conclusion; and if such is the fact, the board would have been derelict if Brinkley's licen-

tion under the base or margins of the indurated area. If the arterial pulsations are palpable, if proper elevation and continuous hot boric acid dressings do not relieve the pain, a crushing of the posterior tibial and saphenous nerves can be done through a small incision, 5 or 6 inches above the ankle. Should the ulcer be above or around the external malleolus, the superficial and deep peroneal nerves can be crushed. This procedure requires a skilful surgeon with experience in such operations.

#### HABITUAL ASTHMATIC ATTACKS

*To the Editor:*—A patient of mine who is subject seasonally to hay fever and asthma during the grass season period (May and June) has this year had severe attacks of asthma, especially at night, necessitating the administration of 10 minims (0.6 cc.) of epinephrine hypodermically to obtain relief. I instructed the patient how to administer the drug hypodermically and informed her to use it only during the severe attacks at night. The patient informs me that she still gets attacks at night. Although she has no wheezing or noise in her chest she gets attacks of shortness of breath at about 3 a. m., which is relieved only by hypodermic administration of epinephrine. She is entirely free from attacks of shortness of breath in the daytime. She commenced to use the drug June 29 and is still continuing to use it once at night up to the present time. Is it possible that she developed the epinephrine habit? Is there such a susceptibility to the drug? Please advise me what I can do to break the habit of this patient from the epinephrine injections. Please omit name.

M.D., Pennsylvania.

**ANSWER.**—It is obvious that the patient has a habit, though it is probably not an epinephrine habit. It is reasonable to suppose that there is some unbalance of the autonomic nervous system, produced at that particular time by some physiologic process, possibly one taking place in the digestive system. It is probable that ephedrine taken by mouth the last thing at night might prevent this 3 a. m. occurrence. Owing to its insomnia-producing tendency, the ephedrine should be combined with phenobarbital, in the following prescription:

R Ephedrine sulfate ..... 0.30  
Phenobarbital ..... 0.60  
M. and div. into 10 capsules.

Label: One at bedtime and repeat once or twice if required.

The patient would then, of course, have to be weaned of the necessity of taking these capsules, which might be done possibly by progressive reduction of dosage in subsequent prescriptions. This should be easily possible if the cause for the allergic reaction has meantime been discovered and eliminated.

#### OSTEOMYELITIS OF STERNUM

*To the Editor:*—Late last February I did a whole thickness skin graft for a third degree burn over the upper part of the sternum on a young girl. This was only partially successful, as the upper part of the graft was lost as the result of infection. Two weeks ago she began to complain of pain and tenderness in this area. There is no fever nor is there any swelling about the area, which has been healed for nearly six months. I do not understand the reason for this pain and tenderness and can find nothing that covers this subject in the literature that is available. Could you give me any information as to the reason for this condition and what may be done to give relief from pain? Please omit name.

M.D., New York.

**ANSWER.**—It is difficult to give an explanation of the symptoms in this case from the facts as given. One would have to think of the possibility of a low grade osteomyelitis of the sternum. If the bone was uncovered as a result of the original injury, low grade infection might develop and go on to bone destruction even after a considerable interval of time and after the surface wound was healed. A stereoscopic x-ray examination would be of value.

#### TREATMENT OF UNDESCENDED TESTICLE

*To the Editor:*—What is the proper treatment for undescended testicle in a youth of 10 years? There is a fullness in the inguinal canal on the right side that is not present on the left. However, a definite testis is not palpable. The descended testicle and penis are smaller than normal. Is the medical treatment of this condition with the pituitary hormones effective? If so, which one would be most satisfactory? At what age should operation be considered?

LEO SCHWARTZ, M.D., New York.

**ANSWER.**—Operation, if performed by one experienced in surgery of this type, is the most certain procedure for obtaining a good result in a child of 10 years with undescended testicle. Treatment with gonadotropic extract of pregnancy urine should be given a trial and if the results are unsatisfactory, surgery can be resorted to. Two well known preparations for the medical treatment of undescended testes are antuitrin-S (Parke, Davis & Co.) and follutein (E. R. Squibb & Sons). The optimal time for operation is prior to puberty; however, it may be performed at a later date.

#### OXYGEN-CARBON DIOXIDE IN PNEUMONIA

*To the Editor:*—Is it permissible or advisable to use oxygen 95 per cent and carbon dioxide 5 per cent in an oxygen tent in cases of respiratory embarrassment? Would the use of this mixture through an oxygen tent over a period of time have a tendency to injure the patient? Also advise whether this oxygen-carbon dioxide mixture is suitable to use with a pulmotor in case of respiratory embarrassment.

M.D., Georgia.

**ANSWER.**—In the treatment of pneumonia a mixture of 95 per cent oxygen and 5 per cent carbon dioxide may be used for short periods. But for continuous use oxygen alone at flows sufficient to maintain an atmosphere of 50 or 60 per cent of oxygen in the tent is believed to be best. In this atmosphere the carbon dioxide from the patient's exhaled air may without harm, and even with advantage, be allowed to rise to 2 or 3 per cent. For purposes of resuscitation from asphyxia, drowning or electrical shock the mixture of oxygen and carbon dioxide should be administered by means of an inhalator. A mixture containing 7 or 8 per cent of carbon dioxide is more effective than one of only 5 per cent. Such mechanical devices as the pulmotor are unsound and unphysiologic.

#### SEROUS EXUDATE IN APPENDICITIS

*To the Editor:*—I have found twice during my experience of thirty-two years, while operating for appendicitis, free, almost colorless fluid in the abdomen, perhaps not exceeding a liter in amount. One patient was a girl, aged 12 years, and the other a woman, aged 25, both otherwise healthy. The appendix in each case was just slightly congested and a trifle swollen. One was free in the abdominal cavity and the other was adherent to the mesentery. I have no explanation for this condition and can hardly explain it on the basis of allergy. I would greatly appreciate your opinion.

G. L. GABLER, M.D., Holyoke, Mass.

**ANSWER.**—In view of the existence of acute appendicitis in both cases, the increased fluid in the peritoneal cavity most likely was a serous exudate from the inflammatory reaction in the peritoneal covering of the appendix and perhaps elsewhere.

#### GENEVA OPHTHALMOSCOPE AND RETINOSCOPE

*To the Editor:*—Please give me complete details on the Geneva ophthalmoscope and retinoscope, as to design and practicability.

R. N. MONFORT, M.D., Onaway, Mich.

**ANSWER.**—The Geneva ophthalmoscope and retinoscope was devised many years ago by Dr. E. J. Brown of Chicago and was manufactured by the Geneva Optical Company, which is now defunct. A complete description of the instrument can be found on pages 142-143 of the catalogue of the Geneva Optical Company that was published in August 1922. As an ophthalmoscope, the instrument left much to be desired for there was a great deal of spherical aberration and only the posterior pole of the eye could be examined. It lacked flexibility. The retinoscope phase of the instrument was rather complicated and unwieldy and lacked accuracy.

#### RELATION BETWEEN BLOOD AGGLUTINATION TEST IN TYPHOID AND MALTA FEVER

*To the Editor:*—I should like to know whether there is any relation in the blood agglutination tests between typhoid and Malta fever. I have had at least two patients who have had positive Malta blood agglutination and after four weeks of treatment with metaphen intravenously twice a week and nonspecific protein the tests have returned positive for typhoid. Please omit name.

M.D., Texas.

**ANSWER.**—So far as is known there is no immunologic or antigenic relation between the typhoid bacillus and Brucella abortus, the organism that causes Malta or undulant fever. It would be of interest to know the exact composition of the nonspecific protein used in the treatment of the patients; also whether the patients ever had typhoid or had been injected with typhoid vaccinc.

#### DEVICE FOR LOOSENING STUCK SYRINGES

*To the Editor:*—Will you please give me the name and description of any device that is available to use for loosening stuck syringes? Please omit name.

M.D., Illinois.

**ANSWER.**—In addition to the method described by Dr. J. B. Hopkins in his letter to the editor in THE JOURNAL, February 6, page 492, there is a device known as the Plung-Ejector, which is used to loosen stuck syringes. A new model of the Plung-Ejector having several improvements over the old model has only recently come on the market. The new model is made with a rubber collar which tightly clamps the tip of the syringe



after transfusion. My associates and I had all the time we needed, in which to search for agglutination and hemolysis, and to perform all the tests we knew about. We were not able to demonstrate any cross agglutination or hemolysis in some of these cases.

#### The Treatment of Undescended Testes

DRS. W. O. THOMPSON, A. D. BEVAN, N. J. HECKEL, E. R. MCCARTHY and PHEBE K. THOMPSON, Chicago: In contrast to the large proportion of successful results (70 per cent on the average) reported by various observers in the treatment of undescended testes with an anterior pituitary-like substance, we were able to produce descent in only about 20 per cent of the cases. In four of five cases showing descent, the testis could be pulled to the upper end of the scrotum or nearly to this level before treatment was started. In all successful cases descent occurred within one month, but stimulation of genital growth persisted much longer. In all patients treated surgically after prolonged administration of anterior pituitary-like substance, anatomic factors making descent difficult or impossible were present. However, the stimulation of genital growth produced by preoperative treatment with this material seemed to make surgical procedures less difficult. It would thus appear that, in the present state of our knowledge, operative procedures are necessary in most cases of undescended testes but should be preceded by from four to six months of treatment with anterior pituitary-like substance.

#### The Four-Lead Electrocardiogram in Coronary Occlusion

DR. ANNE S. BOHNING, Chicago: Two hundred consecutive cases with four lead electrocardiograms diagnostic of coronary occlusion were followed over a period of three years. Six hundred and fifty curves were analyzed in detail. The complete evolution of the four lead electrocardiogram in anterior and posterior infarction was demonstrated. Four lead electrocardiograms in thirty-five autopsies following coronary insufficiency, including twenty-five cases of coronary occlusion, were studied. The differences in the form of the electrocardiographic variations in the types of coronary insufficiency and infarction were analyzed. The striking ST variations associated with acute thrombosis are contrasted with the changes seen in the more slowly developing myocardial involvement produced by occluding sclerotic plaques.

#### DISCUSSION

DR. HAROLD FEIL, Cleveland: I should like to ask Dr. Bohning whether the electrocardiograms of patients who have been digitalized have not been difficult to differentiate from those of patients with recent infarction, especially when only one record has been taken.

DR. L. N. KATZ, Chicago: Several things should be emphasized about this study. The evidence is clear that one can differentiate between the classic electrocardiogram of thrombotic closure and the less typical electrocardiogram of the arteriosclerotic closure with its associated coronary sclerosis. The use of serial curves gives a fairly complete idea of the time course in coronary occlusion and also the rate of healing. The record before an attack may be normal or abnormal. Full recovery as revealed in the electrocardiogram may take a month or a year or two or may never occur, the patient showing a stabilized abnormal type of electrocardiogram for years. If these facts are borne in mind, some of the confusion in interpreting such electrocardiograms will be avoided and the usefulness of these records will be enhanced. The time has come it seems to me to establish a standard location for the fourth lead. There is too much confusion in this regard in the literature. Perhaps a committee should be appointed to investigate this matter. My associates and I have been placing the chest electrode in the fourth interspace just to the left of the sternum. This is over the area of solid dullness and is more apt than other localities to pick up the electric currents from silent areas of the heart. This site can easily be defined by any technician, intern or doctor, so that variations in serial records have more significance. The practice of placing the chest electrode over the apex of the heart, I believe, should be discarded, as this is a variable point as regards both the chest and the heart itself. If it is deemed essential to use a second spot besides

the parasternal one, the fourth interspace in the anterior axillary line may be employed. We have not found that this last site, or any other, is more informative than the one we generally used. The location of the distant electrode is not so important. We have found it most convenient to use the left leg electrode for this purpose.

DR. A. R. BARNES, Rochester, Minn.: The idea is put forth in the discussion that it is possible to detect by the electrocardiogram myocardial fibrosis produced by gradual coronary narrowing and by sclerotic plaques. I think that yet remains to be proved. In the first place, I see a great many patients who have advanced coronary disease, with partially occluding plaques and with extensive myocardial fibrosis, who do not have diagnostic changes in either the standard or the chest leads. If that case is complicated by hypertension there is very apt to be a negative T wave in lead I, with a low RST segment and a tendency to elevation of the ST segment in lead 3. To my mind that is the result of chronic left ventricular strain and is not a product of gradual occlusive disease. I know that this is a statement which will be challenged readily. I have had two or three experiences lately which seem to lend a little bit of evidence to support that idea. Certain patients with hypertension have been subjected to splanchnic resection, which resulted in a lowering of the blood pressure. Before operation these patients had a negative T wave in lead I and after operation the T waves came back to normal, indicating that the probabilities are that relief of the ventricular strain results in a restoration of the T waves to normal. I would emphasize that in hypertension there exists a variation of the ST segment which must not be confused with or taken to mean evidence of coronary disease. I agree with Dr. Katz that some standard point is needed at which to place the fourth lead. More should be known about it. The fourth lead is distorted by hypertension, acute pulmonary emphysema, congenital heart disease, pericarditis, bundle branch block and digitalis therapy. There are many facts that must be taken into consideration before concluding that the fourth lead is diagnostic of coronary disease.

DR. DREW LUTEN, St. Louis: Regarding the location of the chest lead, I agree with Dr. Katz and Dr. Barnes in their insistence on specificity. It would appear, however, that one should take pains to state the location of the lead rather than to insist on its being in a particular place. Dr. Goodman in our laboratory made many records of a single normal individual, placing the exploring electrode on various places on the chest wall. He then made a large drawing of the chest and pasted on it the electrocardiograms led off from the various places, so that at a glance one can compare the records made from different places. This comparison of records shows the importance of stating where one puts the chest electrode.

DR. ANNE S. BOHNING, Chicago: In answer to Dr. Feil, I may state that in all the cases it was known how much digitalis had been given before each electrocardiogram. It is not so difficult to differentiate digitalis changes in the T waves from true myocardial injury as is sometimes thought. My associates and I have a large group of serial electrocardiograms, and in most of these we can clearly differentiate digitalis changes. We do not use digitalis a great deal in our cases of coronary occlusion but somewhat more often in arteriosclerotic patients. In none of the cases shown was digitalis given in large amounts. As far as bundle branch block is concerned, it does obscure the electrocardiographic picture in cases of myocardial infarction. In a number of the autopsies there were septal infarctions but these cases did not show characteristic changes in the electrocardiograms. Seemingly, if the septal involvement is near the apex or lower third of the septum, it does not always appear in the electrocardiogram. When the septal infarction is extensive, it does complicate the electrocardiographic picture, but serial curves usually show ST and T changes between records which aid in diagnosis. There were many cases of hypertension, and most of them showed myocardial involvement at autopsy. I do not believe that hypertension itself has an effect on the electrocardiogram. Certainly the position of the heart in the chest will change the form of the electrocardiogram, especially the form of the QRS complex, and hypertensive cases usually show a left ventricular preponderance. We have carried out extensive studies in a large number of

of whom passed. Eleven physicians were licensed by reciprocity and 1 physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
College of Medical F. . . . .		(1936)	1
University of Illinois . . . . .		(1935)	1
University of Kansas . . . . .		(1936)	1
Tulane University of Louisiana School of Medicine . . . . .		(1935)	1
University of Oklahoma School of Medicine . . . . .		(1932)	1
University of Pennsylvania School of Medicine . . . . .		(1935)	1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School . . . . .		(1925), (1926) Illinois, (1930) Wisconsin	
Rush Medical College . . . . .		(1935)	Illinois
Louisiana State University Medical Center . . . . .		(1936)	Louisiana
St. Louis University School of Medicine . . . . .		(1934)	Missouri
University of Oklahoma School of Medicine . . . . .		(1923), (1934)	Oklahoma
Temple University School of Medicine . . . . .		(1918)	W. Virginia
University of Texas School of Medicine . . . . .		(1933)	Texas
University of Wisconsin Medical School . . . . .		(1930)	Missouri

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad.	of
Columbia Univ. College of Physicians and Surgeons . . . . .		(1933)	N.B.M.Ex.

Illinois October Examinations

Mr. Homer J. Byrd, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held in Chicago, Oct. 20-22, 1936. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Eighty candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
George Washington University School of Medicine . . . . .		(1936)	82
Chicago Medical School . . . . .		(1932)	82
80, 81, 82, 82, 82, 83, 84, 84, 84, 84, 85, 86, 86			
Loyola University School of Medicine . . . . .		(1933)	80,
(1935) 84, (1936) 85, 86			
Northwestern University Medical School . . . . .		(1935)	82,
(1936) 82, 83, 84, 84, 85,* 85, 85, 85, 85, 85, 86,*			
86, 89			
Rush Medical College . . . . .		(1934)	84,
85, (1936) 81, 84, 84, 84, 84, 85,* 85,* 85, 85, 85,			
86, 87			
School of Medicine of the Division of the Biological Sciences . . . . .		(1935)	85,
85, (1936) 83, 85, 85			
University of Illinois College of Medicine . . . . .		(1935)	85,
(1936) 82, 84, 85, 85, 86, 86, 86, 86, 88, 88, 89			
State University of Iowa College of Medicine . . . . .		(1932)	85
University of Louisville School of Medicine . . . . .		(1934)	87
University of Michigan Medical School . . . . .		(1932)	84,
(1935) 84, 85			
Columbia University College of Physicians and Surgeons . . . . .		(1928)	84
University of Oklahoma School of Medicine . . . . .		(1935)	85
Meharry Medical College . . . . .		(1935)	86
Vanderbilt University School of Medicine . . . . .		(1933)	79
University of Manitoba Faculty of Medicine . . . . .		(1925)	85
University of Toronto Faculty of Medicine . . . . .		(1934)	85
McGill University Faculty of Medicine . . . . .		(1934)	82
Deutsche Universitat Medizinische Fakultät, Prag . . . . .		(1935)	80†
Ludwig-Maximilians-Universitat Medizinische Fakultät, München . . . . .		(1920)	84†

Thirty-four physicians were successful in the practical examination held in Chicago, October 22, for reciprocity and endorsement applicants. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
George Washington University School of Medicine . . . . .		(1933)	Dist. Colum.
Northwestern University Medical School . . . . .		(1931) Wis., (1935)*	Colorado
State University of Iowa College of Medicine . . . . .		(1928)	Iowa
University of Louisville School of Medicine . . . . .		(1930)	Kentucky
Tulane University of Louisiana School of Medicine . . . . .		(1933)	Maryland,
(1935) Louisiana			
University of Michigan Medical School . . . . .		(1928)*	Michigan
University of Minnesota Med. School . . . . .		(1920), (1931), (1933)	Minnesota
St. Louis University School of Medicine . . . . .		(1935)	Missouri
Washington Univ. School of Medicine . . . . .		(1916)* (1935)	Missouri
University of Nebraska College of Medicine . . . . .		(1935, 2)	Nebraska
New York Homeopathic Medical College and Flower Hospital . . . . .		(1932)	California
University of Oklahoma School of Medicine . . . . .		(1932)	Oklahoma
Jefferson Medical College of Philadelphia . . . . .		(1917)	New Jersey
University of Pittsburgh School of Medicine . . . . .		(1929)	Penna.
University of Tennessee College of Medicine . . . . .		(1935)	Tennessee
Vanderbilt University School of Medicine . . . . .		(1932)	Louisiana

School	PASSED	Year Endorsement Grad.	of
George Washington University School of Medicine . . . . .		(1935)	N.B.M.Ex.
Howard University College of Medicine . . . . .		(1934)*	N.B.M.Ex.
Rush Medical College . . . . .		(1933)	N.B.M.Ex.
School of Medicine of the Division of the Biological Sciences . . . . .		(1934)	N.B.M.Ex.
University of Louisville School of Medicine . . . . .		(1934)*	N.B.M.Ex.
Harvard University Medical School . . . . .		(1930), (1931), (1934)	N.B.M.Ex.
University of Michigan Medical School . . . . .		(1933)	N.B.M.Ex.

University of Minnesota Medical School . . . . . (1934) N.B.M.Ex.  
University of Pennsylvania School of Medicine . . . . . (1934) N.B.M.Ex.  
University of Montreal Faculty of Medicine . . . . . (1934) N.B.M.Ex.  
\* License has not been issued.  
† Verification of graduation in process.

New York Endorsement Report

Mr. Herbert J. Hamilton, chief, Professional Examinations Bureau, reports 516 physicians licensed by endorsement from Jan. 1 through Nov. 18, 1936. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad.	of
University of Arkansas School of Medicine . . . . .		(1927)	Arkansas,
(1934) N. B. M. Ex.			
College of Medical Evangelists . . . . .		(1918), (1932)	California,
(1934) New Jersey, (1928), (1934), (1936) N. B. M. Ex.			
Stanford University School of Medicine . . . . .		(1936)	California
University of California Medical School . . . . .		(1925)	California
University of Colorado School of Medicine . . . . .		(1930)	California
Yale University School of Medicine . . . . .		(1908)	Maryland,
(1929), (1932), (1933, 5), (1934, 4), (1935) N.B.M.Ex.			
Georgetown University School of Medicine . . . . .		(1926), (1934, 2)	New Jersey,
(1934, 4), (1935) Maryland, (1935, 3) N. B. M. Ex.			
Howard Univ. College of Med. . . . .		(1929) Dist. Col., (1935)	Maryland,
(1934, 2), (1935, 2), (1936) Tennessee, (1935, 2) Virginia			
Emory University School of Medicine . . . . .		(1928)	Georgia,
(1933) N. B. M. Ex., (1934) New Jersey			
Loyola University School of Medicine . . . . .		(1932) Ohio, (1933) New Jersey,	
(1936) Maryland, (1936, 2) N. B. M. Ex.			
Northwestern University Medical School . . . . .		(1902)	Illinois,
(1925) Indiana, (1935) North Carolina			
Rush Medical College . . . . .		(1919), (1924) Illinois, (1929) Minnesota,	
(1932) California, (1934) Maryland, (1923), (1929),			
(1934), (1935), (1936) N. B. M. Ex.			
School of Medicine of the Division of the Biological Sciences . . . . .		(1935) N. B. M. Ex.	
University of Illinois College of Medicine . . . . .		(1918)	Illinois
Indiana University School of Medicine . . . . .		(1931), (1932, 2), (1934, 2), (1935) Indiana	
State University of Iowa College of Medicine (1923), (1925), (1930), (1933), (1935) Iowa			
University of Louisville School of Medicine . . . . .		(1933) N. B. M. Ex.	
Tulane University of Louisiana School of Medicine . . . . .		(1927) Puerto Rico,	
(1934) N. B. M. Ex., (1935) Indiana			
Medical School of Maine . . . . .		(1901)	Maine
College of Physicians and Surgeons of Baltimore . . . . .		(1911)	Maryland,
(1914) Puerto Rico			
Johns Hopkins University School of Medicine (1912), (1930, 2), (1932), (1933, 4), (1934, 2), (1935) Maryland, (1918), (1930), (1932), (1933, 3) N. B. M. Ex.			
University of Maryland School of Medicine and College of Physicians and Surgeons (1925), (1932), (1935, 2), (1936, 2) Maryland, (1935) New Jersey			
Boston University School of Medicine . . . . .		(1930)	Ohio,
(1934) New Jersey, (1934), (1935) N. B. M. Ex.			
Harvard University Medical School . . . . .		(1928)	Minnesota,
(1930) Massachusetts, (1933) New Jersey, (1927), (1929), (1930), (1931, 2), (1932, 3), (1933, 3), N. B. M. Ex.			
Tufts College Medical School (1930), (1931), (1932), (1934) N. B. M. Ex.			
University of Michigan Medical School . . . . .		(1929)	Michigan,
(1933) N. B. M. Ex.			
University of Minnesota Medical School . . . . .		(1930) N. B. M. Ex., (1935), (1936) Minnesota	
St. Louis University School of Medicine . . . . .		(1916)	Missouri,
(1935) N. B. M. Ex.			
Washington University School of Medicine . . . . .		(1914)	Missouri,
(1930) Illinois			
Creighton University School of Medicine . . . . .		(1934)	Iowa
University of Nebraska College of Medicine . . . . .		(1925)	Nebraska
Albany Medical College . . . . .		(1933), (1935, 3) N. B. M. Ex.	
Columbia University College of Physicians and Surgeons (1927), (1932, 3), (1933, 3), (1934, 4) N. B. M. Ex., (1933), (1934), (1935) New Jersey, (1935) Maryland			
Cornell University Medical College . . . . .		(1930) Ohio, (1930), (1931), (1932, 4), (1933, 6), (1934, 3) N. B. M. Ex.	
Long Island College of Med. . . . .		(1932) New Jersey, (1935, 2) N. B. M. Ex.	
New York Homoeopathic Medical College and Flower Hospital . . . . .		(1934, 2) N. B. M. Ex.	
New York University, University and Bellevue Hospital Medical College . . . . .		(1933), (1934, 2), (1935) N. B. M. Ex.	
Syracuse University College of . . . . .			B. M. Ex.
University of Buffalo School of . . . . .			B. M. Ex.
University of Rochester School . . . . .			Ohio,
(1932), (1933, 3), (1934, 4) N. B. M. Ex.			
Iowa, (1934, 2) New Jersey			
Duke University School of Medicine . . . . .		(1933), (1934, 4) N. B. M. Ex.	
Eclectic Medical College, Cincinnati . . . . .		(1935) New Jersey,	
(1926), (1935, 4), (1936, 7) Ohio			
Ohio State University College of Medicine (1926), (1930), (1931), (1933) Ohio			
University of Cincinnati College of Medicine . . . . .		(1935) N. B. M. Ex., (1933), (1934), (1936) Ohio	
Western Reserve Univ. School of Medicine (1921), (1931), (1933), (1934, 2), (1935) Ohio			
University of Oregon Medical School . . . . .		(1931)	Ohio
Hahnemann Med. College and Hospital of Philadelphia (1923) Maryland			California,
(1924) Penna., (1929) Ohio, (1935, 2), (1936, 3)			
Jefferson Medical College of Philadelphia . . . . .		(1925)	Penna.,
(1933) New Jersey, (1934) N. B. M. Ex.			
Medico-Chirurgical College of Philadelphia . . . . .		(1909), (1911)	Penna.,
(1916) New Jersey			
Temple University School of Medicine . . . . .		(1934)	New Jersey,
(1934), (1935) N. B. M. Ex.			

removed. I think, as Dr. Scott does, that it does not make much difference to which group these cases belong. Dr. Edwards' patient, reported in 1906, lived eighteen years with the auricular fibrillation. One of the points mentioned was the effect of digitalis preparatory to quinidine therapy. In some of these cases it takes prolonged use of quinidine to restore the normal mechanism. Quinidine tends to produce ventricular extrasystoles and to accelerate the heart rate. I am a warm advocate of the use of quinidine with digitalis.

DR. MOSES BARRON, Minneapolis: The use of quinidine in auricular fibrillation has interested me for many years. From my experience at the General Hospital in Minneapolis and from private practice I feel that the danger of producing emboli is exceedingly slight; indeed, in my opinion the proper use of quinidine tends to prevent the production of emboli. If it is remembered that the causes of thrombosis are (1) auricular fibrillation and (2) congestive heart failure, it will be realized that the continuation of fibrillation will predispose to thrombosis within the auricles which may later result in emboli. The reason digitalis is first given is to strengthen the heart's action and reduce the congestive heart failure. Quinidine is then administered to try to establish the normal rhythm and prevent the formation of thrombi if they are not already present. If a patient is watched for congestive heart failure for a long time and if the heart's action is not improved, quinidine should not be given. Dr. Katz is right in emphasizing that quinidine is not to be given in hopeless cases of congestive heart disease.

DR. S. A. WEISMAN, Minneapolis: In regard to Dr. Katz's question, Is there any difference between a slow fibrillating heart and one restored to normal rhythm? Recently Dr. Kerkhof of the University of Minnesota investigated this point in a series of twelve cases of mitral stenosis. The patients were first digitalized until the pulse rate was down to between 60 and 70. The minute volume was determined. Quinidine was then given and after the heart was restored to normal rhythm the cardiac output was again determined. In this group he found that the cardiac output increased about 30 per cent after the heart was restored to normal rhythm. Is quinidine dangerous in auricular fibrillation? I believe that it is more dangerous not to give quinidine in auricular fibrillation. As I said before, fibrillation slows the circulation. This is a predisposing factor to thrombus formation. In my experience I have not had any serious toxic effects or emboli that I could definitely attribute to the use of quinidine. Hochrein has used quinidine in very small doses in all cases of cardiac failure coming to his hospital since 1926. He believes that quinidine helps to prevent ventricular fibrillation, which is probably the cause of sudden cardiac deaths. He and his associates have found that since they have used 0.1 Gm. of quinidine as a routine in all cases of cardiac decompensation they have had fewer deaths from cardiac failure. I have not had much experience with flutter. As far as the effect of quinidine and digitalis is concerned there is no question that the two drugs work much better together. That was shown by the work of Weiss and Hatcher. They determined the amount of quinidine that was lethal for a cat and also the amount of digitalis that was lethal for a cat. They found that when they gave a combined lethal dose of digitalis and quinidine this combination did not kill the cat, showing that these drugs do not have a synergistic action on the heart. On the contrary, they have a favorable action. In regard to giving large doses of quinidine, I do not think that the concentration of the blood should be rapidly increased with the drug. So far as I am concerned, the small dose method is the one that is the least dangerous. By giving quinidine in large doses there is more danger of producing toxic symptoms.

#### Syncope of Patients with Hypersensitive Carotid Sinus Reflexes

DR. H. L. SMITH, Rochester, Minn.: I have studied fifty patients who came to the clinic complaining of dizziness and syncopal attacks, and in each instance I was able to reproduce these attacks of dizziness and fainting, and in some instances generalized convulsions, by making graded pressure on one or both of the carotid sinuses. Forty-eight of these patients were males and two were females. Stimulation of the carotid sinus, produced by making pressure over the carotid sinus, induced rather striking cardiovascular reactions, such as slowing of

the heart rate, varying periods of cardiac standstill (usually associated with marked fall in blood pressure but not always), and paling of the face followed by flushing. These reactions occurred in varying combinations. The most striking reaction was the long periods of cardiac standstill. It is believed that the cardiac arrest is probably attributable to a temporary suppression of the sinus, thus depriving the heart of its normal pacemaker. The major cerebral symptoms are apparently attributable to cerebral ischemia brought on by slowing and stopping of the heart. I do not believe that cardiac slowing and cardiac standstill explain the entire picture. I feel certain that there are other factors also present. In a few instances I was able to induce rather severe attacks and the cardiac rate slowed only a few beats per second, and in other cases rather long periods of cardiac standstill were produced which were not accompanied by unconscious attacks. In other words, in most instances there was a definite correlation between the cardiac standstill and the syncopal attack, but not in all instances.

#### DISCUSSION

DR. JUSTIN C. WILLIAMS, Chicago: I should like to ask Dr. Smith whether he has had any experience with a younger group of persons. I notice that most of his patients, as mine were, were in the older group. The significance of that has something to do with what I am going to say. Dr. Weiss of Boston has reported that these carotid sinuses are more hypersensitive in the arteriosclerotic group, in the hypertensive group and in those having coronary disease. I have just completed a series of 106 cases. I selected the patients because they were ambulatory and because they were suffering from convulsions. The idea was to find out how many in that group would respond to pressure on the carotid sinus. I found about ninety-six who did respond in various degrees with slight slowing of the heart, and yet some of them would go into convulsions. I started this series with the warning in mind which Dr. Herrick gave me some time ago, that pressure should not be prolonged too long on these carotid sinuses. As I went along I got a little bolder about it and discovered that the heart, although it does go into systole for a time, allows ventricular escapes even during pressure on the carotid sinus. Contrary to that is one individual, aged 63 years, who was examined several times, and each time the time of pressure was increased. There were no ventricular escapes during the time of pressure, which has been kept on for nine seconds, with systole for nine seconds. The pressure has been released and then the heart starts up again. I think this justifies the warning Dr. Herrick gave that if one is going to test these people one must be careful in not prolonging the pressure. Often a supposedly coronary death comes to the postmortem table and no evidence of pathologic change as far as the coronary arteries are concerned is found. These people supposedly die of angina pectoris. I am wondering whether these carotid sinuses have anything to do with that kind of death. I am starting to investigate a group of coronary cases now and shall have something to report later. It may be pertinent to give another story because it involves a group of young people. A group of high school age occasionally gathered for the evening. Some of them discovered that one, a young girl, could be thrown into a fit by pressing on her neck. Evidently somebody had located her carotid sinus, and she very willingly submitted to the entertainment for the evening. They kept it up so long that the girl finally got sick and was brought to the emergency service of the West Suburban Hospital. By the time I got there she had recovered. The interns who got the case had been working with me on this problem, and they gave the girl a lecture. The mother had been sent for and her reaction was also interesting; she thought probably it was a better form of amusement than going to taverns.

DR. S. A. WEISMAN, Minneapolis: I did some experiments on dogs to determine the effect on the reflexes of the carotid sinus by increasing the intracranial pressure. The results were published. During this work another experiment, which was not reported, was done to determine the fatigability of the carotid sinus reflex. The carotid sinus was pressed between the fingers every thirty seconds for several minutes. After five to six minutes the reflex action diminished, and after about fifteen minutes mechanical stimulation had no effect on it.

culties that may arise during or following certain operations. These are definitely the fruit of long experience and are particularly valuable. In the main, most of the technic described follows the standard procedures practiced in this country. However, here and there one notes a departure with which one may not agree. For instance, the type of laryngectomy he advocates, the external ethmoid operation and the tonsil and adenoid operation in children are technically not quite the same as those we have been doing. The text is brief, yet clear and straightforward, and includes sufficient data on diagnosis and indications to amplify its usefulness. The book may be considered a useful addition to any laryngologist's library.

**Pathological Physiology and Clinical Description of the Anemias.** By William Bosworth Castle, M.D., S.M., Associate Professor of Medicine, Harvard University, and George Richard Minot, M.D., S.D., F.R.C.P., Professor of Medicine, Harvard University. Edited by Henry A. Christian, A.M., M.D., LL.D., Hersey Professor of the Theory and Practice of Physic, Harvard University. [Reprinted from Oxford Loose-Leaf Medicine.] Cloth. Price, \$3. Pp. 205. New York: Oxford University Press, 1936.

Interest in the anemias, greatly stimulated by the discovery of the efficacy of liver in the treatment of pernicious anemia, has led in the past decade to many important investigations, both at the bedside and in the laboratory. Etiologic concepts in many instances have been modified or completely changed. The concept of a "conditioned" deficiency state in pernicious anemia is entirely new. In the field of therapeutics, liver therapy in pernicious anemia has been perfected and there is a better understanding of the use of iron in the treatment of hypochromic anemias. The researches of Drs. Castle and Minot on these and many related problems are universally known and authoritative, and these authors are unusually well qualified to present the material in a book of this kind. The work originally was written for Oxford Loose-Leaf Medicine and subsequently was published separately by the Oxford University Press in order that it might be made generally available.

The authors have drawn freely from their own experimental work, their wide clinical experience and the literature. In so doing they have collected a vast amount of material, much of which is of such recent origin that only workers in the same field or in closely related fields would be thoroughly acquainted with it. In the opening chapter of the book there is a brief review of the normal physiologic processes of formation and destruction of blood and their reflection in the peripheral blood. This is followed by a presentation of important diagnostic methods that should be utilized in studying cases of anemia. The anemias are dealt with in subsequent pages and are taken up in logical sequence. Their classification is based primarily on etiology. As suggested by the title of the book, emphasis is placed on the pathologic physiologic processes that are of fundamental importance in the causation of the various types of anemia, for it is obvious that such knowledge is requisite not only to a complete understanding of disease but to rational therapy. Because the book is written from the physiologic rather than the pathologic point of view, detailed morphologic descriptions of the cells of the blood and hematopoietic organs are not included.

Although it is difficult in a work of such general excellence to select subjects more thoroughly treated than others, attention should be called to the masterly presentation of the macrocytic anemias, a field in which there have been many important contributions in recent years. The authors stress the fact that the physiologic defect in erythropoiesis in the macrocytic types of anemia is concerned chiefly with cell production; in the hypochromic types of anemia, with hemoglobin formation. Of primary interest is the first group, in which insufficient red cell production has been shown to be attributable to nutritional deficiency of the bone marrow, a deficiency of substances essential for regeneration of red cells. This deficiency may be attributable to (1) failure of the gastric mucosa to secrete a substance, the antianemic principle or intrinsic factor of Castle, (2) defective diet (low in the extrinsic factor of Castle) and (3) disturbances in absorption from the intestinal tract or a combination of these factors. Various diseases in which macrocytic anemia may develop include addisonian pernicious anemia, sprue, pellagra, tropical macrocytic anemia of pregnancy, "pernicious (macrocytic) anemia of pregnancy" and certain pathologic conditions of the gastro-intestinal tract (gastric carcinoma, gastric polyps, chronic pyloric stenosis, intestinal stricture,

idiopathic steatorrhea, *Diphyllobothrium latum* anemia and so on). The macrocytic anemia of hepatic disease is discussed in the section dealing with idiopathic disturbances of the blood-forming organs, since its etiology is not as yet clearly understood.

In the concluding chapter there is a splendid presentation of modern knowledge of therapy; the discussion first is taken up from the standpoint of general methods of treatment and ends with a presentation of therapy in specific types of anemia. Appended is an extensive bibliography arranged according to subject.

This work, although not long, contains a wealth of information. It is clear, concise, and written in an easy, readable style. The publishers are to be commended for the type, the paper and the format, which are excellent. The book is to be highly recommended to students and practitioners of medicine.

**Aspectos de la sífilis congénita en nuestro medio.** Por los Doctores Julio Lorenzo y Deal, director del Hospital Pereyra Rossell, y Rito Etchelar, médico del dispensario No. 11 del servicio protección a la infancia. Publicaciones del Departamento científico de salud pública, Serie 2, núm. 17. Paper. Pp. 91. Montevideo, 1935.

This is an earnest and serious study of one of the most important and often neglected aspects of venereal diseases: congenital syphilis. In their respective capacities as director of a children's hospital and physician in a children's dispensary in one of the largest South American cities, the authors speak authoritatively on their chosen subject. Among 20,000 case reports from Montevideo hospitals, dispensaries and private practice, 200 cases of congenital syphilis were found; i. e., 1 per cent for the group as a whole, and 1.45 per cent for 3,242 infants. Another Uruguayan writer, Burghi, quoted much higher figures: 11.8 per cent among 1,231 infants; but Morquino gave only 0.26 per cent for 3,000 infants, Navarro 3.18 per cent, and Infantozzi's obstetric clinic shows 3 per cent among 7,822 births in the period 1929-1933, García San Martín's 2.44 per cent among 6,949 births in his clinic, Canzani 0.66 per cent among 300 births, and Pacheco 0.26 per cent among 2,650, the two latter being among private patients in the upper classes. During the last decade the symptoms of the disease seem to have decreased both in seriousness and in prevalence in Montevideo. Among serologic methods the Kahn test proved most sensitive, with 77 per cent positive results among clinical cases. Only three cases in twins were found in the series. This is an interesting report, filled with valuable data on an important public health and social problem, which must await solution until all agencies concerned, and especially society as a whole, extend their full cooperation to the medical profession and the health authorities.

**Keeping Your Child Normal: Suggestions for Parents, Teachers and Physicians: With a Critical Estimate of the Influence of Psychoanalysis.** By Bernard Sachs, M.D. Cloth. Price, \$1.50. Pp. 148. New York & London: Paul B. Hoeber, Inc., 1936.

This small book is a slightly expanded form of a similar publication by the same author issued in 1926. One or two new chapters have been added, giving valuable suggestions for parents and teachers with regard to the care of normal children, particularly those of school age. Much of the advice is sound, for the author has a broad insight into nervous and mental problems and also into the common pitfalls for the child with a normal mind. Occasionally Dr. Sachs is too dogmatic in his utterances. On page 28, for instance, he states that "stuttering is definitely curable at all ages and surely in early childhood." Not a few physicians and even some of the author's colleagues wish that this statement were true. The bulk of the book, however, is given over to Dr. Sachs's critical review of psychoanalysis, particularly with relation to the use of the analytic method in patients under 18 years of age. The author feels strongly not only that the method is an unprofitable one to pursue but that it offers definite dangers. Patients have been made worse by prolonged analysis, some of them permanently. Dr. Sachs brings out all the standard arguments against psychoanalysis in a clear-cut and logical manner. Occasionally, however, he oversteps the bounds of scientific discussion when he uses such terms as "satellites" and "disciples" of Freud. There is much sound advice here, but the whole field is still somewhat controversial and one should not consider that the last word on the subject has been said by this author.

blood pressure following pregnancy was greater than in a control series. The tendency to increased blood pressure was accentuated by advanced age, increase in parity, overweight and family history of cardiovascular-renal disease.

### The Peripheral Circulation in a Patient with Raynaud's Phenomena Before and After Cervical and Upper Dorsal Sympathetic Ganglionectomy and Ramisectomy

DRS. CARL A. JOHNSON and LOYAL DAVIS, Chicago: Studies were made on a married woman, aged 26, who presented moderately severe Raynaud's phenomena. Under uniform temperature conditions, observations were made in the fingers preoperatively and at various intervals postoperatively with regard to (1) skin temperatures, (2) blood pressures, (3) pulse, (4) body temperature and (5) peripheral pulse volume changes. In addition the effects of local heat and median nerve block were measured preoperatively and postoperatively. With these criteria as indexes of peripheral circulatory efficiency, the results indicated a return of the peripheral circulation to the preoperative level in sixteen days. The discussion covers similar results in other patients.

#### DISCUSSION

DR. GÉZA DE TAKÁTS, Chicago: These observations indicate that, following sympathectomy, vascular tonus is regained within sixteen days. This does not mean, however, that central or reflex stimuli of extrinsic or intrinsic origin can reach the blood vessels. The work of Carmichael in England, that of Richard Capps and my own observations show that the vessel which is sensitive to reflex stimulation by cold, pressure, pain and deep breathing is now uninfluenced by such reflexes and is put at comparative rest. Aside from this, another objective finding, which persists after operation, is the rise of oxygen saturation in the venous blood. The statement that peripheral circulation returns to the preoperative level in sixteen days must be modified to indicate that vascular tonus is regained; but the lasting vasomotor palsy institutes changes in circulation which favorably influence peripheral vascular disease.

DR. CARL A. JOHNSON, Chicago: In answer to a question as to whether the completeness of the sympathectomy was checked by loss of sweating, I wish to say that there was an absence of sweating in the operated arm as well as a Horner's syndrome of the eye of the operated side. With regard to the remarks of Dr. de Takáts, we merely wished to show by these experiments that the circulation as measured by the plethysmograph returns to the preoperative level in a comparatively short time. In this particular patient it was sixteen days, while in another patient it was twenty-one days. The vessels apparently regain their preoperative tone by mechanisms that are independent of the normal sympathetic vasoconstrictor tone.

### Origin of Symptoms of Neurocirculatory Asthenia

F. K. HICK, PH.D., W. A. CHRISTIAN, M.D., and P. W. SMITH, PH.D., Chicago: Neurocirculatory asthenia showed in thirteen cases an inadequate arterialization of blood leaving the lungs. This supports the opinion of Haldane that part of the symptoms of these patients are from anoxemia. It supports the explanation that irregularities in breathing are from oxygen want. These patients are not uncommonly diagnosed as having hyperthyroidism. If one is able to establish the presence of an oxygen want, cases presenting basal metabolic rates artificially elevated by inhalation of oxygen may be separated from those showing a true elevation.

#### DISCUSSION

DR. ROBERT W. KEETON, Chicago: Views have been changing with reference to these cases from time to time. This study represents an attempt to analyze the mechanism of the symptoms. From the paper it seems possible to attribute many of the symptoms to an oxygen want. When the patient is short of breath and uncomfortable he shows an oxygen want; when he feels well the oxygen want has disappeared. When the respiratory abnormalities appear there is oxygen want. When the patient breathes oxygen they are lessened. In short, there is a correlation between oxygen want and the patient's symptoms, including his respiratory irregularities. When one sees these patients make complete recoveries after a psychic or social

adjustment, one is led to believe that one is dealing with a profound alteration in the individual's physiologic behavior and that one disabling element in this alteration is an arterial oxygen deficit.

DR. J. A. GREENE, Iowa City: I have been interested in studying the expiratory volume of the chest in patients and have observed a few cases of neurocirculatory asthenia. The expiratory chest volume increases with any stimulation of the respiration, and in some instances expiratory inflation becomes extreme. Under these circumstances the patient is unable to deflate the lungs. The great expiratory volume of the lungs and the rapid shallow breathing do not permit adequate ventilation; therefore the oxygen that has been stored in the inflated lungs becomes depleted, and cyanosis develops. Expiratory inflation is a normal response to respiratory stimulation, but in these cases this mechanism is exaggerated. This exaggerated response is apparently the cause of the shortness of breath and is an important factor in their cyanosis. The dyspnea and air hunger encountered in patients with cardiac failure are apparently due to a different mechanism.

DR. FORD K. HICK, Chicago: I think what happens to these patients is that the ventilation increases.

### Early Effect of Total Thyroidectomy in Polycythemia Vera

DRS. LOUIS R. LIMARZI, ROBERT W. KEETON and LINDOS SEED, with the technical assistance of DRS. FORD K. HICK and M. H. STREICHER, Chicago: Studies have failed to clarify the etiology of polycythemia vera, and the methods of treatment have not produced a lasting success. Total thyroidectomy was performed in a case of primary polycythemia because of the anemia and decreased blood volume that is found in some cases of spontaneous myxedema. Studies performed at intervals extending over a year following the total thyroidectomy show a gradual and progressive decrease in the blood volume and hematocrit value, a marked fluctuation in the number of erythrocytes with a gradual drop toward normal, and a change of the blood from a state of oxygen want to one with a normal value. These values have not as yet reached a normal one. It remains to be seen whether the persistence of the myxedema will result in normal hematologic values.

#### DISCUSSION

DR. ROBERT W. KEETON, Chicago: In presenting these cases it is obvious that we are not offering a solution of the disease, but we believe that we have arrived at a most satisfactory method of control. The blood volume, the total circulating hemoglobin and the volume of packed cells have been reduced. The patients have lost many of their symptoms and are comfortable except for the pains due to their myxedema. They believe that they have received benefit from the operation.

DR. G. E. WAKERLIN, Louisville, Ky.: I have seen one patient with polycythemia vera who received x-ray therapy to the region of the pituitary with a subsequent fall in the red cell count to normal limits and symptomatic improvement lasting six months. A second set of treatments was followed by a similar drop. On the basis of the work presented it appears likely that the beneficial effect obtained was induced through a depression of the secretion of the thyrotropic hormone of the anterior pituitary. On the assumption that similar results could be obtained with the x-rays in other polycythemia vera patients, the question of irradiation of the pituitary region versus total thyroidectomy is raised. There are obviously certain disadvantages and advantages to both procedures.

DR. W. O. THOMPSON, Chicago: Total ablation of the thyroid is rather popular just now. From the point of view of pathologic physiology I should simply like to say that hyperthyroidism does not produce polycythemia. I cannot recall any case of hyperthyroidism in which polycythemia was present. Although anemia is present in myxedema, it usually does not clear up when sufficient thyroid is given to maintain the basal metabolism at normal for a long time. There would appear to be some other factor involved in the anemia than underfunction of the thyroid gland. While the results of the authors are interesting, I should therefore think that a lot of confirmative data should be collected before recommending total thyroidectomy in the treatment of polycythemia.



had not been revoked. It is true that the great advances in medical science have come about by the courage of pioneers, whose efforts often met with ridicule from their professional brethren. It is true that physicians even yet disagree. It is also true that charlatans masquerading as physicians defraud the public to their own enrichment by promising to cure cancer with innocuous ointments and thus endanger the lives of their patients by depriving them of sound medical advice. Between these two extremes there is a twilight zone where doubts might perplex. But unless it can be said, from the record, that there is no doubt that this is a mere disagreement among physicians, the finding of the board is not open to review. The legislature had properly committed the vital question of the fitness of those who administer to the sick to a skilled board of medical men and not to courts unlearned in the art. The proof here, the court said, amply supports the conclusion that the "compound operation" was not an honest effort to relieve suffering, but a scheme for Brinkley's unjust enrichment.

Through regular broadcasts, continued the court, Brinkley diagnosed almost every ailment to which the human flesh is heir. Sometimes he told his patients to consult a physician; much more often he prescribed remedies, by numbers, which could be obtained from drug stores throughout the Middle West, to whom he had furnished the prescriptions and from whom he received a part of the price of some of the prescriptions. These diagnoses were made without an examination of the patient, and on only such symptoms as the patient would give in a letter or telegram. One need not be skilled in medicine, the court said, to understand the grave dangers to human life involved in diagnosis and prescription on such sketchy facts as are obtainable from a letter or a telegram; nor of the danger to thousands of others listening in who apply such advice to their own self-diagnosed diseases. It is no answer to suggest that the prescriptions were harmless in themselves; to prescribe bread pills to a diabetic patient whom insulin might save is to trifle with human life. The trial court aptly said:

Those methods are not only in conflict with the ethics of the profession but are in my opinion in conflict with the best interests of the public, and that irrespective of the value of the operations performed by him at the hospital for the amelioration of the prostate gland or of the benefits to individuals urging prescriptions given through radio broadcasting, the possibilities of injury to the general public resulting from such methods are so apparent if such practice became general and usual that its mere statement is, I think, sufficient.

It was for men trained in medicine instead of the law to determine whether Brinkley's conduct constituted unprofessional conduct. The board of medical examiners determined that it did so constitute and there was, the court said, substantial evidence to support its finding.

The members of the board, Brinkley contended, were prejudiced against him before the hearing started, and some of them were active in instigating the complaint. Without detailing the evidence, the court said, it does appear that some of the members of the board had expressed such prejudice, and doubtless all were in fact prejudiced. The publicity used by Brinkley, in the opinion of the court, made public prejudice well-nigh inevitable. At any moment the program on the radio might change from cowboy songs to the diagnosis of disease and the extolling of the "compound operation." That the members of the board had radios in their homes constituted no constitutional disqualification. One of the issues of the case was whether the radio talks were in fact given and whether they violated professional standards of conduct. The members of the board having radios thus had personal knowledge of the facts alleged, and necessarily formed some opinion as to whether they were in conflict with professional standards. The medical practice act provided only one tribunal with power to revoke a physician's license. If such powers may not be exercised if the members of the board are prejudiced, then any physician who commits an offense, so grave that it shocks every right thinking person, has an irrevocable license to practice his profession if he can get the news of his offense to the board before the hearing begins. This will not do, the court said. The commendable efforts of the medical profession to raise its standards by cleaning its own house cannot be set at naught by any such rule of law. The trial court,

after patiently hearing the evidence as to the attitude of mind of the individual members of the board, disposed of the contention in this language:

Under the general terms of the statute, the Medical Board is empowered to protect the public against conduct which is clearly against public interests and therefore necessarily unprofessional, the same as if the legislature had specifically denounced and prohibits such practice. The members of the board were not disqualified because they knew of his methods prior to the hearing and condemned them. John R. Brinkley's methods were so notorious that ignorance of them by members of the board was an impossibility and such knowledge compelled condemnation.

With this holding, the circuit court of appeals expressed itself as in entire accord.

After reviewing the entire record, at length, the circuit court of appeals concluded that Brinkley's constitutional rights were not infringed. The judgment of the district court against Brinkley was therefore affirmed.—*Brinkley v. Hassig*, 83 F. (2d) 351.

## Society Proceedings

### COMING MEETINGS

- American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association of Anatomists, Toronto, Ont., March 25-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
- American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
- Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.
- Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.
- Pacific Coast Surgical Association, Seattle, Wash., and Victoria, B. C., Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.
- South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
- Southeastern Surgical Congress, Louisville, Ky., March 8-10. Dr. Benjamin T. Beasley, 478 Peachtree St. N.E., Atlanta, Ga., Secretary.

### CENTRAL SOCIETY FOR CLINICAL RESEARCH

Ninth Annual Meeting, Held in Chicago, Nov. 6 and 7, 1936

The President, Dr. FRED M. SMITH, Iowa City, in the Chair

(Concluded from page 590)

#### Clinical Study of Serious Complications from Blood Transfusion

DR. ELMER L. DEGOWIN, Iowa City: Ten serious complications occurred in 2,500 blood transfusions. There were six cases of transfusion anuria, two cases of hemoglobinuria without anuria, one with symptomless jaundice, one with amaurosis from retinal hemorrhages. The six cases of transfusion anuria merit special attention. Five patients died of uremia and one recovered. No incompatibility between donors' and recipients' bloods could be proved in four of the six cases. Recognized therapy such as intravenous saline solution, dextrose and alkalis, phlebotomy, irrigation of the renal pelvis, x-rays and diathermy over the kidney regions, and spinal anesthesia was ineffective. Decapsulation of the kidneys or transfusion of compatible blood was not attempted. The exact etiology and treatment of this condition are not yet well understood.

#### DISCUSSION

DR. J. M. HAYMAN JR., Cleveland: I should like to ask what the specific gravity of the urine was in these patients.

DR. MOSES BARRON, Minneapolis: Was all the blood cross agglutinated?

DR. ELMER L. DEGOWIN, Iowa City: As to the specific gravity of the urine passed, after renal insufficiency has developed it is generally low and there is either oliguria or complete anuria. The question was asked about the incidence of cross agglutination. After these transfusion reactions occurred these cases were all checked by two or three methods. The donors were available. These patients all lived ten days

chronic ulcerative colitis. This by itself cannot be considered adequate and conclusive proof of the relationship. Bacteriophagy, also employed by different investigators, has similar defects and cannot thus be considered satisfactory sole evidence of such a direct relationship. Thus far there have been too few studies carefully performed to permit one to evaluate the factor of dysentery infection in chronic ulcerative colitis. But from the available evidence it may be concluded that about 10 to 15 per cent of cases considered clinically to be idiopathic ulcerative colitis rightfully belong to the category of chronic bacillary dysentery. The residual still remain in the group of the etiologically unknown. The gross clinical features and course of chronic bacillary dysentery and of nonspecific ulcerative colitis resemble each other so closely that differentiation is impossible unless a case is traced to a known and proved epidemic—an unusual event. Similarly the sigmoidoscopic and roentgenologic features are so similar that they cannot serve as reliable methods of differentiation. And even on the necropsy table there are few if any features which serve as adequate criteria for purposes of differential diagnosis. Despite these close resemblances there are other features which make one suspect that the two conditions are not dependent on a common etiology. Thus, in contrast to the age distribution of bacillary dysentery, a preponderance of cases of nonspecific ulcerative colitis is found in the third and fourth decades with surprisingly few cases in infancy and early childhood. Another discrepancy is discovered in the sex incidence, in which it is found that the disease occurs about twice as often in women as in men. Furthermore, despite the widespread distribution of epidemic bacillary dysentery throughout the armies on all fronts during the World War, the preponderance of males is at present below the age of 40 and mainly in the third decade who did not see service overseas. In addition, chronic nonspecific ulcerative colitis is not as prevalent in central Europe as one would expect from the prevalence of acute epidemic bacillary dysentery during the late war. Finally, the well known lack of infectivity of nonspecific ulcerative colitis, for which no authority known to the author has ever claimed infective properties, must be contrasted with the equally well known infectivity of cases of chronic bacillary dysentery, as pointed out by Walko and Schürer and Wolff. It is his impression that, taking the ulcerative colitides as a group, there will be found definite etiologic agents responsible for a relatively small number and that the larger residual group consists of a heterogenic conglomeration of conditions with variable etiology.

**Vitamin Deficiency in Diets in Diabetes.**—Sindoni investigated the diets of eighty-five diabetic patients, who suffered also from disturbances involving the gastro-intestinal, genitourinary, gynecologic and cardiovascular systems as well as the visual field and oral, neurologic, skin, joints and endocrine glands. The patients were obese; 5.4 per cent suffered from gangrene and 3.5 per cent from malignancy. They were still ignorant of the true nature of their condition—a factor in the causation of increased diabetic complications and mortality. They were on restricted diets, but none adhered to their prescribed diets. Avitaminosis and hypovitaminosis were found in every one of the patients. These disturbances were not the result of one vitamin but of several, as amply evidenced by the patient's dietary history, symptoms and physical disturbances. Many physicians adjust insulin dosage to the carbohydrate allowance only, disregarding proteins, fats, vitamins and other elements of diet. There was a marked correlation in vitamin-deficiency diets to the rise in the incidence of diabetes, diabetic complications or concurrent diseases, but no correlation in overeating. These observations determined the author to correct the diet of these patients. He strongly advocates a more detailed study of the patient's diet history as well as of the symptomatology. The diabetic patient's diet should consist of natural foods, rich in the essential vitamins and other elements, since such diet will more often result in greater adherence by the patient to his instructions. The following advantages will be obtained: (1) better cooperation of patient with physician, (2) less complications, symptoms or physical disturbances, (3) less insulin, (4) better metabolic equilibrium, (5) better outlook on life, (6) prolongation of the span of usefulness, (7) greater resistance to infection, (8)

avoidance of avitaminosis and hypovitaminosis and (9) more energy. Diets consisting of a variety of natural foods, such as vegetables, fruits, milk and its products, meat and cereals in prescribed proportions, with hygienic measures, such as sunshine, fresh air and exercise, will result in little need to worry about vitamin deficiency in diabetes.

### American Journal of Public Health, New York

26: 1155-1252 (Dec.) 1936

- Progress in Maternal and Child Welfare Under Social Security Act. Martha M. Eliot, Washington, D. C.—p. 1155.  
Immunity to Virus Diseases. E. W. Goodpasture, Nashville, Tenn.—p. 1163.  
Epidemiology and Symptomatology of Staphylococcus Food Poisoning: Report of Recent Outbreaks. G. A. Denison, Birmingham, Ala.—p. 1168.  
Standardization of Typhoid and Paratyphoid Vaccines: I. Value of Gates Apparatus and Total Nitrogen Determinations. R. F. Fennel, L. H. Wetterlow and J. Cianciarulo, Boston.—p. 1176.  
Mental Hygiene in Public Health. W. T. B. Mitchell, Montreal.—p. 1185.  
Recent Advances in Control of Pneumonia. R. Cole, New York.—p. 1191.  
Recent Advances in Administrative Technics. H. F. Vaughan, Detroit.—p. 1198.  
Bacterial Limitations in Ground Fresh Meat. W. C. Elford, Portland, Ore.—p. 1204.  
Diagnostic and Immunologic Tests of Rabies in Mice. L. T. Webster, New York.—p. 1207.  
Bacteriologic Examination of Glassware or China for Sanitary Quality. C. R. Fellers, A. S. Levine and E. W. Harvey, Amherst, Mass.—p. 1211.  
International Standardization of Biologic Products by League of Nations. G. W. McCoy, Washington, D. C.—p. 1215.

### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

36: 719-1006 (Dec.) 1936. Partial Index

- Reliability of Roentgenographic Signs of Intracranial Tumor. M. C. Sosman, Boston.—p. 737.  
Healing of Linear Fractures of Skull. R. G. Vance, Boston.—p. 744.  
Cholesteatoma in Chronic Otitis Media. A. S. MacMillan, Boston.—p. 747.  
Chronic Pneumonia in Young Infants. S. S. Sanderson, Detroit.—p. 757.  
Multiple Tumors Within Spinal Canal: Diagnosis by Means of Lipiodol Injected into Subarachnoid Space (Myelography). J. D. Campbell, Rochester, Minn.—p. 775.  
\*Hodgkin's Disease and Allied Conditions of Bone. R. Dresser and J. Spencer, Boston.—p. 809.  
Osteopetrosis: Report of Eight Cases Occurring in Three Generations of One Family. C. N. McPeak, Fitchburg, Mass.—p. 816.  
\*Recurrent Idiopathic Spontaneous Pneumothorax. L. K. Sycamore, Hanover, N. H.—p. 844.  
Drugs as an Aid in Roentgen Examination of Gastro-Intestinal Tract: Use of Mecholyl, Physostigmine and Benzidine in Overcoming Atonicity, Sluggishness of Peristalsis and Spasm. M. Ritvo, Boston.—p. 868.  
Nonobstructing Malignant Tumors of Small Bowel: Report of Five Cases. J. R. Lingley, Boston.—p. 902.  
Use of Thorium Dioxide in Roentgenographic Study of Liver Abscess. R. J. Reeves, Durham, N. C.—p. 923.  
Roentgenographic Diagnosis of Soft Tissue Tumors Excluding the Breast. J. R. Carty, New York.—p. 932.  
Multiple Calcifications in the Ovary (Psammoma of Ovary). N. W. Loud, New Britain, Conn.—p. 936.  
Advanced Cancer of the Head and Neck. C. L. Martin, Dallas, Texas.—p. 984.  
Eighteen Months' Experience with 400 Kilovolts Constant Potential Deep Therapy: Preliminary Report. D. Steel, Cleveland.—p. 963.  
Direct Roentgen Irradiation of Deep-Seated Tumors: Preliminary Report. S. Moore, St. Louis.—p. 969.

**Hodgkin's Disease and Allied Conditions of Bone.**—Dresser and Spencer have seen sixty-six cases of Hodgkin's disease with 120 concomitant lesions of the bone. The greatest number of cases in their series were in the third and fourth decades. The youngest was 11 years of age, the oldest 83. The two sexes were affected equally. The roentgen picture usually simulates that of a metastatic malignant condition. It may, however, be confused with Ewing's tumor, osteogenic sarcoma, bone cyst, osteomyelitis or other inflammatory bone conditions. In no case is the roentgenogram entirely characteristic. Of the twenty-nine cases with involvement of the vertebrae, the process was destructive in all but two. As in malignant metastasis, the vertebral bodies were chiefly involved with preservation of the intervertebral spaces. In the pelvis the process is usually destructive. One generally finds large areas of bone erosion with sharply defined margins. The changes in the extremities are much more variable than in

cases, using multiple leads over the chest. Many of these were hypertensive patients as well as others with coronary occlusion and bundle branch block, and I can state with some assurance that these T changes are not found in one location only but more often show variations across the entire chest. It must be something other than the hypertension alone that causes the change in the electrocardiogram. It may be in the variation in the size of the heart and its altered relation to the chest wall, or it may be in a definite myocardial involvement, but certainly the cause of the electrocardiographic abnormalities must be associated with changed conditions in the heart itself. I do not believe that I stated that we differentiated sudden thrombosis from slowly occluding sclerotic plaques in interpreting our electrocardiograms. I have merely described and shown the differences observed in the types of electrocardiograms found in these autopsies grouped according to the observations made. I think it is worth while pointing out that these differences commonly occur. As far as  $T_4$  is concerned, we have seen a positive  $T_4$  in normal children up to 12 years of age and sometimes older and also in cases of bacterial endocarditis and rheumatic fever in children. We have also observed a number of other cases in which we could not explain the positive  $T_4$ . These  $T_4$  waves are, however, not of the type which suggests coronary occlusion. In most cases the  $ST_4$  is elevated rather than depressed. I think these changes are possibly associated with enlargement of the right side of the heart or rotation of the heart. I cannot say that it is due to these causes entirely, but  $T_4$  positive in such cases seems to be associated with a different placement of the heart in the chest. A positive  $T_4$  which is normal on the right side of the chest is probably carried over to the left in many of these patients, since in young children the right side of the heart lies more anteriorly than in adults. Most of these QRS<sub>4</sub> complexes associated with  $T_4$  positive are diphasic in children, while in coronary occlusion with anterior infarction the QRS<sub>4</sub> associated with  $T_4$  positive is mainly or entirely up.

#### Quinidine Therapy and the Method Used

DR. S. A. WEISMAN, Minneapolis: This is a six year clinical study of a method of giving quinidine to ambulatory patients with auricular fibrillation. The method is based on a laboratory animal experiment which shows that practically all the quinidine is eliminated from the blood stream one hour after the drug has been given intravenously. The patient is first digitalized. Quinidine is then given in very small doses one hour apart, and gradually each dose is increased. It is found that this method has two distinct advantages: 1. The patients establish a tolerance for the drug. 2. Rarely do the patients complain of the toxic symptoms so often attributed to quinidine. The results with this method show that in a series of cases of auricular fibrillation over 70 per cent were restored to normal rhythm.

#### DISCUSSION

DR. L. N. KATZ, Chicago: No one denies that slowing the heart relieves palpitation and other cardiac sensations, but it is extremely doubtful that the filling of the heart is improved at slow ventricular rates by eliminating auricular fibrillation. At rapid ventricular rates the absence of auricular filling is missed, but at slow rates the ventricles can make up this deficit. There is no need, therefore, to restore sinus rhythm on this account. Is it not much better to give quinidine in divided doses over twenty-four hours instead of concentrating the doses in one period of the day? After all, quinidine is excreted rapidly, most of it within four hours. Is it not the aim to maintain the maximum dose over a long period rather than to produce peak concentrations for short periods? Does Dr. Weisman advocate the use of quinidine indiscriminately in all cases of auricular fibrillation or does he follow the standard contraindications; namely, to avoid quinidine when the heart is enlarged, when the fibrillation is long standing and when heart failure is present? While no one denies that quinidine could be more widely used than at present, the majority of authorities still believe that there is some hazard connected with the use.

DR. C. C. MAHER, Chicago: I have been interested in the use of quinidine for some years, employing a somewhat different method but along the same line of thought. My early studies

were concerned with the duration of the effect of quinidine as measured by electrocardiographic changes. Most of these studies were made with chest leads directly over the base of the heart, showing the effect on the auricular rate. It appeared that, although the quinidine was rapidly excreted, the effect on the auricular rate remained for a period of twenty-four hours when the drug was given orally. If it is given intravenously the effect is apparent almost immediately and may last from four to six hours. The method of oral administration has been 3 grains (0.2 Gm.) six hours apart, continued throughout the night, such as Dr. Katz mentioned. That method of night dosage may seem somewhat impractical, but most cardiac patients are prone to wake up at least once during the night. I found early in my experience that the time element was an important factor. On that basis I keep the patients on quinidine over a long period. Some patients have not converted until they were on the drug for from six to eight weeks and some have taken from six to nine months or even a year before they converted. I have been most interested in studying patients who do not convert. Those in the rheumatic group appear to have some active infection and possibly an active myocarditis. In the arteriosclerotic group very often infections in the urinary or biliary tracts played a rôle. Occasionally mild thyrotoxicosis was discovered as a factor. I would be interested in asking Dr. Weisman what he does in patients on quinidine who develop chronic auricular flutter, a problem which is sometimes a baffling situation.

DR. ROY W. SCOTT, Cleveland: Dr. Weisman stated that the vast majority of his patients were in the hypertensive or coronary group, with a minimum number in the rheumatic group. I wonder whether the type of case treated was not the most important factor in his results, namely, the effect of quinidine in restoring a sinus rhythm in a high percentage of auricular fibrillation, and the absence of embolic accidents in the series of patients treated. I still believe that quinidine is a two edged sword and therefore I wonder whether such favorable results as here reported by Dr. Weisman would occur in a series of rheumatic heart cases with mitral stenosis and auricular fibrillation.

DR. CHESTER M. KURTZ, Madison, Wis.: I question the rationale of the routine use of digitalis preparatory to giving quinidine. The value of quinidine depends on its action as a myocardial depressant. Digitalis is a myocardial irritant. I wonder whether the administration of digitalis would not tend to counteract the desired effect of the quinidine.

DR. NORBERT ENZER, Milwaukee: The paper seemed to indicate that considerable emphasis should be placed on the relative occurrence of emboli in these fibrillating hearts. The statement was made that fibrillation was a common source of emboli. A recent review of my own not yet completed satisfies me that auricular fibrillation is in itself a less common cause of arterial occlusion. In my series I found mural thrombi from coronary lesions the most common cause and vegetations on the endocardium and valves next. The presence or absence of arterial emboli as an index of the value of a therapeutic procedure should be taken with caution. Further, arterial emboli do not necessarily take origin from the heart. In that respect, lesions in the brain should be interpreted with great caution. Vagaries of the cerebral circulation are too commonly causes of arterial occlusion.

DR. EDWARD W. HOLLINGSWORTH, Chicago: For a number of years I have been using quinidine, up to two or three years ago chiefly in cases of rheumatic heart disease. I have never seen an accident happen to any of these patients in whom sinus rhythm was restored. The last speaker mentioned the fact that hemiplegia occurred. I have seen two patients in whom I had reason to think that the hemiplegia was due to emboli, and postmortem examination showed a hemorrhage in one. I do not think it can always be said that embolism was the cause. One point which I noticed was that some patients seem to feel better when continued on small doses of quinidine even when sinus rhythm is not restored. I do not see any reason for this.

DR. HAROLD FEIL, Cleveland: I would emphasize the efficacy of treating hyperthyroid patients after operation. The quinidine should be used as a routine when normal rhythm is not restored by operation, because the cause of the fibrillation has been

## Archives of Internal Medicine, Chicago

58: 957-1124 (Dec.) 1936

- \*Calcium and Iodine Metabolism in Thyroid Disease. I. D. Puppel and G. M. Curtis, Columbus, Ohio.—p. 957.  
Specific Infection Characterized by Multiple Ulcers of Small Intestine. L. M. Johnston, Nashville, Tenn.—p. 978.  
Clinical Aspects of Periarthritis Nodosa. Rose Spiegel, New York.—p. 993.  
Cardiac Output in Polycythemia Vera. Grace Goldsmith, Rochester, Minn.—p. 1041.  
Monocytic Leukemia: Report of Eight Cases. T. G. Klump and T. S. Evans, New Haven, Conn.—p. 1048.  
Comparative Diuretic Response to Clinical Injections of Various Mercurials. T. Sollmann and Nora E. Schreiber, with collaboration of H. N. Cole, Cleveland.—p. 1067.  
\*Untoward Effects of Diuresis, with Especial Reference to Mercurial Diuretics. D. Poll and J. E. Stern, New York.—p. 1087.  
Function of Large Intestine of Man in Absorption and Excretion: Subject with Ileostomy Stoma and an Isolated Colon. C. S. Welch, E. G. Wakefield and Mildred Adams, Rochester, Minn.—p. 1095.

**Calcium and Iodine Metabolism in Thyroid Disease.**—Puppel and Curtis determined the calcium and iodine balance pretherapeutically of one patient with hypothyroidism, two normal subjects and two patients with exophthalmic goiter. The calcium and the phosphorus content of the blood of all five subjects varied within normal limits. In the patient with hypothyroidism there was an increased retention of calcium over normal. In the two normal subjects on a low calcium diet the calcium balance was negative. In the two patients with exophthalmic goiter there was an increase in the amount of calcium excreted. In one the increase was almost entirely in the feces. In the other the increase was in both the urine and the feces. This resulted in a continuous negative calcium balance greater than normal. In the two patients with exophthalmic goiter the iodine balance was less than normal even in the presence of an intake of iodine which was at least normally adequate. The increased fecal excretion of iodine was greater than the increased urinary excretion of iodine, thus showing a difference from normal persons and from subjects with hypothyroidism. In the patient with hypothyroidism a decrease in the excretion of calcium accompanied the decrease in the circulating iodine. In the two patients with exophthalmic goiter an increase in the excretion of calcium accompanied the increase in the circulating iodine. In the patient with exophthalmic goiter maintained on a low intake of calcium, observations during three periods of three days each revealed that the iodine balance was continuously negative and that the calcium balance varied directly with the iodine balance. In the patient with exophthalmic goiter maintained on a high intake of calcium, observations during five periods of three days each showed that the iodine balance remained at a level definitely lower than that of the two normal controls. The calcium balance varied inversely with the iodine balance. In the other subjects maintained on a low calcium diet, observations during nine of twelve periods of three days each showed the calcium balance to vary directly with the iodine balance.

**Untoward Effects of Diuresis.**—The syndrome discussed by Poll and Stern is seen in connection with diuresis and is characterized by preliminary symptoms of weakness, restlessness and mental confusion (sometimes progressing to delirium and psychosis), which may be followed by apathy, coma and in some cases death. The turgor of the tissues may become poor, the tongue exceedingly dry and thirst extreme. Any or all of these phenomena should be borne in mind when a patient who has been subjected to diuretic therapy appears to be failing. The clinical picture may be produced without the use of mercurial diuretics and in no sense are these valuable drugs indicted. However, the syndrome is more likely to occur when mercurial diuretics are used, since their ability to cause rapid dehydration is more marked than that of any other available diuretic agent. When a patient who is subjected to dehydration therapy begins to fail, one must endeavor to decide whether any of the following factors are present and, if so, whether they are etiologic, contributory or only incidental to the clinical picture: irremediable myocardial insufficiency, fresh coronary thrombosis, exacerbation of rheumatic carditis, pulmonary infarction, infection of the respiratory tract, true renal insufficiency, cerebral vascular accident, excessive use of sedatives and the syndrome under discussion. Excessive use of sedatives is of great importance, as the edematous patient

with myocardial insufficiency is often extremely restless and large doses of sedatives are required to induce quietude and thus spare the myocardium. The stupor induced by rapid dehydration is too readily attributed to the use of sedatives. The authors' study of their case reports and of those recorded by other observers provides no entirely adequate basis for the prediction and exclusion of patients unfavorable for drastic dehydration therapy. The following factors should be taken into consideration and particular care should be exercised in their presence: old age, advanced atherosclerosis and cachexia. If, despite extreme precautions, untoward symptoms develop, therapy should be begun as soon as the syndrome is diagnosed or suspected. It consists of (1) the administration of water—by mouth if possible; (2) the administration of sodium chloride by mouth, at first in capsules and later as a 0.1 per cent solution, which is effective in the restoration of the sodium content of the blood, and (3) parenteral administration, if the foregoing methods are impossible. The intravenous and subcutaneous methods of treatment are not as effective as the oral route. If therapy is delayed, the condition is no longer reversible and may end fatally.

## Arch. of Physical Therapy, X-Ray, Radium, Chicago

17: 737-800 (Dec.) 1936

- \*Treatment of Chronic Meningococcal Infections by Artificial Fever. A. E. Bennett, J. P. Person and E. E. Simmons, Omaha.—p. 743.  
Studies of Comparative Deep Tissue Heating (Hot Air, Hot Water, Short Wave Diathermy and Electromagnetic Induction). S. Benson and W. Bowman, Chicago.—p. 749.  
Biologic Sources of Radioactivity: Part II. R. A. Watters, Reno, Nev.—p. 753.  
Improved Boot and Cuff for Suction Pressure Apparatus. L. H. Hitzel and A. J. Rawson, Philadelphia.—p. 761.  
Spa Treatment of Chronic Heart Diseases and Their Complications. F. M. Groedel, New York.—p. 763.  
Massage in Management of Fractures. M. A. Levine, Los Angeles.—p. 770.

**Treatment of Meningococcal Infections by Artificial Fever.**—The morphologic and biologic similarity between gonococci and meningococci led Bennett and his associates to experiment with thermal death time studies of the latter organism. Their observations obtained so far by water bath studies indicate that these organisms likewise can be destroyed by heat which the body can safely tolerate. The meningococci seem to be very heat labile when first transplanted to broth mediums but become more heat resistant through each successive generation on a given medium. This phenomenon makes it difficult to set a standard death time for a specific strain. In general, however, the authors have been able to destroy most of the strains at 41.5 C. (106.8 F.) within eight hours. The extinction method for determination of thermal death time was used because it adapts itself to the effect of sustained heat at a given temperature for a definite length of time. Clinically, two patients with proved chronic meningococcal infection, one of whom had two attacks of meningitis, have been cured by artificial physical fever therapy without other therapeutic procedures. Further clinical trial of this method is recommended in subacute or chronic meningococcal infections, especially in cases of meningitis not responding to serum therapy. The authors feel that in the acute fulminating types of meningococcal meningitis fever therapy is contraindicated.

## Arkansas Medical Society Journal, Fort Smith

33: 135-150 (Jan.) 1937

- Retrodisplacement of Uterus. M. C. Hawkins Jr., Searcy.—p. 135.  
Common Foot Complaints. F. W. Carruthers, Little Rock.—p. 136.  
\*Insulin Protamine in Treatment of Diabetes. A. A. Blair, Fort Smith.—p. 139.

**Protamine Insulin in Treatment of Diabetes.**—Blair treated four cases with protamine insulin, each of which had been under careful management for from three to nine years. The ages ranged from 17 to 54 years. The slow action of protamine insulin can be partially overcome by using protamine insulin one hour before breakfast instead of the usual fifteen to twenty minute period allowed for the regular insulin. The fact that the diabetic patient is harder to keep sugar free in the morning than at any other time of the day indicates that the morning dose should always be relatively larger. A diet that contains plenty of fruit affords an easily utilized form of

blood pressure or the pulse rate. I should like to ask Dr. Smith whether he observed this phenomenon clinically.

DR. H. M. KEITH, Montreal: I was interested to hear Dr. Smith say that one cannot get convulsions by stimulating the sinus. I can confirm that from my own experience. I have been able to produce some slowing of the pulse, some drop in blood pressure, but no convulsive attacks.

DR. G. E. WAKERLIN, Louisville, Ky.: The carotid sinus and cardio-aortic areas contain chemical, as well as pressure, receptors. Have the authors studied the effect of reduction in the carbon dioxide and hydrogen ion concentrations of the blood, produced by overventilation for example, on the blood pressures of their patients to see whether a corresponding decrease can be brought about by such chemical changes?

DR. GÉZA DE TAKÁTS, Chicago: I have had experience with three patients in whom denervation of the carotid sinus has been done. One was operated on over two years ago, first on one side and then on the other six weeks later. There is no residual hypertension in these patients. The patient operated on two years ago is getting a recurrence of his symptoms. He is a man, aged 32, with no evidence of arteriosclerosis. It is possible that since it was my first denervation it was not as complete as it should have been. It is not enough to denervate the sinus but it is necessary to strip the carotids for 1 inch both above and below the bifurcation. It is possible that this failure is due to faulty technic.

DR. RICHARD CAPPS, Chicago: I should first like to confirm the remarks of Dr. Williams. I have seen complete asystole for as long as thirty seconds due to carotid sinus pressure. I believe that in some cases in which the reflex is unusually active the heart could be stopped for a long enough time to cause death, especially if a peripheral vasodilatation is also present. In the second place, I think that patients who have had coronary thromboses have particularly sensitive reflexes of this type. It is not unlikely that the increased sensitivity of the vagal reflex in the older group, discussed by Dr. Smith, is due to the heart's being more sensitive to vagal impulses than normally and not due to any change in the carotid sinus itself. As to the reason why the symptoms cannot always be correlated with the degree of slowing, I think the answer lies in the fact that there are three separate mechanisms which independently may cause identical attacks. First of all, slowing of the heart, in the second place reflex peripheral vasodilatation producing a fall in blood pressure, and third, the fact that there is a group of patients, particularly younger people (whom Weiss, Ferris and I recently investigated) in whom there is no change in the circulation at all; I mean there is no change in the blood pressure or pulse. We also measured the cerebral blood flow and found no change there. In this group we feel that the symptoms are probably due to direct nerve reflexes to the brain. In many of the older cases, in which bradycardia seems to be the cause of fainting, atropinization fails to alter the attacks produced by carotid sinus pressure, although it abolishes the reflex slowing of the heart. This demonstrates that a cerebral reflex may be present and primary but simply masked by the vagal reflex. I think that such combinations of reflexes account for some of the failures of therapy with belladonna. We found in most cases of the primary vagal type that a small dose of belladonna would diminish the reflex sufficiently so that no spontaneous attacks occurred. This, however, was not true in the group in which the cerebral reflex was the chief cause. One other point is that digitalis seems to increase distinctly the sensitivity of the vagal and cerebral reflex, and the attacks of faintness that many have seen in digitalized patients may be due to this cause.

DR. H. L. SMITH, Rochester, Minn.: It has been my experience that patients who have recently had an acute coronary thrombosis do have carotid sinuses that are hypersensitive, and I have further observed that most adults with congestive heart failure from any cause will have carotid sinuses that are more sensitive than normal individuals. In answer to Dr. Weisman's question as to whether the carotid sinus is fatigable, I have noticed that often rather long and continued pressure or often repeated stimulation causes the carotid sinus to become less sensitive. I suppose this feature could be due to fatigue. I have also noted that the sensitivity of the carotid sinus seems to

vary from time to time. Just why this is true, I am not able to explain. Dr. Williams asks the question "Is it dangerous to induce these attacks?" With proper technic I would answer no. I do not feel, however, that long continued pressure on both carotid sinuses at the same time is a sane practice. I have come to the conclusion that it is not necessary to stimulate the two sinuses at the same time. I doubt very much that one could produce death or do the individual any serious damage by stimulating one carotid sinus, even though we theoretically deprive the heart of its normal pacemaker and induce long periods of cardiac standstill. After cardiac standstill of certain lengths of time, the ventricles or bundle will initiate a rhythm of their own and will carry on the functions of the heart. In answer to Dr. Keith's question Were we able to induce the attacks in patients with epilepsy? I wish to say that we have examined many patients with idiopathic epilepsy and have not been able to reproduce these attacks. In no cases of epilepsy that we examined did we find the carotid sinus more sensitive than normal. In answer to the question What rôle does chemical stimulation play in producing these attacks? some investigators feel that chemical stimulation is an important factor in the carotid sinus reflex, but I have had no experience with chemical stimulation of the carotid sinus. I feel that there is still a great deal to be learned about this group of cases. I think that an advancement has been accomplished by definitely taking this group out of the class of epilepsy, in which class most of them had previously been considered.

#### The Pathogenesis of Experimental Hypertension Produced by Renal Ischemia

DR. HARRY GOLDBLATT, Cleveland: Exactly how the actual elevation of blood pressure due to renal ischemia is effected is not yet known. The possibility that the hypothetical pressor substance exerts its effect indirectly by some action on endocrine organs known to produce pressor substances, or by a synergistic action with such substances, is being investigated. Page has shown that hypophysectomy does not interfere with the development of this type of hypertension. Incomplete, too short and as yet too few experiments indicate that bilateral adrenalectomy does interfere with the phenomenon. The significance of this is not yet known. The whole study is being continued.

#### DISCUSSION

DR. WILBER E. POST, Chicago: This has been fascinating me since I first heard of Dr. Goldblatt's work, because so far as I know this is the first work in which hypertension is produced in which one might think that the damage is in the kidney alone and not in the generalized vascular system. For over twenty years I have been collecting histories and analyzing the medical story in patients who have died in uremia, trying to find those cases in which the kidney alone is damaged. The closest I have come to it has been in those cases, few in number, in which bilateral ureteral occlusion has resulted in permanent anuria. In those cases the blood pressure rose but slightly. Dr. Apfelmach did some work on dogs—I think it has been demonstrated before this society—in which he injected charcoal particles into the renal artery and thus was able to damage the kidneys, especially the glomeruli, which led to a degenerative process and ultimately to uremia, that is, renal failure, and yet in none of those dogs was he able to produce hypertension. It is with a great deal of interest that I shall follow this work of Dr. Goldblatt to see what may be revealed as the mechanism for the production of this hypertension.

#### Significance of Increased Blood Pressure in Pregnancy

DRS. JULIUS JENSEN and CARL WEGNER, St. Louis: Heretofore in cases of increased blood pressure in pregnancy, proper distinction has rarely been drawn between toxemia and hypertension. A closer study of this subject is revealing a close relation between the two. In pregnancy there is a distinct tendency for essential hypertension to become worse and remain worse. This is in line with certain physiologic knowledge regarding the effect of pregnancy on the cardiovascular system and also with Herrick's finding that the incidence of hypertensive heart disease is increased among women who have previously had eclampsia. This study concerns a follow-up examination of forty-nine women who had increased blood pressure during pregnancy. It was found that the tendency to increased



absent or greatly diminished in potency. By comparative tests made with serums from twenty healthy adults, the streptococidal action was not demonstrable. Three different strains of *Streptococcus haemolyticus* of the beta type were employed in the experiments. Differences in susceptibility of the strains to the killing power of the serum were noted.

**Factors That Influence Action of Human Serum on Hemolytic Streptococci.**—Tillett points out that, although serums derived from patients at the time of acute, active infection were found to be capable of destroying hemolytic streptococci under aerobic conditions, the organisms retained viability when the tests were performed anaerobically. Within the limitations of the experimental procedures that were employed, the aerobic or anaerobic effect was found to be a reversible reaction. Heating serums at 60 C. for one hour inactivated the streptococidal element in most instances but not in every case; heating at 56 C. for one hour impaired the lethal power of half of the specimens that were tested. Serums retained the capacity to destroy hemolytic streptococci when kept in the icebox for three weeks; a slight diminution in killing power was observed after four weeks.

### Journal Industrial Hygiene and Toxicology, Baltimore

18: 689-804 (Dec.) 1936

- Photo-Electrical Estimation of Konimeter Dust Spots. W. H. Walton, Birmingham, England.—p. 689.  
Dust Control in Granite Industry. J. D. Leitch, Toronto.—p. 699.  
Practical Method for Rapid Determination of Lead When Found in Atmosphere. G. C. Harrold, S. F. Meek and F. R. Holden, Detroit.—p. 724.  
Toxic Effects of Low Concentrations of Carbon Disulfide. F. H. Wiley, W. C. Hueper and W. F. von Oettingen, Wilmington, Del.—p. 733.  
Hospital Air Conditioning. C. P. Yaglou, Boston.—p. 741.  
Application of Air Conditioning in Normal Life. P. Drinker, Boston.—p. 767.  
Air Borne Infection. H. D. Chope and W. G. Smillie, Boston.—p. 780.

### Journal of Thoracic Surgery, St. Louis

6: 125-236 (Dec.) 1936

- Nontuberculous Abscess of Lung: Etiology, Treatment and Results in Ninety Cases. E. C. Cutler and R. E. Gross, Boston.—p. 125.  
\*Treatment of Lung Abscess: Report of 100 Consecutive Cases. C. I. Allen and J. F. Blackman, Detroit.—p. 156.  
Resection of Calcified Pulmonary Abscess (or Tuberculosis) Simulating Tumor: Three Cases. E. A. Graham and J. J. Singer, St. Louis.—p. 173.  
Acute Infections of Mediastinum, with Especial Reference to Mediastinal Suppuration. H. Neuhoof, New York.—p. 184.  
Etiologic Factors in Pathogenesis of Putrid Abscess of Lung. L. Stern, New York.—p. 202.  
Abscess of Mediastinum. R. C. Fisher, New York.—p. 212.  
Use of Phrenic Neurectomy Combined with Artificial Pneumoperitoneum for Collapse of Adherent Tuberculous Lung. M. Joannides and O. C. Schlack, Chicago.—p. 218.  
Chylothorax: Case Report. O. A. Beatty, Glasgow, Ky.—p. 221.

**Treatment of Lung Abscess.**—To determine means of reducing the high mortality from lung abscess, Allen and Blackman present an analysis of 100 cases, in which the death rate was 34 per cent. For the first fifty patients it was 42 per cent and for the last fifty, all of whom were treated during the last five years, it was 26 per cent. Of the thirty-four patients who died, however, six died of carcinomas that were producing abscesses by obstruction. Of the remaining ninety-four cases therefore the mortality rate was 29.7 per cent. This reduced mortality is the result of the facts learned in the treatment of the earlier cases and from the experience of others. It may well be attributed to earlier diagnosis and institution of treatment, closer cooperation between the internist and the surgeon, more accurate localization, and the earlier institution of more radical treatment when conservative treatment has failed. With continued attention to this problem, further reduction in the mortality rate may be anticipated. Conservative treatment should not be continued unless progressive improvement is being accomplished, regardless of the time element. Phrenic nerve crushing is sufficiently valuable to make its use advisable in certain selected cases. Treatment by bronchoscopic drainage probably is for those abscesses which are caused by foreign bodies. Operative drainage should always be done in two stages. A wide area for drainage should be established. The drainage tract down to the abscess should be made with the actual cautery. Tube drainage of complicating empyema is of value when the patient's condition is so critical as to make a more radical operation too hazardous.

### Missouri State Medical Assn. Journal, St. Louis

34: 1-48 (Jan.) 1937

- Obligations of the Hospital to Its Interns. B. G. Hamilton, Kansas City.—p. 1.  
Cardiac Emergencies. D. Lutten, St. Louis.—p. 3.  
Abrasions and Contusions. W. L. Allee, Eldon.—p. 4.  
Analgesics, Sedatives, Hypnotics. B. Y. Glassberg, St. Louis.—p. 6.  
Opportunities of Rural Practice. F. G. Mays, Washington.—p. 8.  
When Therapeutic Pneumothorax for Tuberculosis Should Be Instituted and When It Should Be Discontinued. H. I. Spector, St. Louis.—p. 9.  
The Common Duct Stone. L. Rassieur, St. Louis.—p. 13.  
Autopsies: Analysis of Percentage Increases. W. E. B. Hall, St. Joseph.—p. 15.

### New England Journal of Medicine, Boston

215: 1261-1322 (Dec. 31) 1936

- Study and Treatment of Heart Disease at the Massachusetts General Hospital from 1821 to 1936. P. D. White, Boston.—p. 1261.  
\*Evaluation of Signs of Active Rheumatic Fever, with Especial Reference to Erythrocyte Sedimentation Rate and Leukocyte Count. B. F. Massell and T. D. Jones, Boston.—p. 1269.  
Carcinoma of the Breast in Young Women. G. W. Taylor, Boston.—p. 1276.  
\*Role of Scurvy in Etiology of Chronic Subdural Hematoma. T. H. Ingalls, Boston.—p. 1279.  
Brucellosis (Undulant Fever): Interesting and Important Facts About Disease with Report of Severe Case Occurring in Boston Physician. J. F. Casey, Boston.—p. 1282.  
Milk Modification and Infant Constitution. I. N. Kugelmass, New York.—p. 1285.  
Medical Service in Vermont: Some Changes in Forty Years. L. W. Burbank, Cabot, Vt.—p. 1292.

**Signs of Active Rheumatic Fever.**—Massell and Jones base their remarks on a study of 178 patients with active rheumatic fever. In 163 of these cases an analysis has been made of the routine laboratory tests and a comparison made of the leukocyte count and erythrocyte sedimentation rate in respect to their value as tests for active rheumatic fever. Also the clinical manifestations have been analyzed in seventy-three patients with clinical evidence of rheumatic fever, and the relation of laboratory tests to the clinical signs has been determined. The leukocyte count and corrected sedimentation index are helpful and often essential for the determination of low grade rheumatic fever. In the majority of instances, after the clinical manifestations of the disease subsided, one or both of these tests continued at an elevated level for from several weeks to many months. As tests for low grade rheumatic fever, the corrected sedimentation index and leukocyte count are of about equal value. In view of the large percentage of error in the technic of the leukocyte count and the necessity for repeated counts, the corrected sedimentation index is more valuable as a single, isolated test. One or both tests may be normal in the presence of clinical signs of rheumatic fever. Corrected sedimentation index determinations are of no significance in the evaluation of active rheumatic fever if performed within two or three weeks after an infection of the upper part of the respiratory tract or tonsillectomy. Neither the leukocyte count nor the corrected sedimentation index is a specific rheumatic fever test but must be interpreted with regard to other considerations. In rheumatic fever subjects, repeatedly elevated leukocyte counts and rapid corrected sedimentation indexes should be considered indicative of subclinical rheumatic fever in the absence of any other cause for their abnormality.

**Scurvy in Etiology of Subdural Hematoma.**—In studying the incidence of chronic subdural hemorrhage as reported by various authors, Ingalls finds that it occurs primarily in infants, chronic drinkers and the insane. Subclinical scurvy may exist before clinical manifestations and x-ray changes of chronic subdural hemorrhage become apparent. In the group of nine infants studied at the Infants' and the Children's Hospital in Boston one is excluded, as it was an instance of birth hemorrhage. Five of the eight remaining patients were cared for in institutions or by foster mothers, and six were specifically recorded to have had rosaries of varying degrees. Roentgenograms of the long bones were available for study in five of these cases, and x-ray evidence of scurvy was elicited in three. Active scurvy could not be demonstrated readily in each patient since the essence of the conception is that of a chronic low grade process. One might say that chronic subdural hemorrhage as encountered clinically and at necropsy is an end stage far removed from the initial series of events. The scorbutic

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

#### American Heart Journal, St. Louis

12: 641-786 (Dec.) 1936

- Commonest Cause of Hypertrophy of Right Ventricle—Left Ventricular Strain and Failure. W. P. Thompson and P. D. White, Boston.—p. 641.
- Dissecting Aneurysms of Aorta: Report of Five Cases. T. M. Peery, Charleston, S. C.—p. 650.
- Significance of Upright or Diphasic T Wave in Lead IV When It Is the Only Definite Abnormality in Adult Electrocardiogram. J. Edeiken, C. C. Wolferth and F. C. Wood, Philadelphia.—p. 666.
- \*Ischemic Pain in Exercising Muscles: Its Nature and Implications. A. H. Elliot and R. D. Evans, Santa Barbara, Calif.—p. 674.
- Creatine Changes in Heart Muscle Under Various Clinical Conditions. G. Herrmann, G. Decherd and T. Oliver, Galveston, Texas.—p. 689.
- Effect of Potential Variations of Distant Electrode on Precordial Electrocardiogram. C. E. Kossmann, with technical assistance of Bertha Rader, New York.—p. 698.
- Hemicongestion of Vascular System Associated with Cerebral Disease. W. J. Kerr and F. J. Underwood, San Francisco.—p. 713.
- Electrocardiographic Changes Following Coronary Artery Ligation in Dogs. B. R. Harris and R. Hussey, New Haven, Conn.—p. 724.
- Practical Application of Metabolic Exercise Tolerance Test to Treatment of Heart Disease. B. Blumenlial, Chicago.—p. 736.

**Ischemic Pain in Exercising Muscles.**—Elliot and Evans present observations which aim to test the hypothesis that lactic acid and the pain substance are identical. While a final answer cannot be given, it is shown that this hypothesis adequately explains the experimental results obtained and that at least production and disposal of both lactic acid and pain substance are subject to similar metabolic laws. Their conclusions are that: 1. The substance or substances responsible for pain in exercising ischemic muscles are relatively stable, may be present in the blood stream for an appreciable period following their release from such muscles, and may diffuse into tissues distant from their point of origin. 2. Such substance or substances are produced likewise in nonischemic exercising muscles, and their concentration in the blood stream following vigorous exercise is materially increased for an hour or longer. 3. Increase of lactate ion in the muscles of the forearm, brought about by whatever means, uniformly enhances the action of the pain substance produced by these same muscles. 4. Probably an increased concentration of lactate ion about the sensory nerve endings can by itself produce pain, such increase not necessarily exceeding metabolic limits. 5. It is possible that lactate ion is solely responsible for the production of ischemic pain, but release of other substances, which are beyond doubt subject to similar metabolic laws, may play a part, and these should be investigated.

#### American Journal of Cancer, New York

28: 681-904 (Dec.) 1936

- Respective Roles of Heredity and Somatic Mutation in Origin of Malignancy. W. F. Dunning, M. R. Curtis and F. D. Bullock, New York.—p. 681.
- Studies on Tumor Metastasis: VII. Metastasis to Pineal Gland. S. Warren, Boston.—p. 713.
- \*Roentgen Diagnosis of Carcinoma of Pancreas. L. W. Paul, Madison, Wis.—p. 720.
- Comparative Study of Carcinogenic Action of Certain Estrogenic Hormones. A. Lacassagne, Paris, France.—p. 735.
- Pituitary Hyperplasia in Male Mouse After Administration of Estrin. H. Burrows, London, England.—p. 741.
- Further Studies on Breaking Down of Resistance of Mice of One Strain to Transplantation of Tumors from Mice of Another Strain. M. R. Lewis and E. G. Lichtenstein.—p. 746.
- \*Case of Three Neoplasms. B. C. Portuondo, St. Louis.—p. 752.
- Thyroid Adenoma of Ovary. P. J. Cantor and B. Kogut, Brooklyn.—p. 760.
- New Glycolysis Activator. W. Fabisch, Palermo, Italy.—p. 764.

**Roentgen Diagnosis of Carcinoma of Pancreas.**—Paul's review of twenty-three cases of carcinoma of the pancreas shows that, while a majority give some evidence of the pres-

ence of the neoplasm when studied by means of a barium sulfate meal, this evidence is often difficult to evaluate and may even be misleading. A smaller number (34.8 per cent in the present series) will give unequivocal results which will be found to be highly accurate. More careful observation and correlation of the cases here reviewed, at the time of the examination, would probably have led to a higher number of correct diagnoses. Since the diagnosis depends mainly on the secondary effects of the tumor on the stomach and duodenum, the degree of accuracy will not be nearly as high as it is, for instance, in gastric carcinoma. Errors in diagnosis seem unavoidable; not only will carcinoma of the pancreas be missed but other lesions will occasionally be interpreted as such. A statement of the positive observations and the conclusion that these are compatible with a mass in the region of the pancreas will be as much as the roentgenologist can safely conclude in most cases.

**Patient with Three Neoplasms.**—Portuondo cites a case of three dissimilar types of tumor. Two of these and a metastasis from the third were within the cranial cavity. The hypernephroma was in all probability an example of a cell rest becoming neoplastic. The acoustic neurofibroma may also have had its origin in a cell rest which became active. The peripheral areas of the neurofibroma contained many whorls of spindle shaped cells, while in the more central portions there were only a few in a stroma composed of cells having small round nuclei and a fusing of membranes to form a tenuous background. The carcinoma of the pituitary would seem to have no demonstrable relationship with any cell rest. From the history it appeared that the acoustic neurofibroma was of about four years' standing. Visual disturbances were marked a year and a half prior to death, which indicates that the pituitary tumor was large enough at that time to cause ocular signs and symptoms. The weakness, listlessness and hypotension may have been due to the hypernephroma, and, since these symptoms were of some five years' duration, it would seem that the kidney tumor had been present about that length of time. The cerebellar metastasis may have been responsible for the slow slurring speech and the staggering gait. These occurred only about two months prior to death, which would indicate that the metastasis may have occurred at that time, although it may have been present longer without causing enough destruction of cerebellar tissue to produce signs. The added presence of the hypophyseal carcinoma suggests a special tendency to neoplasms, and it may be that this was the decisive factor.

#### American J. Digest. Dis. & Nutrition, Fort Wayne, Ind.

3: 731-812 (Dec.) 1936

- Pyrexia in Gastric Carcinoma. H. A. Singer and F. Steigmann, Chicago.—p. 731.
- Prognosis in Regional Ileitis. B. B. Crohn, New York.—p. 736.
- \*Possible Relation of Bacillary Dysentery to Nonspecific Ulcerative Colitis. A. Penner, New York.—p. 740.
- Flexible Tube Gastroscopy: Technic: Preliminary Report. J. L. Borland, Jacksonville, Fla.—p. 744.
- Experimental Study with Certain Tips Used on Wolf-Schindler Flexible Gastroscope. R. Schindler and J. F. Renshaw, Chicago.—p. 747.
- Chronic Hypertrophic Ulcerative Gastritis Treated by Coutard's Method of Roentgen Therapy: Case Report with Unusual Course and Result. R. Schindler, Chicago.—p. 751.
- Proteolytic Effect of Normal Gastric Juice on Beef Muscle Globulin, with Reference to Reported Action of Antianemic Intrinsic Factor. C. P. Emerson Jr. and O. M. Helmer, Indianapolis.—p. 753.
- Changes Within Cells of Gastric Mucosa During Secretory Activity. A. J. Gillitz and W. Levison, New York.—p. 756.
- \*Vitamin Deficiency in Prescription Diets of Diabetics: Study into Relationship of Diet Deficiency to Symptomatology as Observed in Eighty-Five Diabetics with Previous Dietary Treatment. A. Sindoni Jr., Philadelphia.—p. 759.
- Vitamin B Complex Therapy in Chronic Arthritis. C. L. Steinberg, Rochester, N. Y.—p. 765.
- Roentgen Diagnosis of Acute Intestinal Obstruction. J. Buckstein, New York, and L. Michaels, San Francisco.—p. 767.
- What Drug Best Kills Hookworms? C. Lane, London, England.—p. 770.
- Spastic Colon Diet. E. E. Cornwall, Brooklyn.—p. 773.
- Anal Fissure, Anal Spasm and Anal Stenosis. E. A. Daniels, Montreal.—p. 775.

**Bacillary Dysentery and Nonspecific Ulcerative Colitis.**—The evidence that Penner adduced to prove the etiologic relationship between the dysentery group of bacilli and chronic ulcerative colitis consists mainly in the finding of positive blood agglutination reactions for this group of bacilli in cases of

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

**British Journal of Dermatology and Syphilis, London**

48: 593-682 (Dec.) 1936

- Allergy. W. N. Goldsmith.—p. 593.  
Id. G. B. Dowling.—p. 601.  
Ehlers-Danlos Syndrome. F. P. Weber.—p. 609.  
Generalized Pustular Psoriasis: Case. A. C. Roxburgh and K. O. Black.—p. 618.  
Molluscum Sebaceum. H. MacCormac and R. W. Scarff.—p. 624.

**British Medical Journal, London**

2: 1125-1178 (Dec. 5) 1936

- Concerning Injuries of Spinal Cord. G. Jefferson.—p. 1125.  
\*Pulmonary Tuberculosis in Young Adults: Significance of Contact History. W. E. Lloyd and A. Margaret C. Macpherson.—p. 1130.  
Recent Observations on Biochemistry of Lens. Dorothy R. Campbell.—p. 1133.  
Intestinal Strangulation from Clinical Standpoint. K. P. Brown.—p. 1137.  
Serum Treatment of Typhoid Fever. R. C. Robertson and H. Yu.—p. 1138.  
Dysphagia with Anemia in a Male. E. Watson-Williams.—p. 1140.

**Tuberculosis in Young Adults.**—Lloyd and Macpherson stress the fact that about four out of every five young adults suffering from pulmonary tuberculosis who have been in contact with a known case of infection develop the disease within five years of exposure to the last known contact. This demonstrates the value of continuing the observation of contacts for at least five years after they were known to be last exposed. There is a history of household infection in 82 per cent of the contact cases. History of exposure to tuberculous fathers is almost twice as frequent as history of exposure to tuberculous mothers. In about half of the contact cases spread of infection is not obviously due to transmission of the disease from parent to offspring, but in many cases infection is apparently introduced into the household by a brother or sister. About 60 per cent of the young adults who develop pulmonary tuberculosis are unaware of any contact with the infection. In noncontact cases the toxemic type of onset is more common than the non-toxic (70 versus 28 per cent). If all classes of contact cases are taken together, the toxemic and nontoxic types of onset occur in about equal proportions. It appears however that, if there is an interval of more than five years between the last known exposure to infection and the onset of the disease, the onset is more likely to be of the nontoxic type.

**Journal of State Medicine, London**

44: 621-682 (Nov.) 1936

- Juvenile Rheumatism. F. J. Poynton.—p. 621.  
Etiologic Relationship of Streptococcus Haemolyticus to Rheumatic Diseases. W. Goldie and G. J. Griffiths.—p. 670.

**Journal of Tropical Medicine and Hygiene, London**

39: 269-284 (Dec. 1) 1936

- Report on Effects of Certain Poisons Contained in Food Plants of West Africa on the Health of Native Races. A. Clark.—p. 269.  
Diseases of the Skin in Negroes. L. J. A. Loewenthal.—p. 276.

**Lancet, London**

2: 1313-1376 (Dec. 5) 1936

- \*Renal Tuberculosis: Early Diagnosis and Treatment. H. Lett.—p. 1313.  
Treatment with Protosil of Puerperal Infections Due to Hemolytic Streptococci. L. Colebrook and M. Kenny.—p. 1319.  
Mode of Action of *p*-Aminobenzenesulfonamide and Protosil in Hemolytic Streptococcal Infections. L. Colebrook, G. A. H. Buttle and R. A. O'Meara.—p. 1323.  
Pain as the Only Sign of Pancreatic Carcinoma. G. Bourne.—p. 1326.  
Enlarged Prostate Associated with Mammary Carcinoma: Case. H. Burrows.—p. 1328.

**Renal Tuberculosis.**—Lett believes that better results can and will be obtained in renal tuberculosis if certain fundamental facts are widely appreciated and acted on: 1. The onset of renal tuberculosis is insidious and may be symptomless. Repeated examinations should therefore be made of the urine of every patient undergoing treatment for extra-urinary tuberculosis. If such examinations were carried out as a routine, many more cases of tuberculosis of the kidney would be recognized in their early stages. 2. Some cases of very early renal

tuberculosis can be cured by medical treatment, provided they are recognized before there is any alteration in the outline of the pelvis or calices. 3. Unilateral renal tuberculosis becomes surgical as soon as pyelograms show the changes characteristic of the disease, for it is then beyond the hope of cure by medical means alone. 4. The patient may be free from disturbing symptoms for prolonged periods, but the disease will almost invariably progress and ultimately prove fatal unless the kidney is removed. 5. Sanatorium treatment should always follow nephrectomy and in some cases precede it, for renal tuberculosis is not a primary disease; it is always secondary to a systemic infection and indicates a lowered resistance to the tubercle bacillus. Close cooperation of the general practitioner, the physician and the surgeon is more desirable and indeed essential in renal tuberculosis than in any other disease.

**Medical Journal of Australia, Sydney**

2: 661-698 (Nov. 14) 1936

- \*Pyelitis and Pyelonephritis: Acidification and Mandelate Therapy. R. J. Silvertown.—p. 661.  
Pulmonary Tuberculosis: Surgeon's Inquiry. J. C. Storey.—p. 672.

2: 699-736 (Nov. 21) 1936

- The Settlement of Tropical Australia. D. H. K. Lee.—p. 707.

2: 737-770 (Nov. 28) 1936

- The Life and Works of Sir Charles Bell. L. Cowlishaw.—p. 737.  
Outpatient Treatment of Gonorrhea in Women. Beatrice Warratt.—p. 747.  
Gonorrhea in the Inpatient Adult Female. K. J. G. Wilson.—p. 750.  
Short Investigation of Effect of "Ensol" on Transplantable Mouse Tumor. W. Moppett and N. E. Goldsworthy.—p. 754.

**Pyelitis and Pyelonephritis.**—Silvertown treated thirty-seven patients with various infections of the urinary tract by acidification or mandelates. Only vesical or posterior urethral infections were present in about one third of the patients. At the beginning of this work acidification alone, with strong nitrohydrochloric acid, was the method employed. The results were satisfactory in the majority of cases, but thorough eradication of the infection was made possible in some only by the addition of sodium mandelate or by the administration of ammonium mandelate instead. Seventeen patients were treated with strong nitrohydrochloric acid alone, success being complete in thirteen and partial in four; in three of the latter an organic lesion was present, while in the fourth the acidification caused severe irritation of the bladder. Nine patients were treated with ammonium mandelate alone, with success in seven and partial success in two. No organic lesions were present in this group of patients. Six patients were treated with strong nitrohydrochloric acid followed or accompanied by sodium mandelate, with partial success and success in two each. Only in the two successful cases were organic lesions absent. Five patients, to whom previous treatment with strong nitrohydrochloric acid had been given, were treated with ammonium mandelate. Treatment failed in one, was partially successful in two and was successful in two. It is concluded that hyperacidification of the urine is a powerful bacteriostatic or even bactericidal method. The addition of salts of mandelic acid reinforces this action. A combination of the two effects may be achieved in most cases by the use of ammonium mandelate, which both acidifies the urine and allows the excretion of mandelic acid.

**Journal of Oriental Med., Dairen, South Manchuria**

25: 79-90 (Nov.) 1936

- Influence of Cod Liver Oil on Experimental Tuberculosis of the Guinea Pig. Y. Tsuge.—p. 79.  
Study of Function of Thyroid Glands of Tuberculous Rabbits. T. Hashimoto.—p. 81.  
Influence of Cold on Reduced Glutathione Content in the Blood. M. Hashimoto.—p. 82.  
Vascular Measles in Cervical Region Among Infants. K. Okada.—p. 83.  
Syncytioma Malignum Attended by Metastasis on Vaginal Wall. T. Takaichi.—p. 84.  
Metagonimiasis Yokogawai in Dairen. S. Fukuda and K. Morikawa.—p. 85.  
Influence of Various Excretory Glands on Formation of Rhodan in Organism: II. Influence of Insulin and Dextrose. M. Hashimoto.—p. 86.  
Id.: III. Influence of Testicles. M. Hashimoto.—p. 87.  
Id.: IV. Influence of the Ovary. M. Hashimoto.—p. 88.  
Id.: V. Influence of the Hypophysis. M. Hashimoto.—p. 89.  
Id.: VI. Influence of Epinephrine and Sulfur. M. Hashimoto.—p. 90.

the bones of the axial skeleton. The lesions usually occur in the ends of the long bones, most frequently in the femur. The midportion of the shaft, however, may be invaded. The process is primarily destructive and originates in the medulla. There may be varying degrees of expansion of the cortex, erosion of the cortex and periosteal proliferation. The picture may simulate a primary bone tumor, a bone cyst or an inflammatory process. The ribs and sternum are favorite sites for bone infiltration. The process in the sternum is usually destructive, but there may be bone proliferation and expansion. Only destructive changes in the bones of the skull have been observed. The areas are usually circular with sharply defined margins, but the borders may be irregular and ill defined. Frequently there is a soft tissue tumor directly overlying the area of destruction. The shoulder girdle is involved in a small percentage of cases. Bone involvement has usually been considered a late manifestation of the disease; however, in the authors' cases the bones were involved early in the course of the disease in nearly 25 per cent. Extension to the bone occurs by direct invasion from adjacent diseased nodes or by a metastatic dissemination presumably through the blood stream. A primary Hodgkin's disease of bone without involvement of lymph glands, spleen or liver has not been observed. The response of bone lesions to radiation treatment is exceedingly variable. Although striking regression of the disease is occasionally observed, the osseous foci are, on the whole, less radiosensitive than the glandular foci. The sternal cases have shown the most satisfactory response. Potentials of at least 200 kilovolts are superior to the lower voltages. Small divided daily exposures of from 200 to 300 roentgens (measured in air) with total doses of from 600 to 1,200 roentgens per port have been found to be fully as effective as larger doses, and this method possesses the advantage that the treatment may be repeated frequently. Relief of pain is very striking in many cases, and symptomatic improvement is frequently obtained even though there is no evidence of bone regeneration. Although much can be done in a palliative way, the prognosis is grave. The longest duration of life occurred in those patients presenting sternal tumors, four of whom lived five years or more.

**Recurrent Idiopathic Spontaneous Pneumothorax.**—Sycamore reports a case of recurrent idiopathic spontaneous pneumothorax of the relapsing type, with a pronounced tension pneumothorax in one attack. The emphysematous bulla, which was apparently the etiologic factor, was plainly visible on the roentgenogram. In only one of Kjaergaard's cases was the lesion demonstrable roentgenographically. The patient has had five attacks of spontaneous pneumothorax in three years. The presence in the pathologic specimen of fibrous tissue and anthracotic pigment and the absence of any bronchial structures justified a diagnosis of emphysematous bleb rather than solitary lung cyst. Operation was performed for the removal of the emphysematous bleb.

### Archives of Dermatology and Syphilology, Chicago

35:1-202 (Jan.) 1937

William Allen Pusey—A Leader in Organized Medicine. O. West, Chicago.—p. 5.

Id.—The Editor. M. Fishbein, Chicago.—p. 7.

Id.—The Educator. D. J. Davis, Chicago.—p. 10.

Id.—The Historian and Litterateur. J. B. Herrick, Chicago.—p. 14.

Id.—The Citizen. R. C. Dawes, Chicago.—p. 19.

Pusey's Contributions to Cutaneous Medicine and Syphilis. C. G. Lane, Boston.—p. 21.

William Allen Pusey at Close Range. H. Rattner, Chicago.—p. 25.

Argyria. A. W. Stillians, Chicago.—p. 67.

New Arspenamine Synthetics in Treatment of Syphilis: Consideration of Test Procedure and of New Drug (Triarsen). J. H. Stokes and H. Beerman, Philadelphia.—p. 78.

\*Ulcerative Hodgkin's Disease of Skin. F. E. Seneor and M. R. Caro, Chicago.—p. 114.

External Causes of Dermatitis: List of Irritants. L. F. Weber, Chicago.—p. 129.

Neurobirosis Lipoidica Diabeticorum: Report of Case with Clinical, Pathologic and Biochemical Observations. B. Usher and I. M. Rabinovitch, Montreal.—p. 180.

\*Calcium Metabolism in Scleroderma. T. Cornbleet and H. C. Struck, Chicago.—p. 188.

**Ulcerative Hodgkin's Disease of Skin.**—Seneor and Caro present a case of Hodgkin's disease with the ulcerative type of cutaneous lesion, which illustrates the difficulty of diagnosis

often presented by the ulcerative manifestations of Hodgkin's disease. Ulceration may be said to occur in Hodgkin's disease in three different ways. The first is the type in which there are a number of cutaneous or subcutaneous nodules showing the typical histopathologic structure, in some of which ulceration develops. In the second type the skin is affected as a result of involvement secondary to lymphogranulomatous changes in underlying structures. In the third form there develop in the skin, either as the primary manifestation of the disease, or subsequent to but not as a direct extension of glandular involvement, large infiltrates or tumors rather than the small nodules which characterize the first variety. In the second and the third types the ulcers are, as a rule, extensive. It is particularly with these larger ulcerations that the authors are concerned, because it is when they are present that the greatest confusion in differential diagnosis is likely to arise. This is particularly true in cases in which the infiltration and subsequent ulceration develop before an enlargement of the palpable lymph node areas is apparent. The ulcers usually develop and extend rapidly up to a certain point; then extension ceases or is slow. The number, form, size and location of the ulceration vary. As a rule the margins are elevated; often they show a somewhat padlike elevation. The margins may be undermined and flabby or sharply punched out to resemble a gumma. Usually the ulcers are deep and have an uneven floor covered with abundant purulent or necrotic material or granulation tissue. The base, as a rule, is soft. In most cases there is a fetid odor. In some cases the ulcers develop in a large plaque of infiltration, while in others they develop from the breaking down of underlying glands, after which an extensive infiltration of the tissues surrounding the ulcer may take place. In the present case this secondary infiltrate covered almost the entire right side of the chest. As a rule the ulcers bleed freely when touched. Pain of variable degree, at times severe, is usually present. The ulcers may simulate closely the lesions of syphilis, sarcoma, mycosis fungoides, epithelioma and tuberculosis.

**Calcium Metabolism in Scleroderma.**—Cornbleet and Struck have encountered eleven patients having scleroderma. They determined over an extended period the calcium and phosphorus balances in two patients in whom there was unquestionably definite retention of both calcium and phosphorus beyond the amount conceivably necessary for growth of bone. Probably much of the retained calcium was deposited in the skin and muscular tissue. The disturbance of calcium metabolism may be so severe in some cases as to cause transfer of calcium from the fixed stores of the body—the bones—to the soft tissues. Not all patients with scleroderma may show retention of calcium and phosphorus but, when all facts are considered, it seems reasonable to believe that retention of calcium may be a fairly general feature of the condition. Certainly all investigators seem to agree that the calcium metabolism is affected. Shortly after administration of large doses of vitamin D was begun in the two cases in which balance studies were made the amount of calcium in the urine increased greatly, while that of the feces remained relatively unchanged. This is the characteristic effect of massive doses of vitamin D. The low calcium content of the urine helps to account for the retention of the element, and the increase in the output is sufficient to explain the negative balance observed during treatment. This is merely a symptomatic treatment, for there is no evidence that scleroderma is a deficiency disease. Further, the doses of vitamin D (from 200,000 to 300,000 international units) used are far above those required for normal growth or calcification or for recovery from rickets. From the clinical and chemical results in the eleven cases it seems fair to say that the abnormal calcium deposits in the skin were reduced by the vitamin D therapy before any appreciable amount of calcium was removed from the bones. A hypothesis is offered: that scleroderma is initially due to a toxin which injures the collagen syncytium and that these injured tissues secondarily take up calcium. This deposition of calcium may account for the frequently observed positive balance in scleroderma. Massive doses of vitamin D produce a negative balance, apparently at the expense of the calcium deposited in the collagen and muscle.

**Clinica Pediatrica, Modena**

18: 671-750 (Nov.) 1936

- Erythroblastic Anemia of Cooley's Type; Splenectomy: Case. R. Simonetti Cuizza.—p. 671.
- \*Changes of Gastric Chemistry in Children Suffering from Erythremic and Erythroleukemic Myelosis. A. Racugno.—p. 691.
- Pancreas Diseases in Children. B. Benassi.—p. 728.

**Changes of Gastric Chemistry in Anemic Children.**—Racugno studied the behavior of the gastric chemistry in children suffering from infantile erythroleukemic myelosis and erythroblastic anemia of Cooley's type with osteoporosis. Hypo-achylia or complete achylia is a constant occurrence in all children suffering from erythroleukemic myelosis. It does not mean, however, that there is any relation between pernicious anemia in adults and anemia of erythroleukemic myelosis. Megaloblasts or megalocytes are rarely or never present in the blood and the bone marrow of erythroleukemic children. Administration of liver and gastric extracts as well as of meat digested by normal gastric juice fails to give satisfactory results in erythroleukemic myelosis. Necropsies on children who have died from the disease fail to show atrophy of the gastric mucosa. According to the author, gastric achylia in erythroleukemic myelosis is secondary to hematopoietic alterations induced by the disease. In anemia of Cooley's type the changes of the gastric chemistry are less grave and less important than those induced by erythroleukemic anemia. Because of the different behavior of the gastric chemistry in the two types of anemia and of the familial and racial conditions that are necessary for the development of anemia of Cooley's type, the author advises taking Cooley's anemia out of the group of erythroleukemic myeloses of children. The changes of the gastric chemistry in several diseases of children complicated by secondary anemia are also induced by anemia.

**Giornale di Clinica Medica, Parma**

17: 1487-1574 (Dec. 30) 1936

- Action of Total Thyroid Extracts on Cardiovascular Apparatus. A. Garaventa.—p. 1487.
- Hypertrophy of Parotids in Diabetes: Cases. G. Ferretti.—p. 1495.
- \*Behavior of Arneth's Formula in Experimental Chronic Lead Poisoning. G. Guareschi.—p. 1501.
- Treatment of Recurrent Quinine Resistant Malaria. M. Francesco.—p. 1518.
- Inversion of Cecum. T. Bigliardi.—p. 1527.

**Arneth's Formula in Chronic Lead Poisoning.**—Guareschi studied the behavior of Arneth's formula in the blood of rabbits slowly poisoned by injections of an aqueous solution of neutral lead acetate. The most constant and obvious change in the blood picture was the shift to the left of Arneth's formula, followed late in the experiment by slight hypochromic anemia, leukocytosis and changes of the leukocyte formula. The forms of granulocytes that appeared in the blood of the animals early in the experiment were neutrophil myelocytes and metamyelocytes, which normally are found only in the bone marrow and which appear in the blood only in the presence of toxic or pathologic conditions by which the functions of the bone marrow are altered. Myelocytes, reticulo-endothelial cells and degenerated polynucleated neutrophils caused the shift of Arneth's formula to the left. The latter is not a specific manifestation of chronic lead poisoning. It is caused by a reaction of the organism to toxic pathologic stimulation of the hematopoietic myeloid and reticulo-endothelial systems. It can be induced by stimulation of the systems by toxic substances other than lead as well as by pathologic conditions. According to the author the shift of Arneth's formula to the left, in association with the presence of myelocytes in the blood, is of value in the early diagnosis of chronic lead poisoning.

**Pathologica, Genoa**

28: 537-581 (Dec. 15) 1936

- Cysts of Fat Capsule of Kidney: Case. I. Rizzi.—p. 537.
- \*Comparison of Meinicke Second Clarification Reaction and Schlessmann's Modification in Serodiagnosis of Gonorrhea. A. Ambrogio. p. 544.
- Influence of Uric Acid on Diffusibility of Colloidal Dyes in the Skin. A. Mussafia.—p. 553.
- Luteinizing Factor of Anterior Pituitary-like Principle and Menstruation. F. P. Doneddu.—p. 561.

**Comparison of Meinicke Reaction and Schlessmann's Modification in Gonorrhea.**—Ambrogio made a comparative study of the diagnostic value of Meinicke's second clarification

reaction and Schlessmann's modification in gonorrhea. Both tests are of simple technic. The author found that Meinicke's second clarification reaction is of less value than the bacteriologic and clinical examinations in the simple acute forms of male gonorrhea and of greater value in the chronic forms without complications. A fairly good proportion of positive results (68 per cent) is obtained in genital and extragenital complicated cases. Nevertheless, negative results are obtained in cases of gonorrhea proved by local and general reactions. The Meinicke reaction gives a low proportion of positive results in female gonorrhea located at the cervical canal (64 per cent) and a high proportion in urethral gonorrhea and in gonorrheal Bartholinitis (90 and 75 per cent, respectively). Meinicke's reaction cannot be used for the diagnosis of gonorrhea in cases of syphilis when the syphilitic reaction is partially positive, because of the fact that its behavior is analogous to that of the syphilitic test. The control tests carried out by the author on serums from a group of nonsyphilitic persons, including normal persons and patients who had no venereal or gonorrheal genital diseases, showed that Meinicke's reaction gives a great percentage of nonspecific results, which may be made positive after the patients receive injections of specific vaccine or of nonspecific proteins. Schlessmann's modification of Meinicke's reaction generally gives results similar to those given by the original test. In some cases, however, the results of the tests do not coincide. Schlessmann's test is less sensitive but much more specific than the original test. Both technics are more sensitive than the complement fixation test but are not as specific as the latter. This fact and the lack of constant results of the original and modified Meinicke tests in different clinical types of gonorrhea rob these technics of their value in the serodiagnosis of gonorrhea.

**Riforma Medica, Naples**

52: 1577-1612 (Nov. 21) 1936

- Action of Lipids by Intravenous Route on Biliary-Duodenal Secretion. A. Tarsitano.—p. 1579.
- \*Diminution of Toxicity of Arsphenamine by Addition of Extracts of Skin. M. De Luca.—p. 1582.
- Crusade Against Acute Peritonitis. A. Pellegrini.—p. 1585.
- Radium Therapy of Malignant Tumors of Respiratory Tract. C. Terigiani and V. Palumbo.—p. 1607.

**Diminution of Toxicity of Arsphenamine.**—De Luca made experiments on rabbits with intravenous injections of arsphenamine with and without skin extract. He concludes that the addition of skin extract to arsphenamine renders the latter less toxic to the rabbit. The detoxifying action is the same as that of liver and brain extracts. According to the author, the action of the skin extract is due to a condensation process between the molecule of arsphenamine and that of the amino acids present in the skin. The combination of the arsphenamine and amino acid molecules results in the formation of a molecular complex which has a less harmful effect on the tissues than that of the arsphenamine molecule alone. In the chemico-physical process amino acids are of importance, regardless of the organ from which they are obtained. There are slight differences in the neutralizing power of the extracts from different organs, probably because of the amount and quality of amino acids present in the given organ from which the extract is made.

**Prensa Médica Argentina, Buenos Aires**

24: 1-68 (Jan. 6) 1937. Partial Index

- Gastroclic Fistula in Gastric Cancer: Case. M. R. Castex, J. Garbá del Rio and E. S. Mazzei.—p. 1.
- Surgery in Bronchiectasia. E. Finochietto and O. A. Vaccarezza.—p. 14.
- Simultaneous Pregnancy in Double Uterus: Case. A. Peralta Ramírez and F. A. Uranga Imaz.—p. 25.
- Curves of Venous and Capillary Glycemia in Disturbances of Glucose Metabolism. T. Castellano and M. Grinstein.—p. 31.
- \*Treatment of Hemoptysis by Venom of *Vipera Russellii*. A. A. Raimondi and A. Sangiovanni.—p. 42.
- Scleroderma and Sclerodermic Syndromes: Cases. J. J. Spangher and F. Guagnini, F. Buono and H. Gattini.—p. 46.

**Treatment of Hemoptysis by Poison of *Vipera Russellii*.**—Raimondi and Sangiovanni state that the poison of the Russell snake has coagulating properties, which are shown immediately after an intradermic injection of the poison and which are more obvious after two hours. The coagulation



carbohydrate and is quite an advantage at noon to check the gradual fall in the blood sugar when fairly large doses of protamine insulin are used early in the morning. A lower and more uniform blood sugar curve can be maintained with protamine insulin. The slow breakdown and absorption over a period of twelve hours should be borne in mind and the new preparation not recommended in preference to regular insulin in diabetic coma. However, the knowledge of its delayed absorption should relieve the patient from the mid-night dose of insulin, virtually doing with two doses of protamine insulin what was expected of four doses of regular insulin and at the same time avoiding sharp breaks in the blood sugar curve.

## California and Western Medicine, San Francisco

45: 449-520 (Dec.) 1936

- Practica Medici Moderni. C. D. Leake, San Francisco.—p. 455.  
Acute Appendicitis: Clinical Review of One Thousand Consecutive Cases. G. K. Rhodes, W. Birnbaum and M. J. Brown, San Francisco.—p. 458.  
Thrombosis and Embolism: Preoperative and Postoperative Care in Their Prevention. J. H. Breyer, Pasadena.—p. 463.  
Whooping Cough: Its Prophylaxis and Treatment. J. M. Frawley, Fresno.—p. 467.  
Practical Quantitative Perimetry. D. O. Harrington, San Francisco.—p. 473.  
Siltosis. P. H. Pierson, San Francisco.—p. 477.  
Traumatic Rupture of Uterus in Advanced Pregnancy. E. M. Lazard and F. E. Kliman, Los Angeles.—p. 482.  
Rhinophyma. W. C. Crabtree, San Diego.—p. 485.  
Scabidical Drugs: Experimental Study. H. J. Templeton and H. V. Allington, Oakland.—p. 487.  
Urinary Tract Infection with "Clear Urine." J. R. Dillon, San Francisco.—p. 489.

## Canadian Public Health Journal, Toronto

27: 477-528 (Oct.) 1936

- Tuberculosis and the Medical Officer of Health. A. E. Ranney, North Bay, Ont.—p. 477.  
Influencing Factors in Control of Tuberculosis in Ontario. G. C. Brink, Toronto.—p. 482.  
\*New Method of Detecting Staphylococcus Enterotoxin. C. E. Dolman, Vancouver, B. C.; R. J. Wilson and W. H. Cockcroft.—p. 489.  
Small Outbreak of Staphylococcal Food Poisoning in Vancouver. C. E. Dolman, Vancouver, B. C.—p. 494.  
Progress in Cancer Control in Saskatchewan. R. O. Davison, Regina, Sask.—p. 498.  
Importance of Accuracy in Vital Statistics. S. J. Streight, Toronto.—p. 502.  
Milk Control Regulations in Ontario, 1936. A. E. Berry, Toronto.—p. 504.

## Method for Detecting Staphylococcus Enterotoxin.—

Dolman and his colleagues report the suitability of kittens as test animals for the detection of enterotoxin, or the food poisoning substance, in staphylococcus filtrates. As little as 0.5 cc. intraperitoneally of a potent filtrate will cause a severe reaction in a kitten weighing from 350 to 550 Gm. and from 6 to 8 weeks of age, while 3 cc. of filtrate from innocuous strains, or of broth treated with formaldehyde, will occasion no upset. Adult cats may be used for the test, but they are harder to handle and seem relatively less sensitive than kittens.

## Indiana State Medical Assn. Journal, Indianapolis

30: 1-58 (Jan.) 1937

- Diagnosis and Treatment of Early Syphilis. F. E. Seneat, Chicago.—p. 1.  
Diabetes Mellitus as Comparatively Simple Clinical Problem. B. M. Edlavitch, Fort Wayne.—p. 7.  
\*Surgical Aspects of Hematuria. J. F. Balch and W. N. Wishard Jr., Indianapolis.—p. 13.  
Asthma Due to House Dust. L. G. Montgomery, Muncie.—p. 18.  
Pernicious Anemia and Its Treatment. P. J. Fouts, Indianapolis.—p. 22.  
What Can the Woman's Auxiliary Contribute to the Practice of Medicine? C. P. Emerson, Indianapolis.—p. 24.

## Surgical Aspects of Hematuria.—

Balch and Wishard state that a painless hematuria is dangerous and often means that a malignant condition is present. The entire ureter as well as the kidney should be removed in papillary tumors of the renal pelvis. Pycloolithotomy gives a 1 and nephrolithotomy a 10 per cent mortality. Hematuria associated with pyuria means renal tuberculosis until proved otherwise. About 95 per cent get well without surgical intervention. The exact cause of bleeding should be investigated in all instances of gross hematuria. Cases of bladder hemorrhage may be classified into those of slight severity in which orderly urologic examination may be done at an elective time and those of severe

bleeding demanding immediate attention. In nontraumatic bladder bleeding, treatment consists of emptying the bladder of clots and stopping hemorrhage, dealing with the underlying disease at a more opportune time if possible. In traumatic bleeding the bladder must be drained surgically if rupture is present. Contusion of the bladder without break of its walls may at times be treated by evacuation of clots and indwelling catheter drainage.

## Journal of Bacteriology, Baltimore

32: 589-696 (Dec.) 1936

- Attempts to Increase Heat Resistance of Bacterial Spores. F. T. Williams, Madison, Wis.—p. 589.  
Glycerol and Carbohydrate Utilization by Mycobacterium Tuberculosis. A. G. Wedum, Chicago.—p. 599.  
Growth of Micro-Organisms on Mediums Exposed to Ultraviolet Radiations. E. L. Pratt, Cambridge, Mass.—p. 613.  
Lytic Action of Certain Strains of Hemolytic Streptococci on Fresh Sterile Kidney and Other Tissues. Beatrice Carrier Seegal and D. Seegal, New York.—p. 621.  
\*Comparative Study of Hemolytic Streptococci Isolated from Throats of Residents of New Orleans and New York. P. Teiger and Beatrice Carrier Seegal, New York.—p. 631.  
Preparation of Silicic Acid Jellies for Bacteriologic Mediums. J. H. Hanks and R. L. Weintraub, Washington, D. C.—p. 639.  
Pure Culture Isolation of Ammonia-Oxidizing Bacteria. J. H. Hanks and R. L. Weintraub, Washington, D. C.—p. 653.

**Hemolytic Streptococci Isolated from Throats.**—Teiger and Seegal compared certain biologic and immunologic characteristics of sixty-three strains of hemolytic streptococci isolated from residents of New Orleans with 103 strains isolated in New York City. The New Orleans strains came from cases of acute nephritis and acute infection of the upper respiratory tract and from normal throats. The New York strains came from cases of acute nephritis and chronic or healed nephritis, with or without acute pharyngitis. The organisms were examined for their fermentation of lactose, mannitol and salicin, their hemolysis in blood pour plates, their production of a soluble hemolysin and skin toxin, their hydrolysis of sodium hippurate and their final  $pH$  in dextrose broth. Their membership in group A of Lancefield also was determined. By these tests no difference was found between the hemolytic streptococci isolated from the throats of individuals residing in New Orleans or in New York.

## Journal of Experimental Medicine, New York

65: 1-176 (Jan.) 1937

- Does Gonadotropic Hormone Induce Antibodies or Antihormones? F. Sulman, Jerusalem, Palestine.—p. 1.  
Analysis of Mitosis in Liver Restoration. A. M. Brues and Beula B. Marble, Boston.—p. 15.  
Capillary Supply in Normal and Hypertrophied Hearts of Rabbits. R. A. Shipley, Louise J. Shipley and J. T. Wear, Cleveland.—p. 29.  
Production of Hemorrhagic Necrotic Skin Lesions in Rabbit by Means of Haemophilus Influenzae and Haemophilus Pertussis. E. Witebsky and H. Salm, New York.—p. 43.  
Studies on Somatic C Polysaccharide of Pneumococcus: I. Cutaneous and Serologic Reactions in Pneumonia. T. J. Abernethy and T. Francis Jr., New York.—p. 59.  
Id.: II. Precipitation Reaction in Animals with Experimentally Induced Pneumococcal Infection. T. J. Abernethy, New York.—p. 75.  
Experimental Attempts to Increase Blood Supply to Dog's Heart by Means of Coronary Sinus Occlusion. L. Gross, L. Blum and Gertrude Silverman, New York.—p. 91.  
Immunologic and Chemical Investigations of Vaccine Virus: V. Metabolic Studies of Elementary Bodies of Vaccinia. R. F. Parker and C. V. Smythe, New York.—p. 109.  
Bactericidal Properties of Ultraviolet Irradiated Lipids of Skin. F. A. Stevens, New York.—p. 121.  
Vitamin C Therapy and Prophylaxis in Experimental Poliomyelitis. C. W. Jungeblut, New York.—p. 127.  
\*Bactericidal Action of Human Serum on Hemolytic Streptococci: I. Observations Made with Serum from Patients with Acute Infections and from Normal Individuals. W. S. Tillett, Baltimore.—p. 147.  
\*Id.: II. Factors Which Influence Phenomenon in Vitro. W. S. Tillett, Baltimore.—p. 163.

## Action of Human Serum on Hemolytic Streptococci.—

Tillett discovered that serums obtained from patients at the time of acute active infections were bactericidal for hemolytic streptococci in every instance. The observations were made with serums from twenty-five patients. The group consisted of cases of pneumococcus, hemolytic streptococcus, staphylococcus, meningococcus, tubercle bacillus and malarial infections; the etiology of the diseases in other patients was either uncertain or may have been a mixed infection. In serums taken from the same group of patients, soon after recovery or marked improvement had taken place, the streptococcal property was

opment of colds and of influenza, pointing out that in the case of colds the weather conditions play a more important part than in the case of influenza. Then he analyzes the rôle of constitutional factors in the pathogenesis of colds and again shows that their importance is not so great in influenza. On the contrary, strong and otherwise healthy persons frequently develop severe forms of influenza, whereas patients with tuberculosis, for instance, seem to have a considerable amount of immunity against it. As symptoms that are especially important for the differentiation of influenza the author mentions severe prostration at the onset, apathy, severe headaches, pains in the joints and, especially, circulatory disturbances in the form of an accelerated small pulse and slight cyanosis of the lips and of the finger nails. After mentioning the complications and sequels of influenza, he points out that the bacteriologic differentiation presents considerable difficulties, particularly for the practitioner. Nevertheless he thinks that colds and influenza should be differentiated as much as possible.

32: 1761-1780 (Dec. 24) 1936. Partial Index

Diagnosis and Treatment of Tuberculosis of Middle Ear. F. Zöllner.—p. 1761.

\*Feeling of Oppression and Dyspnea in Patients with Insufficiency of Left Side of Heart. G. Budelmann.—p. 1763.

\*Malariotherapy After Acute Paralytic Stage in Epidemic Poliomyelitis. O. Kauders.—p. 1766.

\*Erythrocyte Sedimentation Speed in Malignant Tumors. H. Reichel.—p. 1769.

Question of Reliability of Visscher-Bowman Pregnancy Reaction. W. Ritter.—p. 1771.

**Feeling of Oppression in Cardiac Insufficiency.**—Budelmann directs attention to a causal factor of the feeling of oppression in patients with myocardial insufficiency which, although known, is given little attention in daily practice. He shows that, in cases in which an insufficiency of the left side of the heart exists, pulmonary stasis is usually the eliciting factor of the feeling of oppression and of dyspnea. The mechanical modification of the respiration that results from the "pulmonary rigidity" plays an important part, but this factor is frequently disregarded in the treatment; the author discusses these conditions. He demonstrates that the determination of the vital capacity of the lung indicates the degree of pulmonary stasis. The "pulmonary rigidity" resulting from a reduction in the elasticity of the lung makes the respiratory mechanism more difficult and causes an increase in the intrapleural pressure. There is a close connection between pulmonary stasis and increase in intrapleural pressure, on the one hand, and the feeling of oppression and dyspnea, on the other. In the treatment it is important to improve the functional capacity of the heart and to prevent the overburdening of the heart in the form of an increased backflow. In an acute attack of cardiac oppression and dyspnea, it is moreover necessary to reduce the pulmonary stasis and with it the increasing intrapleural pressure. Pulmonary stasis is most effectively counteracted by venesection, provided a sufficiently large quantity of blood (from 700 to 1,000 cc.) is withdrawn. A pleural exudate should be carefully drained. In order to improve the functional capacity of the heart, strophanthin or digitalis should be given. In most cases the author found ineffective many of the medicaments that are ordinarily prescribed for cardiac oppression and dyspnea, such as camphor, caffeine, amyl nitrite, glyceryl trinitrate and oxygen. Regarding the prophylaxis, he says that all measures which prevent an overburdening of the water exchange have preventive value.

**Malariotherapy in Epidemic Poliomyelitis.**—In an epidemic of poliomyelitis, Kauders observed an unusually large percentage of adult patients and points out that in these cases the prognosis is usually less favorable than in children and young persons. In the surviving patients with paralysis, monoplegias were rare, the majority having extensive forms of paralysis. Most frequent was the complete paralysis of the lower extremities, frequently with involvement of the abdominal and pelvic muscles. The treatment of the acute poliomyelitis consisted generally in the administration of convalescent serum that had been obtained in this epidemic. Following the acute stage the paralytic parts of the organism were subjected to intensive after-treatment in the form of massage, electrical treatment, passive and active exercises, diathermy and so on. As these measures proved ineffective in many cases of severe paralysis, the author decided to try malariotherapy. After

citing the factors that induced him to resort to this measure, he gives a tabular report of eighteen cases. The table indicates that the number of malarial attacks varied between four and ten. The time of the beginning of the malarial treatment varied between sixteen and 103 days after onset of the disease. In discussing the results of the treatment, the author points out that the time is too short to permit a final evaluation, but the tabular report indicates that all patients were somewhat improved and that in five cases the results were excellent. He concludes that malariotherapy is an important therapeutic aid in the paralytic sequels of poliomyelitis.

**Erythrocyte Sedimentation Speed in Malignant Tumors.**—Reichel describes his technic of the sedimentation reaction and then discusses the factors that influence it. He points out that the sedimentation is not a reaction of the malignancy of a tumor but merely the manifestation of the resorption capacity for inflammatory and necrotic products. If the tumor itself has reached a certain size, it becomes readily necrotic. Moreover, the tumor often ulcerates and thus may cause infection of its own and of surrounding tissues. Then it may close excretory ducts, and the resulting stasis readily leads to infection. In these ways a malignant tumor leads to an acceleration of the sedimentation speed. As a nonspecific reaction, the sedimentation alone cannot be the basis of the diagnosis of a malignant tumor. However, since it is accelerated in 90 per cent of malignant tumors, a normal sedimentation speed in a doubtful case excludes a malignant tumor with considerable certainty. On the other hand, an acceleration of the sedimentation speed often directs attention to the presence of a malignant tumor.

### Medichniy Zhurnal, Kiev

G: 658-994 (No. 3) 1936. Partial Index

Problems of Experimental Medicine. O. O. Bogomolets.—p. 675.

Antireticular Cytotoxic Serum Therapy of Scarlet Fever. O. O. Bogomolets and P. D. Marchuk.—p. 689.

Effect on Glycemia of Homotransfusion and Heterotransfusion. N. B. Medvedeva.—p. 699.

Method of Denervation of Liver in Animals. I. M. Ishchenko.—p. 701.

Rôle of Nervous System in Regulation of Morphology of Blood Picture. N. D. Yudin.—p. 713.

\*Blood Transfusion Therapy of Scarlet Fever. A. M. Zuykov, A. L. Shekhet, V. O. Zavoiko and V. N. Meshcherskiy.—p. 839.

**Blood Transfusion Therapy of Scarlet Fever.**—Ninety-three patients suffering from scarlet fever were treated by Zuykov and his associates with blood transfusions. In the majority of the cases the blood was taken from donors who had not had scarlet fever. The transfusion was performed in the early stage of the disease, between the second and fifth days. The amount varied between 100 and 300 cc., depending on the age of the patient. In sixty-one of the cases the transfusion aborted abruptly the course of the disease. From six to ten hours after the transfusion the temperature fell to normal, and the manifestations of intoxication and the inflammatory process in the throat showed a pronounced improvement. Convalescence took place two or three days later. Considerable improvement was noted in twenty-four cases. The temperature came down and the course of the disease became milder. In eight cases in which there were complications, the blood transfusion did not give a therapeutic effect. A strong reaction to transfusion was exhibited by six gravely sick patients. Following the transfusion there was a rapid and persistent fall of temperature. The therapeutic effect was best in patients in whom the toxic manifestations predominated over the inflammatory. This therapy gave a more permanent and a more pronounced therapeutic effect than the antitoxin-serum therapy. The authors believe that blood transfusion in scarlet fever acts as a nonspecific irritant and that colloidal clots are the basis of it. Blood transfusion does not safeguard against complications resulting from the action of streptococci accompanying the infection. The authors recommend the employment of blood transfusion in all severe cases of scarlet fever, especially the toxic and malignant varieties. In order to be successful the transfusion should be performed in the early stage of the disease and the citrated blood utilized should not be more than twenty-four hours old. The authors likewise obtained equally good therapeutic effects in thirteen cases of moderately severe scarlet fever in which small doses (from 0.25 to 0.5 cc.) of cytotoxic antireticular serum were administered.

process itself may have been arrested, without obviating the effects of repeated cerebral hemorrhage. It is not unreasonable to assume that close scrutiny of the dietary of alcoholic addicts and the insane would often reveal deficiency of vitamin C, an observation so much more subject to objective proof in early life. Cevitamic acid levels in the blood and urine studies for the determination of the degree of saturation with the vitamin offer new methods of investigating latent scurvy. The following sequence of events seems to be concerned with the production of idiopathic chronic subdural hematoma: An underlying bleeding diathesis is postulated in most cases on the basis of scurvy. Free subdural bleeding is produced by a definite or insignificant head trauma causing either disruption of arachnoid invaginations into the dural sinuses or rupture of a bridging vein. Organization and removal of the clot are impeded by the scorbutic process, resulting in a neomembrane surrounding free blood. Repeated trauma and remission and exacerbation of the scurvy modify the disease. Late symptomatology is occasioned by enlargement of the semipermeable sac following the slow breakdown of red blood cells and reduction of free hemoglobin into smaller molecular aggregates with the passage of time.

### New York State Journal of Medicine, New York

37: 1-118 (Jan. 1) 1937

- Infiltration Anesthesia in Vaginal Plastic Operations. H. B. Matthews and V. P. Mazzola, Brooklyn.—p. 1.  
Acute Recurrent Polymyositis Associated with Blood Eosinophilia: Report of Case with Review of Literature. S. E. Krohn, Gloversville.—p. 10.  
Etiology and Pathogenesis of Multiple Tumors of Urinary Tract: Treatment and Results. E. L. Keyes and R. S. Ferguson, New York.—p. 15.  
Proper Dietary as Public Health Measure: Relation to Infancy and Childhood. E. J. Wynkoop, Syracuse.—p. 21.  
\*Hodgkin's Disease with Bone Manifestations. S. G. Schenck, Brooklyn.—p. 27.  
Granulocytopenia: Analysis of Nineteen Cases. J. R. Scott and E. Herbert Jr., New York.—p. 38.  
Trichomonas Vaginalis Vaginitis: Laboratory and Clinical Study. R. A. Pattyson, East Orange, N. J.—p. 41.  
Treatment of Fractures of Facial Bones. G. H. Cox, Glen Cove.—p. 52.  
Specific Therapy in Rhus Dermatitis. H. Sharlit and B. A. Newman, New York.—p. 61.  
Role of the Pathologist in the Non-Teaching Hospital. T. J. Curphey, Brooklyn.—p. 64.

**Hodgkin's Disease with Bone Manifestations.**—Schenck points out that although it is well known that Hodgkin's granuloma is manifested by an enlargement of the lymph nodes and by an invasion of the lymphatic system, frequently associated with splenomegaly, it is not generally appreciated that the disease may also reveal itself in the skeletal system. The granulomatous invasion of the osseous structures, with or without visual or palpable lymph node involvement, is not a rare occurrence. The author considers only those patients who present roentgen evidence of bone changes in the clinical course of their disorder. In reviewing the records at the Jewish Hospital for the last ten years, he has collected 107 cases of Hodgkin's granuloma. In the first five years of the series, during which time there were twenty-three confirmed cases of lymphogranulomatosis, only one patient had skeletal involvement. In the last five years, which included fifty-nine proved cases, there were seven with osseous invasion, demonstrable roentgenologically. This discrepancy between the first and second periods is evidently due to the fact that bone lesions have been searched for and recognized more frequently in recent years. In this series of eight cases the vertebrae were involved in six, the pelvis in five, the skull in three, the femur in two, and the sternum, humerus, scapula and ribs in one case each. Larger series by other investigators have shown that the order of frequency of bone involvement is vertebrae, sternum, pelvis, femur, ribs, skull, humerus, scapula and clavicle. Two of the eight patients gave no history of pain over the involved region; in the others, pain, which was of a dull aching or sharp lancinating character, preceded the demonstrable invasion of the bone by a few days or as long as two years, as occurred in one case. With vertebral involvement the pains are often girdling in character and increased on motion. With involvement of the lumbar spine, the pains are frequently referred to the lower extremity. The other symptoms are the same as in Hodgkin's disease without bone changes.

Thus bone changes, especially when associated with the chief symptoms of the disease, should lead to the correct diagnosis. The advisability for more frequent and complete roentgen studies of the bones in Hodgkin's granuloma is obvious.

### Rhode Island Medical Journal, Providence

19: 187-200 (Dec.) 1936

- Early Treatment of the Insane in Rhode Island. A. H. Harrington, Providence.—p. 187.  
Bedside Manner and Psychiatry. H. W. Williams, Howard.—p. 189.  
The Schilling Hemogram in Appendicitis. H. E. Gauthier, Woonsocket.—p. 192.

### South Carolina Medical Assn. Journal, Greenville

32: 279-304 (Dec.) 1936

- Pulmonary Actinomycosis. H. Y. Harper, Anderson.—p. 279.  
Surface Anesthesia of Traumatized Urethra. E. L. Brodie, Buffalo, and I. A. Phifer, Spartanburg.—p. 282.  
Toxic Nodular Goiters. R. G. Doughty, Columbia.—p. 284.

### Virginia Medical Monthly, Richmond

63: 589-652 (Jan.) 1937

- Lesions of Right Upper Abdominal Quadrant, Area of Romance. W. D. Haggard, Nashville, Tenn.—p. 589.  
Surgery of Thyroid Gland. J. M. Emmett and A. E. Long, Clifton Forge.—p. 595.  
Bronchoscopic Observation of Laryngotracheobronchitis in Children with Obstructive Dyspnea. E. T. Gatewood, Richmond.—p. 600.  
Differential Diagnosis of Chronic Basal Pulmonary Lesions. P. P. Vinson, Richmond.—p. 603.  
Some Points of Interest in Treatment of Fractures of Long Bones by Use of an Improved Fracture Reducing Frame. C. W. Putney, Staunton.—p. 606.  
\*Multiple Myeloma: Report of Five Cases. H. Walker and N. Bloom, Richmond.—p. 616.  
Control of Syphilis in States of Tennessee River Valley. R. A. Vonderlehr, Washington, D. C.—p. 621.  
Dystrophia Dystocia Syndrome. W. McMann, Danville.—p. 625.  
Fever Therapy in Treatment of Certain Inflammatory Eye Diseases. G. H. Faget, Norfolk.—p. 628.  
Pregnancy and Labor in 400 Unmarried Primiparas. W. Bickers, Richmond.—p. 632.  
Some Further Observations of Sulfur Metabolism as Factor in Arthritis—Introduction of Suggestion that Adrenal Function Affects Sulfur Metabolism. T. Wheeldon, Richmond.—p. 634.  
Stomatitis Due to Sensitivity to Dental Plates: Case. W. L. Weaver, Richmond.—p. 636.

**Multiple Myeloma.**—Walker and Bloom present five cases of multiple myeloma and stress the protean manifestations of the disease. Clinically, myeloma cases present a varied picture. They are often diagnosed as neuritis, lumbago, arthritis, anemia, chronic nephritis and spinal cord tumors. Yet, when the widespread pathologic changes and the rarity of the disease are considered, these errors in diagnosis are explained and are to be expected. In almost all cases, pain is a prominent feature. The pain may be intermittent, severe, wandering or recurrent. Pathologic fractures are frequent and thoracic deformity is common. Chronic bronchitis and emphysema are often present. Owing to the fact that the tumor most frequently attacks the vertebrae, ribs and skull, neurologic symptoms and signs are common. The mental faculties remain clear, although as a terminal event mental confusion and coma do occur. The renal changes are variable. Clinically, the patient may present a picture of chronic nephritis with urinary changes in keeping with this diagnosis. There are no gastrointestinal symptoms that are peculiar to this disease, nausea, vomiting and colicky pains being the most common complaints. Therefore it is obvious that there is no symptom complex that is characteristic of myeloma. Only by the presence of some unusual physical phenomenon is the correct diagnosis suspected, this usually being confirmed by roentgenography and pathologic studies. Since multiple myeloma is primarily a bone marrow tumor, one would expect many changes in the blood. All osteolytic bone lesions have to be excluded. Metastatic carcinoma and metastatic hypernephroma particularly have to be ruled out. Chloroma and bone cysts are sometimes confusing. There are no physical or laboratory observations that can be absolutely depended on to make a differential diagnosis, and for absolute proof of the existence of this disease a biopsy is necessary. The prognosis is unfavorable. Roentgen therapy brings about remissions, although these may occur spontaneously; but no proved case has ever been reported as cured. The average duration of life is about three years.

well. Certainly the crisis that accompanies abortive pneumonia, often on the second or third day of the disease, is just as dramatic as the natural crisis which occurs on the seventh or eighth day in those who receive no serum. All physicians can recall acutely ill pneumonia patients who, on the morning after receiving serum, insist on telephoning their offices or reading the morning newspaper.

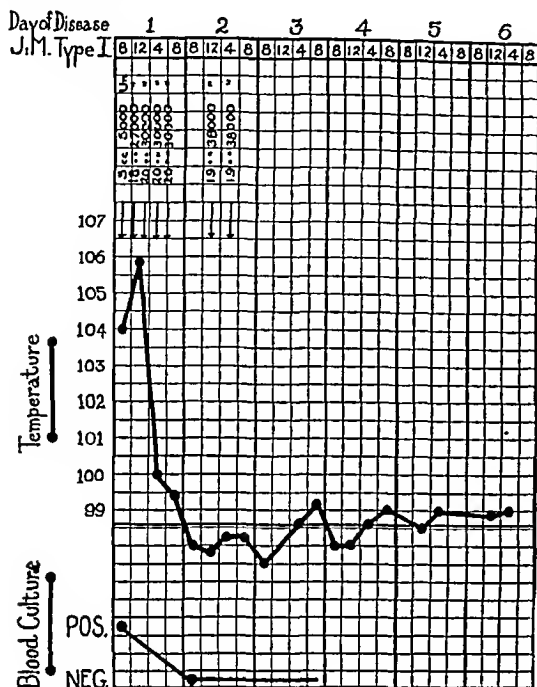


Chart 1.—Septic type I pneumonia treated on first day of disease with concentrated antipneumococcus serum. Upper line, temperature; lower line, bacteremia.

One of the most interesting methods of studying the effect of antipneumococcus serum on the pneumonic process is to take daily roentgenograms during the active period of the disease. By this method of study it can be shown that the prompt and adequate administration of serum usually limits the infection to one lobe. If serum is given very early, the area of infection in the involved lobe is sharply demarcated and rapidly fades out. When serum is started a little later, from twenty-four to forty-eight hours after onset, it often happens, as pointed out by several observers, that though an immediate crisis is induced, the area of consolidation in the involved lobe increases somewhat in size and may finally involve the entire lobe.

Numerous writers have stressed the value of antipneumococcus serum in preventing or checking bacteremia. Even when serum is given late in the disease, a heavy blood stream infection is often overcome, though a fatal termination may ensue. When bacteremia develops early in the disease, it is promptly eliminated by serum therapy. This is well illustrated in charts 1 and 3.

Chart 2 illustrates the effect of early serum therapy on bacteremia in two monkeys that were given lethal doses of pneumococcus type I culture intratracheally.<sup>3</sup> Both animals rapidly developed the classic signs of lobar pneumonia accompanied by bacteremia. Pneumococci promptly disappeared from the blood stream after the first injection of type I antipneumococcus serum.

The mechanism of this phenomenon is fairly well understood. The pneumococci, apparently, are agglutinated by the serum and are filtered out of the blood as it passes through the liver and spleen.

One of the earliest reactions to pneumococcal infection of the lungs is a leukocytosis, preceded in some cases by a fleeting leukopenia. This leukocytosis is due almost entirely to an increase in the number of polymorphonuclear leukocytes. In man the total count is usually between 15,000 and 25,000 with the polymorphonuclears ranging from 80 to 90 per cent. In exceptional cases the leukopenia persists, while in still others the count may go to 40,000 or more. In experimental animals, the same leukocytic response is observed. In monkeys this leukocytic response is sometimes quite marked. (This is well illustrated in chart 2.) Schilling counts reveal a sharp increase in the percentage of immature white cells in the blood. When antipneumococcus serum is administered early in the disease and localizes the pneumococcal infection in the lung, there is usually a prompt drop in the polymorphonuclears. With this drop there is an accompanying fall in the percentage of immature cells and a sharp increase in the number of monocytes.

Dochez<sup>4</sup> showed that at the time of the natural crisis in pneumonia the so-called protective bodies first make their appearance in the circulating blood. In numerous instances during studies at Bellevue Hospital, the prompt appearance of protective bodies in the serum of pneumonia patients who had been early and adequately treated with serum has been demonstrated.

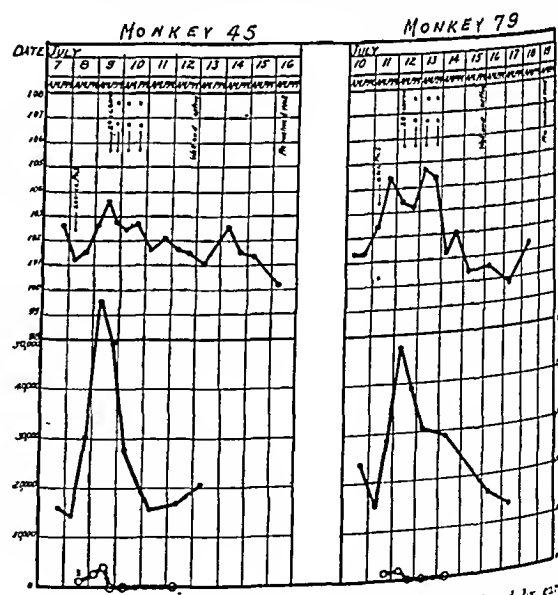


Chart 2.—Abortive type I pneumonia in monkeys, produced by early and intensive serum therapy. Upper solid line, temperature; lower solid line, leukocytes; broken line, bacteremia.

(chart 3). Bullowa<sup>5</sup> has demonstrated homologous agglutinins in the blood of pneumonia patients after treatment with specific serum and has made practical use of this test for determining when the patient has had a sufficient quantity of serum. The precipitins run

3. Cecil, R. L., and Blake, F. G.: Studies on Experimental Pneumonia: VII. Treatment of Experimental Pneumococcus Type I Pneumonia in Monkeys with Type I Antipneumococcus Serum, *J. Exper. Med.* 32:1 (July) 1920.

4. Dochez, A. R.: The Presence of Protective Substances in Serum During Lobar Pneumonia, *J. Exper. Med.* 16: 665, 1912.  
5. Bullowa, J. G. M.: The Hospital Management of the Pneumonia, *Bull. Lederle Laboratories* 3, No. 1, February 1935.

**Presse Médicale, Paris**

44: 2009-2032 (Dec. 12) 1936

\*Fifteen Minute Phenolsulfonphthalein Test. Pasteur Vallery-Radot, P. Delafontaine, R. Israel and J. Porge.—p. 2009.  
Thoracic Breath Sounds. P. Braun and R. Pigeon.—p. 2010.  
Precise Aortometry. S. Kreuzfuchs.—p. 2013.

**Fifteen Minute Phenolsulfonphthalein Test.**—Vallery-Radot and his co-workers studied the possibility of substituting a shorter period than the classic one in the use of the phenolsulfonphthalein test. Their investigations were made on eighty-one subjects, of whom six were completely normal and seventy-five had various diseases, particularly hypertension, Bright's disease and old nephritis. The phenolsulfonphthalein test was performed according to the classic method, a period of one hour and one of fifteen minutes being used. The technic was approximately the usual one, with intravenous injection of 1 cc. of a solution containing exactly 6 mg. of phenolsulfonphthalein. As far as possible, the urines were collected by spontaneous micturition a quarter hour, a half hour, one hour and two hours after the injection. In the six normal subjects they found that the test gave a volume excretion of more than 25 per cent of the dye at the end of a quarter hour and of more than 65 per cent at the end of an hour. The other patients were divided into three groups. In thirty-one there was an elimination greater than 25 per cent in the first quarter hour. In the majority of these the functional integrity of the kidneys was confirmed by other tests. In thirty-six subjects the elimination was only 15 per cent or less in the first quarter hour. This result was paralleled by the excretion in one and two hours. Finally, eight of the patients had an excretion of between 17.5 and 22.5 per cent in the first quarter hour. These results led to the conclusion that an elimination of phenolsulfonphthalein equal to or higher than 25 per cent in a quarter of an hour indicates that elimination in one hour or longer will surely be normal. An elimination of less than 15 per cent in a quarter of an hour indicates similarly a defective elimination over a longer period. No conclusions can be drawn from elimination in the neighborhood of 20 per cent in the first quarter hour. Therefore the authors believe that it is sufficient to shorten the test to a quarter of an hour, which, since it is equally accurate, is more rapid and more sensible than the more prolonged periods.

44: 2033-2056 (Dec. 16) 1936

Study of Certain Chemical Components of Blood of Asthmatic Patients. F. Bezançon, A. Jacquelin, F. Joly and C.-O. Guillaumie.—p. 2033.  
\*Hypo-Amphotonic Method with Atropine. D. Daniélopou and N. Radulesco.—p. 2035.  
Clinical Study of Use of Drugs with Purine Base. J. Schuuck de Goldfem.—p. 2038.

**Hypo-Amphotonic Method with Atropine.**—Little attention has been paid to the so-called hypo-amphotonic action of atropine, when given in long-continued doses, on both the sympathetic and parasympathetic nervous systems. According to Daniélopou and Radulesco, this action is entirely different from the common clinical treatment of disease with atropine. The method used by these authors is based on the paralyzing action of atropine on both systems when given for prolonged periods. They have proved that small doses of atropine excite the sympathetic and parasympathetic, but predominantly the latter. Average doses currently employed in therapeutics and administered at one time exert a paralyzing action on the parasympathetic exclusively. Large and toxic doses have both a direct action on the tissues and a vegetative effect. It is, however, with the use of small doses over long periods that the authors are particularly concerned. Classic treatment is employed in unaccustomed subjects, while their method is based on habituation to atropine. Classic treatment results in three phases: excitation, paralysis of the parasympathetic and excitation. Furthermore, the classic treatment is aimed at recovery, while their method is preventive. Usually they began treatment by giving a daily dose of 1 mg. of atropine sulfate administered in three doses. This is increased by 0.5 mg. daily until 3 or 4 mg. is given daily, always in three doses. The top dose is continued as long as necessary. Intolerance is judged by the heart rate, which, when the drug is properly given, is not accelerated by the treatment. Except in rare cases, it is

admirably supported. This treatment is indicated in so-called vagotonia, seasickness, asthma, ulcer of the stomach, biliary colic, tabetic gastric crises, toxic goiter, angina pectoris, muscular hypertonia, severe vomiting of pregnancy and preanesthetic preparation of patients. The wide range of usefulness is due to the double action of atropine when given in this manner, and it deserves a place in the treatment of a considerable number of disorders.

**Progrès Médical, Paris**

Nov. 28, 1936 (No. 48) Pp. 1841-1880

Part of Prehypophysis in Certain Obesities and Emaciations. P. Merklen, M. Aron, L. Israel and A. Jacob.—p. 1849.  
Liver and Cevitamic Acid. M. Loeper, J. Cottet and A. Lesure.—p. 1851.  
\*Courtois Sign of Localization in Course of Coma Due to Circumscribed Cerebral Lesion. P. Sivadon.—p. 1855.

**Courtois Sign in Coma Due to Cerebral Lesion.**—Sivadon calls attention to the sign described by the late Adolphe Courtois for helping in the localization of circumscribed cerebral lesions in the presence of coma. It consists in the following: The comatose patient is placed on his back; flexion of the head on the chest produces in only one region an automatic flexion of the leg on the thigh and the thigh on the abdomen; this movement is strictly unilateral, and on the side on which the anatomic examination revealed a localized lesion of the cerebral centers which had produced the comatose state. The two cases on which this sign is based are redescribed by Sivadon. In one of them necropsy confirmed the localization indicated by the sign.

**Revue Franç. de Gynéc. et d'Obst., Paris**

31: 913-976 (Nov.) 1936

Value of Ovarian Grafts in Women. G. Cotte.—p. 913.  
\*Complications of Radium Therapy in Gynecology. Reiles and Fobe.—p. 921.  
Diagnostic Value of Henry's Reaction in Obstetrics and Gynecology. Marie Reniger-Areschian.—p. 934.

**Complications of Radium Therapy in Gynecology.**—The use of radium in gynecology can cause complications through its direct action or through the inflammatory process caused or revived by the radium. Reiles and Fobe state that the most common direct actions are the development of uterine perforations, vesical fistulas, proctitis, cystitis and vaginal atresia. In Strasbourg, radium is used chiefly for three general conditions; namely, climacteric metrorrhagia, cancer of the cervix and cancer of the uterine body. It is important that in using this treatment the duration of application be carefully controlled and that the cervix be as free from infection as possible. The authors recommend as helpful in the majority of patients the injection of antiseptics a few days before the application of radium; sometimes vaccination and electrocoagulation would do much to decrease the risk from infection. The most important complication, however, is fatal pulmonary embolism, which they observed in 1 per cent of their cases of metrorrhagia, 1 per cent of those with cancer of the cervix and 28.5 per cent of those with cancer of the uterine body. The inflammatory complications can be decreased in frequency by the supplementary precautions outlined.

**Strasbourg Médical**

96: 461-478 (Oct. 15) 1936

Neuropsychiatric Complications and Sequels in Infantile Pneumonia. M. Schachter.—p. 461.  
Tuberculous Meningitis Following Bronchography: Case. R. Thron.—p. 463.  
\*Use of Barium Sulfate with Colloidal Properties in Gastric Hyperacidity and Colitis. J. Finkelstein.—p. 465.

**Barium Sulfate in Gastric Hyperacidity.**—Finkelstein reports twenty-six cases of gastric hyperacidity and phenomena indicative of spastic colitis, which were treated by means of inert colloidal barium sulfate. In all these cases, which were characterized by spastic states of the digestive tube, the results were favorable. The therapeutic activity of the product is shown to be effective and lasting. It is more effective, however, in the presence of normal or increased gastric acidity than when the acidity is low or absent. The dosage varied from a teaspoonful to a soup-spoonful before meals.



man, aged 60, originally an alcoholic, who later became a confirmed veronal (barbital) addict. His general health was very poor at the time he had pneumonia. He received 150,000 units of type I serum.

The other fatality occurred in the group of twenty-seven cases collected from the pneumonia records at Bellevue Hospital. The patient was 44 years of age and also chronically addicted to alcohol. On admission his leukocyte count was only 6,000 cells. For some reason he received only 52,000 units of type I serum, not nearly enough for a patient who was obviously a poor risk. He died on the fourth day of the disease.

In table 2 I have collected from the sources mentioned 160 cases of type I pneumonia in which serum was administered during the first twenty-four hours of the disease. In this series there were eight deaths, a mortality rate of only 5.0 per cent, one-third the death rate for all serum-treated cases, one-sixth the standard death rate for non-serum treated cases. These figures are certainly impressive, but no more so than the twenty-five cases of type I pneumonia recently reported by Abernethy,<sup>8</sup> who were treated comparatively early with concentrated serum at the Hospital of the Rockefeller Institute. There was not a single death in Abernethy's series, and none of the patients developed empyema or other serious complications.

Results such as these furnish much food for thought. Physicians who are interested in public health can now visualize the ultimate control of pneumonia, for there is every reason to believe that what has already been accomplished with type I serum can be achieved with the other types as well. It is true that type III pneumonia presents certain difficulties, but figures are already at hand which show that types II, V, VII, VIII and XIV are amenable to serum therapy. No doubt, in the course of time, investigators will be able to demonstrate for the other types of pneumonia what can now be proved for type I, namely, that the early and adequate use of antipneumococcus serum reduces pneumonia to a comparatively mild infection.

Finally, when one considers that serum is now available for approximately 65 per cent of all pneumococcal pneumonias, one cannot fail to be impressed with the great gap that exists today between what could be done and what is being done for the pneumonia patient. Herein lies the reason for the campaign for the control of pneumonia that is now being conducted in New York State.

#### SUMMARY

When patients with pneumococcus type I pneumonia are treated very early with homologous serum, the following phenomena are usually observed:

1. The disease may be completely aborted, the temperature and the pulse and respiration rate dropping to normal within twelve to twenty-four hours after the administration of serum.
2. There is striking improvement in the patient's general condition, as the result of the disappearance of toxemia.
3. Early serum treatment prevents the spread of infection from one lobe to another and even limits the area of infection in the lobe primarily infected.
4. Bacteremia is prevented or, if already present, is quickly checked.
5. The leukocytes rapidly return to normal.

6. Homologous agglutinins, precipitins and protective bodies promptly make their appearance in the circulating blood.

7. Skin tests become positive to the homologous polysaccharide.

8. The death rate is cut to approximately one-sixth the standard death rate for untreated type I pneumonia.

9. These conclusions are derived from studies on type I pneumonia, but evidence is rapidly accumulating that they apply with equal validity to several other types as well.

33 East Sixty-First Street.

#### THE SIGNIFICANCE OF SEROLOGIC TYPES AMONG MENINGOCOCCI

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Meningococci form a single species, well defined, the members of which fall into broad serologic groups. The recognition of serologic differences by Dopter,<sup>1</sup> Arkwright,<sup>2</sup> Lieberknecht,<sup>3</sup> Trautmann and Fromme<sup>4</sup> and Elser and Huntoon<sup>5</sup> in 1909 paved the way for the intensive work that followed and resulted in the classifications of meningococci into serologic types, which were reported during 1915-1918. At this time it was generally recognized that there were two main groups, which overlapped to some extent. They were called 1 and 2 by the English workers and A and B by the French. By absorption of agglutinins these were further divided by Gordon and Murray<sup>6</sup> into four types, 1 becoming I and III, 2 becoming II and IV. French workers<sup>7</sup> found two other groups, C and D, which were uncommon. Meanwhile other classifications had been developed elsewhere, including the bacteriotropin classification of Evans,<sup>8</sup> which was on an entirely different basis. The relationship of these different classifications to one another is shown in table 1.

The four-type classification of Gordon and Murray has come into use in all the English speaking countries, while the broader A and B groups are more commonly recognized elsewhere.

During the years since these 1915-1918 classifications, most of the work on distribution of types of meningococci has been done in the English speaking countries, and down to the present time it has been possible to place nearly all strains of meningococci in one of the Gordon-Murray types. There have been a few strains

Read before the second International Congress for Microbiology in London, July 27, 1936.

1. Dopter, C.: Etude de quelques germes isolés du rhino-pharynx. *Revue de l'hygiène et de médecine expérimentales* (Paris), 1909, 67: 74.

2. Arkwright, J. A.: Varieties of the Meningococcus with Special Reference to a Comparison of Strains from Epidemic and Sporadic Sources. *J. Hyg.* 9: 104, 1909.

3. Lieberknecht, A.: Ueber Pseudomeningokokken aus dem Rachen gesunder Schulkinder, verglichen mit echten Meningokokken unter besonderer Berücksichtigung des Wachstums dieser Arten auf kohlensäurehaltigen Nährböden. *Arch. f. Hyg.* 68: 143, 1909.

4. Trautmann, Heinrich, and Fromme, W.: Beiträge zur Epidemiologie und Bakteriologie der epidemischen Genickstarre. *München. med. Wehnschr.* 55: 971 (April) 1908.

5. Elser, W. J., and Huntoon, F. M.: Studies on Meningitis. *J. M. Research* 20: 373 (June) 1909.

6. Gordon, M. H., and Murray, E. G. D.: Identification of the Meningococcus. *J. Roy. Arm. M. Corps* 25: 411, 1915.

7. Nicolle, M.; Debains, E., and Jouan, C.: Etudes sur les méningococques et les sérums antiméningococciques. *Ann. Inst. Pasteur* 22: 150, 1918.

8. Evans, A. C.: The Tropin Reactions of Antimeningococcus Serum. *Bull. 124, Hyg. Lab., U. S. P. H. S., 1920, p. 43.*

time becomes normal four hours after the injection. The intensity of coagulation depends on the amount of venom injected. The poison of the Russell's snake can be used as an emergency treatment in cases of grave hemorrhages or hemoptysis and may be repeated every four hours until the hemorrhage is controlled. There is no danger for the patient provided the dose does not exceed 0.05 mg. In simple forms of repeated hemoptysis or in cases of persistence of a bloody sputum the poison, in association with other coagulating substances, gives satisfactory results. In the authors' cases the patients were suffering from tuberculous hemoptysis or from purpura haemorrhagica. The treatment consisted in a daily intradermic injection of 0.05 mg. of the poison dissolved in 1 cc. of a 1 per thousand tricesol solution made in sodium chloride solution, followed four hours later by an injection of 10 cc. of any of the following substances: tenth normal calcium chloride, calcium gluconate or coagulen. The authors do not give the route they use for injecting the coagulating substances. For verification of results, further work on the subject is necessary.

### Deutsche Zeitschrift für Chirurgie, Berlin

248:1-146 (Dec. 9) 1936. Partial Index

- \*Sarcoma of Knee Resulting from Roentgen Irradiation. F. Becker.—p. 11.
- Operation for Sterilization in Man. P. Moysich.—p. 24.
- Difficulties Attending Intravenous Drip Infusion. H. Lamm.—p. 32.
- Unusual Forms of Dislocation of Foot. G. Röttger.—p. 43.
- Hemangiomatosis of the Intestine. H. Hanke.—p. 52.
- \*Corneal Lesions After Removal of Gasserian Ganglion for Trigeminal Neuralgia. Charlotte Drutter.—p. 55.
- \*Diagnosis of Carcinoma by Determination of Blood Serum Lipase and Carcinoma Reaction of Fuchs. F. Bernhard and K. Köhler.—p. 72.

#### Sarcoma of Knee Following Roentgen Irradiation.—

According to Becker, there were fifteen instances of sarcoma developing in a tuberculous knee treated by roentgen irradiation. All the patients received intensive irradiation over a long period. The diagnosis of joint tuberculosis was made in most cases on the basis of clinical study. There was a histologic diagnosis in two, and in two cases there was probably no tuberculosis. Sarcoma developed from five to seven years after irradiation. On histologic examination it proved to be, as a rule, a polymorphous cell tumor of pronounced malignity. The author reports the result of an uncontrolled irradiation in a personal case ending in severe injury to all the tissues of the joint. The author believes that the tuberculous process in all probability plays a subordinate part in the development of the sarcoma. The important factor is the roentgen irradiation. The epiphyses appear to be sensitive to roentgen exposure. He therefore suggests that great care be exercised in application of roentgen therapy for joint tuberculosis, particularly in the young.

#### Corneal Lesions Following Removal of Gasserian

Ganglion.—Drutter reports that, of sixty-nine patients treated by alcohol injection of the gasserian ganglion for the cure of trigeminal neuritis, seventeen (24.6 per cent) developed keratitis. In nine (52.9 per cent) the lesion remained permanent. Eighteen patients were subjected to twenty-seven operations for the removal of the gasserian ganglion. The cornea remained normal in all cases. The author concludes that neuroparalytic keratitis develops only as a result of anesthesia of the cornea. The cause of keratitis remains unexplained in spite of many studies. Primary trigeminal neuralgia seldom involves the first branch of the nerve. Pains proceeding in this area are considered secondary by many authors. The incidence of corneal anesthesia and consequent disease of the cornea cannot be diminished through the use of the alcohol injection method of the gasserian ganglion developed in Germany. The subtotal posterior ganglion section of the root of the trigeminus, according to the method of Frazier-Spiller, does not lead to the loss of sensitiveness of the cornea and to neuroparalytic keratitis. The persistence of high mortality in Germany following the operative intervention is due to the lack of experience. The treatment with alcohol injection makes the operative intervention even more difficult. The operative subtotal section has a smaller percentage of recurrences than the alcohol injection method. According to American authors, the subtotal posterior ganglion resection is the method of choice in the treatment of trigeminal neuralgia. The author suggests that the injection

method should be reserved for patients whose general condition will not justify a major procedure. Younger patients should be treated as far as possible by operative intervention so as to avoid the possibility of keratitis.

**Diagnosis of Carcinoma from Blood Serum.**—Bernhard and Köhler state that there is in carcinoma an increase of atoxyl-resistant lipase in the blood serum. The blood lipase content diminishes after operative removal of carcinoma and returns to normal after some time. There is a diminution of the atoxyl-resistant as well as of the general lipase content in all generalized lesions. The authors found an increase of the atoxyl-resistant lipase in 219 out of 313 instances of cancer. In sixty-two there was a diminution and in thirty-two a normal amount. Lipase determination is of considerable diagnostic value in carcinoma of the skin, the breast and the rectum. Its value is rather limited in carcinoma of the biliary passages and the pancreas. The atoxyl-resistant lipase is, as a rule, increased in carcinoma of the prostate, the bladder, the esophagus and the bronchi. This observation, however, is present in about 10 per cent of persons free from carcinoma. The atoxyl-resistant lipase undergoes the same alterations as in carcinoma in conditions that frequently lead to malignant degeneration, such as chronic cystic mastitis, bleeding breast, gastric ulcer, gastritis, strawberry gallbladder, goiter and chronic infections. The basis for the Fuchs reaction for the diagnosis of carcinoma lies in the observation that the serum of a normal person will not break down normal fibrin. Fibrin derived from the blood of a carcinoma patient will not be acted on by the serum of a carcinoma patient but will be broken down by normal serum. Likewise the serum of a normal person will not affect the fibrin derived from normal blood, whereas it will affect fibrin derived from the blood of a carcinoma patient. The development of a malignant tumor leads to alterations in the blood, which enable the serum of the carcinoma patient to break down normal fibrin. In the authors' experience there were 92.6 per cent of correct diagnoses in a group of 129 definitely established clinical cases of carcinoma. In a group of 164 patients not exhibiting signs of carcinoma, the percentage of negative tests was 89.2. In a group of twenty-seven patients suspected of a malignant condition, the reaction was positive in twenty-three. The accuracy of the Fuchs reaction appears to be the same for various localizations of cancer. The authors consider this reaction reliable. The application of the two methods mitigated the inaccuracies of each. The accuracy of the diagnosis of carcinoma is made more certain when both methods give a positive result. The authors have frequently found carcinoma in the forebears of healthy persons in whom both methods proved positive and in whom carcinoma and blastophil diseases were ruled out. However, the simultaneous use of the two methods does not establish the diagnosis of carcinoma with absolute certainty.

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- \*Differentiation of Term "Influenza" in Disorders of Upper Respiratory Tract Caused by Colds. H. von Hoesslin.—p. 1727.
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- Ray Treatment of Cancers of Stomach and of Large Glands Secreting into Duodenum. Hayer.—p. 1733.
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**Diagnosis of Influenza.**—Von Hoesslin points out that it is often difficult to differentiate between influenza and disorders due to colds. During an influenza epidemic there is a tendency to designate all rather severe catarrhs of the upper respiratory tract as of an influenzal nature, whereas at times when this is not the case they are designated as respiratory catarrh. However, it is incorrect to identify the two. The reason that they are so frequently identified is the great or complete conformity in the symptomatology, at least during the first days and often throughout the entire course. Psychologic factors likewise play a part, when the term influenza is applied to respiratory disorders that are caused by colds. On the part of the physician, for instance, it may be done in order to impress the patient with the necessity of following instructions and also to avoid reproach in the event of the development of complications. The author discusses the devel-

occurrence, whereas types III and IV (17 per cent each) were much less frequent.

For the next ten years there was relatively little meningitis, and there are practically no studies on the distribution of serologic types reported during that period.

In 1928 meningitis began to reappear. A wave, believed by many to have had its origin in China, moved eastward, by way of the Philippine Islands, to the California coast and spread eastward over the United States. By 1931 outbreaks began to occur in the British Isles and on the European continent. Whether these were a continuation of the wave which had moved eastward over the Atlantic, or whether the spread had been westward more slowly from the Orient is not entirely certain.

There have been a number of reports on typing of the strains involved since that time and the shift has been steadily, though rather irregularly, in one direction; namely, the overwhelming predominance of the I-III (A) group. Types I and III have seemed to cross much more than they did in the 1915-1918 period, overlapping each other so intimately that separation, even by absorption, is difficult and in some cases impos-

sible. On the other hand, types II and IV have seemed to have become entirely distinct, with no crossing. Also a new member of the genus has appeared (*Neisseria flavescens*); thus the type distribution in the United States during 1928-1930 (table 4).<sup>21</sup> Type II by this time had last place.

from Russia<sup>26</sup> in 1929 are reports that all groups are present, while Turkey declares a predominance of type B.<sup>27</sup>

Of 165 strains received by the National Institute of Health since Jan. 1, 1936, only fourteen were of type II; thirteen of these came from a single outbreak in Charleston, S. C. In this outbreak there were a few of the I-III group, but type II was the rule.

This occurrence of more than one type in a single outbreak has been noted ever since the earliest serologic studies were made. In general it may be said that a small, sharp, well localized outbreak is apt to be due to strains of one type, which may behave very much alike in all serologic relationships. The more widespread the outbreak and the longer it lasts, the more tendency is found for various types to be involved. There does not seem to be any definite sequence of type as was suggested by Gordon,<sup>28</sup> but all types and many intergradations may occur. The most extreme example of this multiplicity of type that has come to my attention is the epidemic in Chicago in 1928. The wave of meningitis that began on the west coast of the United States had seemed to be due entirely to

the I-III group. When it reached Salt Lake City the strains that were isolated were crossing very markedly with type II, so much so that absorption of agglutinins was necessary to type them. In Chicago the strains were predominant, with second place taken by a coccus which was not really a meningococcus. It was a member of the same genus, morphologically indistinguishable, but neither culturally nor serologically a meningococcus. All strains of this organism formed a clear cut serologic group; they fermented no sugars and produced a golden yellow pigment. I have called this micro-organism *Neisseria flavescens*<sup>29</sup> (literally "becoming a golden yellow"). We encountered no like strain outside of Chicago and have never found it since, though it was found abundantly there at that time by three independent investigators. So far as I know this is the only record of a member of the genus *Neisseria*, other than the meningococcus, being involved in an epidemic of meningitis, and it seems of considerable epidemiologic importance.

Only one culture of a type IV meningococcus was found outside of Chicago, and this came from a man

TABLE 2.—The Apparent Change in Type of Some Strains of Meningococci When a Change Is Made in Typing Serums

Number	Strain	Serum I a (178)						Serum III a (146)						Indicated Group	Serum I b (270)						Serum III b (153)						Indicated Group
		100	200	400	800	1,600	3,200	100	200	400	800	1,600	3,200		100	200	400	800	1,600	3,200	100	200	400	800	1,600	3,200	
1.....	304	4	4	4	3	1	0	4	4	1	0	0	0	I	0	0	0	0	0	0	4	4	3	2	0	0	I
2.....	321	4	4	4	3	3	1	4	4	4	2	1	0	I	3	3	2	1	0	0	4	4	4	3	2	0	III
3.....	328	4	4	4	4	3	2	4	4	4	2	0	0	I	3	3	2	0	0	0	4	4	4	3	2	0	III
4.....	335	4	4	4	4	3	0	4	4	3	1	0	0	I	1	1	1	0	0	0	4	4	4	4	2	0	I
5.....	337	2	2	1	1	0	0	4	4	4	4	3	0	III	3	3	3	3	3	0	3	3	3	2	0	0	I
6.....	348	4	4	4	4	2	0	4	4	4	4	4	3	III	4	4	4	4	4	3	4	4	4	4	2	0	III
7.....	350	4	4	4	3	1	0	4	4	4	4	1	0	I	0	0	0	0	0	0	4	4	4	3	1	1	III
8.....	357	4	4	4	3	2	1	3	3	2	1	1	0	I	2	2	2	1	0	0	4	4	4	3	2	0	III
9.....	366	4	4	4	4	3	1	4	4	3	1	0	0	I	4	4	4	0	0	0	4	4	4	4	3	0	I
10.....	178*	4	4	3	3	3	2	2	2	1	0	0	0	I	4	4	3	3	2	1	3	1	0	0	0	0	III
11.....	146*	3	3	2	1	0	0	4	4	4	4	3	2	III	3	3	3	2	2	0	4	4	4	4	3	2	III
12.....	270*	4	4	3	2	1	0	2	2	1	0	0	0	I	3	3	3	2	1	0	1	1	1	0	0	0	I
13.....	153*	2	2	0	0	0	0	3	3	3	3	0	0	III	2	2	2	1	0	0	3	3	3	2	2	0	III

\* Control (standard type strains).

Information about the geographic distribution of types is very incomplete, consisting necessarily of isolated reports from here and there. But one gains an impression that the trend toward the preponderance of the I-III (A) group has been world wide and not local. Reports from India<sup>22</sup> and South Africa<sup>23</sup> indicate this, as well as the British reports of several outbreaks of type I in 1931.<sup>24</sup> From Germany<sup>25</sup> in 1928-1929 and

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## EFFECTS OF VERY EARLY SERUM TREATMENT IN PNEUMOCOCCUS TYPE I PNEUMONIA

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It is a fundamental principle in all serum therapy that to obtain the best results the serum must be given early in the disease. This statement holds true regardless of whether one is using antitoxic or antibacterial serum. During the past decade there have appeared in American and British medical literature a goodly number of reports on the successful use of refined and concentrated antipneumococcus serum in the treatment of pneumococcal pneumonia. The majority of these reports have dealt with pneumococcus type I infections. More recently, however, a number of articles have appeared, reporting favorable results with serum in the treatment of other types of pneumococcal pneumonia. Promising figures have been submitted for the serum treatment of types II, V, VII, VIII and XIV. The most significant feature of these reports on serotherapy is that they are all, without exception, favorable. I cannot recall a single skeptical article since the introduction of Felton's concentrated serum. Many of the authors, after reporting their results in a series of cases studied, have given mortality figures for cases treated during the first three or four days of the disease. In every case the mortality rates for cases treated early are distinctly lower than the death rate for the whole series, and much lower than the death rate for cases treated late in the disease.

It occurred to me that an analysis of a series of cases of pneumococcus type I pneumonia in which serum was administered unusually early in the course of the disease, that is, during the first twenty-four hours of the infection, might throw some interesting light on the ultimate possibilities of serum therapy in this type of pneumonia. Not so very long ago I made the statement that it was doubtful whether the death rate for type I pneumonia could be reduced below 10 per cent by means of serum therapy. This statement was based on the observation that so many patients with pneumonia suffer from a previously depleted condition, due to influenza, childbirth, a surgical operation or some chronic systemic disease, such as tuberculosis, diabetes or cancer. By way of contrast, I had in mind diseases like diphtheria and scarlet fever, which occur almost exclusively in healthy children and the physician has only one medical problem, namely the acute infec-

tion, to combat. However, figures which I shall presently show indicate that I may have been too pessimistic in my prognostications.

I will now consider briefly the various phenomena which manifest themselves when concentrated antipneumococcus type I serum is administered quite early in type I pneumonia. A very frequent and happy manifestation of early serum treatment of type I pneumonia is a complete and dramatic abortion of the infection. The patient, from having been acutely ill, with a high temperature, pleuritic pain, marked restlessness, and paroxysms of coughing, suddenly finds himself well (chart 1). The temperature is normal or subnormal. The pulse and respiration return to their usual rates. Pleuritic pain disappears and the cough is ameliorated. From being a serious, exhausting infection of seven or eight days' duration, the disease is reduced almost to the status of an influenzal attack. I believe that these instances of dramatic termination are explained by the fact that in the early phases of the disease, before frank consolidation has developed to its maximum intensity, the specific antibodies of the serum are capable of so affecting the pneumococci in the pulmonary lesion as to bring about a rapid cessation of the infection. Once consolidation is complete, the circulation through the affected lobe is seriously impaired. After this stage has been reached, usually by the third or fourth day of the disease, the chief effect of the injected immune bodies is to confine the pneumococci to the pulmonary lesion and to prevent extension of the pathologic process. Under the latter circumstances the actual termination of the disease is brought about by the process of natural recovery. This point of view is well supported in some recent studies by Robertson and his co-workers.<sup>1</sup>

The striking subjective improvement in these patients results, of course, from the sudden elimination of toxemia. The toxemia of pneumonia is a problem that is not thoroughly understood. Coca<sup>2</sup> has demonstrated in filtrates of pneumococcus type I cultures a toxin which, when injected into young children, causes a rise of temperature, which may reach 105 F. in the more susceptible subjects. On the other hand, patients convalescing from pneumococcal pneumonia were found immune to the type I toxin. According to Coca, the toxin appears to be type specific but is not the type-specific polysaccharide. If Coca's studies are corroborated, it may be assumed that antipneumococcus serum, in addition to neutralizing the type-specific polysaccharide, neutralizes the type-specific toxin as

1. Robertson, O. H.; Graesser, J. B.; Coggeshall, L. T., and Sia, R. H. P.: The Relation of Circulating Antipneumococcal Immune Substances to the Course of Lobar Pneumonia: III. Injected Immune Substances (Antipneumococcus Serum, Types I and II), *J. Clin. Investigation* 12: 649 (July) 1934.

2. Coca, A. F.: A Study of the Pneumococcus Toxins, *J. Immunol.* 30: 1 (Jan.) 1936.

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Read before the International Society for Microbiology at the second International Congress for Microbiology, London, England, July 29, 1936.

The carbohydrates of the meningococci have been studied by Zozaya and Wood,<sup>42</sup> by Miller and Boor<sup>43</sup> and by Scherp and Rake.<sup>44</sup> Zozaya and Wood found one polysaccharide common not only to meningococci but to all members of the genus *Neisseria* as well. Scherp and Rake have found, in addition, specific carbohydrates for types I, II and III. Types I and III were found to have the same carbohydrate, and analysis has shown it to be a sodium salt of a polysaccharide acid. The specific carbohydrate of type II has not yet been thoroughly studied, and that of type IV has not yet been investigated.

There is apparently no relationship between electrical charge and type. Studies made by Gibbard<sup>45</sup> and also by me<sup>46</sup> indicate that recently isolated strains of all types have a higher charge than older strains which have had a period of laboratory maintenance, but this was not correlated with type by either of us.

What rôle does serologic type play in serum therapy of meningococcic meningitis? The use of specific monovalent serum has been difficult because the outcome of any given case is so often determined before the type of the infecting meningococcus is known. Thus the general practice is to administer polyvalent serum in all cases. In Great Britain there has been a tendency to administer specific type I-III or II serum after the type is known. There is experimental evidence both for and against such specific therapy. Gordon<sup>47</sup> found that his rabbits had immunity only for the types with which they had been immunized, while Evans<sup>48</sup> found in her animals just as much immunity for heterologous strains.

Typing by a precipitation test, recently described by Rake,<sup>49</sup> can often be done at the bedside and may result in increased use of monovalent serum and the accumulation of more information about its relative usefulness.

This bedside typing can be applied to only a limited number of cases, since there must be abundant specific soluble substance in the spinal fluid and the patient must not have had any serum therapy.

The antitoxin of Ferry has seemed to be more useful in cases due to group I-III strains.

#### COMMENT AND CONCLUSION

Classifications of meningococci, worked out in the years 1909-1918, represented true serologic relationships which can be plainly recognized today.

Certain changes in these relationships have taken place; types I and III have become so closely inter-related that separation into two types no longer seems to be of definite value in practical everyday work. This I-III or A group has become markedly predominant in nearly all parts of the world that have been heard from.

On the other hand, types II and IV have in the United States at least become entirely distinct from

each other so that they do represent two separate groups. There seem to be three types of meningococci: I-III, II and IV. The designation B cannot be well applied to a combination of two such distinct groups as II and IV.

Studies made long ago and at the present time seem to indicate a greater number of type II strains in carriers. This large number of carriers of strain II in proportion to the very small number of type II cases brings up this question: Is II less pathogenic than I-III? This idea finds some support in the following fact: Although 70 per cent of all strains isolated from blood were type II, nearly all the cases of meningococcic endocarditis in which the type has been determined have been due to the I-III group. There is some evidence that type II is especially apt to be responsible for septicemic and generalized forms of meningococcic infection, which may be relatively mild or chronic.

Both the endotoxins of Gordon and the soluble toxins reported by Ferry are produced to a greater extent by the I-III group. Thus one finds at present a predominance of that group of meningococci which seems to be both more invasive and more toxic.

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## THE SURGICAL TREATMENT OF MENINGITIS OF OTITIC AND NASAL ORIGIN

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In a recent article Ferris Smith<sup>1</sup> called attention to the well organized exudate at the base of the brain as compared to the more recently appearing exudate over the cerebral hemispheres in patients dying of meningitis of otitic or nasal sinus origin. This suggests that there is a stage of localized basilar meningitis lasting from hours to days before the onset of generalized meningitis. The author advocated early incision and drainage of the dura beneath the pontile cistern by way of a burr opening in the sphenoid bone, made through the posterior wall of the sphenoid sinus or through the roof of the nasopharynx. Three cases of early meningitis treated by this method were reported, with one recovery. In two patients the meningitis was from the sphenoid sinus, the lumbar spinal fluid showing 1,800 cells per cubic millimeter in one, 190 cells in the other. Organisms were not present on smear or culture of the spinal fluid in either case. The third patient had an otitic meningitis and showed 1,920 cells with organisms in the spinal fluid.

Because the radical procedure advocated by the author runs counter to the accepted treatment<sup>2</sup> of early otitic or nasal sinus meningitis, it seems pertinent to review a series of five consecutive cases of meningitis successfully treated according to certain principles that are coming to be generally accepted. These principles are briefly as follows:

Every patient with suppurative disease of the accessory nasal sinuses or of the middle ear should have an immediate lumbar puncture at the first evidence of beginning meningitis: a slight stiffness of the neck with headache, fever, irritability, drowsiness or vomiting.

From the Department of Otolaryngology, Presbyterian Hospital and Rush Medical College.

1. Smith, Ferris: Basal Meningitis, *J. A. M. A.* **107**: 189-194 (Oct. 18) 1936.

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parallel with the agglutinins and have the same significance. Protective bodies, agglutinins and precipitins all have a similar connotation, indicating that, so far as humoral immunity is concerned, the patient has obtained control of the infection.

Tillett and Francis<sup>6</sup> were the first to show that when pneumococcus polysaccharides are injected intradermally into patients who are convalescing from pneu-

TABLE 1.—Summary of Cases of Type I Pneumonia in Which Serum Was Administered During First Twenty-Four Hours of Disease

Number of patients.....	37
Died.....	2 (5.4%)
Average age.....	36 years
Average duration.....	4.7 days
Average amount of serum.....	181 thousand units
Lobes involved: 1 lobe.....	78.4%
2 lobes.....	21.6%
Complications: Empyema.....	0
Acute parotitis.....	1
Other complications.....	0

TABLE 2.—Mortality Rate for 104 Cases of Type I Pneumonia in Which Serum Was Administered During First Twenty-Four Hours of Disease

Authors	Cases	Deaths	Per Cent
Cecil.....	37	2	5.4
Bullowa.....	13	0	0.0
Heffron <sup>9</sup> .....	87	5	5.7
Rogers <sup>10</sup> .....	23	1	4.3
Total.....	160	8	5.0
All serum†.....	1,494	234	15.7
No serum.....	565	190	33.6

\* The author is indebted to Dr. Roderick Heffron and Dr. Edward R. Rogers for permission to include their unpublished figures on type I pneumonia in this table.

† Cases collected from various authors.

monia they induce a cutaneous reaction in those infected with the homologous type of pneumococcus. The character of this reaction is of the wheal or erythema type. The patient's capacity to react to the homologous polysaccharide is intimately associated with recovery and with the presence of type-specific antibodies in the circulating blood.

Francis<sup>7</sup> has recently shown that the polysaccharide skin test can be made use of as a valuable guide in serum therapy. In the opinion of Francis a positive skin test inevitably denotes that recovery has begun. When negative, it indicates the need of further serum therapy. Francis believes that the mechanism of the positive skin test is closely related to that operative in recovery from pneumonia and is apparently a resultant of antibody and tissue activity. In the illustrative charts presented by Francis, the appearance of a positive skin reaction was usually but not always coincidental with the appearance of specific agglutinins in the circulating blood. Both of these responses were closely associated with the critical fall in temperature and other evidences of recovery. Abernethy<sup>8</sup> has confirmed the value of the polysaccharide skin test in controlling serum therapy. He found that approximately 200,000 units was the amount required in treating the average uncomplicated case of type I pneumonia.

6. Tillett, W. S., and Francis, Thomas, Jr.: Cutaneous Reactions to the Polysaccharides and Proteins of Pneumococcus in Lobar Pneumonia, *J. Exper. Med.* 10: 687 (Nov.) 1929.

7. Francis, Thomas: The Value of the Skin Test with Type-Specific Capsular Polysaccharide in the Serum Treatment of Type I Pneumococcus Pneumonia, *J. Exper. Med.* 57: 617 (April) 1935.

8. Abernethy, T. J.: Concentrated Antipneumococcus Serum in Type I Pneumonia: Control of Dosage by Skin Tests with Type-Specific Polysaccharide, *New York State J. Med.* 36: 627 (April 15) 1936.

In most case reports on the effect of treatment of type I pneumonia with antipneumococcus serum, the death rate for patients treated during the first three or four days of the disease has averaged 10 per cent; in other words, a reduction to about one-third the standard death rate (33 per cent). The opportunity to give serum to a patient with type I pneumonia during the first twenty-four hours of the disease does not often present itself. This is most unfortunate, for, as I shall presently show, the results obtained by such very early treatment are truly spectacular. With the rapid typing methods now in vogue, there is no reason why more pneumonia patients should not receive early therapy. In order to determine more accurately the effects of very early serum treatment, I have collected a series of 160 cases of type I pneumonia in which concentrated type I serum was administered during the first twenty-four hours of the disease. Thirty-seven of these cases are from my own records. The remainder have been collected from the records of Bullowa,<sup>5</sup> Heffron<sup>9</sup> and Rogers.<sup>10</sup> In table 1, I have summarized the data obtained from my own thirty-seven cases. The average age in this series was 36; the average total dose of serum, 181,000 units; the average duration of fever for patients who recovered was 4.7 days. The latter figure is quite significant when it is recalled that the average duration for type I pneumonias in cases in which no serum is administered is seven days. In other words, the average duration of the disease was cut almost in half. In many cases the temperature dropped to normal in less than forty-eight hours after onset.

In 78.4 per cent of these patients who received serum early only one lobe was infected. In 21.6 per cent there was involvement of two lobes. There was no way of knowing whether both lobes were already involved at the time serum was given or whether a spread took place after the injection of serum. This point could probably be settled by careful x-ray study of a series of cases.

The most interesting feature of this series of thirty-seven cases was the practical absence of complications. When one recalls that empyema occurs in more than 6 per cent of type I pneumonias, the complete absence of this complication in the present series is quite significant. Indeed, there were no complications of any kind in these thirty-seven cases, except one instance of acute parotitis.

There were only two deaths (5.4 per cent), a remarkably low figure for such a serious disease. One of these deaths occurred in the group of ten cases collected from my private practice. The patient was a

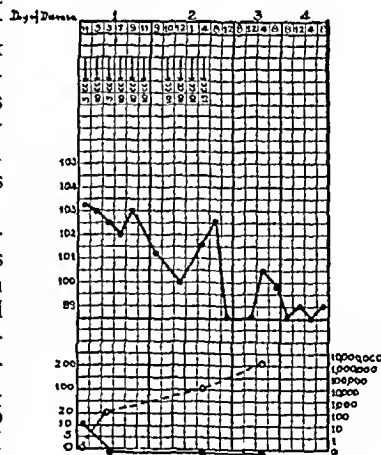


Chart 3.—Septic type I pneumonia treated during first twenty-four hours of disease with concentrated antipneumococcus serum. Upper solid line, temperature; lower solid line, bacteremia; broken line, protective bodies in patient's serum.

9. Heffron, Roderick: Personal communication to the author.

10. Rogers, E. E.: Personal communication to the author.

May 14 the left sigmoid sinus was explored and found to contain a partly broken down thrombus. The jugular vein was ligated and the thrombus removed until bleeding was obtained at about half way from the knee to the torcular herophili. Convalescence from that point on was rapid and uneventful. The facial paralysis began to recede by May 26, the date of discharge from the hospital, and had completely disappeared two months later.

This patient had a localized meningitis from a focus in the labyrinth with 2,900 cells in the spinal fluid but no organisms. Drainage of the focus sufficed to cure the meningitis without the necessity of incising and draining the dura.

CASE 3.—J. C. D., a child, aged 4 years, admitted to the Presbyterian Hospital June 5, 1932, complained of bilateral discharging and painful ears for three weeks with an irregular fever as high as 103 F. and beginning stiffness of the neck noted the day before. On examination the child was irritable and uncooperative with definite, slight rigidity of the neck, bilateral aural discharge and only slight mastoid tenderness. Lumbar puncture showed 68 lymphocytes per cubic millimeter in the spinal fluid with a positive Nonne test for globulin.

Bilateral mastoidectomy the same day showed a coalescent mastoiditis. The dura was extensively exposed over the tegmen on both sides and appeared normal except for slight hyperemia. Culture showed *Streptococcus haemolyticus*. Convalescence was uneventful, the patient being discharged home on the tenth day after operation.

This was a case of very early localized meningitis from an otitis media and mastoiditis. Removing the focus and exposing the dura widely (thus breaking off all infected venules running from the mastoid to the dura) resulted in recovery.

CASE 4.—D. S., a boy, aged 7 years, was seen July 8, 1936, with a history of an earache in the right ear six weeks before with spontaneous rupture of the drum membrane the next day. Discharge from this ear was profuse and after the first week was accompanied by considerable pain behind the right eye and an irregular fever as high as 104 F. There was no mastoid tenderness, but because of the fever a roentgenogram of the mastoid had been made two weeks after the onset, showing

there was a slight spontaneous nystagmus toward the right ear, the neck was slightly rigid and the Kernig sign was positive. The white blood cell count was 30,000. Lumbar puncture showed the spinal fluid to be under normal pressure but cloudy with 4,000 cells per cubic millimeter, practically all polymorphonuclears. Gram-positive cocci, in pairs and in chains, were found on smear (but subsequently there was no growth on culture). There was no reduction of copper sulfate.

The diagnosis was suppuration of the right petrous apex with perforation of the cortex and beginning generalized meningitis. Immediate drainage of the petrous apex was advised and carried out. The mastoid wound was reopened and a fistula of softened bone was found posterior and inferior to the posterior semicircular canal leading medially and anteriorly. A probe could be passed inward and forward to the depth of 1½ inches (3.7 cm.) beyond the horizontal semicircular canal. The fistula was enlarged, exposing the dura of the posterior fossa, and a small rubber drain was inserted.

At the completion of the operation the child's temperature was 108 F. (rectal) and his general condition very poor. After iced compresses and subcutaneous dextrose the temperature fell to 103.4 F. but the child presented the picture of shock with cyanosis, shallow, irregular respiration and a very rapid, barely perceptible pulse, and the blood pressure could scarcely be obtained from the arm at 40 systolic. Intravenous dextrose 10 per cent and caffeine subcutaneously resulted in a steady improvement; the blood pressure at the arm rose from 40 systolic at 2 a. m. to 105 systolic, 80 diastolic at 5 a. m., the temperature rising to 105 F. The neck was quite rigid but during the day the temperature began to fall, the rigidity of the neck began to disappear, and with the help of transfusions convalescence has been uneventful. The discharge from the middle ear immediately ceased but continued from the fistula, gradually diminishing in amount, for two months.

A patient with apparently hopeless, generalized meningitis recovered following simple drainage of the focus in the petrous apex. Although organisms were found in the smear, the spinal fluid culture proved negative and incision of the dura was not required.

CASE 5.—J. C., a Negro laborer, aged 63, came to the Central Free Dispensary April 22, 1933, because of a right otorrhea of two weeks' duration. Three and a half weeks after the

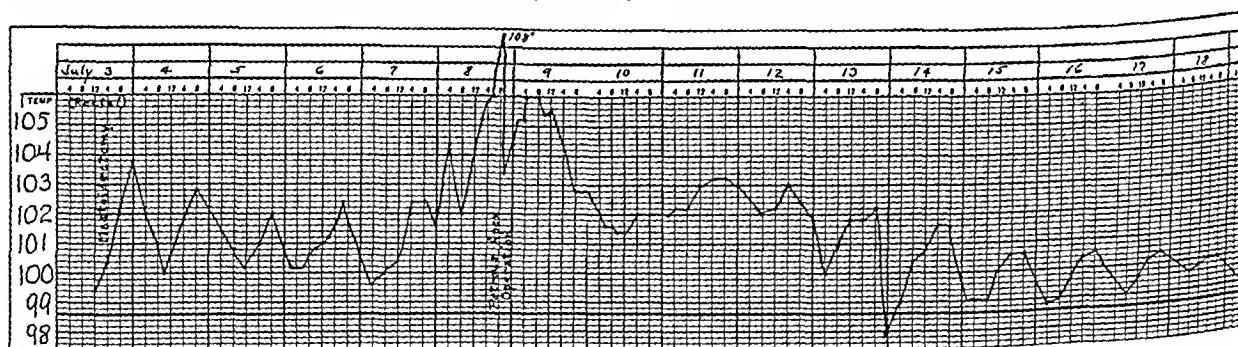


Chart 1 (case 4).—Temperature in early meningitis with 4,000 cells in the spinal fluid, organisms on smear but not on culture, with recovery following drainage of the focus in the petrous apex.

only clouding of the cells; four weeks after the onset, a second roentgen examination showed cell destruction.

Because of the continued pain behind the eye, the fever and the changes found on roentgen examination, a simple mastoidectomy had been performed July 3 by Dr. Minor E. White of Kankakee, Ill. Marked cell destruction was found over the lateral sinus but the sinus wall itself when exposed appeared normal. Culture showed *Streptococcus haemolyticus*.

Following the mastoidectomy the pain behind the eye, the fever (chart 1) and the profuse discharge from the middle ear persisted, but there were no other symptoms until July 8. On the morning of July 8 the child complained of double vision, which lasted for only half an hour. The temperature rose to 104.4 F. following a slight chill, and an intermittent spontaneous nystagmus was noticed.

When I first saw the child, in consultation in the afternoon, his temperature was 105.8 F., he was very listless and pale,

onset pain and tenderness over the mastoid developed. The patient was referred to the Cook County Hospital, where a simple mastoidectomy May 2 revealed the cells filled with granulations and pus, with considerable softening of the cell partitions. Convalescence was uneventful except for persistent postaural discharge until May 25, when severe vertigo with nausea and vomiting was experienced. The gait was unsteady; there was a spontaneous nystagmus, mostly horizontal, toward the unoperated ear. Hearing, caloric and rotation tests all showed a dead labyrinth on the operated side. The diagnosis of acute suppurative labyrinthitis was made.

The symptoms gradually subsided until June 6, when the patient complained of an occipital headache and felt ill. There was definite beginning rigidity of the neck and the temperature was 102.6 F. He was admitted at once to the Presbyterian Hospital, where lumbar puncture revealed 1,400 cells and 63 per cent polymorphonuclears but no organisms on smear or culture.

that have not belonged in this classification but have formed other groups; these have been uncommon. I shall speak more of them later.

These types among the meningococci are not as clear cut and sharply defined as are those of some other bacteria; namely, the pneumococci. Nearly all strains show a degree of overlapping, and in some this is so marked as to make typing, even by absorption of agglutinins, well nigh impossible. This means that the representative strains of each type must be chosen with great care, especially if they are to be used for making typing serums. The antigenic patterns of different strains of meningococci may be said to be made up of four components in different proportions, and the predominant component determines the type of any individual strain. This has been illustrated by diagrams representing several strains of the I-III group.<sup>9</sup> Table 2 shows that strains typed as I when certain type I and type III strains were used as standards can be typed as III when other strains of these types were used as standards. As Fildes<sup>10</sup> has aptly expressed it: "The classification of meningococci is real and is not dependent upon arbitrary selection of standards. But selecting standards for determining subgroups is arbitrary and may lead to much confusion if one and the same standard is not maintained."

Thus it is seen that quite different results may be obtained in typing the same cultures in different laboratories. This has been emphasized by Griffith<sup>11</sup> as well as by Fildes. With certain serums prepared from members of each of the four types, a division into four distinct groups could be effected by means of absorption of agglutinins. With serums prepared from other members of each type, differentiation into similar groups could not be made.

Not only do different strains of the same type vary in antigenic pattern but a given strain may change surprisingly in this respect. I shall give one striking example of this change, which is found on comparing Dr. Gordon's original standard type I strain, "Littledale," which has had more than twenty years of laboratory maintenance, with a dried suspension of the same strain which Dr. Gordon, with remarkable foresight, prepared in 1915 when it was originally isolated and studied. It now falls definitely in type III. There seems to be no possible doubt about this change, as identical results with it have been obtained not only by myself but by Dr. Scott<sup>12</sup> of the British Ministry of Health and by Dr. Macgraith<sup>13</sup> of Oxford University. Dr. Gordon kindly supplied the dried material, and the living transplants of the Littledale strain were obtained from several different sources. Examples such as this can be multiplied.

It has not been possible to study the standard type strains of other countries and to compare them with the original dried strains. Twenty years ago they were in close agreement, whether called types I-III and II-IV or A and B; but twenty years of laboratory maintenance in different countries and under different environmental conditions has probably led to a wide divergence in the antigenic pattern of the strains used as standards.

Wulff<sup>14</sup> has described an epidemic in Denmark in which only one strain seemed to correspond with any English type, but 95 per cent fell into a group which corresponded to the French type A. Originally the French type A and the English type I-III seemed to be identical.

All strains tend to spread and are much more easily typed when first isolated than later. Several workers have reported that they consider the strains of group II to become irregular in classification more quickly than others.<sup>15</sup> This means that serologic studies done in various places cannot be compared on account of a lack of a uniform basis. This is a handicap in epidemiologic studies and in the manufacture and standardization of therapeutic serums. It is important that there be a uniformity of standard strains among different nations. It makes no difference whether the serologic groups are designated as A and B or as I-III and II-IV provided the type strains actually represent their classification and the relation of the classifications to each other is understood. Standard strains should be kept true to type in a central laboratory somewhere, and dried cultures of them, as well as living transplants, should be

TABLE 1.—The Relationship Between Various Classifications of Meningococci\*

Dopter	Nicoll, Debalns and Jouan	Griffith and Scott	Gordon and Murray	Evans
Meningococcus.....	A	I	I III	R
Parameningococcus	B	II	II IV	S T?
	C			
	D			

\* Based on a table compiled by Murray: The Meningococcus, Medical Research Council, Special Report Series, No. 124, p. 103.

available from this place to all who want them. It should always be kept in mind that the living culture is changing and that the dried culture is presumably fixed.

At the time when Gordon first reported his classification into four groups, type I was predominant. Gradually type II became more abundant. During 1915-1917 the distribution seemed to be about as shown in table 3.<sup>16</sup>

Dopter<sup>17</sup> made a similar report that, at the beginning of the war his meningococcus proper (A, I-III) was most common but that by 1916 the parameningococcus (B, II-IV) had become as much as 45 per cent of the cases. In 1917-1918 Netter<sup>18</sup> found type B (II-IV) twice as common in France as type A (I-III), and Glover<sup>19</sup> in England reported an outbreak due entirely to type II in 1918.

In the United States Hitchens and Robinson<sup>20</sup> found types I and II (33 per cent each) to be about equal in

9. Branham, Sara E.: Serological Diversity Among Meningococci, J. Immunol. 23: 49 (July) 1932.

10. Fildes, P.: The Serological Classification of Meningococci, Brit. J. Exper. Path. 1: 44 (Feb.) 1920.

11. Griffith, A. S.: A Study of the Serological Reactions of Meningococci and an Account of the Method of Preparation of Antimeningococcus Serum, J. Hyg. 19: 33 (July) 1920.

12. Scott, W. M.: Personal communication to the author.

13. Macgraith, B. G.: Variation in Agglutination of Stock Cultures of Meningococci, Brit. J. Exper. Path. 14: 219 (Aug.) 1933.

14. Wulff, F.: Etude comparative sur les méningocoques, types anglais et danois, Compt. rend. Soc. de biol. 85: 620, 1921.

15. Tulloch, W. J.: The Differentiation by Means of the Absorption of Agglutinin Test of the Types of Meningococci Obtained from the Cerebrospinal Fluid of Cases During the Current Outbreak of Cerebrospinal Fever, J. Roy. Arm. M. Corps 29: 66, 1917. Gordon, M. H.: The Definition of the Meningococcus, Great Britain Medical Research Council, Special Report Series, No. 3, 1917, p. 10.

16. Flack, M.: Report on Cerebrospinal Fever in the London District, December 1915-July 1916, Great Britain Medical Research Council, Special Report Series, No. 3, 1917, p. 31.

17. Dopfer, C.: Research Society Reports: Observations on Serotherapy for Cerebrospinal Meningitis, M. Bull. 1: 338, 1918.

18. Netter, A.: Research Society Reports, M. Bull. 1: 340, 1918.

19. Glover, J. A.: The Cerebrospinal Fever Epidemic of 1917 at X Depot, J. Roy. Arm. M. Corps 30: 23, 1918.

20. Hitchens, A. P., and Robinson, G. H.: A Survey of Meningococcus Cultures Recently Isolated in This Country According to the Method of Gordon, Abstr. Bact. 2: 18, 1918.

employed, the intracarotid administration of antiseptics<sup>5</sup> may be tried, or simply repeated lumbar punctures may be relied on.<sup>6</sup> While the prognosis of generalized meningitis of otitic or nasal sinus origin is usually poor, occasional recoveries do occur, especially from meningitis due to the streptococcus.

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## COMPARATIVE RESULTS WITH DIETETIC, PARENTERAL AND SURGICAL TREAT- MENT IN PEPTIC ULCER

### PRELIMINARY REPORT ON THE PROTECTIVE VALUE OF HISTIDINE (LAROSTIDIN) IN EXPERI- MENTAL ULCERS IN DOGS

DAVID J. SANDWEISS, M.D.  
DETROIT

This paper has a twofold purpose: first, to present clinical data evaluating my results with parenteral therapy in peptic ulcers; second, to present at the end a preliminary report (in association with H. C. Saltzstein and W. S. Glazer) on the protective value of histidine against experimental ulcers in Mann-Williamson dogs.

Many forms of parenteral treatment have been reported as beneficial since Holler<sup>1</sup> of Vienna announced in 1922 his experience with "vaccineurin." The more important of these agents have been enumerated in my previous report.<sup>2</sup> Newer ones are constantly coming to the fore. Judging from the increasing number of reports and the favorable results claimed, parenteral therapy is gaining a wide following and appears to offer great encouragement.

### CLINICAL INVESTIGATIONS

In an attempt to determine the place of parenteral therapy in the management of peptic ulcer, several series of patients were studied:

1. A series of patients treated by the standard ambulatory diet-alkali regimen was reviewed to learn in what percentage of ulcer attacks and in what type of patients this method of treatment fails to produce symptom-free intervals; also to determine what types of patients manifest a high proportion of relapses within six months and within one year.

2. Several series of patients with chronic ulcers were treated by various parenteral methods. These were divided into two groups: (a) an unselected group and (b) a group of patients who failed to become symptom free on ambulatory diet-alkali management. In neither group was dietary treatment changed when parenteral therapy was begun. Histidine, vaccine and emetine

were the agents used. Two series of patients treated by histidine and vaccine therapy and reported in previous communications<sup>3</sup> are included in this study. Injections of distilled water were administered to a control group. Another control series of chronic ulcer patients was treated by the ambulatory standard diet-alkali regimen. Immediate and remote results were then compared.

Throughout this paper emphasis is laid on the number of ulcer attacks treated rather than on the number of patients under observation. The reason for the emphasis is to me a purely rational one, since it permits a clearer portrayal of the life-history of the ulcer and enables a more accurate evaluation of the success or failure of therapy over a period of time. For example, a patient may fail to respond at the present time to diet-alkali management, although he has responded well on ten previous occasions and may again respond favorably in the future. It would not be accurate to report this as a single case of failure of the diet-alkali regimen, since ten of the eleven attacks were successfully treated by this method.

The clinical studies reported in the present paper are based on observations of 291 patients with peptic ulcer who were treated during 1,019 attacks (table 1). This group is a heterogeneous one representing patients from 14 to 74 years of age, of both sexes and encountered in private as well as in clinic practice. Patients from private practice present on the whole an average or better than average social and economic

TABLE 1.—Number of Ulcer Patients and Number of Attacks  
Treated by Various Methods

	Patients	Attacks Treated
Surgery.....	51	70
Diet-alkali, hospital.....	93	141
Diet-alkali, ambulatory.....	260	633
Vaccine.....	44	63
Larostidin.....	43	43
Synodal.....	38	43
Distilled water.....	22	22
Total.....	291 (excluding duplicates)	1,019

TABLE 2.—Location of Ulcer

	Private	Clinics	Total
Original Ulcers.....			
Duodenal.....	60	174	234
Gastric.....	9	33	42
Duodenogastric.....	0	10	10
Total.....	69	217	286
Subsequent Ulcers.....			
Gastrojejunal ulcers.....	4	25	29

status. Clinic patients naturally represent lower economic and social strata with consequent dietary and environmental handicaps. All races, Negroes, Americans and foreign born, are represented.

All patients were arbitrarily divided into two groups: (a) acute: ulcer symptoms of less than five years' duration and (b) chronic: ulcer symptoms lasting more than five years.

All patients presented the typical ulcer syndrome. All clinic patients had positive x-ray signs of ulcer. Three per cent (all in the private patient group) had

5. Ersner, M. S., and Myers, David: Variation of Pedicle Flap for Epithelization of Radical Mastoidectomy Cavity, *Arch. Otolaryng.* **23**: 469 (April) 1936.

6. Neal, J. B.; Jackson, W. H., and Applebaum, E.: *Ann. Otol., Rhin. & Laryng.* **43**: 658-671 (Sept.) 1934.

The vaccine used was Catarrhal Respiratory Vaccine Combined, Parke, Davis & Co.

The histidine monohydrochloride (larostidin) was supplied by Hoffmann-La Roche, Inc.

From the gastro-intestinal department of the North End Clinic and the outpatient department of Harper Hospital.

Read before the Section on Gastro-Enterology and Proctology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

Synodal, a preparation containing emetine hydrochloride, which is a mixture of omanadin (J. A. M. A. **100**: 1173 [April 15] 1933) and emetine, was supplied by Winthrop Chemical Company, Inc.

1. Holler, G.: Protein Therapy of Stomach Ulcer, *Arch. f. Verdauungskr.* **29**: 123-148 (Feb.) 1922.

2. Sandweiss, D. J.: Treatment of Gastroduodenal Ulcer with Histidine Monohydrochloride (Larostidin), *J. A. M. A.* **106**: 1452 (April 25) 1936.

3. (a) Sandweiss,<sup>2</sup> (b) Sandweiss, D. J., and Meyers, S. G.: Treatment of Peptic Ulcer with Bacterial Vaccines (Foreign Protein), *Am. J. Digest. Dis. & Nutrition* **1**: 338-341 (July) 1934.

4. The roentgen studies were made by the x-ray departments of Harper Hospital and the North End Clinic.

in Kansas City who had just visited Chicago. No type IV strains has been encountered since that time.

From that time on, as the wave moved eastward, the strains involved were found to be chiefly of type I-III with a few of type II.

The only two outbreaks that have been almost exclusively due to type II have, strangely enough, both occurred in the Carolinas—one in 1928 and one in 1936, eight years apart.

Does more than one type occur in any given case? Such instances have been reported; cases in which more than one type was present throughout the disease,<sup>30</sup> others in which the type seemed to change during convalescence,<sup>31</sup> and in carriers in which one type replaced another. Such reports are very few, but their rarity may be due to the fact that repeated typing of cultures obtained from a given patient is seldom done.

During 1915-1918 many surveys of meningococcus carriers were done, both in military camps and among civilian populations. From these studies a definite impression arose that type II was predominant among carrier strains and that type I led among active cases.<sup>32</sup>

Interesting are the results obtained by Tulloch,<sup>33</sup> who found 410 carriers among 10,000 men. The type distribution is given in table 5.

Within recent years relatively few surveys of carriers have been made, but there is some evidence to show that such a distribution still occurs. Rake<sup>34</sup> found type II in twenty-one of twenty-six carriers in a careful survey in 1934. During the spring of 1936 Hitchens<sup>35</sup> made surveys of carriers in a camp of young men among whom several cases of meningitis had occurred. The cases were due to type I-III; but of thirty-nine carrier strains only seven were of group I-III, whereas twenty-five, or nearly 65 per cent, were of group II.

Is any one type more pathogenic than another? It is particularly difficult to find an answer to this question, for in any given outbreak the predominant type is conspicuously responsible for a greater number of deaths. In 1917 Gordon<sup>28</sup> believed that type I infections were the most severe. This view was definitely shared by Andrewes.<sup>36</sup> In the outbreaks of very recent years type II cases have been too few to permit generalization. Is this scarcity of type II cases, contrasted with the abundance of type II among carriers, to be interpreted as evidence of low pathogenicity? Certainly most of the fulminating cases have been due to group I-III, since so few of II were present. However, one of the most explosive outbreaks of fulminating and hemorrhagic cases was due exclusively to type II; namely, a small outbreak in North Carolina in 1928.

There does seem to be considerable evidence that type II is especially apt to be responsible for septicemic and generalized forms of meningococcic infection. Netter<sup>38</sup> noted this in France in 1917. Linden<sup>37</sup> called

attention to it in Denmark in 1930. In my own studies I noted that, although I found only thirteen type II strains during 1928-1930, only four of the thirteen came from spinal fluid; the others were from blood stream infections, several of which were mild and chronic. These type II strains comprised 70 per cent of the strains recovered from blood during this period.

A few cases of meningococcic endocarditis have been reported. In those instances in which the type has been determined the strains involved have been usually of the I-III group. Does this circumstance offer additional evidence that type II is less pathogenic than I-III?

Do different types of meningococci vary in toxicity? Apparently the answer to this question is definitely Yes. Gordon<sup>28</sup> noted as early as 1917 that type I meningococci produce more powerful endotoxins than do other types. The soluble toxins described by Ferry<sup>38</sup> are produced chiefly by certain strains of the I-III group, notably by some belonging to type III.

TABLE 3.—Distribution of Types

		I	II	III	IV
Gordon.....	1915	60%	25%	12%	3%
Flack.....	1915-1918	26%	59%	2%	13%
Tulloch.....	1917	30%	41%	13%	17%

TABLE 4.—Distribution in the United States During 1928-1930

I-III	II	IV	N. flavescens
81%	5.5%	7.6%	5.9%

TABLE 5.—Type Distribution in Four Hundred and Ten Carriers

I	II	III	IV
26%	37%	0	37%

Are there cultural, biochemical or other physiologic differences to be noted among the various types of meningococci? Colonies are generally indistinguishable on the usual mediums, and certainly there are no differences in morphology or arrangement of cells. Differences in fermentation activity have been noted by some workers. Both Scott<sup>31</sup> and Griffith<sup>39</sup> considered that serologic grouping was definitely related to the degree of fermentative activity on dextrose and maltose and that individual strains of meningococci rarely fermented these sugars to an equal degree; maltose was fermented more strongly by the I-III group and dextrose by the II-IV group.

Petrie<sup>40</sup> showed that colonies of meningococci would produce halos of precipitate on solid mediums containing the homologous serum. Kirkbride and Cohen<sup>41</sup> have found that it is the I-III group which does this and that the type II strains which they studied did not have this property. Type IV strains have not been studied in this way.

30. Price, R. B., and Singer, E. O. A.: Notes on a Case of Meningococcus Septicemia, *J. Roy. Arm. M. Corps* 56: 215 (March) 1931.  
31. Scott, W. M.: A Study of Meningococci Occurring in the Spinal Fluid and of Similar Organisms in the Nasopharynx, Local Govt. Bd. Rep., N. S. 110: 56, 1916; *J. Hyg.* 15: 464, 1915.  
32. Scott, W. M.: A Further Study of the Serological Reactions of Meningococci from the Spinal Fluid and the Nasopharynx, with Special Reference to Their Classification and to the Recurrence of the Latter Among Normal Persons, *J. Hyg.* 17: 191 (July) 1918.  
33. Tulloch, W. J.: Report on the Examination of Carriers Isolated from 10,000 Men in the Garrison of X, April, May, June, 1916, Great Britain Medical Research Council, Special Report Series, No. 3, 1917, p. 70.  
34. Rake, G.: Studies on Meningococcus Infection: VI. The Carrier Problem, *J. Exper. Med.* 59: 553 (May) 1934.  
35. Hitchens, A. P.: Personal communication to the author.  
36. Andrewes, F. W.: A Consideration of Recent Serological Work on the Meningococcus, *Lancet* 2: 847 (Dec. 8) 1917.  
37. Linden, H.: Beitrag zur Frage der Bedeutung der Meningokokken-typen für Epidemiologie und Pathogenese der Meningokokken-erkrankungen, *Zentralbl. f. Bakt.* (part 1) 199: 362 (Jan. 20) 1931.

38. Ferry, N. S.; Norton, J. F., and Steele, A. H.: Studies of the Properties of Bouillon Filtrates of the Meningococcus: Production of a Soluble Toxin, *J. Immunol.* 21: 293 (Oct.) 1931.  
39. Griffith, F.: Identification of the Meningococcus in the Nasopharynx with Special Reference to Serological Reactions, *J. Hyg.* 15: 446, 1915; *Loc. Govt. Bd. Rep.* 110: 41, 1916.  
40. Petrie, G. F.: A Specific Precipitin Reaction Associated with the Growth of Agar Plates of Meningococcus, Pneumococcus and B. Dysenteriae (Shiga), *Brit. J. Exper. Path.* 13: 380 (Aug.) 1932.  
41. Kirkbride, M., and Cohen, S.: Precipitation Reactions of Meningococcus Strains with Immune Serum in Agar Plates in Relation to Antigenic Activity, *Am. J. Hyg.* 20: 444 (Sept.) 1934.



management, 65 per cent became symptom free on a subsequent diet-alkali regimen (table 8). This demonstrates the value of instituting parenteral therapy in patients who do not respond to standard management, and also the value of alternating treatment in refractory cases before resorting to surgery (unless emergency indications arise).

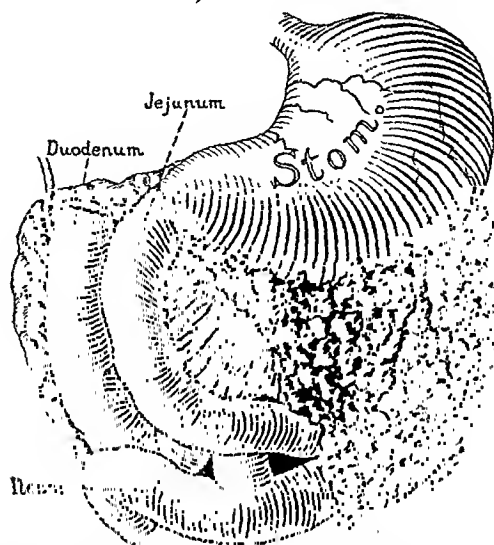


Fig. 1.—Mann-Williamson operation. The duodenum is diverted into the terminal ileum. The stomach is anastomosed to the jejunum. (Eusterman and Balfour.)

4. The percentage of relapses at the end of one year was higher in the parenterally treated cases than in the control group subjected to diet-alkali treatment (table 9).

5. The best results in medical management of refractory cases, however, are obtained with hospitalization. Eighty-four per cent of the attacks were immediately relieved by hospital bed rest and diet-alkali management (table 8). The percentage of relapses in the latter group at the end of five years is less than the percentage of relapses at the end of one year with vaccine, histidine or emetine therapy (table 9). *This is very important!*

TABLE 6.—Immediate Results: Parenteral versus Diet-Alkali Management: Chronic Cases (on Basis of Attacks)

Method of Treatment	Patients	Attacks	Per Cent Symptom Free
Vaccine.....	44	63	66
Larostidin (histidine).....	43	43	54
Synodal (emetine).....	38	43	58
Distilled water.....	22	22	59
Total parenteral (injections).....	118	176	60
Ambulatory diet-alkali (chronic).....	55	55	53

6. Although surgical treatment gives the highest percentage of immediate symptom-free intervals (89 per cent, table 8) and the smallest percentage of relapses within one year (46 per cent, table 9), it nevertheless shows recrudescence in 76 per cent of patients within five years (table 9). The total of known relapses is highest in the surgical series (93 per cent, table 9). This is true not only of those operated on in different localities and other institutions and who later returned to us for treatment of relapses or for gastrojejunal ulcers (naturally those who continued to be symptom free did not report to us) but also of those operated on under our observation. Of the seventy operations

in the present series, thirty-four were performed in Detroit (by different surgeons). Of these patients, three (8.8 per cent) died postoperatively, one was moderately improved and thirty (88 per cent) became symptom free. I was able to follow up twenty-five of these thirty symptom-free patients. Twenty-two (88 per cent) are known to have developed relapses of ulcer symptoms. Only three are known to be symptom free. Considering therefore the risks of surgery, the postoperative mortality, the recurrence of ulcer after operation and the not infrequent development sub-

TABLE 7.—Immediate Results: Parenteral (Injection) Treatment: Chronic Cases (on Basis of Attacks)

	Unselected	Diet-Alkali Failures	Total
Aggravated.....	3%	4%	4%
No improvement.....	17%	19%	18%
Moderate improvement.....	21%	15%	18%
Symptom free.....	59%	62%	60%
Number of attacks.....	97	79	116
Number of patients.....	..	..	115

sequently of gastrojejunal ulcers (which bring even greater difficulties in medical management), I do not think that surgery is the treatment of choice in peptic ulcer, unless the following indications are present: (a) Perforation. (b) Gastric ulcer suspected of malignancy. (c) High grade obstruction, not relieved by adequate medical management. (d) Repeated and frequent hemorrhages.

#### ACCOMPLISHMENT AND USEFULNESS OF PARENTERAL THERAPY

Table 10 illustrates the percentage of attacks that necessitated hospitalization and surgical intervention before and after parenteral therapy was instituted at

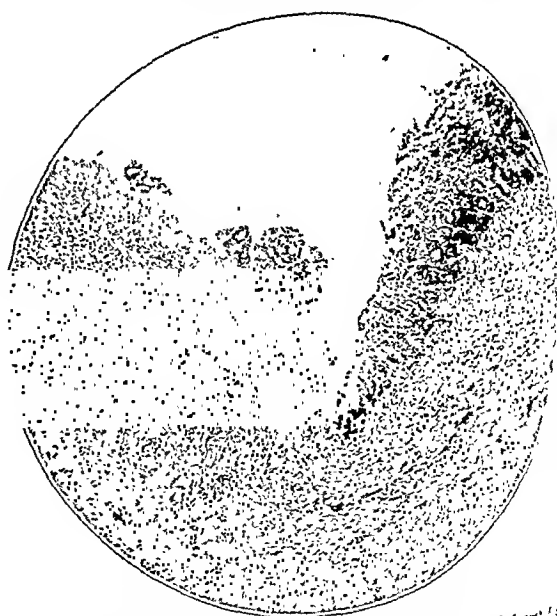


Fig. 2.—Dog died twelve days after operation; 20 cc. of histidine (800 mg. of histidine monohydrochloride) had been given. Inflamed with necrosis of surface.

the North End Clinic. Table 11 shows what I believe may be expected from the use of parenteral therapy in all types of ambulatory ulcer patients.

1. Fewer patients were hospitalized and fewer patients were operated on after parenteral therapy was instituted. However, in most of the parenterally treated

If the spinal fluid cell count is elevated but organisms are not found on smear, the suppurative focus in the sinus (case 1), in the labyrinth (case 2) or in the mastoid should be drained. In the case of the mastoid the dura should at the same time be widely exposed over the tegmen of the middle ear and mastoid (case 3). As long as organisms are absent from the spinal fluid the meningitis should be regarded as a localized process adjacent to the focus, and the dura should not be incised. Occasionally a few organisms may be found on smear in early meningitis, but there is no growth on culture, showing that these organisms are not viable, and drainage of the focus will still suffice to produce a cure (case 4). On the other hand, once a diffuse, generalized, suppurative meningitis has developed with organisms on smear and culture, surgical drainage of the basal cisterns by the method of Eagleton<sup>3</sup> (case 5) or perhaps by the method of Ferris Smith<sup>1</sup> may be attempted, though the latter procedure is open to the theoretical objection of exposing the spinal fluid to the mixed flora of the nasopharynx.

During the past four years eight cases of meningitis of otitic or nasal sinus origin have been observed in practice or in the house service of the Presbyterian Hospital. Two patients died of sepsis (thrombosis of the lateral sinus in one, thrombosis of the superior sagittal sinus in one) and one patient died of duodenal hemorrhage. The meningitis in these three cases was localized and was not the immediate or contributory cause of death. The remaining five cases of meningitis were treated successfully, as shown in the following reports:

#### REPORT OF CASES

CASE 1.—Mrs. R. K., aged 40, was admitted to the Presbyterian Hospital Dec. 30, 1932, because of constant, very severe, left frontal and occipital headache. Her illness began six months before with a severe sore throat, which was soon followed by a purulent postnasal discharge and severe left sided headaches. A month after the onset the left ear began to discharge and continued for two months, but for the past three months the ear had been dry. One month before admission she experienced a severe attack of vertigo and a week later a left facial paralysis and double vision developed, and these had persisted.

Examination on admission disclosed a complete peripheral left facial paralysis, paralysis of the left inferior rectus muscle and marked general emaciation and pallor. The drum membranes were intact and the nasal passages appeared normal, but in the roof of the nasopharynx above the left eustachian orifice a fistulous opening was seen exuding creamy pus and surrounded by granulations. Culture of this pus showed an abundant growth of *Staphylococcus aureus*. The spinal fluid was under normal pressure but slightly cloudy, with 486 polymorphonuclear leukocytes per cubic millimeter and no organisms on smear or culture. Because of the recent otitis media and the vertigo and facial paralysis the most likely focus for this early meningitis seemed to be the left petrous apex with a fistula into the nasopharynx.

The patient's symptoms did not improve and Jan. 9, 1933, the left petrous tip was explored by a radical mastoidectomy, following which the dura was elevated and a groove was made in the anterior surface of the petrous pyramid between the cochlea and the carotid artery, beginning above the eustachian orifice and going medially and slightly posteriorly to the depth of 1 inch (2.5 cm.). No evidence of bone disease was found.

The severe headaches continued with constant nausea and occasional vomiting and with a low grade, irregular fever reaching 102 F. Repeated examinations of the nasal cavities were negative until on one occasion pus was seen coming from the region of the ostium of the left sphenoid sinus. The diagnosis was suppurative left sphenoiditis and osteomyelitis of the sphenoid bone.

January 18 the left sphenoid sinus was opened intranasally and found to contain creamy pus. The severe headaches were immediately relieved and the other symptoms gradually improved until the patient was discharged, February 25.

Two weeks later, March 10, the patient was readmitted to the hospital because of a severe frontal and occipital headache for one week, and nausea and vomiting for two days. The neck was slightly rigid. Lumbar puncture showed 357 cells, 50 per cent polymorphonuclears and no organisms on smear or culture. A week later the symptoms were slightly improved and the spinal fluid contained 187 cells. March 30 the spinal fluid showed only 97 cells, all lymphocytes. Under general supportive treatment, including an autogenous staphylococcus vaccine made from the nasopharyngeal fistula, the symptoms gradually improved, the fistula healed, and the patient was discharged May 14.

For three years she enjoyed excellent health. In July 1936 she became ill with severe headaches, ataxia of the left arm and leg and spontaneous nystagmus. Because her immediate relatives were Christian scientists she was not seen until she became semicomatose two weeks later. The spinal fluid was under increased pressure (300 mm.) with 30 cells. There was slight rigidity of the neck, the eyegrounds showed an early papilledema and the temperature was 99 F. A provisional diagnosis of left cerebellar abscess was made. Hypertonic dextrose solution was given to reduce the intracranial pressure, but the coma deepened and a few hours later she suddenly became cyanotic and respirations stopped, the pulse continuing for some minutes. Permission for autopsy was refused.

This patient when first seen had a localized, basilar meningitis secondary to an empyema of the sphenoid sinus and an associated osteomyelitis of the sphenoid bone with a fistula into the nasopharynx. Recovery from the meningitis followed simple drainage of the sphenoid sinus. Additional drainage of the sphenoid bone by the method of Ferris Smith would probably have accelerated recovery, but incision and drainage of the dura were not necessary.

CASE 2.—E. O. Jr., aged 8 years, was admitted April 17, 1933, because of repeated vomiting and dizziness for three days with a left suppurative otitis media for three weeks, which began ten days after the onset of scarlet fever. The child was found lying on his right side; there was a constant spontaneous nystagmus toward the right and hearing tests showed no hearing in the left ear. The neck was slightly rigid, the temperature was normal and the mastoid was slightly tender. Lumbar puncture showed the spinal fluid to be under normal pressure but with a cell count of 180.

The diagnosis was suppurative labyrinthitis with beginning meningitis, and immediate operation was advised. Radical mastoidectomy showed a beginning coalescent mastoiditis with moderate softening of the mastoid cell partitions. Owing to the poor general condition of the child, further exploration of the labyrinth was postponed.

The next day, April 18, the temperature was elevated to 100.4 F., the neck was more rigid and lumbar puncture showed a definitely cloudy fluid with 2,900 cells but no organisms. A transfusion of 200 cc. of whole blood was given in the afternoon, and the labyrinth was opened in the evening by removing the stapes and the promontory connecting the oval and round windows. The following day, April 19, there was no longer stiffness of the neck, the spinal fluid was clear with a cell count of 203 per cubic millimeter, and the child was much improved. Two days later, April 21, the last lumbar puncture showed only 78 cells in the spinal fluid.

On April 24 weakness of the left facial nerve was first noted. April 25 the temperature rose abruptly from 99.2 to 105 F. The child was alert and made no complaints but appeared pale and emaciated, and the spleen was enlarged to 4 cm. below the costal margin. A transfusion of 200 cc. of whole blood was given. For three weeks an irregular fever persisted in spite of another transfusion, scarlet fever antitoxin and general supportive therapy. Except for a persistent secondary anemia, palpable spleen and gradually increasing emaciation, there were no other symptoms. Repeated blood cultures were positive for *Streptococcus haemolyticus*.

3. Eagleton, W. P.: Otitic Meningitis, *J. A. M. A.* 87:1544 (Nov. 6) 1926.

psychic elements the physician injects into the patient's mind when he injects the parenteral product into the patient's body. To justify ten, fifteen or twenty-five injections in ten, fifteen or twenty-five alternating or consecutive days, the physician must of necessity inject into the patient's mind that it is a "new" and "good" if not an "excellent" or "superior" method of treatment; "that eminent physicians the world over, abroad and in this country, have published favorable reports of its use," "that shortly after instituting the injection treatment a full diet can be tolerated" and so on. The injection of these and similar ideas into the patient's mind plus the additional encouragement that the patient receives from his physician during the more regular and frequent visits—these to my mind explain more than anything else the favorable results of parenteral therapy when favorable results occur.

2. *The Intermittent Nature of the Disease.*—The life history of ulcer is characterized by symptom-free intervals and relapses (remissions and recurrences). Spontaneous symptom-free intervals are not uncommon. Not all individuals with peptic ulcer are under medical supervision, nor do all patients who know they have

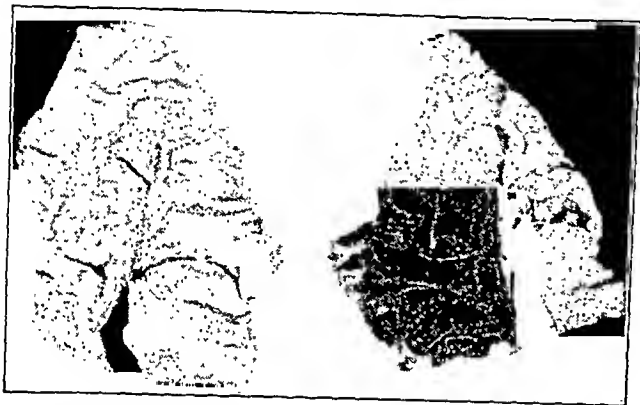


Fig. 3.—Dog died fifty-five days after operation; 112 cc. of Larostidin (4,480 mg. of histidine monohydrochloride) had been given. Note depth of ulcer and also site of perforation.

peptic ulcer and who have been previously treated report to their physicians with every relapse they experience. Spontaneous symptom-free intervals may therefore occur during or immediately following parenteral therapy.

3. *A Nonspecific Protein Reaction.*—It is thought that local cellular injury leads to the production and absorption of proteins affecting favorably the chronically inflamed locus (the ulcer) by stimulating leukocytosis, mobilizing immune bodies, dilating capillaries, and the like.

4. *Nonspecific Desensitization.*—It is thought that the effect of parenteral therapy is one of nonspecific desensitization. A number of substances have been demonstrated to have this property.

5. *A Nonspecific Action on the Sympathetic Nervous System.*—This in some way influences the nervous control of the ulcer area, inducing hypomotility and hypoperistalsis.

In reply to a questionnaire sent to the members of the American Gastro-Enterological Association, the majority of opinion seems to favor the view that whatever benefit may accrue to the patient by parenteral treatment is of psychic origin—a change in type of treatment and something different than before.

#### CONTRAINDICATIONS

Injection treatment should not be given to patients having:

1. Gastric ulcers suspected of malignancy.
2. Ulcers with high grade obstruction.
3. Gastric ulcers prone to hemorrhage or bleeding.

#### EXPERIMENTAL DATA ON HISTIDINE (LAROSTIDIN): PRELIMINARY REPORT

The Mann-Williamson operation (diverting the duodenum into the terminal ileum, and anastomosing the stomach with the jejunum) produces ulcer in at least 95 per cent of dogs. Weiss and Aron of Strasbourg performed this operation on three dogs. They gave daily injections of histidine and reported that none of the three developed ulcers. Two control dogs, however, did develop ulcers after operation. From this and certain clinical results, Weiss and Aron reasoned that peptic ulcer is the result of histidine deficiency.

Saltzstein, Glazer and I are repeating the experiments of Weiss and Aron. The Mann-Williamson operation has so far been performed on twelve dogs. These dogs received 1 cc. of histidine twice daily (80 mg. per day), starting the day before or within two or three days following the operation.

Six of the twelve dogs have already died. Five showed definite jejunal ulcer, two of them with perforations. (One died twelve days after operation, the others from twenty-nine to fifty-five days after operation.) The sixth dog (death nineteen days post-operatively) showed intense inflammatory changes in the mucosa of the jejunum just distal to the anastomosis, which may be interpreted as early ulcer, though no frank erosion was present. Dr. Plinn F. Morse, pathologist at Harper Hospital, reported the gross and microscopic changes.

Six dogs are still living (from twenty-one to seventy-five days after operation). They all show blood in the stools, loss in weight, intermittent loss of appetite and occasional vomiting. These are the usual clinical signs of ulcer in these animals.

We therefore have not been able thus far to corroborate the original experiment of Weiss and Aron. In our hands ulcers have regularly followed the Mann-Williamson operation though the dogs received daily injections of histidine. This report is only preliminary. The experimental work is being continued. A more detailed report on a larger series of dogs will be given in a subsequent communication.

The accompanying illustrations show the gross appearance and photomicrographs of jejunal ulcers found in Mann-Williamson dogs that have received daily injections of histidine after operation.

#### SUMMARY

A series of 291 cases were observed during 1,019 ulcer attacks for comparative results obtained with the diet-alkali, parenteral and surgical methods of treatment in peptic ulcer. In ambulatory management the diet-alkali regimen was found satisfactory in 80 per cent of the attacks treated. Private patients, as a whole, respond more satisfactorily to ambulatory diet-alkali management than do clinic patients. Patients with acute ulcers show a higher percentage of symptom-free intervals than do patients with chronic ulcers. The best results were obtained in the private patients with acute ulcers. In the chronic group parenteral therapy

7. Sandweiss, D. J.; Saltzstein, H. C., and Glazer, W. S.: The Value of Histidine in Prevention of Experimental Ulcer in Dogs. *Am. J. Digest. Dis. & Nutrition*, to be published.

Immediate operation was undertaken that evening. The first operation was found to have been incomplete, with many infected cells remaining in the upper third of the mastoid in the vicinity of the labyrinth. These were removed, a radical mastoidectomy was performed and the labyrinth was opened through the promontory, oval and round windows.

The following day, June 7, the patient was definitely better, with less headache, less stiffness of the neck and a lower temperature. For eight days he seemed fairly well except for slight headache at times with persistent fever around 101 F. and with at no time complete freedom from slight neck rigidity. A second lumbar puncture revealed 1,800 cells, half lymphocytes and no organisms. The patient repeatedly stated that he did not expect to get well.

The morning of June 14 a very severe headache came on acutely, boardlike rigidity of the neck rapidly developed, and

Nine days after operation the lumbar spinal fluid was clear and yellowish, with 180 cells, 65 per cent lymphocytes and no organisms on smear or culture.

Two weeks after operation the lumbar fluid was crystal clear with 90 cells, all lymphocytes, and no organisms, and two days later the patient was discharged feeling quite well except for weakness and emaciation.

One month after operation a plastic operation was done on the external canal and postaural wound and two months after operation the ear was dry, the postaural wound healed and the patient went back to work.

When seen June 6 this patient had a localized meningitis. Drainage of the focus (the labyrinth) resulted in temporary improvement, but some localized meningitis persisted, as evidenced by fever, slight headache

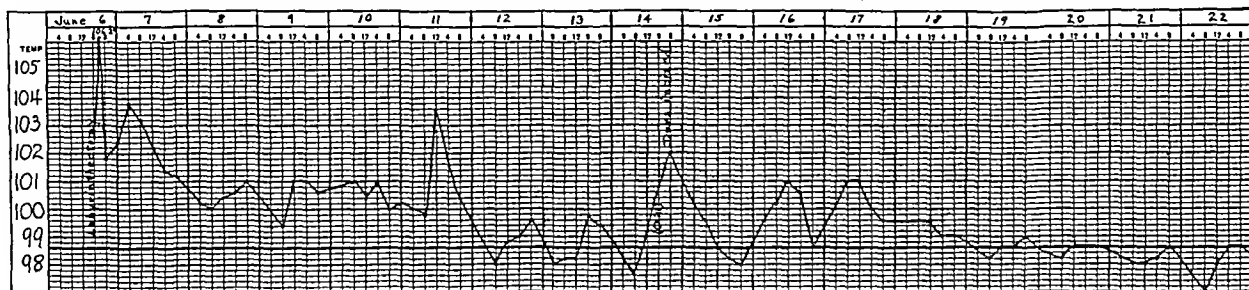


Chart 2 (case 5).—Temperature curve in localized meningitis on admission with temporary improvement after drainage of the focus in the labyrinth; generalized meningitis, June 14, with 5,200 cells, abundant organisms on smear and culture in the spinal fluid. Recovery following incision of the dura and drainage of the basal cisterns.

the Kernig sign was strongly positive for the first time. At noon the patient had a chill, followed by a rise in temperature to 102 F. In the afternoon he was irrational and in considerable pain from the headache. A lumbar puncture revealed 5,200 cells, nearly all polymorphonuclear leukocytes, and organisms were found in abundance on smear and culture. These proved to be nonhemolytic streptococci. By evening the patient did not respond, and his premonitions of the previous week seemed due to be fulfilled.

Immediate operation was decided on and was carried out that night. The posterosuperior angle of the petrous bone including the three semicircular canals was exenterated as far as the internal auditory meatus, exposing the cerebellar and temporal lobe dura with the superior petrosal sinus from the lateral sinus to the internal auditory meatus. The meatus was opened but no collection of pus was found and no cerebrospinal fluid escaped. The cerebellar dura was then incised just lateral to the internal auditory meatus, and a small rubber tissue drain was inserted an inch medially, thus draining the lateral projection of the basal cistern. A large quantity of cloudy spinal fluid gushed forth, soaking sponges, sheets and towels and dripping on to the floor. This flow continued for several minutes until probably several hundred cubic centimeters of spinal fluid had escaped. The patient's breathing, which had stopped three times during the course of the operation, necessitating artificial respiration, now materially improved. The drain was sutured to the dura and the wound packed lightly with iodoform gauze.

The first day after operation the patient was conscious, the headache was much better, the rigidity of the neck was less marked and the temperature did not exceed 99.6 F. Profuse drainage of cerebrospinal fluid through the iodoform gauze required frequent changes of voluminous overlying gauze dressings, and even then the pillow and bed clothes were soaked with the spinal fluid.

The second day after operation the escaping spinal fluid contained 310 cells and 60 per cent lymphocytes, but with abundant organisms on smear and culture.

The fourth postoperative day the flow of spinal fluid ceased, the headache was gone and the rigidity of the neck had disappeared. The drain was removed without the escape of any fluid. The temperature reached normal and stayed normal from this time on, except for occasional rises to 99 F. There was no further headache, stiffness of the neck or sense of impending death.

and slight stiffness of the neck. June 14 the infection broke through the barriers of the localized meningitis and generalized meningitis set in. This was promptly drained at the point of entry, with immediate and progressive improvement. By the fourth day the localized meningeal reaction had walled off the drainage tube from the rest of the cerebrospinal spaces so that it was removed without the escape of any further fluid.

The fact that this patient recovered at all must be attributed not only to the surgical procedure but to the factors of increased resistance of the host and decreased virulence of the invading organism, since the onset of the otitis media preceded the generalized meningitis by two months.

#### SUMMARY

A series of five consecutive patients with otitic or nasal sinus meningitis recovered after treatment according to accepted principles. These principles consist in the earliest possible diagnosis of meningitis by spinal fluid examination at the first suspicions of meningeal invasion, the cell count being the important consideration. A sharp differentiation must be made between localized meningitis, with increased cells but no organisms on smear or culture and with a normal sugar determination, and generalized meningitis, with organisms on smear and culture with diminished or absent spinal fluid sugar. As long as the meningitis is localized, treatment should be confined to thorough surgical drainage of the focus in the ear or sinus. Occasionally a few organisms may be found on smear but not on culture, and here also simple drainage of the suppurative focus may suffice to produce a cure. The prognosis of localized meningitis is good if it is promptly recognized and dealt with.

Once a generalized meningitis has developed, incision and drainage of the dura at or near the point of entry of the infection may be considered,<sup>3</sup> forced drainage of spinal fluid by the method of Kubie<sup>4</sup> may be

4. Kubie, L. S.: *Ann. Otol., Rhin. & Laryng.* 43: 692-701 (Sept.) 1934.

been overlooked or neglected. By the combination of the knowledge obtained in these studies, physicians can arrive at a satisfactory solution to most problems in the care of ulcer patients. I refer first to the work of Fenton B. Turck, who demonstrated the experimental production in dogs of ulcers typical of human gastric ulcer following the intravenous injection of extracts of dead tissue. He gave the name of cytost to the substance he felt was responsible for producing the area of focal necrosis causing the ulcer. Later Rosenow demonstrated the relationship between focal infection and ulcer, which has been so conclusively confirmed by clinical experience, although actual migration of bacteria from focus to stomach is questionable. Perhaps the cytost absorbed from the dead tissue in the focus is the etiologic factor, or perhaps allergy is the explanation. Thirdly, Cole's researches into the life history of ulcer have demonstrated that single gastric ulcers are not due to erosion of the mucosa but start like boils beneath the mucosa and break outward through it, that they heal spontaneously and rapidly and that recurrent attacks of ulcer symptoms are due to new ulcers. Intractable ulcers are complicated ulcers which have perforated or nearly perforated and which



Fig. 5.—Dog died forty-five days after operation; 79 cc. of larostidin (3,160 mg. of histidine monohydrochloride) had been given. Jejunal ulcer perforated into small intestine.

cause cicatrices, exudates or adhesions with resulting deformities. Such ulcers produce persistent symptoms and frequently require surgical treatment or they may be malignant ulcers from the start, showing no tendency to heal and requiring early operation. A simple ulcer requires only palliation of its symptoms and removal of all possible causes to prevent occurrence of future ulcers.

DR. SARA M. JORDAN, Boston: The treatment of ulcer cannot be considered from the etiologic basis because physicians are not united as to the etiology. There isn't enough information to give any firm foundation on that, but a therapy can be adopted that is based on logical, if not on etiologic, grounds. The purposes of treatment of ulcer are twofold: (1) to promote complete healing and (2) to prevent recurrences, to maintain that complete healing. How is complete healing promoted? Physiologic studies, which Ivy has reported so often, indicate that there are two things to combat, spasm and acid. Spasm is combated by rest, diet and the omission of irritants, and by something else which people call psychotherapy and which, in lieu of a better word, may continue to be called that. Acid is combated by all those measures, rest, diet and psychotherapy, plus some chemical aid. Where does larostidin fit into this picture? It certainly does not give the patient rest or make any changes in the diet. Does it influence the psychotherapy? Physicians who have had the same experiences

as I have often come to an impasse with the patient. One comes to the point at which the patient is not doing well and one of two things, from the psychotherapeutic point of view, is necessary; either one reviews the whole situation and stresses the necessity of continuing the present treatment and doing it still more carefully, or one introduces some new element into the therapy. I suspect that the cases in which larostidin has helped have been those cases. In my limited experience I have found it an adjuvant in relieving intractable pain temporarily, but temporarily only. I believe that has occurred because it introduces some new element into the psychotherapy of the situation. I do not believe that it maintains complete healing or has anything to do with that, and unless these ulcer patients can be segregated or transported into some ulcer-proof world, which is impossible, one will have to continue to combat spasm and acid as long as that patient lives, because the life history of the ulcer ends only with the life history of the individual.

DR. GEORGE B. EUSTERMANN, Rochester, Minn.: Treatment of any disease in which knowledge of etiology is still lacking or incomplete is necessarily empirical. Biologists explain that there are intrinsic and extraneous factors operative in the genesis of disease. The intrinsic, that is, the hereditary or constitutional, factor is not under control, and the extent of the rôle it plays other than conditioning the organ system to be involved is not measurable. The extraneous factors are to a large extent controllable under proper circumstances. Ulcer is essentially a disease of civilized people and is of psychosomatic nature. Infection, trauma and certain toxic or irritant products at times play a direct, prominent rôle, but such factors per se do not explain the genesis of the great majority of the lesions. Physicians are prone to consider too exclusively the extraneous factor. If the experiences of the past are any criterion, parenteral methods of treatment which have been and are now in vogue are doomed to fail. The *raison-d'être* for the choice of ingredients employed rests on a highly theoretical basis. Any form of treatment that is so simple and which requires so little self discipline on the part of the patient would appeal to the majority of physicians and certainly to the patient himself. I freely predict that the problem is not such an easy one. Treatment with larostidin, for example, occasionally produces a gratifying result in patients ineffectively or incompletely treated by other methods. I have not had an opportunity to follow such cases long enough to determine how permanent the results will be; but such occasional good results would not move me to advocate the adoption of any particular parenteral method of treatment to the exclusion of the orthodox method thoroughly and intelligently carried out. While experimental research has added much to our knowledge concerning various phases of ulcer, I doubt whether it has solved the riddle of the actual genesis of the disease in man. In the elucidation of therapeutic problems, however, observations on animals with experimentally produced chronic peptic ulcer have been made. On the basis of a procedure carried out by Reed and Ivy with gastric mucin as a prophylaxis in dogs receiving toxic doses of cinchophen, Stalker of the Mayo Foundation (unpublished data) investigated the therapeutic value of various preparations in a large number of dogs. All the control dogs developed chronic cinchophen ulcer indistinguishable from ulcer in man in an average of thirty days. Fifty per cent of the dogs getting mucin in the same manner and comparative amount that it is given to patients developed an ulcer. Every dog getting milk alone developed an ulcer but not a severe one. Dogs receiving larostidin developed a typical chronic ulcer in every instance. In not a single dog on the diet-alkali regimen did a chronic ulcer develop.

DR. ITALO F. VOLINI, Chicago: I wish to present some evidence as to the benefit of histidine in the treatment of the peptic ulcer. I have promulgated the histamine theory in the production of peptic ulcer on the following evidence: 1. Stomach ulcers can be produced in rats by the injection of histamine. 2. Histaminase, the enzyme that destroys histamine, is present in the stomach area where gastrin (histamine) is produced in greatest concentration. 3. Histamine injections used in diagnosis aggravate ulcer symptoms. 4. Early in the treatment with larostidin, symptoms may be exaggerated because increased histidine content available can be transformed into



h definite ulcer histories that it was not thought  
essary to urge x-ray examination because of the  
pense involved. About one sixth of the patients had  
one or more surgical operations for ulcer. About  
third had had hospital bed-rest managements on one  
more occasions. About three fourths of the patients  
been previously treated for peptic ulcer.  
The location of ulcer as found in the 291 patients is  
own in table 2.

#### DIETS USED

a) *Diet-Alkali Series.*—The diet used in the diet-alkali  
imen was as follows: for patients at rest in bed, hourly  
ings of milk and cream plus Sippy powders 1 and 2 with  
ual increase by the addition of eggs, cereals and the like  
et 1, original Sippy diet). Ambulatory patients were started  
milk, cream, soft boiled or poached eggs, strained cereals,  
amed soups, custards, cereal puddings, toast and butter,  
ided into six feedings a day (diet 2). If, at the end of  
ut ten days these patients continued to be symptom free,  
eed vegetables and fruits were added and the meals were  
ided into three a day with small feedings between meals  
et 3). Scraped beef, minced chicken and flaked whitefish  
re added to their diets (diet 4) from six to eight weeks  
er the beginning of dietetic treatment. Sippy powder 2 was  
ays prescribed, but Sippy powder 1, liquid petrolatum, hot  
ominal stupes, gastric lavages and antispasmodics were given  
y when indicated.

TABLE 3.—Immediate Results in Ambulatory Diet-Alkali Man-  
agement: Private and Clinic Patients in Acute and  
Chronic Ulcers (on Basis of Attacks)

	Patients	Attacks	Per Cent Symptom Free
Private			
1. Acute.....	..	63	94
2. Chronic.....	..	78	83
3. Total.....	62	141	88
Clinic			
1. Acute.....	..	175	85
2. Chronic.....	..	316	72
3. Total.....	198	491	76
Totals.....	260	632	79

(b) *Parenteral Series.*—Patients starting on parenteral ther-  
y were advised to continue with the same diet followed prior  
parenteral treatment. Most of the patients treated with  
parenteral products were on a diet similar to diet 3 at the time  
atment was started. After becoming symptom free the  
ients were permitted to increase their food intake as they  
ased. No alkalis were given unless they had been taking  
alis before parenteral treatment was instituted.

#### RESULTS WITH AMBULATORY DIET-ALKALI THERAPY

Tables 3 and 4 present the results of diet-alkali  
management of 260 patients<sup>5</sup> (private sixty-two, clinic  
8) during 632 ulcer attacks (acute attacks 238,  
ronic attacks 394).

1. Varying immediate results were obtained, the best  
ults being observed in the private group with acute  
cer (94 per cent). The least satisfactory results were  
tained with clinic patients having chronic ulcers  
72 per cent, table 3).

2. Fewer relapses within one year were observed in  
ivate patients having acute ulcers (39 per cent). The  
reatest number of relapses occurred in the clinic  
patients with chronic ulcers (69 per cent, table 4).

3. Relapses within five years were least frequent  
among the private group with acute ulcers (65 per  
cent, table 4), and the highest in the clinic group with

5. The diet-alkali group includes a number of patients observed in  
the Harper Hospital outpatient department by Dr. C. D. Moll and in  
the North End Clinic by Dr. S. G. Meyers.

chronic ulcers (85 per cent, table 4). Despite these  
figures, it must be pointed out that ulcers of all types,  
in both groups, have a characteristic tendency to recur.  
Even in the most favorable group, i. e., private patients  
with acute ulcers, 75 per cent of attacks treated during  
a period of approximately ten years have already had  
relapses (table 4).

TABLE 4.—Follow-Up Results in Ambulatory Diet-Alkali Man-  
agement: Private and Clinic Patients in Acute and  
Chronic Ulcers (on Basis of Attacks)

	Attacks Symptom Free	Attacks Followed Up	Per Cent Relapses Within 6 Months	Per Cent Relapses Within 1 Year	Known Per Cent Relapses Within 5 Years	Total Known Per Cent Relapses to Date
Private						
1. Acute.....	59	57	26	39	65	75
2. Chronic.....	65	59	22	51	80	86
Total.....	124	116	24	45	78	81
Clinic						
1. Acute.....	148	138	33	51	70	78
2. Chronic.....	227	209	54	69	85	90
Total.....	375	347	46	62	79	85
Totals.....	499	463	40	57	78	84

#### PARENTERAL VERSUS DIET-ALKALI THERAPY

The percentage of failure of diet-alkali therapy in  
ulcer patients of all types having been established, the  
next approach was to observe the results of parenteral  
therapy and to determine whether, and wherein, it is  
of value. The group selected for this study was the  
chronic ulcer patients, largely of the clinic group. This  
group had given the least satisfactory results of all  
types treated by the diet-alkali regimen. Table 5 shows  
the duration of ulcer symptoms in these series of  
patients at the time when parenteral treatment was  
begun. Tables 6, 7 and 8 show the immediate results;  
table 9 the late results with parenteral treatment in  
chronic ulcer patients (118 patients, 176 attacks).

1. The immediate results after vaccine, histidine and  
emetine injections are practically identical. Injections  
with distilled water produced similar results. The

TABLE 5.—Duration of Ulcer Symptoms at Time of Treatment  
(Chronic Cases)

Duration of Ulcer Symptoms at Time of Treatment	Vaccine	Laro- tidin	Synodal	Distilled Water	Diet- Alkali (Control)
Less than 5 years.....	7	4	7	4	10
5-9 years.....	11	13	7	4	10
10-14 years.....	9	9	10	8	15
15-19 years.....	8	10	10	2	9
20-24 years.....	5	5	1	2	8
25 years or over.....	4	2	3	2	3
Total.....	44	43	38	22	53
Per cent with symptoms over 10 years.....	59	60	63	64	64

results do not differ appreciably from those obtained  
with diet-alkali therapy in similar types of patients  
(table 6).

2. The immediate results after parenteral therapy are  
identical for both the unselected series and the  
group that failed to respond previously to diet-alkalis  
(table 7).

3. Sixty-two per cent of the chronic ulcer patients  
who failed to respond to diet-alkali management  
became symptom free under parenteral therapy (table  
8). On the other hand, when parenteral therapy  
failed even after previous failure with diet-alkali

of the pancreas, punch biopsy or small incisional biopsy has been performed with immediate frozen section examination by the pathologist. This has been done with the idea that perhaps an early obstructing carcinoma of the pancreas may be recognized and resected in two stages, as recommended by Whipple, Parsons and Mullins<sup>1</sup> for the treatment of carcinoma of the ampulla of Vater. With punch biopsy of the liver the differentiation between hepatitis and carcinoma of the head of the pancreas also may be made, together with other conditions found at operation, such as a collapsed gallbladder and a nondilated common duct.

#### POSTOPERATIVE MORTALITY AND CAUSES OF DEATH

There were fifteen postoperative deaths in the thirty-four surgical cases, or a mortality of 44.1 per cent. Since two patients were found not to have a carcinoma of the pancreas or of the lower end of the common bile duct post mortem, the mortality for the operation in



Air present in the biliary system noted after ingestion of barium sulfate meal

malignant cases was actually 41.3 per cent, or thirteen deaths in thirty-two operations.

The causes of death were as follows: hemorrhage six cases, pneumonia two cases, and one case each of coronary artery disease, cholemia, shock, streptococcal meningitis, and intestinal leak. The latter case was the aforementioned choledochoduodenostomy for stricture of the common bile duct following a transduodenal resection of the ampulla of Vater. In this case there was no evidence of recurrent or metastatic carcinoma post mortem, one year after the primary operation.

Of the thirty patients who were thought to have carcinoma of the head of the pancreas at laparotomy, eleven died after operation, or a mortality of 36.6 per cent. Necropsy was performed on eight of the eleven patients. Four were found to have carcinoma of the head of the pancreas with either a single metastasis or multiple metastases. The presence of metastases to the liver and other organs occurred in spite of the fact that the duration of symptoms, particularly jaundice, was short—from four to six weeks. The remaining four

necropsies showed the following: (1) carcinoma of the common bile duct, (2) carcinoma of the ampulla of Vater, (3) cirrhosis of the liver and acute cholecystitis and (4) subacute yellow atrophy. As previously mentioned, the latter two conditions represent errors in the operative diagnosis and indications. Of the three patients who were not examined post mortem, one showed metastases on x-ray examination of the lungs.

#### FOLLOW UP: DURATION OF LIFE AFTER OPERATION

Nineteen patients in whom an operative diagnosis of carcinoma of the head of the pancreas was made were discharged from the hospital. Two of these patients were immediately lost from observation. Of seventeen patients with a partial or complete follow-up record, fourteen were known to be dead. All died between three months and one year following operation, except one patient who lived three and one third years. This patient, who was examined post mortem at another institution, was reported to have died of carcinoma of the stomach with liver metastases. The average post-operative duration of life in carcinoma of the head of the pancreas was seven months. This closely compares with the recently reported statistics of Judd and Hoerner (10.2 months)<sup>2</sup> and of Eliason and Johnson.<sup>3</sup>

Of the fourteen patients known to be dead, only five were examined post mortem. Three were found to have carcinoma of the pancreas, one carcinoma of the ampulla of Vater and the fifth patient carcinoma of the stomach with liver metastases.

Two patients were followed for eight months and then lost sight of. One of these cases, however, was probably not malignant, because on subsequent admission to the hospital the patient was thought to have hepatosplenomegaly. Of the three patients not known to be dead, only one is known to be alive. He has lived for twenty-six months after operation. At this time it is believed that he did not have carcinoma of the pancreas but probably was suffering from a chronic pancreatitis at the time of operation.<sup>3a</sup>

#### COMPLICATIONS

**Cholangitis.**—The question of cholangitis following biliary-intestinal anastomosis is a moot point. Some observers, notably Wangenstein,<sup>4</sup> Roeder,<sup>5</sup> Mason and Baker,<sup>6</sup> Graham and his associates<sup>7</sup> and many others have reported its occurrence as a great handicap to the operation. Other observers, as Kehr,<sup>8</sup> Bernhard,<sup>9</sup> and Mayo-Robson,<sup>10</sup> have found cholangitis a frequent

2. Judd, E. S., and Hoerner, M. T.: Surgical Treatment of Carcinoma of the Head of the Pancreas and of the Ampulla of Vater, *Ann. Surg.* 31: 937-942 (Dec.) 1935.

3. Eliason, E. L., and Johnson, J.: Life Expectancy in Biliary Intestinal Anastomosis, *Surg., Gynec. & Obst.* 62: 50-56 (Jan.) 1936.

3a. Since this communication was submitted for publication the patient died, twenty-nine months after cholecystogastrostomy. Necropsy disclosed a carcinoma of the head of the pancreas infiltrating the duodenum, causing stenosis. No metastases were present. The cholecystogastrostomy stoma was patent. There was no evidence of cholangitis or hepatitis. A detailed description of this case will be published by Dr. Oppenheimer under the title "Prolonged Survival Following Cholecystogastrostomy in Obstructive Jaundice Due to Carcinoma of the Head of the Pancreas."

4. Cholangitis Following Cholecystenterostomy, *Ann. Surg.* 91: 311-313 (Aug.) 1931.

5. Roeder, C. A.: Modified Cholecystogastrostomy, *Ann. Surg.* 91: 311-313 (Aug.) 1931.

6. Mason, J. T., and Baker, J. M.: Cholecystogastrostomy; A Review Two Years Later, *S. Clin. North America* 11: 1105-1110 (Oct.) 1931.

7. Graham, E. A.; Cole, W. H.; Copher, G. H., and Moore, S.: Diseases of the Gallbladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928, p. 443.

8. Kehr, H.: Chirurgie des Gallenwege, *Neue deutsche Chir.* 68: 689, 1913.

9. Bernhard, F.: Die Frueh und Spaetergebnisse der Cholecystogastrostomie, der Cholecystoduodenostomie und Choledochoduodenostomie, *Fachteil, Deutsche Ztschr. f. Chir.* 242: 736-756, 1934.

10. Mayo-Robson, A. W.: Certain Forms of Jaundice Can Be Relieved or Cured by Surgical Treatment with a Consideration of Cholecystenterostomy Based on an Experience of 64 Cases, *Lancet* 1: 374, 1909.

1. Whipple, A. O.; Parsons, W. B., and Mullins, C. R.: Treatment of Carcinoma of the Ampulla of Vater, *Ann. Surg.* 102: 763-779 (Oct.) 1935.

patients a relapse occurred within one year, and more relapses in this group required treatment than did those in the group subjected to diet-alkali management (table 10).

2. Parenteral therapy has fewer indications among private patients with acute ulcer, since 94 per cent of this group responded to diet-alkali management. Among

TABLE 8.—*Immediate Results: Surgery, Hospital Bed-Rest Management and Ambulatory Treatment in Refractory Cases: Chronic Cases (on Basis of Attacks)*

Method of Treatment	Patients	Attacks	Per Cent Symptom Free
Surgery.....	51	70	89
Hospital bed rest.....	93	141	84
Diet-alkali failures treated parenterally (injection).....	56	79	62
Parenteral failures treated with diet-alkalis.....	26	26	65

TABLE 9.—*Follow-Up Results: Parenteral versus Diet-Alkali Management; also Surgery: Chronic Cases (on Basis of Attacks)*

	Attacks Symptom Free	Attacks Followed Up	Per Cent Relapses Within 6 Months	Per Cent Relapses Within 1 Year	Known Per Cent Relapses Within 5 Years	Total Known Per Cent Relapses to Date
Vaccine.....	45	37	62	84	*	*
Larostidin (histidine).....	23	21	86	90	*	*
Synodal (emetine).....	25	23	57	87	*	*
Distilled water.....	13	13	67	92	*	*
Ambulatory diet-alkali (chronic).....	29	26	35	54	*	*
Hospital diet-alkali.....	119	113	39	50	76	90
Surgery.....	62	56	32	46	76	93

\* Too recent for comparative results.

TABLE 10.—*Per Cent of Attacks Treated Ambulantly, Hospital Bed-Rest Management and Surgery Before and After Parenteral Therapy Was Instituted at North End Clinic*

	Patients	Attacks	Per Cent Attacks Treated Ambulantly	Per Cent Hospitalized	Per Cent Operated On
Before parenteral treatment was started (3½ year period).....	70	143	81	13	6
After parenteral treatment was started (4½ year period).....	129	365	95	4	1

the chronic ulcer patients of both the private and the clinic group parenteral injections have their greatest field of usefulness (table 11).

#### STANDARD METHODS OF TREATMENT

To show what permanent effect, if any, the standard methods of treatment (diet-alkali management, vaccine<sup>6</sup> or surgery) have on patients (not on basis of attacks) over a long period of time, I have selected patients who have been treated for over five years for ulcer. Of the 291 patients studied 155 belong to this group (table 12).

1. Twenty-six patients (or 17 per cent, table 12) were symptom free five years or longer after treatment of their ulcer attacks. However, in fifteen of the twenty-six patients (approximately 60 per cent) ulcer relapses developed after a symptom-free interval of five years or longer.

6. The original series of patients treated with vaccine and referred to previously<sup>3b</sup> was treated more than five years ago.

2. Only five patients (or 3 per cent of the total 155) are still symptom free from five and one-half to seven years after the first and only ulcer attack. Further follow up may show that these may also relapse. As an example, one in our series of 291 patients had an ulcer hemorrhage twenty-one years before and remained symptom free approximately eighteen years; during the last three years he has become refractory to treatment.

3. The small percentage of patients with five year (or longer) symptom-free intervals may be partly explained by the high percentage (76) of clinic patients in this series. This group of patients are of the lower economic and social strata, living under dietary handicaps. Environmental difficulties and inner emotional conflicts were frequently present and difficult to relieve.

TABLE 11.—*Field for the Usefulness of Ambulatory Diet-Alkali Management and Parenteral Therapy*

	Patients	Attacks	Symptom Free (Diet-Alkali)	Value of Parenteral Therapy (60% of Diet-Alkali Failures, Symptom Free)*
Private				
1. Acute.....	...	63	94%	3 or 4 out of 100 attacks
2. Chronic.....	...	78	83	11 out of 100 attacks
3. Total.....	62	141	88	7 or 8 out of 100 attacks
Clinic				
1. Acute.....	...	175	85	9 out of 100 attacks
2. Chronic.....	...	316	72	16 or 17 out of 100 attacks
3. Total.....	198	491	76	14 or 15 out of 100 attacks
Totals.....	260	632	79	12 or 13 out of 100 attacks

\* From table 3 we know the percentage of various types of ulcer patients responding to ambulatory-diet-alkali management. From table 7 we know the percentage of diet-alkali failures responding to parenteral treatment. If these experiences are general, one may determine the approximate value of parenteral therapy in the various types of ulcer patients. For example: given 100 private patients with acute ulcers (of less than five years' duration), 94 per cent become symptom free under ambulatory-diet-alkali management (table 3). Six per cent therefore fail to become symptom free. Approximately 60 per cent of these six diet-alkali failures (three or four patients) will respond to parenteral therapy. It would therefore not be advisable to give routine parenteral treatment to all the 100 patients when injection treatment is really indicated in only such a small percentage of the total.

TABLE 12.—*Follow-Up Results of One Hundred and Fifty-Five Patients Treated Longer Than Five Years*

Number of patients treated longer than 5 years	155	Symptom free 5 years or longer after treatment with:
1. Number of patients symptom free 5 years or over	26 (17% of the 155)	(a) Resection..... 1 (b) Gastro-enterostomy.... 6 (c) Suturing of perforation 1 (d) Hospital diet-alkali.... 6 (e) Ambulatory-diet-alkali. 12
(a) Number of patients symptom free 5 years or over and subsequently developed ulcer relapses	15 (60% of the 26)	(a) Resection..... 1 (b) Gastro-enterostomy.... 5 (c) Hospital diet-alkali.... 3 (d) Ambulatory-diet-alkali. 6
(b) Number of patients symptom free 5 years or over after treatment of their last attack and still symptom free	11 (40% of the 26)	(a) Gastro-enterostomy.... 1 (b) Suturing of perforation 1 (c) Hospital diet-alkali.... 3 (d) Ambulatory-diet-alkali. 6
2. Number of patients (included in 1b) who had only one ulcer attack in their lives and still symptom free 5½-7 years later	5 (3% of the 155)	(a) Suturing perforation... 1 (b) Hospital diet-alkali.... 1 (c) Ambulatory-diet-alkali. 3

#### INTERPRETATION

The reasons why only certain patients respond to parenteral therapy cannot be stated definitely. One or several explanations may be given. I prefer the first two of the following five:

1. *Psychic Factor*.—I am referring not only to the psychic factor on the part of the patient, to the knowledge that he is getting something "new" and "different" instead of the "same old diet and powders" (so well known to ulcer patients), but more especially to the

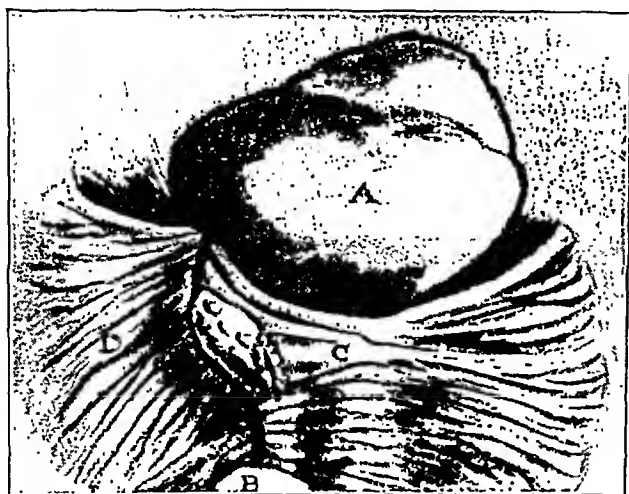
the appendix was found to be normal in appearance except for some old adhesions. Arising from the pelvis and extending into the right side of the abdomen was a reddish blue, tense mass having the consistency of a cyst rather than being firm like a fibroid tumor. This tenseness later was found to be due to edema, which was quite marked. The mass was a fibromyomatous uterus measuring 5 by 9 by 7 cm. The uterus, owing to the shape, size and location of the tumor, was twisted through a 60 degree angle at the isthmus. The fibromyoma was subserous and was in the right cornu, showing a large base that extended down into the muscle. The uterus was twisted toward the right and posteriorly, carrying the right round ligament and the base of the tube posteriorly and the left ligament and tube anteriorly. The tumor along with the congestion distorted the appearance of the uterus. Because of the existing pathologic condition a hysterectomy was performed and a simple appendectomy done.

The pathologic diagnosis was myofibroma of the uterus with several intramural nodules, in the midmenstrual phase.

The patient had an uneventful convalescence and was discharged March 15.

#### LITERATURE

The first record of torsion of the uterus was made in 1861 by Times of England. Since then there has been a gradual increase in the number of cases reported



The corpus uteri (A) is twisted at the isthmus through 60 degrees clockwise. The fibromyoma is shown posterior to the uterus. B, bladder. The left broad ligament, left tube and left ovary (C) have been pulled anteriorly with the right broad ligament (D) disappearing posteriorly.

in the foreign literature, with a few detailed studies reported in this country. Approximately 143 cases of axis torsion of the fibromyomatous uterus have been reported to date. We have been able to collect nine cases of torsion of a fibroid uterus reported in the United States, many more, however, being reported in other countries. Many errors in reports of the total number of cases may be explained by the fact that some authors exclude cases when pregnancy is associated while others include all types of axis torsion.

#### ETIOLOGY

Axis torsion of the uterus occurs more frequently in women over 40 years of age. The oldest patients on record are those of Bland Sutton,<sup>2</sup> Griffith and Semmelink, being 70 years of age.

The location and the size of the tumor have a direct bearing on the torsion. Most specimens show a fibromyomatous tumor weighing more than 2 Kg., the average weighing 5 Kg. The interstitial tumors are more prone to cause torsion if their location is in one cornu

or at least away from the midline of the uterus. It is quite evident that the leverage force is in this way eccentrically placed and increases the likelihood of torsion.

The true cause for rotation of the uterus has not been clearly decided. Piquand<sup>3</sup> and Vautrin point out that the left lumbosacral fossa is well filled with the sigmoid colon, whereas the right is empty, and with the growth of the fibroid tumor associated with the rise of the uterus in the pelvis the uterus falls toward the empty side. Only thirteen times in eighty-four cases was the torsion from right to left in one author's study. The acute torsion is probably due to some external force or to sudden muscular effort. Once the accident of torsion has occurred, the abdominal wall will supply enough spasm to increase the intra-abdominal pressure to the point of maintaining the error.

The point of torsion is fixed, occurring as a rule at the level of the uterine isthmus. The elongation of the isthmus may be so pronounced as to reduce this region to almost a cord. Mengert<sup>4</sup> has shown in his study of factors influencing uterine support that the ligaments above the uterine isthmus do not play a major rôle. The round and ovarian ligaments do not exert a great resistance to the mechanism of torsion, owing to gradual stretching with the growth of the fibroid.

#### SYMPTOMS

The clinical signs and symptoms must be considered from two points of view, depending on whether the torsion is acute or is a slow progressive, chronic procedure.

Patients with acute torsion present the general picture of distress comparable to strangulated hernia, to ruptured ectopic pregnancy or to a twist of the pedicle of an ovarian cyst. The onset is sudden, severe and dramatic, without prodromal signs, producing severe intense pain in the lower part of the abdomen, progressing to pallor and shock. After a few hours these signs and symptoms become less acute, only to return accompanied by a rise in the temperature curve, as evidence of some absorption from the tissue involved in the edematous and ischemic area.

During this short quiescent interval there are a number of valuable physical signs that may be elicited in an effort toward diagnosis of this sometimes called acute condition of the abdomen.

Bimanual examination will reveal the fibromyoma closely associated with the uterus, the entire mass being very firm, and manipulation will cause extreme pain. The cervix is usually found to be high in the vaginal vault and has been reported by some authors as being difficult to reach. All writers on this subject have thoroughly emphasized the fact that it is impossible to pass a catheter into the uterine cavity, and this is an excellent diagnostic sign. Few gynecologists would attempt the latter diagnostic procedure in the presence of acute torsion, for the patient is usually in a grave condition and surgical intervention is definitely indicated; however, this is a great aid in chronic torsion of the uterus.

Symptoms present in chronic torsion vary with the method in which the complication occurs. From a study of reports and histories given by these patients it seems most common for symptoms to come and go with free

2. Sutton, J. B.: *Lancet* 2:1132, 1911.

3. Piquand, G., and Lemeland, I.: *Rev. de gynéc. et de obs.* 13:337, 1909.

4. Mengert, W. F.: *Am. J. Obst. & Gynec.* 31:775 (May) 1911.

was of value when patients failed to respond to diet-alkali management. In this group, parenteral therapy has its chief value as an additional method of treatment. The psychic factor, I feel, is greatly responsible for the favorable results when they occur. Hospital bed rest, when finances permit, produces the best results in chronic cases. Surgical treatment, though producing good immediate results, does not surpass those of other methods, all of which have a high percentage of relapses.

#### CONCLUSIONS

1. Approximately 90 per cent of the patients with ulcer attacks treated in private practice became symptom free after careful dietetic-alkali management, compared with approximately 75 per cent of remissions obtained in the charity clinic groups. Greater financial worries, lack of cooperation, social maladjustments, and improper and perhaps insufficient food probably explain the lower percentage of remissions in the clinic series. In the latter group environmental difficulties and inner emotional conflicts were frequently present and difficult to relieve.

2. Of those who were given parenteral injections after failure to respond to the diet-alkali regimen, approximately 60 per cent became symptom free after injections of either stock respiratory vaccine, larostidin or synodal. In twenty-two patients, injections of distilled water produced similar results. Remissions produced may be explained as psychic effects, added confidence in "something new" instead of the "same diet and powders" (so well known to ulcer patients), greater encouragement due to more frequent visits to physician or nurse as well as persistence in treatment.

3. In my opinion it is not the histidine in larostidin or the emetine in synodal or the dead bacteria in vaccines that produce remissions in these cases. Approximately only half become symptom free. Also, injections of distilled water produced similar results. Remissions produced may be explained as psychic effects, added confidence in "something new" instead of the "same diet and powders" (so well known to ulcer patients), greater encouragement due to more frequent visits to physician or nurse as well as persistence in treatment.

4. Some patients do not respond to any form of medical therapy. When, however, the tensional states of these patients are relieved (environmental difficulties or emotional conflicts) an almost miraculous response occurs at times even without any other form of treatment. "Management of the patient" in addition to "treatment of the ulcer" must be stressed. Tensional states to my mind deserve greater attention than the ulcer per se, unless complications intervene.

5. Most of the patients treated in this series returned with recurrences of symptoms after treatment with one or another or several of the methods described. When remissions were produced by treatment, the symptom-free interval was longest after diet-alkali treatment. The short duration of remissions and the high percentage of recurrences after parenteral therapy probably result because of more rapid increase in diet. The patients on diet-alkali management were schooled in the essential dietetics of their treatment; those treated with the parenteral method were not so educated, had a more liberal diet and suffered early recurrences.

6. When a symptom-free interval results (with or without parenteral therapy) a restricted diet must be continued. The patient thereafter should be periodically observed and periodically instructed as to "what to eat, how to eat and how to live." This may tend to delay relapses and prevent complications. Attention should then also be given to coexisting disorders, as definite foci of infection, mild hyperthyroidism, tensional states, and so on.

7. Of 155 patients treated (medically and surgically) and observed longer than five years, only five (3 per cent) are still symptom free from five and one-half to seven years after their first and only ulcer attack. This speaks unfavorably for the lasting benefit to be derived from any form of ulcer therapy. It appears that, at the present state of our knowledge, all we can hope to accomplish and should aim for are: (a) to relieve symptoms, (b) to delay relapses and (c) to prevent complications.

8. The parenteral method is not indicated in the routine treatment of peptic ulcer. It may be used only in those patients not responding to the diet-alkali regimen and only in association with but not in place of the usual bland diet. There is only slight difference between the results obtained by the injections of the various products mentioned. If one product fails to produce a remission, another may be tried. At present there is no parenteral product specific for peptic ulcer.

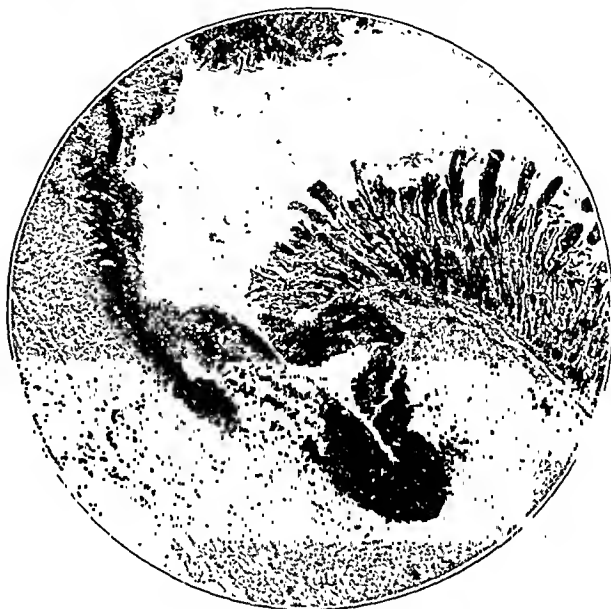


Fig. 4.—Section of ulcer in figure 3.

9. Since we have been using the parenteral method of treatment fewer patients have been hospitalized for medical bed rest treatment and still fewer patients were operated on. We now hospitalize only those patients who have hemorrhages, high grade obstruction, penetrating ulcers, perforation or gastric ulcers suggestive of malignancy. Such patients should not be given injections.

10. We (Sandweiss, Saltzstein and Glazer) have been unable, thus far, to corroborate the experimental work of Weiss and Aron of Strasbourg that injections of histidine (larostidin) protect dogs from peptic ulcer following surgical duodenal drainage (Mann-Williamson operation).

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#### ABSTRACT OF DISCUSSION

DR. A. F. R. ANDRESEN, Brooklyn: It is time that something should be done to check the exploitation of the doctor and his patients by pharmaceutical houses advocating parenteral injections of various unproved medicaments, intragastric and intraduodenal instillations of modified foods or of alkalis or alkaline earths, and the oral administration of noxious substances or freak combinations. Three experimental researches of fundamental value in the approach to the ulcer problem have



multiple adenomas, (2) polyps found in association with hyperplastic tuberculosis, (3) polyps found in association with old strictures of the colon, and (4) polypoid conditions of the mucosa which result from ulcerative colitis. The terms polyposis, polypoidosis and diffuse adenomatosis are not offered as a classification but have been frequently used to designate the adenomatous

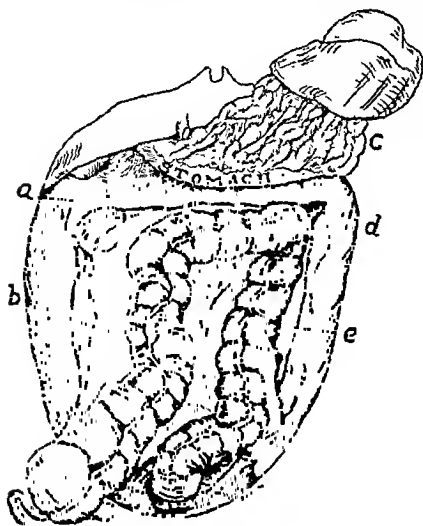


Fig. 1.—Second stage of colectomy: The mobilization of the colon is shown beginning from right to left by dividing the lateral parietal peritoneal attachments to the mesentery of the bowel, saving sufficient peritoneum for covering raw surfaces. The omentum is retracted upward with the stomach and is saved. a, kidney; b, peritoneum; c, omentum; d, transverse colon; e, descending colon.

hyperplasia. Polyposis may mean only one or several polyps, while polypoidosis indicates that the entire inner surface of the large bowel, from the anus to the cecum, contains polyp-like elevations.

The cause of true adenomatosis has not been determined. Meyer<sup>6</sup> considered the epithelial reaction secondary to an underlying congenital malformation. The familial relationship which has been noted in our series and in numerous others favors this explanation.

The origin of the acquired or postinflammatory polyps is quite different and better understood. Wagner noted that small polyps appeared on the edges of healed ulcers of the colon, and Rokitsky observed that dysenteric ulcers were accompanied by polyps. He believed that the undermining ulcers produce a break in the mucosa, leaving an overhanging portion, which, being shut off by the regenerative process, forms a pedunculated polyp-like tumefaction with smooth or irregular outlines. Struthers<sup>7</sup> and others have noted the relationship of polyposis with inflammatory conditions of the colon, particularly with chronic ulcerative colitis. The process of formation is assumed to be the same as in other inflammatory conditions of the bowel, with islets of mucous membrane being caught in the cicatrization of the healing process, resulting in outpouchings which terminate in polyps. The distribution of acquired polyps, principally those associated with chronic ulcerative colitis, starts more frequently in the rectum but may extend to involve the whole colon to the ileum. Although the etiology of postinflammatory and true polyps is accepted as being different, one must not forget that the former as well as the true polyps may undergo malignant change. Bergen<sup>8</sup> reported twenty-five cases of carcinoma which had developed in the presence of polyps secondary to the inflammatory reaction of chronic ulcerative colitis. Quite as interesting, Mayo and Wakefield<sup>9</sup> recently reported two cases of disseminated congenital polyposis in which all evidence of the polyps was destroyed in the segments of

bowel removed, following the implantation of chronic ulcerative colitis, probably as a result of the destruction and ejection of the mucous membrane.

A pathologic study of true polyps of the colon by FitzGibbon and one of us<sup>10</sup> has emphasized the potential malignancy of this condition and greatly influenced our method of treatment. On histologic examination the tumors were found to fall readily into three major divisions: polyps of group 1 were roughly nodular and invariably pedunculated. The pedicles were usually cylindric, composed of connective tissue derived from the submucosa. The epithelium covering the pedicle and the growth and lining its crypts was unchanged from the standard regarded as normal; however, areas of slight hyperplasia and active inflammation secondary to the constant trauma were occasionally found. There was nothing about the tumors of this group to indicate that they were any more liable to malignant development than the normal intestinal mucous membrane.

Polyps of group 2 showed striking structural changes in both the epithelial and the connective tissue elements. The epithelial cells were hypertrophied, elongated and not completely differentiated, and they stained deeply. There was a complementary response in the connective tissue, which tended to spread out in a treelike formation. The epithelium in this group seemed to develop more rapidly than in the normal mucosal lining and in time was likely to throw off the bounds of restraint and assume an invasive and lawless career. This fact has been repeatedly verified by making numerous sections through the polyps. Many of the areas appeared normal, but not infrequently microscopic signs of malignancy were encountered. Some of the areas were no larger than 2 mm. in diameter. This group is often the source of malignancy of the colon.

Polyps of group 3 represented growths that were an accentuated form of group 2. The epithelium in this process had been arrested at so early a state that differentiation was very slight and the cells attained only the most rudimentary characteristics of the normal intestinal mucosa. Polyps of this group ordinarily did not exceed the size of a split pea. The elementary epithelium proliferated so rapidly that the nodules approached cancerous change before the tumor had become large enough to be played on by the forces of peristaltic action, which is thought to be influential in elongating the tumors. Because of the high incidence of malignancy in this group, it is well to remember that these lesions have been found scattered throughout the intestinal mucous membrane.

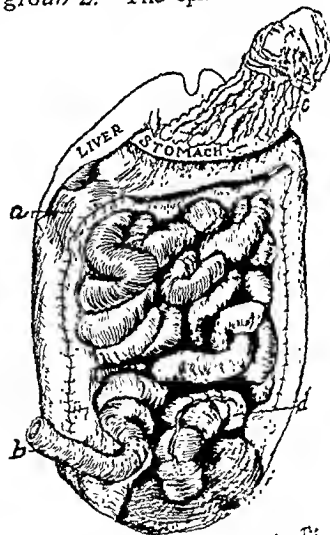


Fig. 2.—Second stage completed: The ileostomy is shown in the right iliac fossa. The rectal stump including the lower part of the sigmoid just beyond the rectum is shown as well as coils of small intestine. The peritonization is accurately completed. a, liver; b, ileum; c, rectum; d, sigmoid.

6. Meyer, J. S.: Polyposis Gastrica (Polyadenoma), *J. A. M. A.* 61: 1960-1965 (Nov. 29) 1913.

7. Struthers, J. E.: Multiple Polyposis of the Intestinal Tract, *Surg., Gynec. & Obst.* 58: 610-624 (May) 1924.

8. Bergen, J. A.: Chronic Ulcerative Colitis Associated with Malignant Disease, *Arch. Surg.* 17: 561 (Oct.) 1928.

9. Mayo, C. W., and Wakefield, E. G.: Disseminated Polyposis of the Colon, *J. A. M. A.* 107: 342-348 (Aug.) 1936.

10. FitzGibbon, Gratton, and Rankin, F. W.: Polyps of the Large Intestine, *Surg., Gynec. & Obst.* 52: 1136-1150 (June) 1931.

histamine without rapid destruction of the latter. Histamine produces severe arteriolar spasm, profound capillary vasodilatation and increased capillary permeability. This action is seen best in urticaria produced by the H substances of Lewis. Histamine stimulates gastric secretion, increasing the acid and water content in addition to producing increased motor activity. Histidine is transformed into histamine by the removal of carbon dioxide. Histidine injections may stimulate production of the histaminase. Histaminase destroys histamine. Histaminase action is demonstrable in patients treated with histidine by: A. The effect on the gastric secretion. There is a decrease in both the amount and the acidity titer in fasting and histamine stimulated gastric juice. The repeated or second histaminic injection shows this decrease in the larostidin treated ulcer but not in (1) the normal individual, (2) the untreated ulcer patient, (3) the alkali treated ulcer or (4) the Pavlov pouch secretion juice in the dog. B. The marked sedative effect on gastric motility demonstrated by kymographic tracings of stomach contractions in the larostidin-treated ulcer patients. C. The favorable response of urticarial lesions and hay fever symptoms to histidine injections, which occurs in many cases. I assume that these and other allergic and anaphylactic reactions are due to histamine or histamine-like substances. Theoretically, histaminase production which destroys histamine rapidly should ameliorate these syndromes.

DR. RUSSELL S. BOLES, Philadelphia: In the discussion of Dr. Jordan's paper I suggested the possibility of peptic ulcer being a form of peripheral vascular disease. I am impressed with the work of Dr. Sandweiss and I do not believe the results should be too abruptly attributed to a psychotherapeutic effect. Histidine likewise has a definite vasodilating action. Bismuth subcarbonate when given orally becomes bismuth subnitrate and recently has been advocated in the treatment of hypertension because of its vasodilating effect. I can thus see the possibility of an explanation of Dr. Sandweiss's results in that histidine, acting as a vasodilator, may bring about a hyperemia in the ulcer-bearing area and thereby an improvement in the ulcer symptoms. Certainly, as Dr. Eusterman has said, the orthodox treatment is fundamental. Dr. Jordan says "there are ulcers and ulcers." That is true. Ulcers in early life may reasonably be due to thrombosis of infectious etiology and as such may heal even despite various methods of treatment; other ulcers later in life may be of purely arteriosclerotic origin and as such are more refractory to treatment. I don't believe there is one of us who doesn't prohibit the use of tobacco in ulcer patients. Why is the use of tobacco harmful in ulcer? Is it because of the effect on secretion? Tobacco is a powerful vasoconstrictor and, by prohibiting it, we probably allow a certain amount of normal vasodilatation to take place at the site of the ulcer. Hypotension, as Dr. Gorham said, exists in many of these cases but that does not preclude their having arteriosclerosis or other vascular disease. It is possible that the author's results may be due to the relaxation of the arterial spasm that probably exists in ulcer cases.

DR. JOHN H. FITZGIBBON, Portland, Ore.: Several years ago a patient whom I was treating for ulcer on Sippy management came to the office with a syphilitic rash. He was referred for treatment to a man who gave him rather intensive treatment and a few weeks later returned to me asking if I thought it necessary for him to take alkali while he was receiving the neoarsphenamine injections. I asked "Why not?" He said "I have no free hydrochloric acid in my stomach following these injections." He was aspirating his stomach every night and testing for acid. As I had never heard of such an effect from neoarsphenamine, I checked up his statement. Following every injection of neoarsphenamine he was free of hydrochloric acid for a few days. I discussed the matter with the department of physiology at the medical school of the University of Oregon and Dr. Wilmot Foster started work on the problem. A series of dogs with pouches were examined. Following varying doses of neoarsphenamine, rather interesting observations were made. It was found that both the amount of secretion and the chloride content decreased in proportion to the amount of neoarsphenamine injected. Regarding the general treatment of ulcer, I think that any physician in practice long enough to have many failures realizes that the treatment of ulcer consists of two parts: first, healing the ulcer or removing it; second, a life-

long effort to prevent recurrence. The injection of greatest value in the treatment of peptic ulcer is injection of common sense and conservatism, using hobbies and pet tricks when desired but accompanying them with the good old standardized and conservative methods that have been proved to be of value for so many years.

## STATUS OF CHOLECYSTOGASTROSTOMY IN OBSTRUCTIVE JAUNDICE

DUE TO CARCINOMA OF THE HEAD  
OF THE PANCREAS

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In order to evaluate the results of biliary intestinal anastomosis, particularly in cases of carcinoma of the head of the pancreas, a study was made of thirty-four surgically treated patients who were in the ward services during the ten years between 1926 and 1935.

These patients were operated on because of jaundice. Their ages varied between 24 and 70 years, the average age being 50. The incidence of male and female patients was as 6 to 1; i. e., twenty-nine men and five women. The history was usually one of slowly increasing, painless, obstructive jaundice with pruritus, weakness and loss in weight. The preoperative diagnosis was carcinoma of the head of the pancreas or carcinoma of the common bile duct below the cystic duct or carcinoma of the ampulla of Vater.

### DIAGNOSIS AT OPERATION

In thirty patients the diagnosis at laparotomy was carcinoma of the head of the pancreas. In four patients the diagnosis was as follows: carcinoma of the common bile duct one case, carcinoma of the ampulla of Vater two cases, and stricture of the common bile duct following a previous duodenotomy and resection of a carcinoma of the ampulla of Vater one case. All the patients had a suture cholecystogastrostomy performed except the latter patient, in whom a choledochoduodenostomy was done.

In all the cases the gallbladder was noted at operation to be tense or distended, and in only one case was a stone present in the gallbladder. These observations are confirmatory of "Courvoisier's law."

### ERRORS IN OPERATIVE DIAGNOSIS AND INDICATION

Of the thirty cases diagnosed as carcinoma of the head of the pancreas at operation, all with the exception of five were found to show this condition, or carcinoma of the common bile duct below the cystic duct or carcinoma of the ampulla of Vater. These five cases presented the following conditions: (1) cirrhosis of the liver, (2) subacute yellow atrophy (postmortem examinations following operation), (3) carcinoma of the stomach with liver metastases (found at later postmortem examination), (4) hepatosplenomegaly and (5) chronic pancreatitis (subsequent clinical diagnoses). The operation of cholecystogastrostomy was probably not indicated on the basis of the subsequent examination in the first four of the aforementioned cases. This is a percentage error for the operation of 13.3.

During the past year in doubtful cases of obstructive jaundice in which the lesion is thought to be in the head

From the Surgical Services of Dr. Edwin Beer and Dr. Ralph Collip, the Mount Sinai Hospital.

allow for marked general improvement. The patient's weight usually registered an appreciable increase, the secondary anemia was frequently overcome without aid of transfusion, and the patient's general health was more sturdy and able to withstand the shock of a major surgical procedure.

With the colon at rest and peristalsis at low ebb, the infection and some of the polyps readily subside and make the colon more easily manageable when resection is undertaken. Otherwise the thick-walled, infected bowel is highly friable, is difficult to suture satisfactorily and often may be the source of a fatal peritonitis when manipulated. An optimal period of about six months is desirable for an ileostomy. In addition to allowing for favorable changes in the colon, the ileum is given time for necessary adjustments vital to restoration of fluid balance. At first the substance issuing from the ileostomy is liquid and more or less continuous, but in time it is altered in consistency to a semisolid state. Whether the ileum dilates sufficiently to take over some of the functions of the colon or whether, as Wakefield suggested, the kidneys compensate in maintaining the electrolytic balance of the body, the benefits of the procedure preceding total colectomy or subtotal colectomy are definitely established. Any artificial stoma of the gastro-intestinal tract will meet with objection from the patients; but when the benefits of such a procedure are enumerated their sanction is readily secured, particularly when the inconvenience is temporary. With recent improvement and modification in the surgical attack on diffuse adenomatosis, the rectum is more frequently saved than destroyed and provides a site for subsequent anastomosis of the ileum, which dispenses with the ileostomy as a permanent fixture.

An ileostomy for adenomatosis is best performed by dividing the terminal ileum, closing the distal end and bringing the proximal end out through a split muscle incision in the lower right quadrant of the abdomen. The lumen is no longer occluded by a clamp but accommodates a Pezzar catheter, which is inserted and secured by a purse-string suture. Drainage is immediately established and distention, cramps and the associated discomforts of an obstructed bowel are prevented, while fluids are administered by mouth without delay.

Several months, usually six, is the optimal time after the ileostomy has been made to put into execution plans for the removal of the colon. A shorter time is not adequate for rehabilitation and reduction of the infection and edema, and likewise a longer time is contraindicated, since it may allow for malignant change. At one time we did a total colectomy with removal of the rectum, having a permanent ileostomy in all cases. It was a bearable and often comfortable appendage which could be countenanced, but it was never as convenient as the normal mechanism with continence. The introduction of surgical diathermy made possible modifications in technic, combining conservatism with effective treatment and preservation of the rectal control. The rectum to the rectosigmoid juncture has come within the range of attack through the proctoscope. The polyps in this field can be destroyed by fulguration and this segment of bowel with its sphincteric mechanism salvaged for anastomosis with the ileum. This can be accomplished at intervals during the existence of the ileostomy while time is being allowed for the patient's general improvement as well as reduction of the infection and edema of the colon.

The removal of the colon may be undertaken by one of several steps after the ileostomy has been performed and the rectal polyps completely destroyed by fulguration. Some advocate the anastomosis of the ileum to the rectal stump before doing a subtotal colectomy. On the other hand, there are those who believe that a reversal of this plan by doing the colectomy first, allowing for several weeks or months to pass before anastomosing the ileum to the rectal stump, is the better procedure.

In any individual case the order may vary because of specific indications, but in a general way we prefer to do an ileostomy, waiting six months during which time the polyps are destroyed, and then doing a subtotal colectomy and finally the anastomosis at a subsequent operation. Then, when one is assured of the adequate function of the anastomosis, the ileostomy may be closed under local anesthesia.

Recently it has been proposed to leave longer segments of the colon, the sigmoid and descending colon above the site of proposed anastomosis with the ileum. It is difficult to see the advantages of this, and there are several apparent disadvantages to such a procedure. The added loop or segment proximal to the anastomosis is unnecessary as a reservoir, and, of greatest significance, it is beyond the reach of the investigating proctoscope or sigmoidoscope, which is the only means of maintaining strict observation over this field, which of course is subject to recurrent polyp formation.

The short rectal stump, as we advocate, supplies adequate storage space with the spacious ampulla of the rectum to serve as a reservoir to permit the patient the convenience of two or three stools a day under control. This short colonic stump is well within the range of investigation and can be frequently checked for the presence of any polyps, and treatment in the instance of recurrence can be rendered by fulguration.

The subtotal colectomy is usually accomplished through a long left rectus incision and the colon is removed from right to left. In mobilizing the right colon, one cuts the outer leaf of the peritoneum in the bloodless area, rotates the bowel mesially, and ligates the blood vessels rather close to the bowel wall as they appear. It is helpful to accomplish the peritonealization of raw surfaces as the different segments of the bowel are mobilized.

The first mobilization of the colon goes to the hepatic flexure, where the retroperitoneal duodenum is identified and safeguarded against injury. From the hepatic flexure to the splenic flexure the step is a rather easy one if one leaves the omentum as a protection against infection and to be utilized in covering denuded areas. The splenic flexure is more difficult to mobilize, but by cutting the splenicocolic ligament and the lateral parietal peritoneum along the margins of the descending colon one may rotate it mesially and get at the blood supply accurately. The dissection is carried on to the rectosigmoid, where the bowel is cut across and the lower end invaginated. The resected portion of the colon is removed in one piece and the peritoneum is closed over the raw areas.

The turning in of the lower end of the bowel is a procedure often fraught with considerable difficulty and danger. The bowel wall is frequently thickened and may be edematous, which makes it quite friable. Often if Payr clamps are applied the bowel will be cut across and peritoneal contamination will ensue. To prevent this misfortune, rubber covered gastro-intestinal clamps may be used and the bowel divided by the cautery between them.

complication but not enough to prevent them from performing the operation. Babcock,<sup>11</sup> DuBose<sup>12</sup> and Finsterer<sup>13</sup> have not seen cholangitis in their series. Gentile<sup>14</sup> has recently reported some interesting experiments, from which he concludes that cholangitis does not follow cholecystogastrostomy in dogs.

It would appear from a survey of the literature that cholecystogastrostomy is less liable to be followed by liver infection than cholecystoduodenostomy.

In none of the nineteen patients in this series was the complication of ascending infection evident either from the clinical course or from later postmortem examination. Interesting in this connection are the repeated roentgenograms of the patient with a probable pancreatitis.<sup>3a</sup> A complete visualization of the biliary passages by gas from the stomach was present on several examinations, and yet this patient did not present evidences of cholangitis.

There was one other patient not previously mentioned in whom the operation of cholecystogastrostomy was performed for persistent symptoms thought to be due to a chronic pancreatitis following a biliary peritonitis of unknown etiology. Three years later the anastomosis, which was small but patent, was disconnected and a cholecystectomy was performed. There was no evidence of cholangitis in this patient.

**Stenosis of Stoma.**—This complication was not found in any of our patients. Complete closure or stenosis may occur, however. Beer<sup>15</sup> found a complete closure in one case and an inflammatory stenosis in another. Parsons,<sup>1</sup> in his discussion on the radical treatment of carcinoma of the ampulla of Vater, describes a marked stenosis of a cholecystogastrostomy stoma due to subsequent contraction of a distended gallbladder.

It should be noted that, while closure or stenosis of a cholecystogastrostomy stoma can occur in the presence of a patent common bile duct,<sup>16</sup> it is obviously less likely to follow if the common duct is obstructed by a malignant condition or by operative ligation and section.

#### BENEFITS OF OPERATION

Of seventeen patients who survived operation and who were either partially or completely followed, ten were temporarily benefited by the operation, three were questionably benefited and four were not benefited. By benefited we mean decrease or disappearance of jaundice, loss of pruritus and pain, and gain in weight and general well being. In at least two patients in whom jaundice disappeared it reappeared later on.

#### INDICATIONS FOR CHOLECYSTOGASTROSTOMY

In general, the operation should be performed when there is a nonremovable obstructive lesion of the common bile duct below the cystic duct.

When the lesion is nonmalignant, as for instance obstruction due to stone or chronic pancreatitis, the anastomosis is compatible with life as attested by a large number of reports in which patients lived from three to thirty years.<sup>17</sup> While a cholecystostomy or choledochostomy may temporarily save a patient in the face of a constant nonmalignant obstruction, the discomforts and dangers of a biliary fistula are well known and are obviated by cholecystogastrostomy.

As a palliative procedure for carcinoma of the head of the pancreas or carcinoma of the ampulla of Vater, it is indicated because approximately 60 per cent of the surviving patients are temporarily benefited by being relieved of their icterus. It is also indicated because in a certain number of cases the differential diagnosis between a malignant and a nonmalignant obstruction cannot be made at operation. However, in the malignant cases the benefits of the operation are not of very long standing, since almost all patients die within one year, and usually within seven months. The operation should be performed in malignant cases in preference to cholecystostomy or choledochostomy because of its lower mortality, as shown by Cohen and Colp<sup>18</sup> in a study from this institution.

If an attempt at radical operation is made, the cholecystogastrostomy should be performed as a first stage procedure together with a gastro-enterostomy and ligation and division of the common bile duct below the cystic duct preparatory to removal of the head of the pancreas and adjacent duodenum for carcinoma of the ampulla of Vater, as suggested by Whipple, Parsons and Müllins.<sup>1</sup> This procedure should be performed, too, for an early carcinoma of the head of the pancreas. Concerning the latter, a discouraging feature is that metastases were already present in the cases of this series and in an early case reported by one of us,<sup>19</sup> even though the symptoms were of short duration.

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## ACUTE AXIAL TORSION OF THE FIBROMYOMATOUS UTERUS

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Occurrence of torsion in the fibromyomatous uterus is sufficiently rare and the complications are of such gravity that it would seem wise to report even a single new case. A survey of the literature reveals very few reports from this continent and no exhaustive work since the report of Peightal<sup>1</sup> in 1929.

#### REPORT OF CASE

Miss G. S., a nullipara, aged 34, admitted March 1, 1936, complained of "severe pain in the abdomen" of one week's duration. The cramplike pain developed in the right lower quadrant of the abdomen and felt like a weight pulling down. This pain was similar to, but more severe than, the pain she had been experiencing the past three years prior to her menstrual periods. The menstrual history had been quite normal and regular until the month previous to admission. At the time of the onset of the pain the menses were seventeen days past due.

The Wassermann reaction was negative. Urinalysis was negative. White blood cells numbered 13,050. Coagulation time was three and one-half minutes.

On physical examination the patient was well nourished and rather obese. There was a general spasm and rigidity of the abdominal wall, which was more marked in the right lower quadrant. The uterus could not be distinctly outlined because of tenderness and rigidity in an obese abdomen. A diagnosis of an acute appendicitis was tentatively made and the patient was prepared for immediate operation.

Through a midline suprapubic incision a small amount of blood-tinged fluid escaped. When the peritoneum was opened

11. Babcock, W. W.: Cholecystogastrostomy and Cholecystoduodenostomy. *Am. J. Obst. & Gynec.* 1: 854, (May) 1921.

12. DuBose, F. G.: Cholecystogastrostomy and Cholecystoduodenostomy. *Surg., Gynec. & Obst.* 39: 295-302 (Sept.) 1924.

13. Results of the Operation for Gallstones, Vienna letter, J. A. M. A. 104: 1353-1354 (April 13) 1935.

14. Gentile, Antonio: Cholecystogastrostomy and Hepatitis: An Experimental Study. *Arch. Surg.* 30: 449-475 (March) 1935.

15. Beer, Edwin: Personal communication to the authors.

16. Nazarov, N. N., quoted by Eliason and Johnson.<sup>3</sup>

17. Table 3 in Eliason and Johnson.<sup>3</sup>

18. Cohen, Ira., and Colp, Ralph: Cancer of the Periapillary Region of the Duodenum. *Surg., Gynec. & Obst.* 45: 332-346 (Sept.) 1927.

19. Oppenheimer, G. D.: Acute Obstruction of the Duodenum Due to Submucous Haematoma. *Ann. Surg.* 98: 192-196 (Aug.) 1933.

1. Peightal, T. C.: *Am. J. Obst. & Gynec.* 17: 363 (March) 1929.

A brother, aged 13 years, whose history will follow, has the same disease. Another brother died of pneumonia at the age of 7 months about twenty years ago, having had at the time drooping eyelids and limitation of movements of the eyes, which were first noted at 3 months of age. Another brother, now 18 years old, had drooping eyelids at the age of 2 during an attack of whooping cough and now has recurrences of lagophthalmos with any severe infection but is otherwise quite strong and well. No other members of the immediate or near family are similarly affected. The parents are living and healthy.

**Examination.**—The patient on examination was mentally alert and of average nutrition and development. He is 51 inches (130 cm.) tall and weighs 54 pounds (24.5 Kg.). He has a waddling gait and runs in a similar fashion, taking short steps. He is able to rise from a supine position without "climbing up himself." There is a moderate lumbar lordosis and bilateral pes planus. There is ptosis of both eyelids, the upper eyelids crossing the cornea just above the center of the pupils, with partial external ophthalmoplegia. The pupils react to light but not in accommodation. The fundi are normal. Bifacial weakness is present, resulting in an ironed out expression. The patient is able to laugh or frown, but weakly. He can wrinkle his forehead, fully protrude his tongue, and whistle. Food does not collect between his teeth and cheeks. Chewing and swallowing are unimpaired, slowly performed without fatigue. Counting

rine alone. At present his condition is stationary, having become so almost a year ago. His physical condition has remained unchanged except for increased muscle strength. Subjectively he feels greatly improved. He does not tire easily and he is able to hold his eyes wide open most of the morning. Any infection or a discontinuation of the medication soon brings about a relapse.

**CASE 2.—History.**—Donald W., aged 15 years, brother of patient 1, has drooping of the eyelids, which began at 6 months following a cold. This was not marked on awakening early in the morning but became quite noticeable later in the day. The patient was not very active and he showed generalized weakness which did not increase in severity. The gait was weak and waddling. No information is available regarding the extra-ocular movements in infancy, but there is evidence that they had been definitely impaired since the patient was 3 years of age. The cry was weak and he was not able to laugh loudly. The facial play of the features was diminished. There was no disturbance of swallowing and he did not tire on eating. He began to speak with a nasal twang at the normal time. There has been a gradual spontaneous improvement since the age of 6 years without the aid of any treatment.

There had been normal fetal movements during gestation and a full term normal labor. There was cyanosis for a short time after birth. The birth weight was 8 pounds (3,629 Gm.).



Fig. 1 (case 1).—The face is expressionless. There is a bilateral lagophthalmos and drooping of the mouth.



Fig. 2 (case 1).—Bilateral facial weakness shown when the patient is smiling.



Fig. 3 (case 2).—A brother of patient 1, showing the bilateral lagophthalmos.

to 75 causes fatigue. The head is held slightly forward. There is no apparent weakness of the muscles of the neck. The thyroid is not enlarged. There is a shallow depression of the sternum and some flaring of the ribs. There is widespread muscular weakness, particularly of the muscles of the back, the flexors of the hips and legs, and muscles of the hands and forearms. There is no muscular atrophy, hypertrophy or fibrillary twitching. The reflexes are normally active; they could not be exhausted readily by repeated stimulation. The myasthenia reaction of Jolly could not be elicited. Roentgen studies of the chest, skull and long bones are negative except that all the long bones are elongated and there is a bilateral coxa valga. The paranasal sinuses show no haziness and the thymus gland is not enlarged. Examination of a section of the triceps muscle demonstrates no pathologic condition.

The blood Kahn test was negative; the basal metabolic rate, —9 per cent and —7 per cent. Spinal fluid was normal. Blood chemistry (Dr. E. L. Wardell) showed: fasting sugar 67 mg., cholesterol 230 mg., total fat 520 mg., creatinine 1.6 mg., non-protein nitrogen 29 mg., total serum protein 6.8 Gm., serum globulin 4.7 Gm., serum albumin 2.1 Gm., chlorides 504 mg., calcium 10.5 mg., phosphorus 4.7 mg., dextrose tolerance test: fasting 77 mg., two hours 111 mg., three hours 92 mg., four hours 78 mg. Urinary creatine and creatinine determinations on a twenty-four hour specimen are given in the accompanying table.

**Course.**—After being placed on aminoacetic acid (glycine) 10 Gm. twice daily and ephedrine sulfate one-eighth to three-fourths grain (0.008 to 0.05 Gm.) three times a day, striking improvement occurred which could not be maintained on ephed-

rine alone. He held the head erect at 6 months, sat up without support at 8 months and walked at 1 year with a waddling gait. He was breast fed for eleven months, not nursing very vigorously. He received no orange juice or cod liver oil in early infancy. His weight at 1 year of age was 20 pounds (9,072 Gm.).

He had chronic colds from 6 months to 2 years of age, measles at 4 years, chickenpox at 4 years, whooping cough between 2 and 3 years, and otitis media at 1 and 2 years.

**Examination.**—With the exception of partial external ophthalmoplegia (bilateral) and some drooping of the eyelids, which had been lifted surgically several years before admission, the physical examination was negative. The patient is quite active, does not tire readily, has a normal gait and has good muscle power. Speech is normal. There is no facial weakness. Chemical studies on the urine and blood were not done, but was a biopsy of the muscle taken for examination.

The finding of four cases of myasthenia gravis in one family is extremely interesting and suggests heredity as an important etiologic factor. Three out of five siblings were affected in varying degree, all beginning in early infancy. One other also probably had it, but in a mild form, only presenting a lagophthalmos, and he recovered completely but with a tendency toward recurrences during any acute illness. All are boys. One sister in the family is quite healthy and shows no evidence of weakness. In case 1 the improvement was entirely due to the combined action of the aminoacetic acid and ephedrine. There is still present considerable



intervals of varying length, finally to terminate in an acute form. Menstrual disturbances are common with encroachment on the cervical canal even blocking it, causing hematometra, progressing finally to pyometra. Sounding of the uterine canal will clinch the diagnosis. Bladder symptoms may or may not be present, depending entirely on displacement of the neighboring viscus by the tumor in the process of torsion.

#### DIFFERENTIAL DIAGNOSIS

It is quite significant to note in our survey of the literature that diagnosis prior to operation has seldom been made of axis torsion of the fibromyomatous uterus. The most common diagnoses made preoperatively are ectopic pregnancy, twisted ovarian cyst, appendicitis, adnexal disease and intestinal obstruction.

Elimination of ectopic pregnancy, salpingitis and appendicitis may be aided by the recognition of a tumor, tender, movable and not in the flank, along with absence of chocolate colored blood in the fornices and a clear culdesac. Successful colonic irrigation and a gradual cessation of vomiting will aid in ruling out intestinal obstruction.

#### TREATMENT

Attempts have been made to reduce the axis torsion manually, but this is seldom successful and is frowned on by most authors.

Hysterectomy is usually done in both acute and chronic forms of torsion. Subtotal hysterectomy is preferred because these patients are acutely ill and additional trauma is ill advised. The vessels of the broad ligament will be found to be tremendously hypertrophied and, along with edema and the early gangrenous process, may cause concern with hemorrhage. Very careful ligation of these vessels well beyond the area of any thrombosis is strongly advised.

This accident usually happens from the third to the fourth month of gestation when it occurs in pregnancy. Careful myomectomy here is usually practiced.

#### PROGNOSIS

A very few cases may undergo a spontaneous reduction, but certainly these are exceedingly rare. Piquand reported eight untreated cases and six deaths, an approximate mortality of 75 per cent. He also reported sixty-three cases presenting operative intervention, showing in this group a 10.5 per cent mortality. Other writers' figures further emphasize the gravity of torsion of the uterus, but acute cases given the benefit of surgery recover from symptoms of shock at onset and show a mortality rate practically that from hysterectomy.

#### PATHOLOGY

Generally it may be stated that the pathologic condition found in the fibromyomatous uterus, the adnexa and the surrounding organs is much the same, presenting a picture of circulatory damage, the degree depending on the extent of the torsion.

The average cases show a turn of 180 degrees; however, Wertheim and others report torsions of 300 degrees and more. Venous stasis is usually complete with only partial arterial obliteration, and this causes extensive edema of the uterus and tumor. Lymphatic infiltration along with many cystic spaces, the latter due to separation of the muscular and fibrous elements, will be noted in microscopic section. The uterine cavity contains blood developing into a pyometra. As the process continues one sees development of necrosis.

## DIFFUSE ADENOMATOSIS OF THE COLON

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Diffuse adenomatosis of the colon as a distinct clinical entity has been recognized for many years, but the histopathology revealing its malignant tendency has been a more recent contribution and has done much to alter modern views with regard to treatment. Menzel is credited by Warwick<sup>1</sup> as having first called attention to the disease as such in 1721, and in 1832 Wagner<sup>2</sup> described a condition which is now recognized as polyposis. Rokitsky in 1839 and Lebert in 1861 contributed to the knowledge of the condition. Luschka in the same year reported a case in which a woman, aged 30, was found to have thousands of polypi in the colon. "Colitis polyposa" was used by Virchow<sup>3</sup> in 1863 in describing the lesions.

The tumors are usually multiple and widely distributed, often extending from the anus to the cecum, but having a tendency to appear approximately eight times more frequently in the rectosigmoid and rectum than in any other section of the colon. This is particularly significant in the light of the similar occurrence and ratio of distribution of carcinoma of the colon and immediately suggests a relationship. Pathologic studies of large segments or the complete colon secured by surgical removal have supported this suspicion, and adenomatosis of the colon can no longer be considered an unusual entity of relatively minor importance but one demanding prompt attention and eradication.

Through the years, added bits of information have sealed the verdict for effacement. Cripps, Lockhart-Mummery<sup>4</sup> and Cuthbert Dukes were among those to make noteworthy confirmatory contributions. They noted the occurrence of the disease in several members of the same family and suggested a familial tendency or hereditary factor. Their observation has been repeatedly sustained by various investigators and conforms with our experience. Two of our last three patients reported two members in each family similarly affected with a definite diagnosis established by proctoscopic and roentgenologic examination. This familial tendency or predisposition to adenomatosis of the colon in a way parallels the occurrence of malignancy in families and revives the discussion of polyps as the precursor of many colonic carcinomas.

This question, however, cannot be answered until more definite knowledge is obtained of the etiology of the condition. The following classification, the one most generally accepted at the present time, affords some idea of the views held in regard to the origin of the polyps. Erdmann and Morris<sup>5</sup> make the division of congenital, or adolescent, and acquired polyps. Wesson and Bagen<sup>6</sup> conform to this grouping in speaking of post-inflammatory polyps and true polyps. Lockhart-Mummery elaborated on this classification by considering pathologic and etiologic factors and referred to (1) true

1. Warwick, M.: Intestinal Polyposis and Its Relation to Carcinoma, *Minnesota Med.* 5: 94-97 (Feb.) 1922.

2. Quoted by Struthers.

3. Lockhart-Mummery, J. P.: Diseases of the Rectum and Colon and Their Surgical Treatment, London, Bailliere, Tindall & Cox, 1923.

4. Erdmann, J. F., and Morris, J. H.: Polyposis of the Colon, *Surg., Gynec. & Obst.* 40: 460-468 (March) 1925.

5. Wesson, H. R., and Bagen, J. A.: Classification of Polyps of the Large Intestine, *Proc. Staff Meet., Mayo Clin.* 9: 789-794 (Dec. 26) 1934.

## REPORT OF CASE

**Clinical History.**—I. G., a white boy, aged 8, was taken acutely ill May 2, 1936, with a high fever of 105 F., a slightly sore throat and mild photophobia. His pulse was 130 per minute and respiration 15. The only other positive physical signs were a mild conjunctivitis and a moderately congested throat. For the first three days of his illness the fever was septic in type, ranging from a mild 101 in the mornings to 105 in the evenings. A maculopapular eruption appeared, starting at the back of the neck and the forehead and spreading rapidly downward until it covered the whole body. However, no Koplik spots appeared in the mouth. The clinical diagnosis of measles was made. The white blood cells at this stage numbered 6,200, with a differential count of 55 per cent lymphocytes, 43 per cent polymorphonuclear cells and 2 per cent monocytes.

The fever persisted for three more days; on the seventh day it subsided by crisis. For the following three days the temperature was normal, the rash faded and physically, with the exception of a slight photophobia, the patient appeared to be normal. Because of the acutely severe course of his illness he was advised to remain in bed, but after the second day of normal temperature he was out of bed and running around the room.

The following day, the ninth day from the beginning of his illness, he developed a high fever again (104). The following three days the fever ranged from 103 to 104; the pulse rate was from 120 to 130 per minute; respiration 14 to 16; the white blood cell count was 21,600, with 78 per cent polymorphonuclears, 20 per cent lymphocytes and 2 per cent mononuclears. There was no localization of symptoms and physical examination gave essentially negative results.

On the fourth day of his fever remission he complained of severe pains in his back, abdomen and legs. At about the same time there was rapid development of motor loss in both lower extremities. A little difficulty in voiding the urine was complained of but there was no incontinence at any time.

The neurologic status revealed a conscious, alert youngster, complaining bitterly of pain and resenting any manipulation of his lower extremities, which were extremely hyperesthetic to all tactile or manipulative stimuli.

The pupils reacted promptly to light and during accommodation and the fundi showed no deviations from the normal. Nystagmus was not present. There were no oculomotor palsies. Gross examination of the rest of the cranial nerves revealed normal functioning. The neck was not rigid.

The upper extremities were not involved and the reflexes (biceps, triceps and radial) were active and equal. The lower extremities were completely paralyzed, with abolition of the patellar and ankle reflexes. A bilateral equivocal Babinski sign was present, without any other confirmatory abnormal reflex signs. The sensory examination revealed no sensory loss in any dermatome. Hyperesthesia, however, as already mentioned, was marked in all the dorsal and lumbar dermatomes. The abdominal reflexes (upper and lower) were totally abolished. A lumbar puncture revealed the fluid to be under normal pressure, clear, with a cell count of 4 per cubic millimeter and a faint trace of globulin. Sugar was 0.08 per cent and negative on direct smear for organisms.

**Subsequent Course.**—This state of affairs remained unaltered for three weeks. At the end of this time the patient gradually commenced to regain power in the paralyzed extremities and at the end of another three weeks was able to leave his bed and walk about the room, with assistance. The changes noted in the initial examination were unaltered, but the hyperesthesia was diminishing. He gradually recovered completely and was able to walk and run, unassisted, at about the end of three months following his illness.

A subsequent examination (three months after the paralysis) revealed the following neurologic status: The gait was somewhat spastic and a stepage element was present; the dorsiflexors of the ankle were weak but the dorsiextensors showed good motor power. The musculature of the thighs likewise showed effective strength. The reflexes of the lower extremities manifested a definite reversal, as they had returned com-

pletely and were even exaggerated. The Babinski signs, however, were still equivocally present. The abdominal reflexes also had returned.

The sensory examination was still completely negative and the hyperesthesia had disappeared entirely.

## COMMENT

This case is believed to be worthy of record in view of the fact that it is one of the few recorded cases in the American literature presenting a purely spinal or "myelitic" complication of measles. The usual types encountered are encephalomyelitic, which obviously means invasion of some portion of the encephalon, with its attendant symptomatology and ever present danger of permanently disabling sequelae, which, according to Ford, is as high as 65 per cent. Although our case still shows moderate residual signs, the steady improvement bespeaks a complete neurologic recovery.

A discussion of the mechanism producing the paraplegia, particularly where recovery has occurred, may also be ventured. We believe this to be "toxic-allergic," producing in its wake sufficient swelling of the cord and subsequent constriction of the ganglion cells to interfere with its gross functions. Recovery occurs when the "allergic" reaction subsides. Obviously, if the swelling lasts long enough degenerative changes are the result, which declare themselves clinically by residual neurologic symptoms and signs.

It is barely possible that in measles intoxication the "allergic" skin eruption may have its counterpart in the brain and cord, which might be elicited on careful routine neurologic examination, conducted either at the height of the disease or during convalescence. We believe that a fair number would show "organic" evidence of neural involvement of a transient character.

300 Central Park West.

## REACTION DUE TO INJECTION OF SODIUM MORRHUATE

MAURICE L. DALE, M.D., CHICAGO

A patient of mine experienced a severe general reaction, Oct. 13, 1936, following an injection of sodium morrhuate into a varicose vein. I was unable to find anything in the literature regarding such a reaction until I saw the article by Kenneth M. Lewis in the Oct. 17, 1936, issue of *THE JOURNAL*. It occurred to me to report my case as an additional one of sodium morrhuate reaction, and also because there were certain interesting differences in the history and the reaction.

## REPORT OF CASE

C. W., a man, aged 50, a janitor, July 21, 1936, gave a history of varicose veins of the left leg of fifteen years' duration and ulcer of the ankle for ten years. Two years previously he had been given injections of quinine and urethane twice a week for four months with very little results. He stated that at that time, following each injection, he experienced vertigo, flushing of the face and profuse perspiration, which would last fifteen minutes. The internal saphenous and popliteal group of veins were varicosed. There was an ulcer on the anterior aspect of the ankle about 2 inches (5 cm.) in diameter, and the entire ankle showed a brown discoloration with scars of old healed ulcers.

Treatment was started with 1 cc. of 5 per cent sodium morrhuate (Parke, Davis & Co. ampules), one treatment weekly, one vein being injected each time. The dose was increased to 2 cc., 3.5 cc. and finally 5 cc. each time. The response was very good, each injection showing good results. No local or general reaction was experienced at any time.

After the thirteenth injection, October 13, the following reaction was noted: There had been no pause in the treatment during the entire course up to this date. Just as the injection was completed, the patient complained of vertigo and faintness. He quickly grew very pale and the lips and fingers became cyanotic and the pulse imperceptible. The heart tones were weak and slow, irregular both in rate and volume, and about 30 to 40 per minute. The patient quickly became semiconscious. Five minims (0.3 cc.) of epinephrine 1:1,000 was given sub-

One should always bear in mind the fact that polyps of group 1 ordinarily pursue a benign career, that the orderly but more rapidly growing polyps of group 2 tend in time to malignant change, and that formations of the order of group 3 are outrightly precancerous. This makes it absolutely necessary for a complete study of these cases, including proctoscopic examination,

due to intussusception. The polyps stimulate the bowel activity to abnormal proportions, which induces various degrees of invagination in the bowel. The infectious processes, such as amebiasis, chronic ulcerative colitis and the dysenteries, can usually be eliminated as causative factors by bacteriologic and cultural studies of the stools.

Weight loss, a secondary anemia, debility and general weakness parallel the intensity of involvement and infection, which at times are so marked as to create grave suspicion of malignancy. Quite often the diagnosis is unfolded to the mind's eye by the simple procedure of placing an examining finger into the rectum, where nodular polyps await and do not defy discovery. This portion of the gastro-intestinal tract, so easily accessible to investigation, is more frequently the site of adenomatosis. The examination should not rest at this point but should be supplemented by sigmoidoscopic search and roentgenologic studies of the barium-filled colon if one would deny oneself the embarrassment of subsequent exposure of unsuspected polyps at higher levels when they may prolapse through a colostomy stoma.

#### TREATMENT

The debilitation resulting from prolonged diarrhea, blood loss and chronic infection, and the pathologic knowledge of the high incidence of malignant change occurring in diffuse adenomatosis of the colon, are the factors that have made radical surgical treatment imperative. To remove a part of the involved bowel, leaving diseased segments, has proved of temporizing benefit at the best. Obviously, then, to be permanently free from the process, treatment had to be designed to remove the whole colon.

Colectomy when first performed was a formidable procedure and, when undertaken in one stage without

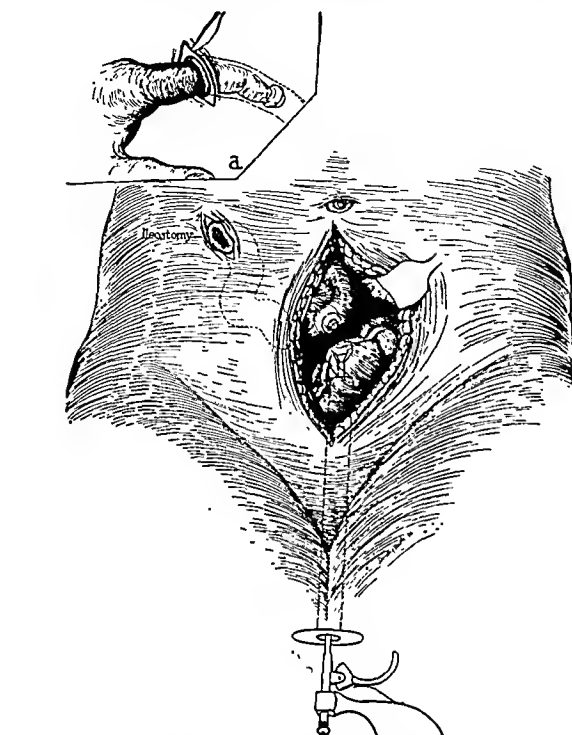


Fig. 3.—Third stage: The insertion of the two halves of the Murphy button into the ileostomy (a) and into the rectum. The ileostomy is contracted down and is too small an opening to admit the insertion of the button without incising the tissue around it down to the peritoneum. The other arm of the button is placed into the rectum and pushed high up toward the end of the rectal loop with a proctoscope and specimen taker. These instruments are withdrawn before the abdomen is opened, and the folds of mucous membrane hold the button fairly well in position.

biopsy when possible, and a roentgenogram of the barium-filled colon that one may not err in assuming that a palpable rectal growth is the only source of the patient's symptoms, when polyps, benign or malignant, may be scattered throughout the bowel at higher levels.

There is usually little difficulty in establishing the diagnosis if the condition is kept in mind and the patient is subjected to a thorough gastro-intestinal investigation. The patients are usually young adults of an average age of 30 years. However, the extreme ages do not escape, for there are reported cases of occurrence of the disease in children of 2½ years and adults past 70 years of age. The chief complaint usually is concerned with some alteration in the bowel habitus, particularly diarrhea. A history of continuous, intermittent or recurring diarrhea existing for months or years may not alone suggest a specific influence, but, if the irregularity occurs in a young adult in whose family other members have been similarly affected, the search should be directed toward adenomatosis. The age incidence and the hereditary or familial factor have been repeatedly emphasized by several observers and in our own series these influences have been frequently noted. The stools may contain blood or mucus, which are in no way characteristic of this particular entity.

A story of recurrent cramps may imply intermittent obstruction. It is a common complaint and is often

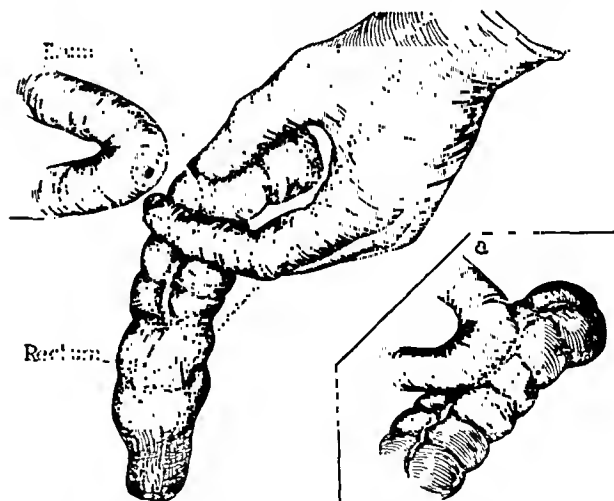


Fig. 4.—Anastomosis with button: The end of the button in the ileostomy has been milked down to the position shown for anastomosis. The end in the rectum is brought up to the proper position and held there by the fingers of the left hand. A small opening is made in both the ileum and the rectosigmoid and the button snapped together. The inset (a) shows completed anastomosis with a few interrupted catgut sutures surrounding it.

considerable preparation and rehabilitation, carried a high mortality. A temporary ileostomy was soon devised and its value or necessity was immediately appreciated. By sidetracking the fecal current in this way the associated infection subsided and the rectal discharges of blood and mucus were greatly reduced to

## Special Clinical Article

### TROPHIC FUNCTION OF THE SYMPATHETIC NERVOUS SYSTEM

CLINICAL LECTURE AT KANSAS CITY SESSION

LEON ASHER, M.D.

Professor of Physiology, Berne University  
BERNE, SWITZERLAND

I have the honor to discuss before this distinguished meeting certain research work which has led to establishing the fact that the sympathetic nervous system has trophic functions. This system is often called the vegetative nervous system and that term implies a trophic influence. Modern experimental medicine has denied the existence of trophic nerves mainly on the basis that, when a denervated tissue is protected against outer harmful stimulations, all symptoms of injury are abolished. The contention that the desensitization of, for instance the cornea, was the cause of the ulcerations observed, was correct; but just the protection of the eye on the other side removed the possibility of tracing trophic nervous influence.

The first experiments that my associates and I conducted in the Physiologic Institute at Berne concerned the influence of the sympathetic nerves on voluntary muscles. We were able to show that, when a state of fatigue had appeared, stimulation of the sympathetic nerves leading to the extremity that was forced to work restored those muscles. As this restoration took place without any change in the frequency of the fatiguing stimuli, the conclusion follows that the time of restoration in a state of fatigue has been shortened. This conclusion was verified by various experimental biophysical and biochemical procedures. As sympathetic innervation of the muscle fiber itself was doubtful, an explanation had to be sought which would be independent of specific sympathetic fibers going to the contractile substance. The explanation was not difficult to find, as in our first experiments we were able to show that treatment of the muscle with epinephrine caused the same kind of restoration as did stimulation of the sympathetic nerves.

If, as we presumed, epinephrine was released during muscular contraction, we had to take into consideration the possibility that stimulation of sympathetic nerves brought about heat production in muscles. We were able to demonstrate the calorogenic effect of sympathetic stimulation in muscles in animals. We measured thermoelectrically the temperature in symmetrical muscles, one of which had its normal innervation, while on the other side the sympathetic nerves had been cut. We observed that eventually the side that was still in possession of its sympathetic innervation became warmer. I will not report on the various experiments performed to corroborate the result obtained, but draw attention only to the fact that this new work definitely shows that muscles partake in heat regulation even if they do not contract. Experiments conducted along different lines demonstrated that impulses created in the central nervous system under perfectly normal conditions reach the muscles by way of the sympathetic nerves, so that the latter participate also in muscular activity. In muscles whose only connection with the central nervous system is through sympathetic nerves in the muscles and in these nerves themselves action currents appear

during natural reflexes. If one compares muscles having sympathetic innervation with muscles which have no sympathetic innervation after puncture of the heart center, invariably it is the side having sympathetic innervation that becomes considerably warmer.

These and allied experiments show the very considerable influence which the sympathetic nerves have even on striated muscles; and on glands this influence is still more noticeable. One would still be justified, however, in denying that a trophic nerve effect or influence had been demonstrated in the sense proper of this term. I will proceed, therefore, to discuss experiments that demonstrate a real trophic influence of the sympathetic nerves, by which term I mean that the state of the tissues is regulated by these nerves. I turn to the well known and classic region for the investigation of trophic influence, the cornea. If the cervical sympathetic in the rabbit is extirpated on one side, the eye on this side loses only this innervation, retaining its normal motility and sensibility. To test whether the two corneas react differently, we irradiate the two eyes with exactly the same intensity of quartz rays and for exactly the same length of time. When a certain intensity of the light rays is applied, the two corneas react differently. The eye without sympathetic innervation shows distinct ulcerations (best observed with the aid of the Gullstrand slit lamp), while the normal eye shows no harmful effect. If the intensity of the light is a little stronger, both eyes may show ulcerations; but the difference shows in the length of time required for restoration. At the time the eye with normal innervation becomes perfectly restored, the eye without sympathetic innervation is still in a state of distinct ulceration. These experiments seem to prove conclusively that the sympathetic nerves have a trophic influence. The tissue is evidently less able to withstand the harmful influence because the loss of the sympathetic innervation lowers the trophic power of the cells.

One is also able to demonstrate the trophic influence of the sympathetic in the skin. Intracutaneous injection of histamine will produce blebs in the skin. If one compares the reaction of the normal side with the side without sympathetic innervation and applies graded concentrations of histamine, it will not be difficult to find a concentration which will produce a large bleb on the side without the sympathetic, while on the other side nothing happens. If the concentration of histamine is increased, one may succeed in producing blebs on both sides. But on the side that is normally innervated the blebs will disappear very much sooner. Evidently the skin without sympathetic nerves has become less resistant. A possible explanation is that the more rapid absorption of the fluid in the bleb on the normal side is due to a state of higher permeability. Experiments which we did years ago had already led us to conclude that, by taking away the sympathetic, the permeability was decreased. Comparing the sodium chloride concentration either in the saliva or in tears, we always found the concentration lower on the side without the sympathetic, although there was no difference in the total amount of saliva or tears.

In a third series of experiments we compared the influence of x-ray irradiation on the growth of the bones of young growing rabbits. Every ten days roentgenograms were taken under exactly the same conditions of the bones of both sides. The roentgenograms showed that the development of the bone on the normal side was far greater than it was on the side on which the sympathetic had been excised. The present

It is desirable to close and invaginate the lower end of the remaining rectosigmoid. In adenomatosis it is often difficult to turn in the end of the bowel when the polyps are diffuse, so one may have to be satisfied with closure of the lumen with through and through stitches and safeguard against contamination or separation by suturing fat tags, the omentum or the adnexa in the female over the end of the bowel. At other times it may be necessary to enclose the rectosigmoid stump in iodoform gauze and rubber tissue and drain to the outside.

The patient as a routine receives a blood transfusion following the subtotal colectomy, which protects and provides against the element of shock. The third stage of the operation is advantageously delayed a number of months, during which time the rectal stump may be repeatedly investigated and fulgurated if the polyps have not previously been destroyed. Usually in from three to six months the patient is in readiness for anastomosis of the ileum with the rectosigmoid stump. We do this step by one or two methods, one of which is an aseptic anastomosis over the Rankin<sup>11</sup> clamp, and the other by the Murphy button. The former is quite easily and satisfactorily executed if there is sufficient rectal stump or if the patient is the thin type and the bowel is mobile. If difficulties are encountered, one may always resort to anastomosis with a button. This is probably simpler and more quickly carried out. One part of the button is introduced through the proctoscope and held in place by a long forceps at the desired level in the rectum where the anastomosis is to be made. The other part is placed into the ileum and secured by a purse-string suture, as is done in all anastomoses where the button is used. The separate parts of the button can easily be manipulated in place, the one guided by the operator's hand in the abdomen and the other by manipulation of the proctoscope. When the two buttons are brought alongside each other they can be approximated and locked. The site of anastomosis is reinforced by interrupted sutures.

As a rule, the anastomosis is clean and there is no necessity for drains. The ileostomy is still present and serves as an added safeguard and sidetracks the fecal current from the recent anastomosis until sufficient time has elapsed for its safe and firm healing. Within two weeks the ileostomy, having served its purpose, can easily be closed under local anesthesia. The patient is now returned to a normal anal control and has on the average from two to three semisolid stools a day.

#### CONCLUSIONS

With the addition of two cases completed within the last year, our series now totals thirteen cases, in seven of which, as previously reported, the entire colon and rectum were removed by multiple procedures. In six cases the colon was removed to the rectosigmoid juncture. These operations were undertaken for both adenomatosis and complications arising from diffuse chronic ulcerative colitis. In the earlier cases the more radical total colectomy was done for both lesions. Now it is reserved for chronic ulcerative colitis.

The remarkable disappearance of diffuse rectal polyps following vigorous fulguration encourages us to save the rectal stump and anastomose it with the ileum. However, we condemn any method whereby segments of the colon beyond the rectosigmoid are preserved.

11. Rankin, F. W.: Total Colectomy: Its Indications and Technic. *Ann. Surg.* 94: 677-703 (Oct.) 1933; Colectomy for Adenomatosis and Pseudopolypoid, *Ann. Surg.* 102: 707 (Oct.) 1935.

They are a definite menace as a site of recurrent polyps and are beyond the range of proctoscopic investigation.

In this series there was one operative death following the second stage colectomy. Another patient died eighteen months following the completed operation from recurrence of carcinoma, which had developed on polyps and which was demonstrated at exploration.

5140 Second Boulevard.

## MYASTHENIA GRAVIS IN CHILDREN

### ITS FAMILIAL INCIDENCE

HAROLD B. ROTHBART, M.D.

DETROIT

Myasthenia gravis is not infrequently encountered in children, but its familial incidence has never been stressed. My purpose in this report is to present two cases of myasthenia occurring in brothers, in whom the onset was in early infancy, this also being an unusual feature. No attempt is made to review all the cases of myasthenia gravis arising in childhood. It soon becomes apparent to the reviewer that the literature is voluminous and that not a few cases reported in adults had their beginning in early life. There seems to be nothing strikingly different about the disease in children to warrant a detailed discussion of its clinical features.

#### REPORT OF CASES

**CASE 1.—History.**—Marvin W., aged 9, Jewish, admitted to the pediatric service Sept. 12, 1934, complained of generalized weakness, inability to move his eyes normally and drooping eyelids, noted since infancy but more marked during the past year.

Weakness of the eye muscles and abnormal drooping of the eyelids were first observed at 6 weeks of age. Although he developed normally, it was noticed that he could not run or skip a rope like other children and that he was unable to climb. His walk has always been awkward. When he arises in the morning his eyes are wide open but within half an hour the eyelids droop and the eyes become more fixed. He soon tires and this generalized weakness becomes more marked with the progress of the day. Rest periods restore his strength to a certain degree. His facial expression has always been masklike. He is unable to laugh or cry out loud. He has no difficulty in chewing or swallowing. "Asthmatic" attacks are described as having occurred during infancy with noisy breathing, particularly during the night. These were relieved by inhalation of steam. These attacks have not recurred within recent years, but occasionally rattling sounds in the throat are heard. The speech has always been nasal. The patient's general condition has been stationary until about one year ago, when weakness became more marked.

The birth and developmental history are normal. The mother was well during pregnancy. She felt "life" at about the fifth month and the fetal movements were vigorous compared with her other pregnancies. Labor lasted eight hours and was spontaneous. The birth weight was 8½ pounds (3,855 Gm.). The only abnormality observed at birth was the weak cry. Later in infancy the patient did not seem to be very active. He made little effort to kick off the covers even though he was warm. He nursed without difficulty, not tiring during the feeding, he sat up at 6 months, the first tooth erupted at 8 months and he walked at 1 year. When he first began to crawl and walk he was rather awkward and weak. He talked at about the normal time with a nasal twang.

The patient had pneumonia at 6 weeks of age, following which the eyelids were first found to be drooping. Coryza attacks had been frequent during the winter months but not in the summer. He had measles at 8 and a tonsillectomy two years before. There is an occasional nondescript recurring pruritic papular eruption on the body.

From the Department of Pediatrics and Infectious Diseases, University of Michigan Medical School, D. Murray Cowie, M.D., director.



## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL STATUS OF CATGUT SUTURES

AT THE REQUEST OF THE COUNCIL ON PHARMACY AND CHEMISTRY THE BOARD OF TRUSTEES GRANTED THE COUNCIL AN APPROPRIATION FOR THE PURPOSES OF SPECIAL INVESTIGATION OF COMMERCIAL CATGUT SUTURES.

THE LABORATORY WORK WAS DONE BY MR. JOHN H. BREWER FOR THE COMMITTEE ON CATGUT SUTURES OF THE COUNCIL UNDER THE DIRECT SUPERVISION OF THE CHAIRMAN OF THE COMMITTEE. THE COUNCIL DESIRES TO EXPRESS APPRECIATION TO THE COMMITTEE, AND PARTICULARLY TO THE CHAIRMAN, FOR THE AMOUNT OF EFFORT AND TIME HE DEVOTED TO THIS SUBJECT.

THE COUNCIL HAS ADOPTED THE FOLLOWING REPORT BY MR. JOHN H. BREWER AND AUTHORIZES ITS PUBLICATION.

IN VIEW OF THE FOLLOWING REPORT THE COUNCIL DESIRES TO ISSUE A WARNING AGAINST THE USE OF SO-CALLED CHEMICALLY STERILIZED SUTURES; IN THE OPINION OF THE COUNCIL IT IS BETTER TO USE ONLY HEAT STERILIZED SUTURES UNTIL MORE RELIABLE CHEMICAL PROCESSES HAVE BEEN DEvised.

THE COUNCIL BELIEVES THAT ALL MANUFACTURERS SHOULD PLACE ON THEIR LABELS A DATE OF MANUFACTURE AND THAT PHYSICIANS SHOULD USE THOSE SUTURES WHICH BEAR A DATE MORE RECENT THAN OCTOBER 8, 1936, AT WHICH TIME THE REPORT WAS SUBMITTED TO MANUFACTURERS.

THE NAMES OF THE MANUFACTURERS REFERRED TO IN THE FOLLOWING REPORT WILL BE FURNISHED TO PHYSICIANS WHO MAKE INQUIRY.

PAUL NICHOLAS LEECH, Secretary.

### THE PRESENT STATUS OF THE STERILITY OF CATGUT SUTURES ON THE AMERICAN MARKET

JOHN H. BREWER

REPORT OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION

The present survey<sup>1</sup> was undertaken with two objects in view: (1) to study critically the technic which has been heretofore employed in testing the sterility of catgut sutures, to modify this technic as might seem desirable and to describe it in such a manner that it might be of use to manufacturers of sutures and others interested in the control of these products; (2) to determine the status of sterility of sutures now available on the American market and especially of those recently manufactured in comparison with those on the market some years ago.

In reviewing the literature on the sterility of catgut sutures, one finds that before 1929 there was no recognized technic for testing sutures. Each of the manufacturers, if he employed sterility tests, had his own technic. Many of the methods did not employ anaerobic control or, if they did, the mediums were in certain cases incapable of sustaining growth of the more delicate anaerobes such as *Clostridium oedematiens*.

From the Department of Pathology and Bacteriology of the Johns Hopkins University, Baltimore.

1. The following information regarding the firms mentioned in the report is noted:

Firm 2 is no longer in existence. The Council has received information that no sutures have been manufactured by this firm since 1920, when it was taken over by another firm, and that the latter firm discontinued the preparation of tubed catgut in 1925, though through an oversight it was still advertising ligatures in 1936 in a medical journal.

The sutures marketed by firm 8 were actually manufactured for it by another firm and were not being sold by it at the time of this report. The firm merely sent the sutures for academic interest. Therefore, no direct responsibility is attached to firm 8 in this instance.

On October 30 firm 9 wrote that the old ligature material to which this investigation refers has been withdrawn from the market and that its ligatures and sutures are now being manufactured by the Heat Sterilization Method approved by the British Ministry of Health. The firm states that every batch of ligatures prepared is now tested bacteriologically by an outside bacteriologist. The Council commends the firm for its prompt action taken at the difficult period of reorganizing its pharmaceutical department. On November 17, 1936, firm 9 reported as follows: "We attach herewith the original certificates of tests on all Surgical Ligatures manufactured under our new process. All batches have proved Sterile when tested according to the Meleney-Chatfield technique by the independent Bacteriologist who tests all our material."

Bullock, Lampitt and Bushill<sup>2</sup> in 1929 published an exhaustive report on the sterility of surgical catgut. It contains an excellent review of the literature on this subject. They included in this report a technic which was far superior to any that had been suggested previously. They were able to demonstrate that much of the commercial catgut was not sterile. This technic, the result of seven years' research, was immediately made a legal requirement of all catgut manufacturers in England.

In 1931 Meleney and Chatfield<sup>3</sup> published what they considered an effective technic for testing the sterility of catgut. It involved the use of a neutralizing solution containing 1 per cent sodium carbonate and 1 per cent sodium thiosulfate. The authors indicated the necessity of using other neutralizing reagents if antiseptics other than iodine or mercury were used. They used a properly controlled medium which sustained growth of *Clostridium oedematiens* in the fifth dilution. Following the publication of this work, some of the manufacturers awoke to the fact that many of the sutures which they were placing on the market were not sterile. Some of them changed their methods of sterilization, others have retired from the market. At present, all of the manufacturers who have been consulted employ the Meleney and Chatfield technic or modifications of it, the chief differences being in the use of additional controls or in the use of a different neutralizing agent.

Clock has published several papers in which he suggests certain modifications which seem to be of noteworthy value. The 1 per cent sodium carbonate and 1 per cent sodium thiosulfate are sufficient to remove the usual chemical substances, such as mercury, iodine and chloramine, provided they are present only in small quantities. Clock<sup>4</sup> has shown that this neutralizer is not sufficient to remove copper or large quantities of iodine as found in chemically sterilized iodized sutures containing from 12 to 15 per cent of these substances. Large quantities of mercury (3.5 per cent) cannot be removed readily by the 1 per cent neutralizer, but it has been found that a 10 per cent sodium thiosulfate solution is sufficient.

Using the 1 per cent neutralizer, my associates and I have found 15.4 per cent of the sutures from firm 8<sup>5</sup> contaminated. These sutures, made by firm 3 for firm 8, were withdrawn from the market and a quantity was sent to us for experimental purposes. A large number of these were tested by means of 10 per cent sodium thiosulfate and 23.6 per cent were found not sterile, or an increase of 8.2 per cent with the stronger neutralizer. This confirms the observation of Clock that a 1 per cent neutralizer is insufficient to remove large quantities of mercury.

For removing copper, Clock<sup>4</sup> has suggested the use of 5 per cent ammonium chloride and 0.5 per cent ammonium hydroxide. As an added step, it is suggested that an additional tube of distilled water be used to remove any neutralizer which otherwise might be carried over into the culture medium. He also suggests the use of several controls that prevent falsely positive results.

2. Bullock, W.; Lampitt, L. H., and Bushill, J. H.: The Preparation of Catgut for Surgical Use, British Medical Research Council Special Report Series, 138, 1929.

3. Meleney, F. L., and Chatfield, Mabel: The Sterility of Catgut in Relation to Hospital Infections, with an Effective Test for the Sterility of Catgut, Surg., Gynec. & Obst. 52: 430 (Feb. No. 2 A) 1931.

4. Clock, R. O.: The Fallacy of Chemical Sterilization of Surgical Catgut Sutures, Surg., Gynec. & Obst. 56: 149, (Feb.) 1933.

5. Information obtained from manufacturers of sutures is given in table 1.

weakness with very little change in the facial weakness, ophthalmoplegia or lagophthalmos, although he is able to keep his eyes open fairly wide for several hours in the morning. In the past year little improvement has taken place, but with the cessation of the medication he immediately becomes worse. Infections of the upper respiratory tract have been rather frequent, and these incite a relapse. When first seen in 1930 the "asthmatic" attacks were considered to be of allergic origin. Myasthenia gravis was not thought of at the time. Sensitization studies incriminated a number of foods, which were eliminated from the diet without any improvement. We now know that the asthmatic spells were due to the fatigability of the muscles of respiration. Laboratory studies on our patient have not revealed anything of significance outside of an increased creatinuria. The thymus gland, often found enlarged in such cases, was normal. The long bones presented changes usually identified with pseudohypertrophic muscular dystrophy, which account for the peculiar waddling gait seen in both diseases. It is possible that the coxa valga is the result of weakened muscles and ligamentous supports of the joints. While he was under treatment I observed an increased output of both

*Urinary Creatine and Creatinine: Determination on Twenty-Four Hour Urine Specimen*

Date	Volume, Cc.	Creatinine, Mg.	Creatine, Mg.
		House Diet	
9-30-34 .....	410	186	202
9-30-34 .....	Meat Free and Creatinin Free Diet		
10-7-34 .....	324	191	115
10-6-34 ... Ephedrine and Aminoacetic Acid Therapy Instituted			
10-9-34 .....	610	242	181
10-10-34 .....	560	374	235
7-3-35 .....	923	386	515
7-4-35 .....	915	487	510
9-4-35 .....	...	500	270

creatinine and creatine in the urine, but my last studies show no return to normal figures, a finding frequently observed after the patient has received aminoacetic acid for a relatively long period. The patient was on aminoacetic acid for about a year when the last creatinine and creatine determination on the urine was made.

In case 2 the interesting feature is the spontaneous improvement without the aid of any medication or other kind of therapy. So far this boy has had no relapse, although his recovery cannot be said to be complete in view of the persisting ophthalmoplegia and residual postoperative lagophthalmos. It would be hazardous to state that a relapse may not occur, since recurrences have been observed even after many years of apparent cure, mostly in adults.

Stephenson<sup>1</sup> reported a case of myasthenia gravis in an 8 year old girl whose symptoms began at the age of 9 months following vaccination, with a moderate local and systemic reaction. To his knowledge that was the earliest case in the literature. In the cases reported here the symptoms began even earlier in infancy, at 6 weeks, 3 months and 6 months of age.

#### CONCLUSIONS

1. In one family there were four cases of myasthenia gravis in brothers. In the two cases presented here the

1. Stephenson, J. W.: Myasthenia Gravis in a Child of 8 Years. Boston M. & S. J. 175: 169, 1916.

boys are aged 11 and 15 years. One other sibling who died in infancy from pneumonia had definite signs of myasthenia gravis at that time. Another brother develops lagophthalmos during acute infections.

2. Spontaneous remission beginning at 6 years of age occurred in case 2. The other's condition is now stationary, following a period of improvement while on aminoacetic acid and ephedrine.

3. The evidence in these cases suggests that myasthenia gravis is a familial and possibly a hereditary disease.

5140 Second Boulevard.

## Clinical Notes, Suggestions and New Instruments

### PARAPLEGIA FOLLOWING MEASLES

CHARLES ROSENHECK, M.D., AND HARRY BAROWSKY, M.D., NEW YORK

The development of nervous complications and sequelae in acute infections in childhood is always of interest and concern to the neurologist and the pediatrician. On account of the inherent instability of the central nervous system in the young, its vulnerability and reaction to toxic substances is very much enhanced. This fact is a common observation clinically and one notes all forms of abnormal neural manifestations in the wake of toxic invasion of whatever type.

The exanthems in particular contribute a goodly share of these neural disturbances, and measles "encephalitis" is pretty well known and recognized by the profession. Other forms and combinations, affecting single or multiple parts of the central nervous system, each registering in its own particular manner interference with function, are seen from time to time, although the incidence is very low.

Thus, according to Rolleston,<sup>1</sup> "encephalitis" occurs in measles more commonly than after any of the other diseases of children, although the incidence is very low even in measles. Boenheim<sup>2</sup> states that among 5,940 cases of measles treated in the various hospitals in Berlin between 1905 and 1925 there were nervous complications on 0.4 per cent, including eight cases of "serous meningitis," six cases of "encephalitis" and eleven cases of unexplained convulsions.

In Ford's<sup>3</sup> comprehensive article, every neurologic complication of measles, with case reports indicative of each group, is tabulated. An analysis of these tables reveals a preponderant number of cases of diffuse cerebrospinal involvement with a relatively small number of pure spinal forms. The latter have been responsible for the paraplegic or "myelitic" syndrome, similar to our own case.

The extreme rarity of this neurologic complication of measles is evidenced by the fact that a thorough search of the American literature yielded but one case, that reported by Miller and Ross.<sup>4</sup> The two cases reported by Bassette<sup>5</sup> and included by Ford in his tabulation are not pure "spinal" forms but indicate brain-stem involvement as well. The few cases reported are scattered in the foreign literature, principally the French and the Italian. It may be of interest to note that the first recorded case of paraplegia following measles occurred in a woman, aged 23, and was reported by James Lucas<sup>6</sup> in 1790.

1. Rolleston: Acute Infectious Diseases, cited by Ford.

2. Boenheim, C.: Ueber nervöse Komplikationen bei spezifisch kindlichen Infektionskrankheiten, Ergebn. d. inn. Med. u. Kinderh. 28: 598-637, 1925, cited by Ford.<sup>3</sup>

3. Ford, F. R.: The Nervous Complications of Measles, Bull. Johns Hopkins Hosp. 43: 140-184 (Sept.) 1928.

4. Miller, F. G., and Ross, A. G.: Acute Transverse Myelitis Complicating Measles, Canad. M. A. J. 25: 709-710 (Dec.) 1931.

5. Bassette, M. I.: The Paralyzes in Children Which Occur During and After Infectious Diseases, J. Nerv. & Ment. Dis. 17: 461-493, 1892.

6. Lucas, James: An Account of Some Symptoms Succeeding the Measles, London M. J. 11: 325-331, 1790.

used as the tubing fluids. The temperatures for heat sterilization varied from 300 to 320 F. (149 to 160 C.). This information is presented in table 1.

Sutures examined have been obtained from the manufacturers, bought in the open market or from hospital supply rooms. A few of the sutures examined are known to have been in stock for more than ten years. These are of special interest in that some of them were found nonsterile, although they were stored in heavily laden mercuric tubing fluid. Not all the brands of sutures to be found on the American market were examined, but all of those recently advertised in the leading medical and surgical journals were given thorough study.

The general procedure for this survey has been, first, to test all the sutures according to the technic of Meleney and Chatfield; then to test the same type of sutures using the additional controls and neutralizing agents suggested by Clock, except in the instance of sutures in which copper was used.

All transfers were made in a "dust-proof" chamber. The bacterial content of the air within the chamber was checked by exposing blood agar plates, throughout the period of transfer, directly in front of the operators in the vicinity in which the transfers were being made. These exposed blood agar plates were incubated aerobically and anaerobically. The anaerobic plates were incubated in a Brown<sup>6</sup> jar. An unexposed plate was incubated along with each exposed plate to serve as a control. The plates had from 0 to 7 colonies after forty eight hours' incubation. The average was 1.53 colonies per plate. This would indicate that the air in the room was relatively free from bacteria. Since the actual time of transfer for each suture required less than a second, and the surface exposed was much less than the surface of the blood agar plate, the chance of an air contaminant entering was slight. This is borne out by the fact that although more than 3,100 transfers were made only two sutures showed growth of the same type of organism, which appeared on the blood agar plates exposed during the time when the sutures were being handled. Throughout the survey, 76 per cent of the organisms that grew on the blood agar plates were cocci and in only two instances were cocci recovered from the sutures.

The culture medium used for the sutures was similar to that used by Meleney and Chatfield and by Clock. The medium consists of meat infusion broth containing 1 per cent peptone, 0.5 per cent sodium chloride, 1 per cent dextrose and 2 per cent gelatin. The final reaction is  $pH$  7.4. To the anaerobic medium 0.1 per cent azolitmin is added. It is the original formula of Novy except that, instead of 1 per cent of litmus, 0.1 per cent of azolitmin was used for the anaerobic medium. The medium is tubed in 40 cc. amounts in test tubes 25 by 210 mm. and is sterilized in the autoclave.

Following is a detailed account of the technic used, which is based on that of Meleney and Chatfield with modifications suggested by Clock or found advisable during this survey. For purposes of comparison, the various procedures are numbered to correspond with those of Meleney and Chatfield.<sup>3</sup>

1. Two operators wearing sterile hoods and gowns make transfers in a dust-free room, which is washed down with a disinfectant (saponated solution of cresol) each time a set of transfers is to be made and allowed to remain closed fifteen minutes before use.

2. The sutures to be tested are registered and the following information recorded:

Firm Name:	No.:
Purchased or received from:	
Type of Suture:	
Company Desig:	
Size:	Lot or Lab. No.:
Dist. water:	Boilable or Nonboilable
Results:	Mediums:
Anaerobic	Culture No.:
Aerobic	Culture No.:
Date started:	
Remarks:	

A file mark is made about one-half inch above the tubing fluid. The tubes are numbered with a diamond point and set in a small test tube rack. In the dust-free room just before the transfer is to be made, the tube is flamed at the filed line so that it may be broken without risk of contaminating the suture. When sutures in envelop containers are being tested, one margin of the envelop is flamed and cut with previously flamed scissors (same technic as for sterilizing transfer forceps).

3. The tube is cracked at the filed line by holding a red-hot curved wire against it. A pair of long, previously sterilized, forceps are dipped in alcohol and flamed. The upper part of the cracked tube is removed by grasping it with the back part of the forceps; then the entire suture is seized with the points of the forceps and dropped into a large cotton plugged test tube containing 40 cc. of sterile distilled water.

4. The tube is incubated for twenty-four hours at 37 C.

5. The catgut is then transferred to a test tube containing 40 cc. of sterile 1 per cent sodium thiosulfate and 1 per cent sodium carbonate and again incubated for twenty-four hours.

6. Shortly before use, the culture medium for the anaerobic tubes is allowed to remain in flowing steam for fifteen minutes or more, so that the air is driven out and the litmus is decolorized. The aerobic tubes must be taken from the refrigerator and placed in warm (37 C.) water so that the medium will be liquid.

7. The petrolatum (melting point, 48 C.) sealing material kept in a specially designed closed copper funnel fitted with a hooded stopcock is sterilized in the hot air oven for two hours at 165 C. and, if it becomes too cold before use, it may be placed in the flowing steam along with the anaerobic medium. We have obtained good growth in our controls using a petrolatum of this melting point and find no advantage in using a mixture of petrolatum and paraffin such as was used by Novy, by Meleney and Chatfield and by Clock.

8. The catgut is then transferred to the tube of medium cooled to 37 C., and the tubes to be incubated anaerobically are sealed by flowing on a layer of sterile petrolatum 2 or 3 cm. thick. The sealed tubes are immediately placed in a cool water bath to solidify the seal. In order that a large quantity of oxygen may not reenter the heated tubes before the petrolatum is added and solidified, only fourteen sutures are tested in a group. It consumes about fifteen minutes from the time the tubes come from the autoclave or steam bath until they are sealed.

9. The tubes are incubated at 37 C. for fifteen days and are examined daily for growth.

10. The medium is tested for sterility by incubating two of every sixteen tubes for the full time of the test, one aerobic tube and one anaerobic tube. The distilled water and the neutralizing solutions are also tested for sterility by culturing 10 cc. amounts, aerobically and anaerobically. These have always been found sterile. The growth-producing properties of each lot of medium are controlled by a series of six tubes planted with decimal dilutions of an active culture of *Clostridium oedematiens*. If growth does not appear in all tubes including the fifth dilution, which is 0.00001 cc. of the original culture, the medium is considered inferior, and not used. It is our opinion that *Clostridium oedematiens* or some one of the more strict anaerobes should be used as the control organism rather than *Clostridium sporogenes* as used by Clock. Several of the suture manufacturers use other organisms which are not strict anaerobes. Meleney and Chatfield<sup>3</sup> suggest that, if a pathogenic species cannot be used, *Clostridium sporogenes* should be substituted for *Clostridium oedematiens*. In sending a subculture of the original Novy strain of *Clostridium novyi* (*Clostridium oedematiens*) isolated in 1893, Dr. M. H. Soule:

6. Brown, J. H.: An Improved Anaerobe Jar, *J. Exper. Med.* 33: 677 (June) 1921; 35: 467 (April) 1922.

7. Soule, Malcolm: Personal communication to the author from Hygienic Laboratory, University of Michigan.

cutaneously. The heart tones fell to 20 per minute and became almost inaudible for about forty-five seconds, then slowly began to pick up and in about three minutes were normal. The color became good. About five minutes later the entire chain of symptoms recurred. This time I tried giving one-half ounce (15 cc.) of whisky by mouth. The symptoms continued to progress and in about a minute the heart tones were inaudible and the patient entirely comatose. Ten minims (0.65 cc.) of epinephrine was given intravenously. The response was rapid, the heart tones becoming strong and rapidly increasing in rate, reaching 110 in about two minutes. The patient looked and felt normal in fifteen minutes. He was watched for two hours and showed no abnormal signs. One week later he reported that he had had no further symptoms.

## COMMENT

This case differs from Dr. Lewis's in that:

1. There was no period of cessation of treatment during which the patient could have become sensitized.

2. The chief symptom was bradycardia, resembling heart block instead of tachycardia.

3. There was no urticarial rash, bronchial spasm, intestinal spasm or any other of the phenomena one usually associates with anaphylaxis.

I have previously had a patient who experienced transient vertigo, lasting about fifteen seconds, following each injection of sodium morrhuate. During these attacks she would become somewhat pale, the lips would be slightly cyanotic, and the pulse would become slower and skip a few beats. The reactions did not alarm the patient, but when they occurred regularly after each injection I discontinued the treatment.

It is probable that this is not an anaphylactic reaction due to some liver protein remaining in the solution, as suggested by Dr. Lewis, but rather a specific reaction due to an idiosyncrasy to the sodium morrhuate.

3568 West Harrison Street.

## A METHOD OF PATCH TESTING WITH PLANT OIL

BEDFORD SHELMIRE, M.D., AND J. HARVEY BLACK, M.D., DALLAS, TEXAS

Prior to four years ago our patch testing of individuals in suspected cases of contact eczema from plants was a time consuming procedure. Because of the seasonal occurrence and the predilection of the eruption for the exposed areas, such as the face, neck, hands, forearms and legs, a tentative diagnosis of contact dermatitis of plant origin was usually readily made. As most of our patients came from rural communities and often from a considerable distance, patch testing to determine the offending agent was often necessary on the patient's initial visit. This required frequent excursions into the country to collect plants which the affected individual was most likely to encounter. Weeds common to the patient's particular locality often grew sparsely or only in certain parts of our territory. This frequently necessitated rather wide excursions for the collection of a few common specimens.

After the plants were collected the application of the patch test, with the necessary washing of the hands after each test, required more time than could conveniently be devoted to one patient. In one instance the collection of thirty weeds and the application of the tests required over three hours. In another instance the application of seventy-two specimens of flowers and shrubs, furnished by the patient, required almost two hours. With patch testing material available, even when one works rapidly, it requires considerable time to apply the substance, cover with some impermeable material, securely anchor it to the skin, and carefully wash the hands.

About four years ago a large number of the more common Texas weeds, flowers, shrubs and leaves of the low hanging trees were collected and placed in bags. After complete drying these were ground and placed in wide-mouth stoppered bottles for routine testing. This eliminated almost daily excursions into the fields and seemed temporarily to solve our problem. Some of these powdered specimens are now over four years old and seem to have lost none of their original antigenic properties.

As the number of collected plants increased this method also proved time consuming, since each powdered plant had to

be applied separately, the anchoring material adjusted and the hands thoroughly washed after each test. Our testing time had been about halved since collecting the material was not now necessary, yet the procedure was still a tedious one.

Twenty-six months ago it was decided that some new method was needed to shorten the time required for such testing.

Plants were collected, allowed to dry thoroughly, broken into small particles and placed in pint Mason fruit jars. The jars were completely filled with the dried material and commercial ether was added to cover the plants to be extracted and the jar was then tightly sealed. After standing for twenty-four hours the ether extract was poured into an open vessel and allowed to evaporate. No effort was made to remove the chlorophyll or to purify the oil. The oily residue was then placed in small vials and was ready to use. As most of the weeds, flowers and leaves of trees yielded an abundance of oil, the procedure was found to be a very inexpensive one. A second extraction was necessary from certain plants to secure a desired quantity of oil. Sufficient oil to make approximately fifty tests has cost about twenty-five cents.

As these oils are neither true fats nor simple glycerids of fatty acids, it was presumed that, if they were kept dry, bacteria would not grow in them and that if rancidity developed it would be due to enzymatic activity or oxidation. For this reason and to prevent possible false reactions, no preservative was added to our oils. We now have on hand forty oils which have been kept at room temperature for more than two years. These have been opened repeatedly for patch testing. Rancidity apparently has not developed in any of them. Patch testing with these oils shows that they have retained their original eczematogenous properties for sensitive individuals and have not become antigenic for previously nonsensitive persons.

Our oils are kept in small vials with rubber bulb stoppers to which are attached capillary tubes. As the usual sites of contact dermatitis from plants are on the exposed areas (face, neck, hands, forearms and legs) the back is the area usually chosen for application of the tests. In applying an oil the capillary tube, which extends into the oil, is filled by squeezing and releasing the bulb stopper. A drop of oil is then placed on the skin and spread by the tip of the capillary tube over an area approximately 1 cm. in diameter. The tests are applied vertically in rows of ten; no covering is placed on the sites. After a few minutes allowed for drying, the upper test in each row is numbered with 10 per cent silver nitrate. Patients are advised not to bathe for twenty-four hours. About five minutes is required to apply and adequately number forty tests, the number of oils we use as a routine at the present time.

Besides the convenience of this method of patch testing with plant oils, the procedure encourages routine testing with a larger number of plants. This has proved that many plants heretofore considered innocuous have been excitants in distressing local or widespread eruptions. Through routine patch testing it has been proved that in this vicinity *Parthenium hysterophorus* causes a greater number of contact eruptions than any other plant except ivy (*Rhus radicans*). Our bitter-weed, or dog-fennel (*Anthemis catula*), is a frequent excitant of contact dermatitis. In addition to the well known eczematogenous short and giant ragweed and bur-weed marsh elder, such plants as sun flower, Shasta daisy, Amoor river privet, hack-berry, mesquite trees, field corn, cotton, broom-weed, milo-maze, sorghum, trumpet vine, fig, mustard greens and cockle-bur have been proved the cause of annoying contact dermatitis. Positive patch tests have frequently led us first to suspect many of these excitants.

1410 Medical Arts Building.

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**What Gifts Should a Student Bring?**—In plain words, What gifts of heart and mind ought a student to bring to the service of his hospital? He ought to bring those gifts which come of a good disposition, a good home and a good public school. He should have reverence, and a fair liking for work, and a certain simplicity or directness of thought; and should know Latin, and a manageable quantity of general facts; and should be resolute, in company, and even against company, to say the right thing and take the right side. One more gift he should have, which time alone can give, a sufficient age.—Paget, Stephen: *Confessio Medici*, New York, Macmillan Company, 1931.

be remembered that these transfers were made in filtered air, under rigid asepsis.

One thousand and twenty sutures have been tested for sterility and a summary of the results is given in tables 2 and 3.

Firms 2, 3, 4, 5 and 8 no longer manufacture sutures, but some of their products may still be found on the market.

It may be of interest to note that firm 3 was successor to firm 4 and that the sutures from firm 8 were manufactured by firm 3.

Sutures of firms 10, 11, 13 and 14 manufactured before the advent of the Meleney and Chatfield technic (1933) were not available for this study. No comparison therefore can be made of the older and newer sutures manufactured by these companies.

Twenty-six of the thirty-two organisms isolated were gram-positive aerobic spore formers, most of them being members of the cereus or subtilis groups, and several were unidentified.

Two of the remaining six organisms were gram-positive cocci and were the same types as were picked up on the blood agar control plates at the times these transfers were made; therefore they are not to be considered as derived from nonsterile sutures.

Of the remaining four organisms, two died before identification was completed and the other two were nonidentifiable anaerobes which were found to be non-pathogenic for guinea-pigs.

The important consideration regarding the work of Meleney and Chatfield is not that they found 12.5 per cent of the sutures which they tested nonsterile but the fact that seven firms of the seventeen represented had placed nonsterile products on the market. Several of these manufacturers were not making sutures at the time the survey was made but their products were still on the market.

Clock has purchased, on the open market for the past five years, twelve American brands of catgut. He has found seven brands to be uniformly sterile and five brands nonsterile, except that for one year (1933) he found eight brands sterile and four nonsterile.

Of the fourteen brands tested in the present survey, sutures of six firms were found not sterile. Four of the fourteen firms no longer manufacture sutures.

TABLE 3.—Results from Recently Manufactured Sutures

Firm	Method of Sterilization	Number Tested	Nonsterile
1.....	Heat	128	0
6.....	Heat	114	0
7.....	Heat	134	0
9*.....	Heat or chemical	142	5
10.....	Heat	92	0
11.....	Heat	72	0
13.....	Heat	94	0
14.....	Heat	24	0
Totals.....		800	5

\* See statement concerning firm 9 in footnote 1.

When recent products of the other firms were examined, only one of the firms was found to have nonsterile sutures among those examined. There may be still on the market some old nonsterile sutures from some of these manufacturers, but sutures made by these companies since the advent of the Meleney and Chatfield technic have been found sterile, as is shown in the case of firm 6. Failure to distinguish between sutures recently manufactured and those in stock for some time may account for Clock's results in continuing to find

products of five companies nonsterile. In the case of some of the companies, the date of manufacture is printed on the box along with the sterility seal, while with other brands it is practically impossible to learn the date of manufacture.

Since most of the organisms isolated from the sutures were aerobic spore formers, one is likely to suspect that these organisms may have been introduced as contaminations during transfer for the sterility test and that

TABLE 4.—Comparison of Results Obtained by Various Investigators

	Number of Sutures Tested	Number of Nonsterile Sutures	Number of Firms Represented	Number of Firms with Nonsterile Sutures
Meleney and Chatfield..	174	22 (12.5%)	17*	7 (41%)
Clock .....	6,184	Not stated	12†	5 (42%)
Present survey .....	1,020	30 (3.0%)	14*	6 (43%)
Sutures known to have been manufactured since the firms have been using the Meleney and Chatfield or a similar technic, present survey..				
	800	5 (0.6%)‡	8§	1 (12.5%)

\* Several of the firms represented were no longer manufacturing sutures at the time these surveys were made but their products were available on the market.

† It is not stated whether these firms were continuing to manufacture sutures, but Clock does state that these firms had sutures on the open market at the time his survey was made. He does not mention the date of manufacture.

‡ These five nonsterile sutures were from 142 sutures tested for the same firm.

§ These are the major suture manufacturers whose advertisements appear in current issues of the leading American surgical and medical journals.

the sutures may have been sterile before being opened. The following facts indicate that the results were not due to contamination at the time of testing:

At the same time that the nonsterile sutures from firm 8 were tested, sutures from firms 1, 5 and 7 were also tested and these sutures were found sterile throughout the survey. The four sutures from firm 6 which showed growth were all from the same box of sutures, which were known to have been manufactured previously to the time this firm started using the Meleney and Chatfield technic. These nonsterile sutures were all found at different times while other sutures, which remained sterile throughout the survey, were being tested.

The sutures from firm 2, of which 33 per cent were found to be nonsterile, were all manufactured before rigid tests for sterility were employed.

Sutures from firms 3, 4 and 8, which were manufactured in the same plant, showed contaminations of 3, 18 and 23 per cent respectively. All the nonsterile sutures from firms 3 and 4 were found at different times, when sutures from other firms tested at the same time remained sterile. The nonsterile sutures of firm 4 were all from the same carton.

Four of the five nonsterile sutures of firm 9 were received in the same shipment and their lot numbers were very close, although the date of manufacture was not given.

Interesting conclusions may be drawn from the data in table 4.

When considering all the sutures tested in the three surveys, one instantly notes that practically the same proportion of manufacturers were found to have nonsterile products. If only sutures of recent manufacture are considered, the percentage of firms placing nonsterile products on the market drops from 43 to 12.5, indicating that fewer nonsterile sutures are now being



of the sympathetic nerves had aided bone tissue to react more strongly to the irradiation.

We used Ellinger and Hirt's method of observing living tissues microscopically after the injection of fluorescent dyes. On the side without the sympathetics, not only the blood vessels but also the lymphatics were distended and the intensity of the color was much less. The latter fact is again a symptom of decreased permeability on the side without the sympathetic. The distention of the lymphatics is an expression of deterioration of the trophic state of the cells.

From a physiologic point of view, one would expect that functional changes would go hand in hand with changes in the trophic state of tissues. To investigate this question, we tested the excitability of parts of the nervous system in normal animals and after sympathectomy. In this type of experiment we used physical stimuli. We examined experimentally the influence of various intensities of light on the eye and measured the response by recording the action currents of the visual area in the brain. Here one cannot compare the two sides but must make observations before and after sympathectomy. Our results were definite. After sympathectomy for a given intensity of light the response of the visual area in terms of action currents was less. Far more striking was the earlier appearance of fatigue when the illumination lasted some minutes. Another suitable reaction is the reflex movement of guinea-pigs on acoustic stimulation by high pitched sounds. After sympathectomy a higher intensity is necessary to produce the reflex. Both series of experiments show that the sensitivity of sensory centers is regulated by the sympathetic nervous system.

I believe that with these facts we are warranted in attributing to the sympathetic nervous system a regulatory influence on the trophic state of tissues. However important the recognition of trophic innervation may be to physiology, it is still more important to pathology.

101 Effingerstrasse.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

### FISCHERQUARTZ ULTRAVIOLET LAMPS, NOS. 12 AND 15, ACCEPTABLE

Manufacturer: The Fischer Corporation, Glendale, Calif.

The Fischerquartz Ultraviolet Lamps, Nos. 12 (Table Model) and 15 (Floor Model) have been submitted to the Council for consideration. According to the firm, these lamps are similar in construction to the Fischerquartz Ultraviolet Lamp, Model No. 77, which was accepted by the Council.<sup>1</sup>

Evidence was submitted by the firm, and substantiated by the Council's investigator, indicating that the burner of these two lamps was similar in construction to that of Model No. 77. Therefore it seems relevant to include in this report the radiation characteristics on Model No. 77 as previously published.

At a distance of 2 feet from the front edge of the quartz tube (the "burner") the energy flux of wavelengths shorter than and including 3,130 angstroms was 1,050 ergs per square centimeter per second ( $105 \mu\text{W}/\text{cm}^2$ ). Of this amount about 97 per cent is contained in the strong resonance emission line of mercury vapor at 2,537 angstroms. Assuming an erythemogenic efficiency of 50 to 55 per cent at the 2,937 angstrom line, the calculated time of exposure to produce a threshold (M. P. E.) erythema is about seven minutes.

Exposure of small areas (2 by 6 mm.) of the unpigmented inside upper arm at a distance of 2 feet from the lamp, for

intervals of from five to twenty minutes, produced a decided reddening of the skin in seven minutes. The twenty-minute exposure was overexposed and sore to touch.

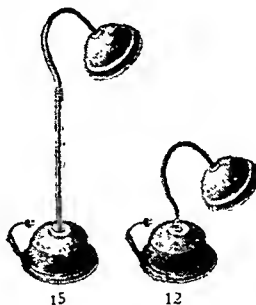
Since the erythema test was made on a skin of average pigmentation, it is evident that a blond-skinned person should not be exposed longer than about five minutes, at a distance of 2 feet from the burner of this type of lamp.

The intensity of the ultraviolet radiation is above the minimum for acceptance adopted by the Council. With the understanding that this lamp is to be used for irradiation of the body (not applicable for cavity irradiation) for therapeutic purposes, under the guidance of a qualified physician, the lamp was recommended for acceptance by the Council's clinical investigator.

The Council wishes to make it clear that such a lamp has nothing in common with "sunlamps," and that

it is no more applicable than other small therapeutic lamps for home use under the direction of a physician.

In view of the acceptable report on these two units, the Council on Physical Therapy voted to include the Fischerquartz Ultraviolet Lamps, Nos. 12 and 15, in its list of accepted devices.



Fischerquartz Ultraviolet Lamps, Models 12 and 15.

### FISCHERQUARTZ PORTABLE "COLD" MERCURY ARC LAMPS, NOS. 17, 78, 87 AND 95, ACCEPTABLE

Manufacturer: The Fischer Corporation, Glendale, Calif.

The firm describes these lamps as follows:

**Model No. 17 Portable Fischerquartz Lamp.**—Supplies ultraviolet radiation for general body treatments. The transformer, switch and attached cords are installed permanently in the case and sufficient space is provided for storing the burner within the case when not in use. The lamp bonnet is hemispherical, with a flat aluminum reflector across the front. The quartz tubing is attached to this reflector, and all connections are made within the bonnet, where they cannot come in contact with patient or operator. Same as Models No. 78, 87 and 95, only it is housed in carrying case 15 by 16 by  $5\frac{1}{4}$  inches. The shipping weight is  $18\frac{1}{2}$  pounds.

**Model No. 78 Portable Fischerquartz Lamp.**—Supplies ultraviolet radiation for general body treatments only. Body grid only. It cannot be converted into a No. 95 Combination Lamp. Complete shipping weight, 25 pounds. Size 8 by 15 by 22 inches.

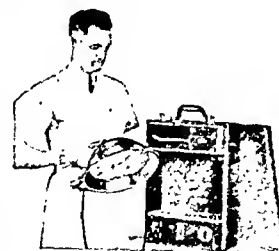
**Model No. 87 Portable Fischerquartz Lamp.**—Supplies ultraviolet radiation for general body treatments only. It can be converted into a No. 95 Combination Lamp at any time by adding the official burner. Complete shipping weight 27 pounds. Size 8 by 15 by 22 inches.

**Model No. 95 Portable Fischerquartz Lamp.**—Supplies ultraviolet radiation for both official and general body treatments. Shipping weight 29 pounds. Size 8 by 15 by 22 inches.

These lamps have burners, reflectors, transformers, cords and switches of the same size and type as supplied in the previously accepted nonportable lamps, bearing the same catalogue numbers.<sup>1</sup>

Therapeutically, these lamps generate 150 F. U. (Finsen units) at 12 inches and will produce a perceptible erythema on untanned skin in 0.5 minute at 12 inches, 1.4 minutes at 20 inches and 3.1 minutes at 30 inches. The output of these lamps was checked with the ultraviolet photometer and found to be satisfactory. The power consumption is 63 watts.

The Council on Physical Therapy voted to include the Fischerquartz Ultraviolet Lamps, Portable Models 17, 78, 87 and 95, in its list of accepted devices.



Fischerquartz Portable "Cold" Mercury Arc Lamp No. 95.

1. Fischerquartz Ultraviolet Lamp, Model No. 77. Acceptable, J. A. M. A. 106: 1806 (May 23) 1936.

1. Fischerquartz "Cold" Ultraviolet Lamps Acceptable, J. A. M. A. 103: 1620 (Nov 24) 1934

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 27, 1937

## THE EFFICIENCY OF SERODIAGNOSTIC TESTS FOR SYPHILIS

Two years ago an evaluation was made of serodiagnostic tests for syphilis and modifications of such tests as had been originally described by serologists in the United States.<sup>1</sup> On the basis of specificity and sensitivity, the original tests as performed by the workers who described them were found to be efficient as laboratory procedures in the detection of syphilis. In the first study consideration was not given to the adaptability of the various tests as they might be performed by workers in state and local laboratories.

Recently the second report of the Committee on Evaluation of Serodiagnostic Tests for Syphilis has been published.<sup>2</sup> In it is described a project in which the directors of thirty state, municipal and private laboratories undertook fifty-one performances of nineteen separate serodiagnostic methods. Eight of these methods were those described by serologists who had participated in the first study to evaluate original tests. For each of these eight methods a control examination was performed by the serologist who originally described the test. The Kolmer complement fixation test was the one most frequently performed, being chosen by fourteen of the thirty participating laboratories. The Kahn standard flocculation test was selected by twelve laboratories, the Kline diagnostic flocculation test by seven, the Kahn presumptive and the Kline exclusion flocculation tests by two laboratories each and the Eagle, the Hinton and the Johns flocculation tests by one laboratory each. The eleven remaining performances comprised a heterogeneous group of serologic tests which had not been given consideration in the first study and with the exception of the Eagle complement fixation and the Micro-Hinton flocculation tests control examinations were not made

for this group. The specimens submitted in the second project are not, of course, entirely comparable. Because of the difficulties encountered in collecting comparable samples for all participants, it was found necessary to establish four separate groups of serologists. The serologists in each group received comparable samples from the same series of donors. Since different donors were used in each series, comparison cannot be drawn between the percentages of sensitivity and specificity for the methods that were evaluated.

Careful study of the tables which are presented in the second report shows that in some of the state and local laboratories the performance of serologic tests does not compare favorably with the results achieved in the laboratories of the originators of the methods. In some of the former laboratories, false positive reports were made in from 3 to 9 per cent of specimens from nonsyphilitic persons. In others the sensitivity of the tests dropped to an alarmingly low percentage.

The results achieved in other state and local laboratories, however, are quite comparable to those obtained with the control performances. Special note should be made of the apparent efficiency of a micromodification of the Hinton test. This test attained a sensitivity of almost 92 per cent and a specificity of 100 per cent as compared with a sensitivity of almost 89 per cent and a specificity of 100 per cent as attained by Hinton running the control. This micromodification of the Hinton test should be given careful study in the future because of the great practical value of an efficient serologic test for syphilis requiring only a small amount of blood serum for its performance.

Also to be noted is the performance of one laboratory in the Kolmer complement fixation series. This laboratory attained a sensitivity of 71.4 per cent and a specificity of 100 per cent, as compared with the 59 per cent sensitivity and the 100 per cent specificity rating of the control performance by Kolmer.

One laboratory in the Kahn series attained good results with a rating of 78.5 per cent for sensitivity and 100 per cent for specificity in contrast with 75.7 per cent sensitivity and 100 per cent specificity for the control performance by Kahn. The examples which are cited indicate the fact that a serologic test for syphilis can, under conditions of routine performance, be perfect with regard to specificity and at the same time have a reasonably high degree of sensitivity. There is no question but that specificity is the most important requirement of a serologic test for syphilis because of the frequency with which such tests are depended on by the physician in private practice in clinching the diagnosis of syphilis, particularly in the latent stage.

The performance of other laboratories participating in this project indicates the usual tendency of serologic tests to become less sensitive when specificity is increased or less specific when sensitivity is increased. Much of this undesirable trend away from specificity and sensitivity is due to individual peculiarities of technique.

1. Cumming, H. S.; Hazen, H. H.; Sanford, A. H.; Seneear, F. E.; Simpson, W. M., and Vonderlehr, R. A.: The Evaluation of Serodiagnostic Tests for Syphilis in the United States: Report of Results, *Ven. Dis. Inform.* 16:189 (June) 1935; *J. A. M. A.* 104:2083 (June 8) 1935.

2. Parran, Thomas; Hazen, H. H.; Sanford, A. H.; Seneear, F. E.; Simpson, W. M., and Vonderlehr, R. A.: Efficiency of State and Local Laboratories in the Performance of Serodiagnostic Tests for Syphilis, *Ven. Dis. Inform.* 18:4 (Jan.) 1937.

Before attempting this survey, it was necessary to determine the chemical nature of the various sutures. It was important to know the types of tubing fluid and the method of sterilization used by the various manufacturers.

Firms 1, 6, 7, 9, 10, 11, 12 and 14 were asked to furnish the following information:

1. The detailed method of sterilization employed to render the sutures sterile.
2. A quantitative statement of the tubing fluid in which the sutures are immersed.
3. If chemical sterilization is employed, a statement of the qualitative determinations of copper, mercury or iodine that are

employed; also the quantitative upper and lower limits of the amount of mercury with which the suture is impregnated or which may adhere to the suture after its removal from the tubing fluid. If the suture is not suspended in fluid and is impregnated, a statement of the amount in the suture is desired.

The information needed was in most instances obtained in this manner, and it was found that all the companies employ heat sterilization except in one instance. One manufacturer (firm 9) chemically "sterilizes" iodized sutures. The tubing fluid in nearly all cases contained potassium mercuric iodide 1:1,000. Xylene, chloroform, toluene and alcohols in varying proportions were

TABLE 1.—Information Obtained from Manufacturers of Sutures

Firm	Question 1 Method of Sterilization	Question 2 Tubing Fluid Used	Question 3 Regarding Chemical Sterilization
1	<p>Boillable sutures are coiled, placed in glass tubes and dehydrated. The tubes are then filled with the tubing fluid and hermetically sealed by fusion of the glass. The sealed tubes are submerged in a bath of cumol in an autoclave and the heat applied in progressive steps until the maximum temperature is maintained for the requisite period (time and temperature not stated)</p> <p>Nonboillable sutures are coiled, placed in tubes, dehydrated, covered with cumol, placed in the autoclave and the heat applied as for the boillable type. After sterilization the cumol is removed from the tubes with aseptic technique, the tubing fluid is added and the tubes sealed in the flame</p>	<p>Boillable sutures: toluene or xylene</p> <p>Nonboillable sutures: ethyl alcohol, 100 gallons; potassium iodide, 80 Gm., and red mercuric iodide, 109 Gm.</p>	<p>Chemical sterilization is not employed in the preparation of any (firm 1) suture, intensive heat sterilization being used exclusively</p>
6	<p>Nonboillable sutures are coiled, placed in tubes and labels enclosed. The tubes are then immersed in a cold bath of hydrocarbon oil and heated gradually to 310 F. (154 C.), held at that temperature not less than one hour and allowed to cool. When cold, the tubes are removed from the bath, the hydrocarbon oil drained, the tubing fluid added, and the tubes sealed</p> <p>Boillable sutures are coiled, placed in tubes with the label and tubing fluid added. The tubes are then sealed, placed in a bath of oil and sterilized by means of the same heating technique as for nonboillable sutures</p>	<p>Nonboillable sutures: 97 parts by volume absolute ethyl alcohol, 3 parts by volume sterile water. Potassium mercuric iodide</p> <p>Boillable sutures: Chemically pure xylene</p>	<p>All sutures labeled sterile are heat sterilized. Copper or any of its compounds is not used</p>
7	<p>Nonboillable and boillable sutures: The catgut is coiled and placed in presterilized glass tubes and then dehydrated. The tubes are submerged in an anhydrous hydrocarbon fluid and autoclaved at a required temperature for a required period of time (time and temperature not given). The sterilization fluid is drained from the tubes and the tubing fluid added. They are then flame sealed. The boillable variety is subjected to a second autoclaving after sealing</p>	<p>Nonboillable sutures: 93% ethyl alcohol with 1:1,000 red mercuric iodide</p> <p>Boillable sutures: Absolute isopropyl alcohol 50%, benzene 45%, amale oil 5%</p>	<p>No copper in any form is used in the manufacture of (firm 7) sutures</p>
9	<p>Nonboillable sutures are wound on reels, placed in open tubes and dehydrated. They are then placed in an oil sterilizer and the temperature of the bath brought to 300 F. (148 C.) and held for one hour. After cooling the oil is removed and the tubing fluid added. The tubes are sealed and inspected</p> <p>Boillable sutures are treated the same except that the ligatures are covered with xylene and sealed prior to heat sterilization (320 F. for one hour)</p> <p>Iodized sutures are made by treating moist gut in an aqueous iodine solution for a sufficient time to insure a total iodine content of from 12 to 15% in the finished product. The dried polished ligatures are placed on reels in tubes and covered with a storing fluid. These sutures are not heat sterilized</p>	<p>Nonboillable sutures: Pure grain alcohol containing 0.3% potassium mercuric iodide</p> <p>Boillable sutures: Xylene</p> <p>Iodized sutures: Chloroform containing 0.3% of resublimed iodine</p>	<p>No copper or copper salt is used</p> <p>Impregnated with iodine until the sutures contain 12 to 15% iodine</p>
10	<p>Nonboillable sutures: Sutures are dehydrated in vacuum dryers and sterilized by heating in petrolatum oil to the temperature of 320 F. (160 C.) on successive days. This temperature is held for one hour. The tubes are then filled with the tubing fluid and hermetically sealed</p>	<p>Nonboillable sutures: 1% iodine, 3% xylene in absolute alcohol</p> <p>Storing fluid for sutures with needles attached is 40% methyl and 60% ethyl absolute alcohols</p>	<p>Copper is not used in any form</p>
11	<p>Nonboillable sutures: The sutures after dehydration are submerged in a coal tar benzine which has a boiling range of approximately 165 to 180 C. The temperature of this bath is brought up gradually until it reaches 320 F. (160 C.) and is held for one hour. After sterilization the coal tar benzine is replaced with tubing fluid and the tubes are sealed</p>	<p>Nonboillable sutures: Potassium approx.</p>	<p>No chemical sterilization is employed</p>
12	<p>Boillable sutures are coiled *(sterility control Melency-Chatfield method number is stamped on each reel), placed in glass tubes and dehydrated. The tubes are then filled with the fluid, hermetically sealed, placed in an autoclave and heat in progressive steps applied to insure sterility.</p> <p>Nonboillable sutures are coiled *(sterility control Melency-Chatfield method number is stamped on each reel), placed in tubes, dehydrated, covered with Special Naphtha, placed in the autoclave and heat applied as for the boillable type. After sterilization the Special Naphtha is removed from the tubes with aseptic technique, the tubing fluid added and the tubes sealed in the flame</p>	<p>Boillable sutures: Special Naphtha; boiling point 160-195 C.</p> <p>Nonboillable sutures: U. S. government formula 42—Denatured alcohol specified by Treasury Department Bureau of Industrial Alcohol to be used in the manufacture of ligatures and sutures.</p>	<p>Chemical sterilization is not employed; intensive heat sterilization used exclusively</p>
14	<p>Nonboillable sutures: the sutures are wound into 3 inch coils dehydrated at a temperature of 107 C. These small coils are placed in a basket and lowered into a bath of cumol. The temperature of this bath is brought to 300 F. (148 C.) and held for one hour. After cooling these coils are removed from the cumol under aseptic conditions and placed in an alcoholic potassium mercuric iodide solution over night. They are then cut to length, wound into smaller coils and placed in small glassine envelopes and packed in the final storage jars in a storage fluid</p>	<p>Nonboillable sutures: Storage fluid is formula 42 denatured alcohol: 100 gallons of ethyl alcohol, 80 Gm. of potassium iodide U. S. P. and 109 Gm. of red mercuric iodide</p>	<p>No chemical sterilization employed except as supplied by the tubing fluid</p>

\* The sterility control number stamped on each reel also indicates also stamped on the outside of the finished stock package.

date of manufacture and number of ply. Sterility control number is

dence of goiter in Somerset, it is difficult to escape the conclusion that some other factor or factors must be involved. The relationship between environmental iodine deficiency and the intensity of incidence of goiter is not a perfectly simple one. It is therefore clear that further work on the amount and mode of combination of iodine in soils in relation to the iodine content of herbage grown on them is necessary before a decision can be reached. The possible rôle of variation in the availability of soil iodine is a complicating factor which adds materially to the complexity of the analytic methods necessary.

## Current Comment

### MERCURIAL DIURETICS

Quantitative clinical comparisons of the diuretic action of various mercurials are rare. Sollmann and Schreiber<sup>1</sup> studied in a routine manner the excretion of mercury in clinical treatment and recorded the urinary volume. Data were thus accumulated that seem to furnish good material for a comparative study of diuretic potency. The different preparations were given by intravenous or intramuscular injections. They were classified into four groups: the organic compounds, including mercurosal, merbaphen and salyrgan; the inorganic ionizable compounds, including mercuric bromide, mercury bichloride in oil and mercuric cyanide; the inorganic colloidal compounds, consisting of metallic mercury and mercuric sulfide; and the unclassified compounds flumerin and mercuric salicylate in oil suspension. The overwhelming mass of individual data required simplification and grouping. The figures were presented, therefore, as means, the hourly excretion in successive periods sufficing as a convenient starting point. The charts constructed from these means revealed at first glance the striking directional similarity in practically all the curves between the urinary volume, the excretion of mercury and the concentration of mercury for all the different compounds and for intravenous and intramuscular injections. With a few minor exceptions, the quantitative peak was reached within one or two hours of the time of injection, followed by descent as a parabolic curve with fairly comparable speeds. The chief differences were in the height of the peaks, and for the curve of urinary volume this had a moderate range of from two to five times the normal level. The organic compounds caused somewhat greater diuresis in therapeutic doses, but with regard to the mercury content and especially the amount of mercury excreted the organic compounds were surpassed both by ionizable inorganic and by colloidal compounds. Furthermore, the organic compounds gave somewhat more prolonged periods of diuresis and excretion of mercury than the inorganic compounds injected both by vein and by muscle. The colloidal compounds caused the shortest period of diuresis when injected by vein and the longest period of excretion of mercury when injected intramuscularly.

1. Sollmann, Torald, and Schreiber, Nora E.: Comparative Diuretic Response to Clinical Injections of Various Mercurials, *Arch. Int. Med.* 58: 1067 (Dec.) 1936.

They caused the longest period of diuresis and the shortest period of excretion of mercury. In general, the differences between the compounds of each group were minor and do not suggest a significant generalization.

### THE SURGICAL EQUIPMENT INDUSTRY IN JAPAN

Before the World War the manufacture of surgical instruments and equipment in Japan was a small industry. During the World War the value of such manufactures increased more than 100 per cent. The present trend of the industry is toward further expansion. According to the U. S. Department of Commerce, practically all the surgical instruments and equipment that are used in Japan are now made there with the exception of artificial eyes (which are still imported from Germany) and a few other less important items. Furthermore, much of the surgical equipment imported from the United States and Germany is imported primarily for duplication purposes. A characteristic of the Japanese industry is that the surgical instruments and equipment is largely manufactured in homes and small workshops, which use family labor or at most only a little hired help. Ten of these households, for instance, may make one type of scalpel, another ten may make another type of scalpel, and still another ten may make glass hypodermic syringes, and so on. The United States Department of Commerce has no official information regarding the wages paid in this industry, but it is possible that skilled workmen may average 3 yen (about 90 cents) a day and unskilled helpers 1.50 yen a day. The number of clinical thermometers made by plants employing more than five workers in Japan in 1934 was 1,884,875. The number of clinical thermometers inspected by the government and approved for domestic sale during 1935 was 1,750,000, while the number of thermometers manufactured and approved for export was 300,000. Surgical instruments exported from Japan during 1935 were valued at more than 2,203,000 yen (about \$630,000), and about 20 per cent of this valuation was exported to North America. In fact, North America imported more Japanese surgical instruments than any other world market, except Asia. The United States in particular has advanced to the position of being one of the leading markets for Japanese surgical instruments and allied products. The manufacture of microscopes in Japan has also made great strides. Japanese microscopes are overtaking the German microscopes in perfection, but the Japanese instruments are still behind in the matter of the finest quality of lenses. The production of laboratory microscopes in Japan varies between 100 and 150 units a month. The importation of Japanese surgical supplies into the United States became decidedly impressive in 1934, and further gains were made in 1935. The export of Japanese surgical products to the United States was started and stimulated in many instances by American buyers who went to Japan and placed orders. The present trend is for the Japanese manufacturers to take over the export trade directly. The Japanese government has taken a keen interest in this industry and is said to be seriously concerned in preventing the production of inferior goods, especially for export.

informs me that the strain is no longer pathogenic. Since this organism is one of the most strict anaerobes and this strain is nonpathogenic, it would seem to be the ideal strain for control work in this test.

11. In order to prove that chemical substances in sufficient strength to inhibit bacterial growth have not been carried over with the suture into the tubes of culture medium, the test organism in a 1:100,000 dilution is planted in all tubes that have remained negative throughout the test. I do not agree with Meleney and Chatfield that this should be only an occasional test.

In cases in which large amounts of mercury or iodine are known to be present, Clock<sup>4</sup> suggests using 10 per cent sodium thiosulfate as the neutralizing fluid. He suggests that this be used in addition to the regular technic so that the thiosulfate will be removed by the distilled water, which is the first step in the regular procedure. I am unable to gather from his paper<sup>8</sup> his exact procedure but, presumably, he then puts the suture through 1 per cent sodium thiosulfate, then to medium. I have found by chemical test that the suture takes up sufficient thiosulfate from the 10 per cent solution and that carrying it subsequently through the 1 per cent solution is not necessary. When using the 10 per cent sodium thiosulfate, I have found that nothing is gained by allowing the suture to soak in distilled water twenty-four hours before placing it in the neutralizer. It has been the policy in the latter part of this survey to place the suture directly into the 10 per cent sodium thiosulfate for twenty-four hours, then into distilled water for an additional twenty-four hours and then into the medium. This has proved very satisfactory, as shown in the case of the firm 8 sutures. We have found that there is 0.0004 Gm. of sodium thiosulfate more per 0.4 Gm. suture weight taken up by the sutures if they are not allowed to soak in distilled water first. Also, all the iodine (15 per cent) in an experimental batch of sutures was neutralized by this method. It has been found that the amount of thiosulfate, after the distilled water washing, which may be carried over into the medium is not bacteriostatic.

In consideration of the British therapeutic substances procedure, the Meleney and Chatfield or any similar technic, one is at once doubtful of the possibility of transferring, several times through the air, anything so large and unwieldly as a catgut suture and expecting it not to become contaminated from the air. Therefore, in making this survey—a combination of the before-mentioned methods being used—the greatest care has been given to guard against such contamination. The room in which the transfers were made was small and could easily be scrubbed down with a disinfectant. All the equipment taken into the room was sterilized. The tubes of medium, neutralizers and wash water were sterilized in cans covered by paper hoods so that no dust might settle on the cotton plugs and be scattered into the air as the plugs were withdrawn and the transfers made. The plugs were kept covered also during the initial incubations until the last transfers had been made.

Another point for consideration is the method used in sterilizing the forceps between transfers. Meleney and Chatfield<sup>3</sup> suggest that the forceps be flamed before the transfer is made. They suggest that they may be dipped in alcohol to insure complete flaming. Clock<sup>8</sup> says "The actual transfer of the sutures is made with a pair of obstetrical dressing forceps which has been

boiled for one-half hour, then immersed in ethyl alcohol and thoroughly flamed. Between each transfer the forceps is immersed in alcohol and thoroughly flamed." Some of the spores found in dust are not killed by boiling and I have found that a much more satisfactory method for the preliminary sterilization is to wrap the forceps in paper and sterilize them in the hot air oven at 170 C. for two hours along with the graduate for the alcohol. Hill,<sup>9</sup> a proponent of the method of dipping instruments in alcohol and flaming them for sterilization, claims that this method will kill anthrax spores. Sanderson<sup>10</sup> found that he could not confirm Hill's work. Since he was unable to kill anthrax spores by alcohol flaming, he attempted to show that the temperature was not high enough for sterilization by dipping an ordinary chemical thermometer in alcohol and allowing it to burn off. He reports a temperature of only

TABLE 2.—Results from all Sutures Tested

Firm	Method of Sterilization	Number of Sutures Tested	Number Found Not Sterile	Nonsterile Sutures, Method of Cultivation	
				Aerobic	Anaerobic
1	Heat	191	0	..	..
2	?	12	4	3	1
3	?	28	1	1	..
4	?	22	4	3	1
5	?	2*	0	..	..
6	Heat	126	4†	1	3
7	Heat	160	0 (1)‡	..	..
8	?	62	12§	5	7
9	Heat or chemical	143	5 (1)‡	2	3
10	Heat	92	0	..	..
11	Heat	72	0	..	..
12	?	2*	0	..	..
13	Heat	94	0	..	..
14	Heat	24	0	..	..
Totals.....		1,020	30	15	15

\* Only two available—tested only because they were made prior to the advent of the Meleney-Chatfield technic. It is not implied that only two sutures from a firm are sufficient to establish the sterility of that firm's product.

† The four nonsterile sutures from firm 6 were from one box of twelve sutures obtained from the local market and were known to be old stock. They were manufactured before the present methods of sterility testing were advocated. Sutures from firms 6 and 13 are now made in the same laboratory, but the twelve sutures referred to above were manufactured before the merger of firms 6 and 13 was effected. It is interesting to note that 114 sutures obtained from fresh stock made since 1933 by this firm were sterile.

‡ The two sutures indicated in parentheses showed growth which was of the same type of organism (*Staphylococcus aureus*) found as an air contaminant on the blood agar plates exposed at the time these transfers were made and therefore are not considered as nonsterile sutures.

§ Since these results were obtained, sutures from firm 8 have been withdrawn from the market.

60 C. registered by the thermometer. He states, however, that a mixture of alcohol and formaldehyde solution gave a temperature of 133 C. This would be inadvisable for catgut work, since the introduction of traces of formaldehyde into the medium might be bacteriostatic. Sixty degrees did not seem to be an accurate temperature for alcohol burning on the surface of instruments, nor did Sanderson's method of attacking the problem seem conclusive; therefore an attempt was made to get a more accurate reading of the surface temperature of the forceps by using a small platinum-rhodium-platinum thermocouple. By this means, after the alcohol flaming of forceps the temperature of the surface of the metal was found to be about 180 C. Although sufficient work was not done to satisfy ourselves as to the value of this method of sterilization, it is unlikely that any organisms will be introduced from a pair of forceps which has been sterilized at 170 C. for two hours and flamed between transfers. It must

8. Clock, R. O.: A Reliable Method for Testing the Sterility of Surgical Catgut Sutures, Surg., Gynec. & Obst. 61:789 (Dec.) 1935.

9. Hill, H. B.: J. Applied Microscopy 3, No. 8.

10. Sanderson, E. S.: A Note on the Sterilization of Surgical Instruments, J. Lab. & Clin. Med. 7:360 (March) 1922.



factory evidence that the licentiate in the preceding year attended "at least one of the two-day educational programs as conducted by the Connecticut Chiropractic Association, Inc., the subjects of such programs being under the supervision of the state board of chiropractic examiners." S. 1114 proposes to limit the retail sale and distribution of barbital, trional, sulfonal, tetronal, paraldehyde and chloral or chloral hydrate or chlorbutanol to sale or distribution on the prescription of a licensed physician, dentist or veterinarian. H. 426 proposes that no hospital which receives appropriations from the general assembly shall require any nurse to work more than eight hours a day. S. 1113 and H. 1440, to amend the medical practice act, propose to permit the licensing of teachers in legally incorporated and reputable medical colleges even though they are not citizens of the United States nor have filed written declaration of their intention of becoming citizens. S. 1115 and H. 1445, to amend the medical practice act, propose to eliminate the \$2 fee now charged in connection with the annual registration of practitioners of medicine, osteopathy, midwifery, chiropractic, naturopathy, chiropody and nursing.

### DISTRICT OF COLUMBIA

**Personal.**—Dr. Arthur C. Christie, clinical professor of radiology, Georgetown University School of Medicine, has been made an honorary member of the German Society of Roentgenologists.—Oliver L. Fassig, Ph.D., retired meteorologist of the U. S. Weather Bureau, who had recently finished a book on the climate of Puerto Rico, died December 6 from the effects of injuries received in an automobile accident November 20.—Mr. Watson Davis, director of Science Service, received a fellowship in the American Institute of the City of New York at a meeting February 4.

**Medical Bills in Congress.**—*Bills Introduced:* S. 1506, introduced by Senator Glass, Virginia, proposes to provide for the issuance of a license to practice chiropractic in the District of Columbia to Russell V. Pemberton. H. R. 4806, introduced by Representative Norton, New Jersey, proposes to require each physician, midwife, or other person in attendance on any case of childbirth to administer immediately in the eyes of the baby a 1 per cent solution of silver nitrate or other preparation suitable in the opinion of the health officer for use as a prophylactic against inflammation of the eyes of the new-born baby. Persons treating human ailments by prayer or spiritual means as an exercise or enjoyment of religious freedom are to be exempt from this requirement. H. R. 4850, introduced by Representative Dirksen, Illinois, proposes to amend the optometry practice act of the District of Columbia so as to permit the operation of an optometric department in a mercantile establishment by any individual, firm, partnership or corporation if the department is under the supervision, direction and management of a regularly licensed and registered optometrist. H. R. 4876, introduced by Representative Lea, California, proposes to provide for the issuance of a license to practice the healing art in the District of Columbia to Dr. Frederick W. Didier. H. R. 4982, introduced by Representative Robertson, Virginia, proposes to provide for the issuance of a license to practice the healing art in the District of Columbia to Dr. William Justin Olds.

### GEORGIA

**The Block Memorial Lecture.**—Dr. Henry W. F. Woltman, professor of neurology, University of Minnesota Graduate School of Medicine, Rochester-Minneapolis, delivered the E. Bates Block Memorial Lecture in Atlanta, January 28. His subject was "Postoperative Neurologic Complications." The lecture is delivered under the auspices of the Fulton County Medical Society.

**Bills Introduced.**—H. 287 proposes to forbid the retail sale and distribution of any article, device, drug or medicinal preparation primarily manufactured for, or which may be used for the prevention of venereal diseases and infections, except by licensed physicians in their practice and by registered pharmacists. H. 299 proposes to prohibit the retail sale or distribution of barbitalic acid, amytal, allonal, luminal, veronal, or sodium amytal, except on the written prescription of a licensed physician, dentist, or veterinarian.

**The Fischer Awards.**—The Fulton County Medical Society announces the names of the winners of the annual L. C. Fischer Awards for 1936. Dr. Leila Alice Daughtry-Denmark received the prize for the paper demonstrating the most original work for her work on "Studies in Whooping Cough Diagnosis and Immunization." Drs. Amey Chappell and Frank Lee Bivings won the prize for the best written paper. Their subject was "Anemia and Pregnancy: A Three Year Study on Negro

Women." It was also announced that these awards, \$100 each, which were established by Dr. Luther C. Fischer, Atlanta, will be permanent.

### IDAHO

**Bills Introduced.**—H. 192 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act. H. 213 proposes to authorize the establishment, construction and maintenance by the state of a hospital for the care of and treatment of persons suffering from tuberculosis, provided that a grant of 45 per cent of the cost of constructing and equipping the hospital is made by the United States government.

### ILLINOIS

**Bills Introduced.**—H. 114 and H. 142 propose, as a condition precedent to the issuance of licenses to marry, that both parties to the proposed marriage present a physician's certificate that they are "free from venereal diseases as nearly as can be determined by a thorough examination and by application of the recognized clinical laboratory tests of scientific search." H. 187 proposes to authorize any area of contiguous territory lying wholly within one county, but entirely outside the corporate limits of any city, to be incorporated as a tuberculosis sanatorium district. The affairs of such district shall be managed by a board of three directors, appointed by the chairman of the board of supervisors of the county in which the district is situated. The directors are to have power to establish and maintain a tuberculosis sanatorium, and branches, dispensaries, and other auxiliary institutions connected with the sanatorium, for the use of the inhabitants of the district in the treatment and care of persons afflicted with tuberculosis. H. 121, to amend the state uniform narcotic drug act, proposes (1) so to define "narcotic drugs" as to include "amytal, luminal, veronal, barbital, acid diethylbarbituric, or any of its salts, derivatives, or compounds of a [sic] foregoing substances, or any preparation or compound containing any of the foregoing substances, or its salts, derivatives or compounds, or any registered, trade marked or copyrighted preparation or compound registered in the United States patent office containing more than four grains to the avoirdupois or fluid ounces of the above substances," and (2) to provide that a prescription for phenobarbital or any preparation, mixture or compound of phenobarbital may be refilled.

### INDIANA

**Bill Introduced.**—H. 297 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined "as the science of locating and correcting any interference with nerve transmission or expression." A license to practice chiropractic is not to confer on a licentiate the right to practice obstetrics, surgery, prescribe drugs, or administer anesthetics. A licentiate is to be permitted to use the designation "Dr.," "doctor," or symbols designating his "profession," provided such designation is used in such a manner as to indicate that the licentiate is a chiropractor.

### IOWA

**Bills Introduced.**—S. 154 proposes to repeal the present laws regulating the possession and distribution of narcotic drugs and to enact a bill which is denominated as the uniform narcotic drug act. The bill, however, departs from the uniform narcotic drug act in at least one important particular. It omits the provisions of the uniform narcotic drug act intended to limit the gross quantity of the habit-forming drug a person can buy in exempt preparations within a forty-eight hour period. S. 146 proposes to authorize the formation of corporations to establish, maintain and operate nonprofit hospital service plans, whereby care may be provided by such corporations or by any hospitals, to such of the public as become subscribers to said plan, under contracts which entitle each subscriber to hospital care. S. 163 proposes to permit a taxpayer in computing his net taxable income to deduct from the gross income the amount actually expended by him during the past year for medical, hospital and surgical services.

### KANSAS

**Bill Introduced.**—H. 308 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act.

**Dr. Snyder Named to Board of Regents.**—Dr. Howard L. Snyder, Winfield, president of the Kansas Medical Society, has been appointed by the governor a member of the board of regents of Kansas, for a term of four years. The board has under its supervision all affairs incident to state schools.

manufactured. Of the thirty nonsterile sutures found in this survey, twenty-five were from the 220 old sutures examined and five were from the 800 sutures of recent manufacture.

While it is apparent that there is need for adequate control of the sterility of catgut sutures manufactured and sold in America, I am of the opinion that the publication of the results of Meleney and Chatfield and of Clock may have had considerable influence in improving the quality of sutures now being manufactured, so far as sterility is concerned.

## Council on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

- (1) GRIDLEY FAST FROZEN ORANGE ICE
- (2) GRIDLEY FAST FROZEN LEMON ICE
- (3) GRIDLEY FAST FROZEN PINEAPPLE ICE
- (4) GRIDLEY FAST FROZEN MINT ICE
- (5) GRIDLEY FAST FROZEN RASPBERRY ICE
- (6) GRIDLEY FAST FROZEN STRAWBERRY ICE
- (7) GRIDLEY FAST FROZEN ORANGE SHERBET
- (8) GRIDLEY FAST FROZEN LEMON SHERBET
- (9) GRIDLEY FAST FROZEN PINEAPPLE SHERBET
- (10) GRIDLEY FAST FROZEN MINT SHERBET
- (11) GRIDLEY FAST FROZEN RASPBERRY SHERBET
- (12) GRIDLEY FAST FROZEN STRAWBERRY SHERBET

*Manufacturer.*—Gridley Dairy Company, Inc., Milwaukee.

*Description.*—(1) Basic frozen mix containing water, sugar, citric acid and gelatin; flavored with emulsions of orange oil (U. S. P.) and glycerin, and lemon oil, water, gum arabic, and glycerin, and U. S. Department of Agriculture certified color.

(2) Basic frozen mix flavored with lemon oil emulsion.

(3) Basic frozen mix flavored with crushed pineapple.

(4) Basic frozen mix flavored with emulsion of oil of peppermint (U. S. P.) and glycerin, and U. S. Department of Agriculture certified color.

(5) Basic frozen mix with fresh or frozen raspberries and U. S. Department of Agriculture certified color.

(6) Basic frozen mix with sweetened cold pack strawberries and U. S. Department of Agriculture certified color.

(7) Same as (1) with added ice cream mix (THE JOURNAL, Sept. 7, 1935, p. 801).

(8) Same as (2) with added ice cream mix.

(9) Same as (3) with added ice cream mix.

(10) Same as (4) with added ice cream mix.

(11) Same as (5) with added ice cream mix.

(12) Same as (6) with added ice cream mix.

*Manufacturer.*—The ingredients of the basic frozen mix are thoroughly mixed, frozen, packaged and hardened as described for Gridley Fast Frozen Ice Cream (THE JOURNAL, Sept. 7, 1935, p. 801). In the case of sherbets, the ice cream mix is added when the mixture is partly frozen.

*Analysis* (submitted by manufacturer).—(Orange Ice) moisture 66.9%, total solids 33.1%, ash 0.03%, fat 0.0%, protein

(N  $\times$  6.25) 0.1% and carbohydrates (by difference) 32.9%. (Orange Sherbet) moisture 65.7%, total solids 34.3%, ash 0.10%, fat 1.0%, protein (N  $\times$  6.25) 0.3% and carbohydrates (by difference) 33.0%.

*Calories.*—1.3 per gram; 37 per ounce.

### SEXTON BRAND APRICOTS, JUICE PACKED

*Manufacturer.*—John Sexton & Company, Chicago.

*Description.*—Canned apricots, packed in juice.

*Manufacturer.*—Santa Clara Valley apricots, sprayed only before blossoming period, are harvested at maturity, inspected, washed, graded, cut, pits removed, sorted, again washed, and placed in cans, mechanically filled with juice, exhausted, sealed and processed at 88 C.

*Analysis* (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 86.2%, total solids 13.8%, ash 0.7%, fat (ether extract) 0.1%, protein (N  $\times$  6.25) 0.6%, crude fiber 0.4%, carbohydrates (by difference) 12.0%.

*Calories.*—0.51 per gram; 14 per ounce.

*Claims of Manufacturer.*—For diets in which sweetened fruit is proscribed.

### CHOC-LADE DAIRY DRINK SYRUP

*Manufacturer.*—Siren Mills Corporation, Chicago.

*Description.*—A syrup containing sucrose, invert sugar, cocoa, starch-free powdered cane sugar, salt and vegetable emulsifying agent.

*Manufacturer.*—Formula: Water 33.9%, sucrose 27.4%, invert sugar 23.6%, cocoa 8.2%, starch-free powdered cane sugar and dried extracts of marine plants 6.7%, salt 0.23%, vanillin 0.07%. Selected cocoa beans are roasted, and the shells are removed; nibs are blended, and milled to produce chocolate liquor. Some cocoa butter is removed, leaving a cocoa cake which is pulverized and bolted through fine silk.

Starch-free powdered cane sugar, dried extract of marine plants and 40 per cent of the water are mixed until a smooth suspension is obtained. Remaining water, sugar, cocoa, invert sugar and salt are mixed, boiled, and vanillin is added; the mixture is cooled slightly and the suspension of sugar and extracts is added. Constant agitation is continued until the batch is cool. The syrup is canned.

*Analysis* (submitted by manufacturer).—Moisture 39.7%, ash 0.7%, fat (ether extract) 1.2%, protein (N  $\times$  6.25) 1.2%, reducing sugars as invert sugar 17.9%, sucrose (copper reduction method) 33.0%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 56.9%, caffeine and theobromine 0.12%.

*Calories.*—2.43 per gram; 69 per ounce.

*Claims of Manufacturer.*—For preparation of special Choc-Lade beverage in accordance with specific license contracts and conditions of preparation.

1. COLONIAL BRAND PINEAPPLE JUICE
2. SOUTHERN MANOR BRAND CRUSHED, SLICED AND SPEARS PINEAPPLE

*Distributor.*—D. Pender Grocery Co., Norfolk, Va.

*Packer.*—Hawaiian Pineapple Company, San Francisco.

*Description.*—1. Canned Hawaiian pineapple juice retaining in high degree the natural vitamin content; the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p. 1769).

2. Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole canned pineapple (THE JOURNAL, April 8, 1933, p. 1106).

### CLOVER FARM BRAND TOMATO JUICE

*Distributor.*—Clover Farm Stores, Cleveland.

*Packer.*—Vincennes Packing Corporation, Vincennes, Ind.

*Description.*—Pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice; the same as Alice of Old Vincennes Tomato Juice (THE JOURNAL, Feb. 20, 1932, p. 640).

**Bills Passed.**—The following bills have passed the senate: S. 83 proposing to repeal the present law relating to the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act; and S. 64, proposing to permit courts, in any proceeding in which it may be material to prove nonpaternity or to prove that blood or trace of blood is not that of a certain person or persons, to require any person whose relationship or blood identity is material to the issue to submit to blood grouping tests and to make the results of such tests admissible in evidence when such tests tend to establish nonpaternity or to negative the possibility of such blood or blood trace being that of such person.

### NEBRASKA

**Bills Introduced.**—Bill No. 159, to amend the chiropractic practice act, proposes to define chiropractic "as the science of locating and correcting interference with nerve transmission and expression between brain cells and tissue cells." Bill No. 168 proposes so to amend the state narcotic drug act as to provide that "Narcotic drugs" means marihuana leaves and every substance neither chemically nor physically distinguishable from them." Bill No. 195, to amend the workmen's compensation act, provides that if the medical treatment to be rendered an injured employee at the employer's expense exceeds \$125, the authority of the compensation court for such additional service must first be obtained. The bill further provides that that court may authorize expenditure for medical and hospital services and medicines for the purpose of restoring the injured worker to health up to \$2,000.

### NEVADA

**Bill Introduced.**—A. 104 proposes to create a board of physiotherapy examiners and to regulate the practice of physiotherapy. The board is to consist of three "medical doctors" appointed by the governor. Physiotherapy is defined as "the use of physical remedies in treatment of disease or disability as taught in schools, colleges and institutions of physiotherapy." An applicant for such a license must be of good moral character and be a graduate of a school, college or institution teaching physiotherapy and giving a course of at least three years of eight months each in anatomy, physiology, pathology, sanitation and hygiene, chemistry, gynecology and obstetrics, symptomatology, bacteriology, diagnosis, laxatology and massage, phlebotomy, antiseptic and aseptic and the theory and practice of physiotherapy.

### NEW HAMPSHIRE

**Bill Passed.**—S. 34 has passed the senate proposing that an action for malpractice must be brought within two years after the cause of action accrues and not afterward.

### NEW JERSEY

**Bill Introduced.**—S. 139 proposes to appropriate \$2,500 to the department of health to enable it to care for, maintain or isolate indigents who are carriers of the causative agents of typhoid fever, paratyphoid fever or other diseases.

### NEW MEXICO

**Bill Introduced.**—H. 127 proposes to create a board of chiropody examiners and to regulate the practice of chiropody. The bill defines chiropody as "the diagnosis, electrical, medical and surgical treatment of all ailments of the foot and leg, other than the amputation of the foot, leg or toes."

**District Health Officers' Conference.**—A conference of district health officers of the state was held in Santa Fe, January 21-23. Subjects discussed included nursing supervisors, antepartum and child health clinics, midwifery, sanitation, slaughterhouse and meat transportation regulation, spray residues and administrative problems. A resolution was adopted thanking the press of the state for space given to news and feature articles on public health and another requesting the Bureau of the Census to furnish franked envelopes for the forwarding of birth and death certificates to health departments by subregistrars.

### NEW YORK

**Five Hundred Cases of Scarlet Fever.**—The town of Owego, Tioga County, has passed an ordinance requiring pasteurization of all milk sold there. The legislative action came as a result of a recent outbreak of about 500 cases of scarlet fever traced to raw milk. Investigation revealed that a dairy from which it was suspected that the epidemic started had bought a cow a few days before the outbreak began. Immediately prior to that time the cow had been on a farm where

three cases of scarlet fever had occurred. One of these was in a boy who had milked the cow. Sale of milk was stopped and the number of cases rapidly declined.

**Bills Introduced.**—S. 594 and A. 928 propose to enact a "consumer's protection act" to regulate the traffic in foods, drugs, cosmetics or health devices and to prevent the manufacture and sale of such articles if they are adulterated or misrepresented." S. 615, to amend the law requiring the licensing of laboratories and other places in which live pathogenic germs are handled or cultivated, proposes to require such licensure from all places "where live pathogenic micro-organisms or viruses other than vaccine virus are handled or cultivated." The bill also proposes to prohibit all persons, other than licensed practitioners of medicine, dentistry, or veterinary medicine or persons acting under the direct supervision of the licensed practitioners noted, to possess or cultivate live pathogenic micro-organisms or viruses other than vaccine viruses unless such persons have satisfied the state commissioner of health that such micro-organisms or viruses in their possession will not become a menace to the public health and unless they hold a permit issued to them by the state commissioner of health. The bill also proposes that all live pathogenic micro-organisms or viruses other than vaccine virus when given away or sold shall bear a label on the container showing the registration number of the distributor which has been issued by the state department of health for the handling of pathogenic micro-organisms or viruses, the name of the person obtaining the material and the destination of the pathogenic micro-organisms or viruses. A. 892 proposes a system of compulsory and voluntary health insurance, the benefits of which are to consist of cash and all forms of medical, surgical, and dental services. The compulsory insurance in the bill is to apply to all employees except (1) persons employed at other than manual labor and receiving wages in excess of \$60 a week, (2) farm laborers and (3) persons employed in the personal or domestic service of an employer having less than three employees engaged in such service. These persons excluded from the compulsory insurance of the bill, however, may elect to come under the voluntary insurance offered in the bill. This bill appears to be identical with the health insurance bill prepared and distributed by the American Association for Social Security, Abraham Epstein, Secretary. S. 746 and A. 1051 authorize the establishment of three state cancer hospitals under the control of the department of health. The site of one of such hospitals is to be in the city of Buffalo and those of the other two, so far as practicable, shall be, respectively, one in the central or south central and the other in the eastern region of the state. S. 745 requires the appropriate public health official to provide medical care for the indigent sick in their homes whenever necessary. A person in need of medical care in the home is to be entitled to choose his family physician. When a person in need of medical care does not elect to choose a physician, the appropriate public welfare official shall select a physician to attend him. S. 755 proposes to establish in the department of health a division of syphilis control, apparently to supplant the existing division of social hygiene.

### New York City

**The City's Health in 1936.**—A slight increase in the death rate of New York in 1936, 10.5 per thousand of population as compared with 10.3 in 1935, is recorded in the annual report of the health commissioner, Dr. John L. Rice. This small increase is probably not significant, the report says, because it is based on a population estimate that may be incorrect. The infant mortality was the lowest ever recorded in the city, 45.3 per thousand live births. A low rate of 2.2 deaths from diphtheria reflects the efforts put forth in the diphtheria prevention campaign begun in 1929, when the death rate was 27.4. Only thirty-seven children died of diphtheria in New York in 1936, compared with 717 in 1927. The tuberculosis death rate has declined but little in the past three years; in 1936 it rose to 56.6 from 54.4 in 1935. Pneumonia deaths increased to a rate of 89 after dropping to 87.5 in 1935. The rate is on a much lower plane, however, than the rate of a few years ago; for instance, in 1933 it was 107.3. It is believed that the reduction is the result of more effective methods of treatment. An outbreak of meningitis in which 243 deaths occurred in 1935 continued in 1936 with 218 deaths; in 1934 there were only seventy-three deaths. Only thirty-eight cases of poliomyelitis were reported during 1936, in contrast to 2,054 the previous year. There were fewer deaths from measles, whooping cough and scarlet fever, but these diseases remain serious menaces, Dr. Rice pointed out. Appendicitis deaths, which distinctly decreased in 1935, rose to 14.3 per hundred thousand of population in 1936. Chronic diseases of later life were responsible for about 50

nic on the part of the serologists who are responsible for the performance of these tests. Perhaps the utilization of minor modifications in technic for a given test explains these differences in performance, especially in laboratories not equipped for careful investigations. The leading serologists of the country who have described reliable tests should insist that all laboratories doing routine work follow to the letter the technics which have been described for their own tests.

The relatively low ratings for specificity and sensitivity in some of the performances indicate the need for a system of periodic comparative examination of serologic tests. Such comparative examinations should be made on both a clinical and a serologic basis. The committee has recommended the establishment of such a system of comparative examinations for all state laboratories, and the necessary provisions for this work are being made by the Public Health Service. Every state laboratory in the country should avail itself of the opportunity to determine the efficiency of the performance of its tests and should set up the necessary organization to conduct a separate evaluation of serologic tests for syphilis performed by all municipal and private laboratories within its boundary. Only in this way will an efficient and practical system be established to insure the performance of reliable serodiagnostic tests in the United States at all times.

#### ENDEMIC GOITER AND IODINE CONTENT OF WATER, MILK AND PASTURE

In a recent bulletin of the Medical Research Council of Great Britain appears the report<sup>1</sup> of investigations directed toward a possible explanation of the remarkable differences in the incidence of thyroid enlargement among girls of school age in English counties. Two districts were selected for study which were known to exhibit differences in the frequency of occurrence of goiter. Certain rural areas of the counties of Somerset and Suffolk were chosen. Rural schools in which the average attendance varied from about forty to 150 children were inspected. It was considered likely that schools of such size would be found in villages in which probably only one or two farmers provided the main part of the milk supply. Such restriction was deemed necessary because of agreement that milk samples from not more than two farms in the neighborhood of any rural school could be analyzed. The survey was confined to girls, as it was assumed that the incidence in the female sex alone would provide a sufficiently reliable indication of the relative prevalence of goiter. The girls attending school aged from 6 to 14 years were marshaled in groups of ascending age and passed one by one in front of the observer, who, from a general inspection of the neck, decided whether the thyroid

gland was visibly enlarged. Attempt was made to classify the thyroid into the four categories recognized by Stocks, namely: (0) impalpable thyroids, (1) thyroids palpable but no visible enlargement on inspection, (2) thyroids that showed visible enlargement but not sufficient to produce gross deformity in shape of neck, and (3) thyroids sufficiently large to be termed "goiter" beyond question. In all cases an effort was made by gentle palpation and a pair of graduated calipers to obtain an approximate measure of the greatest transverse breadth of the gland. After inspection was completed in each school an attempt was made to obtain the names and addresses of the one, two or three farmers in the neighborhood who supplied the milk to the village or district or to the children in the school.

For the whole series of 120 schools surveyed in the Somerset district, the percentage of girls with large thyroids averaged 35.7. From 6 to 8 it was found in 25 per cent, from 9 to 11 in 37 per cent, and from 12 to 14 in 46.8 per cent.

In the smaller number of schools analyzed in Suffolk the average incidence of enlarged thyroid gland among girls from 6 to 14 was only 3.7 per cent. The percentages varied, however, from 1.4 in girls from 6 to 8 to 6.9 in girls from 12 to 14 years of age. After these preliminary observations, villages were selected from which samples of the various materials were to be collected. The aim was to choose those villages in the respective districts which had a high or low incidence of thyroid enlargement combined with the greatest restriction of local sources of food and water supply. The iodine in the water, milk and pasture grass was analyzed according to Harvey's method and the tests were carried out in duplicate. The only significant difference in iodine content of these supplies between the two districts chosen lay in the iodine content of the water. The average iodine content of the water in Somerset was thus 2.9 micrograms per liter and in Suffolk 8.2 micrograms per liter when a few grossly discordant results were excluded. Even when the latter were included the difference was striking, the averages then being respectively 6.0 and 10.6 micrograms per liter. The analysis of the milk and pasture samples led to results that were identical for the two districts within the limits of error of the method. The daily iodine requirements of a child is believed to lie between 25 and 50 micrograms.

When considered in relation to the analytic results contained in the present report, it is difficult to conclude with confidence either that the environmental deficiency of iodine in Somerset is so intense as to be solely responsible for the high incidence of goiter or that the striking difference between the incidence of goiter in Somerset and in Suffolk can be referred exclusively to the difference in the iodine content of the respective waters. Although doubtless true that insufficient intake of iodine is at least partly responsible for the high inci-

1. Committee upon Iodine Deficiency and Thyroid Disease: The Relationship of the Iodine Content of Water, Milk and Pasture to the Occurrence of Endemic Goiter in Two Districts of England, Medical Research Council Special Report Series 217, H. M. Stationery Office, 1936.

## SOUTH DAKOTA

**Bills Introduced.**—S. 139, to amend the workmen's compensation act, proposes to permit the injured worker to select his own physician or hospital to treat and care for him at the employer's expense. The bill also proposes to limit the employer's liability for medical services to \$100 and to limit his liability for hospital services to \$100. H. 75 proposes to make it the duty of the governing agencies of the several public and parochial schools in the state to enforce the regulations of the state board of health requiring all teachers to obtain each year a certificate from a licensed physician showing the absence of active tuberculosis before they will be allowed to teach. S. 205 proposes to create a board of healing arts to consist of the president of the South Dakota university, the state superintendent of public instruction and the president of the state college. It is to be the duty of this board "to prescribe the educational qualifications and studies which shall have been pursued by any applicant to any state board for examination pertaining to the healing art and to enact regulations and rules for examining applicants before said board." No applicant for a license to practice any form of the healing art is to be allowed to appear before any "professional" examining and licensing board without first having obtained a certificate from the board of healing arts that he has pursued the studies designated by the board and has passed examinations given by the board.

## TENNESSEE

**Bills Introduced.**—S. 367 and H. 630 propose to require applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination and licensure by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology, to be given by the department of education. S. 368 and H. 631, to amend the medical practice act, propose (1) to make it possible for all members of the board of medical examiners to be appointed without regard to their school of practice; (2) to provide that members of the board be appointed from a list of names submitted by the Tennessee State Medical Association; (3) to provide that the term of office of members of the board be six years, instead of four; (4) to eliminate the requirement that members of the board representing each separate school of practice shall have the right to examine all applicants of that school in the branches peculiar to the teachings of that school and to substitute therefor a provision that each applicant coming before the board for examination must present evidence of graduation from a medical college which requires, as a prerequisite to admission thereto, two years of collegiate work, including physics, chemistry, and biology; (5) to increase to \$50 the fee for the issuance of a license by reciprocity; (6) to increase the fee for a license issued after examination to \$25; (7) to provide a stated procedure to be followed in revocation or suspension proceedings; (8) to add the following to the list of acts the commission of which shall be deemed unprofessional conduct and grounds for the revocation of a license: advertising statements that might be calculated to deceive or mislead the public; employing or making use of advertising, solicitors, radio announcers, entertainers or lecturers; guaranteeing or warranting operations; giving testimonials concerning the supposed virtue of secret therapeutic agents; promising radical cures or boasting of, prescribing or employing secret methods of treatment or the exhibition of certificates of skill or success in the treatment of diseases; the conviction of any violation of the Harrison Antinarcotic Act; and the conviction of any felony; and (9) to make it unlawful for any one not a licensed physician to use x-ray or electric coagulation for examination or for the diagnosis and treatment of diseases, provided that this shall not be construed to apply to x-ray technicians working under the direction of a licensed physician or dentist.

## TEXAS

**Bills Introduced.**—S. 229 and S. 230 propose to prohibit the manufacture, or sale or other distribution of any article of food to which has been added formaldehyde, boric acid or borates, benzoic acid or benzoate, sulfurous acids or sulfites, salicylic acid or salicylates, abrostol, beta naphthol, fluorine compounds, dulcin, glucin, cocaine, sulfuric acid or other mineral acid except diluted phosphoric acid, any preparation of lead or copper or other ingredients injurious to health. Nothing in the bill, however, is to be construed as prohibiting the sale of foods or drinks preserved with one tenth of one per cent of benzoate of soda, or the equivalent benzoic acid, when a statement of such fact is plainly indicated on the label. The bill also proposes to authorize the state board of health to promulgate regulations limiting the quantity of oxides of sulfur and other

bleaching, clarifying or refining agents that may be used in bleaching, clarifying or refining fruits, vegetables and other foods. S. 249 proposes to prohibit the sale of adulterated or misbranded foods, drugs, cosmetics or devices. H. 474 proposes that no hospital shall be exempt from taxation unless it allows and makes "available the equal, constant and complete use of its property and facilities to each and every reputable physician and/or surgeon who has been qualified and licensed to practice as a physician and/or surgeon by the State Board of Medical Examiners."

## UTAH

**Bills Introduced.**—House Concurrent Memorial No. 5 proposes to memorialize the legislatures of the several states of the United States to enact laws designed to eradicate venereal disease and particularly to require a medical certificate of freedom from venereal disease as a prerequisite to marriage. H. 161 proposes to prohibit the retail sale or distribution of any device, appliance, or medicinal agent used in the prevention of venereal disease except by licensed pharmacists, physicians or osteopaths. H. 163, to amend certain provisions of the law authorizing the department of registration to examine and license applicants for licenses to practice any form of the healing art and to revoke and suspend licenses for causes stated, proposes (1) to require the department to provide a stenographer to take down the testimony of all proceedings to revoke or suspend a certificate and to require the department to furnish a transcript of such record on the payment of a stated fee; (2) to require the committee presiding at a revocation or suspension proceeding to present to the director of the department of registration a written report of its findings and recommendations, to require a copy of that report to be served on the affected licensee, and to require the affected licensee to present to the department a motion in writing for a rehearing within twenty days after receipt of the committee's findings and recommendations; and (3) to vest in the district court of the county wherein the licensee resides power to review any order of revocation or suspension, provided suit is commenced within twenty days after the registrant's receipt of notice of the order of revocation or suspension.

## WASHINGTON

**Bills Introduced.**—S. 261 proposes that any professional or vocational group of persons required by law to pay a license fee or pass examinations shall have the right to form an association or society with quasigovernmental powers. Such an association when formed "shall take over the powers now granted to the director of licenses pertaining to examinations of new applicants, the hearing of grievances against any member, and any and all other laws which pertain to the regulation and governing of such organizations." H. 385 proposes to authorize employers to contract to supply their employees medical and surgical treatment, nursing and hospital services contingent on sickness or injury not sustained in the employment and to collect or retain a portion of their employees' wages for that purpose. H. 386 authorizes the formation of such corporations to transact business as hospital associations. Such corporations are to be permitted to contract with subscribers for the furnishing of medicines, medical and surgical care and attention, nursing care, hospital care and dental service contingent on sickness or accident. H. 388 proposes to grant to physicians, nurses and hospitals treating persons injured through the fault of others, liens on any claims, rights of action, judgments or compromises accruing to the injured persons because of their injuries. S. 209, to amend the state narcotic drug act proposes (1) so to define "narcotic drugs" as to include "dilaudid, cannabis sativa (a species of which is marijuana) . . . barbitol"; (2) to require a dispenser of narcotic drugs to preserve prescriptions for such drugs for five years; (3) to authorize the state board of health to purchase and dispense narcotic drugs at clinics in such quantities and at such intervals as it may deem necessary to narcotic addicts who are bona fide residents of the state and who in the opinion of the board of health cannot be cured of their addiction by quarantine and detention. S. 213 and H. 377 propose to enact a "state food, drugs, and cosmetics act," to prevent the manufacture, shipment and sale of adulterated or misbranded food, drugs and cosmetics.

## WEST VIRGINIA

**Bills Introduced.**—H. 159 proposes that "no person convicted of a felony . . . and sentenced to confinement in the penitentiary . . . shall be paroled, permitted to go at large or conditionally pardoned before the expiration of the maximum term of his or her sentence until he or she has been made sexually sterile." H. 250 proposes, as a condition pre-



## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARIZONA

**Bills Introduced.**—S. 101 proposes to establish a state department of health, to consist of the state board of health and the state commissioner of public health. The state board of health is to consist of five members, three of whom must be members of the Arizona State Medical Association. The board of health is to appoint the commissioner of health, who is to be the executive officer of the department. The board is to adopt policies, rules and regulations for the government of the state department of health. The state department is to maintain basic divisions in epidemiology, vital statistics, sanitary engineering, laboratories for the diagnosis and control of diseases, maternal and child hygiene, and such other divisions as may be necessary to promote the public health. The bill also proposes a set-up for county and district departments of health. S. 131 proposes to regulate the practice of midwifery and to prohibit such practice except by physicians or persons licensed by the state board of health. An applicant for a license to practice midwifery must be not less than 21 years of age, be able to read and write, to show constantly evidence of habits in cleanliness and to possess a diploma from a school for midwives recognized by the state superintendent of public health or to have attended, under the instruction of a duly licensed physician, not fewer than twenty mothers and new-born infants. A licensed midwife may practice midwifery in cases of normal delivery but in cases in which delivery has not been accomplished in twelve hours she must summon a physician. A midwife is to be forbidden to make vaginal examinations, to use instruments of any kind to aid delivery, to assist labor by any artificial, forcible or mechanical means, or to administer, advise, prescribe or employ dangerous or poisonous drugs.

### ARKANSAS

**Bills Introduced.**—S. 270 proposes to authorize the sexual sterilization of habitual criminals. A habitual criminal is defined as a person who has been two or more times convicted to final judgment for the commission of a felony. S. 277 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act. H. 383 proposes to create for a period of twenty-five years a board to be known as the "Medical Investigation Commission," to consist of seven members appointed by the governor, each member to be a licensed physician. It is to be the duty of the board to investigate the credentials of all physicians whose licenses to practice in Arkansas have been issued since January 1, 1915.

### CALIFORNIA

**Bills Introduced.**—Assembly Constitutional Amendment No. 35 proposes to amend those provisions of the constitution relating to the practice of chiropractic, among other things, so as to define "chiropractic to be the art and science of locating and adjusting by hand to restore to normal any abnormal anatomic relation for the purpose of removing interference with the transmission of nerve force and also include all natural, drugless, mechanical, hygienic and sanitary measures incident to the care of the body when administered previous to or subsequent to an adjustment." A. 2116 proposes that wherever it shall be relevant to the prosecution or defense of an action, the trial court shall order any party to the action and the child of any such party to submit to one or more blood grouping tests, the results of which can be received in evidence only where definite exclusion is established. A. 2160 proposes that in any county in which a county hospital has been established, any expectant mother who is unable to pay for her necessary care must be admitted and the cost of her maintenance and care is to be paid by the county of her residence. A. 2249, to amend the workmen's compensation act, proposes that "any employee dissatisfied for whatever reason with the medical, surgical or hospital treatment provided by the employer, shall have the right to obtain medical, surgical or hospital treatment of his own choice, at the expense of the employer." A. 2313 proposes to direct the department of institutions to provide and maintain adequate hospitals and hospital facilities for the care and treat-

ment of inebriates. A. 2569 proposes to enact a law relating to gonorrhea and syphilis. The bill proposes that every person in California over 18 years of age must submit annually to an examination to ascertain his or her freedom from gonorrhea or syphilis. If such examination reveals the presence of a venereal disease it is to be a misdemeanor for the person to refuse or to neglect to undergo necessary treatment. All persons in the state over 18 must be in the possession of a card to be known as a "G-S card," which must be renewed annually. The bill also proposes that every person marrying in the state must be in the possession of a certificate obtained within three days preceding the marriage indicating that there is no danger that such person can communicate a venereal disease to the other party to the marriage or to possible offspring. A. 2589 proposes to create a state board of eugenics, to consist of the director of the state department of institutions, the director of the state department of public health, and the director of the state department of social welfare. This board is to pass on applications for eugenic sterilization made by the superintendent or managing director of any state institution with respect to certain socially inadequate inmates in his custody or care. A. 2731, to amend the chiropractic initiative act, proposes, among other things (1) to define chiropractic as "the science and art of location and removal of any nerve interference or subluxations and their effects," and (2) to provide that a license to practice chiropractic shall authorize the holder to practice chiropractic as just defined and, in addition, "to diagnose and treat disease, deformities or other physical or mental conditions of human beings with the aid of heat, light, water, color, electricity, oils, massage and diet."

### COLORADO

**New Division of Tuberculosis.**—The Colorado State Board of Health has created a division of tuberculosis control and appointed Dr. Alfred R. Masten, Denver, as director. One phase of a special program of tuberculosis control has already been instituted, that of supplying physicians of the state with information on the recent diagnostic and therapeutic developments in the field of tuberculosis, the necessity of complete morbidity reports, and the importance of sputum examinations in suspected cases of tuberculosis.

**Bills Introduced.**—H. 529 proposes to make citizenship a prerequisite to the right to obtain licenses to practice medicine and surgery, chiropody, optometry, chiropractic or any of the healing arts. H. 544 and S. 382 propose to require all applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination and licensure by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology, to be given by a board of examiners in the basic sciences. Members of the board must be full time paid professors or associate or assistant professors, teaching the subject in which they are to examine, in any university or college in the state accredited by the North Central Association of Colleges and Secondary Schools. No member may be engaged in the practice of the healing art or any branch thereof.

### CONNECTICUT

**Bills Introduced.**—S. 909 proposes to levy an annual tax on doctors of medicine, dentists, opticians, optometrists, oculists, and chiropodists equal to \$5 for each thousand dollars of gross income. H. 1041 proposes to create seven designated men as a body politic and incorporated by the name of The College of Natureopathic Physicians. The object of the corporation is to be instruction in the principles, practice and theory of natureopathy. The corporation is to have the right to establish and maintain hospitals, infirmaries and clinics. H. 1447 proposes to prohibit the retail sale of barbitol or any hypnotic or somnifacient drug except on the written prescription of a licensed physician, dentist or veterinarian. The term "other hypnotic or somnifacient drug" is to include trional, sulfonal, tetralol, paraldehyde, chloral or chloral hydrate and chlorbutanol. S. 1111 and H. 1444, to amend the medical practice act, proposes that "the use of the roentgen or x-ray or of radium in any manner for the treatment of any person shall be deemed to constitute the practice of medicine and surgery." H. 1442, to amend the chiropractic practice act, proposes that a licensed chiropractor "may practice chiropractic and prescribe hygienic and sanitary measures, but shall not prescribe for or administer to any person any medicine or drug included in materia medica or perform any surgery or practice obstetrics or osteopathy." H. 1449, to amend the chiropractic practice act, proposes (1) to increase the annual renewal fee charged chiropractors to \$5 and (2) to make the annual renewal of a chiropractor's license contingent on the presentation of satis-

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Jan. 30, 1937.

#### The Surgical Treatment of Cardiac Ischemia

At the Royal College of Surgeons, before a large audience, Laurence F. O'Shaughnessy delivered a special lecture on his new operation of cardio-omentopexy for the treatment of cardiac ischemia. Lord Dawson, president of the Royal College of Physicians, gave an introductory address. He was the head of a small cardiovascular clinic established at Lambeth Hospital by the London County Council, at which the medical staff cooperated with Mr. O'Shaughnessy. In cases in which coronary occlusion was not immediately fatal, the problem was to secure an adequate compensatory circulation. The difficulty was not in the anastomosis but in the great vascular needs of the heart. It was known that pericardial adhesions could form an effective collateral circulation. In one case it was found at necropsy that there had been complete occlusion of each coronary artery for a considerable time; yet there was no clinical history of an attack of thrombosis. The pericardial adhesions had actually been supplying the heart. Such a compensatory circulation through the pericardium might sometimes form by itself; but, if not, surgical measures were a reasonable procedure. The prospect should be good in selected cases, provided the capillary bed was not too degenerate to profit by the new arterial supply.

Mr. O'Shaughnessy referred to previous experiments on coronary occlusion in animals which showed survival after ligation of a main trunk and to experiments on animals performed in America by Beck and Tichy and reported in 1935, in which grafts from the pericardium, omentum and chest wall were applied to the heart. His own experiments on cardiac grafting began in December 1933. He used the omentum, which was the only structure in the body with the specific property of vascularization, a fact appreciated many years ago by Rutherford Morison in the operation of omentopexy for cirrhosis of the liver. The operation of cardio-omentopexy was performed on a grayhound in which the descending branch of the left coronary artery had been ligated. The animal could chase an "electric hare" around the full course without distress. Later the animal was killed and the vascular connections between the heart and the omentum were demonstrated. Major operations on the chest were justifiable only by close collaboration between physician and surgeon. It was not sufficient for a physician to refer a case; he must be in close contact with the patient in the immediate preoperative period and he must share the conduct of the postoperative period. In cardio-omentopexy he made, under general anesthesia with oxygen under pressure and vaporized ether, an incision along the fifth intercostal space from the midline to the anterior axillary line. The fifth and sixth intercostal cartilages were divided near the sternum and the pericardium was exposed by the use of a large Sauerbruch intercostal retractor. The phrenic nerve was identified and crushed with a hemostat. The left leaf of the diaphragm appeared in the operation field and, after the insertion of two sutures, the muscle was incised. The abdomen was then exposed through the diaphragmatic incision. A suitable portion of omentum was brought into the chest. The pericardium was cautiously incised and the graft attached to the heart and edges of the pericardium by sutures of fine linen thread. For the operation oxygen under positive pressure was necessary, so that transpleural exploration of the heart might be accomplished without disturbance. Surgical shock was eliminated in the first place by skilful anesthesia and secondly by the application of work on traumatic shock done at the college

by O'Shaughnessy and Slome in 1935. They showed that only two factors were concerned in shock-fluid loss at the time of the trauma and nervous impulses from the traumatized area, transmitted for some considerable time afterward. The approach in cardio-omentopexy was almost bloodless. The blocking of the phrenic nerve prevented the carrying of injurious impulses.

Mr. O'Shaughnessy briefly described five cases of angina pectoris or coronary thrombosis in which he had performed cardio-omentopexy and a sixth in which he assisted Mr. G. A. Mason. Reports would be published later. In none was there any anxiety during the operation or in the postoperative period. One patient died seven days after operation from hemorrhage from a chronic duodenal ulcer, but there was no postoperative disturbance and the blood pressure was 130. Two patients left the hospital in good condition. A fourth, aged 72, had a period of relief from angina and was able to go home but succumbed later to uremia. A fifth, who had been bedridden for eighteen months, was able to get up and walk. The sixth had left the hospital.

#### "A Coronary Survival Club"

In a letter to the *British Medical Journal*, Prof. Grey Turner has made an ingenious suggestion which arose out of a conversation after a dinner given at the Royal College of Surgeons. Among the specimens shown was a cat's heart to which omentum had been stitched to supply an additional circulation after ligation of the coronary artery by Mr. L. F. O'Shaughnessy. This specimen elicited great interest, especially among those present who had themselves been subjects of coronary mischief. It occurred to Professor Turner that there would be a brilliant opportunity for further research if those who had suffered from this malady, and in some respect had recovered so far as to enjoy a degree of their normal activity, would constitute themselves a "Coronary Survival Club." They might record their symptoms and send a provisional report to be cared for by the conservator at the college, at the same time arranging that on their demise the results of a necropsy should be recorded and sent to the same place. Much valuable information would thus be accumulated and might help to settle problems still unsolved. The discussion after the dinner showed that the factors concerned in coronary disease are uncertain and ill understood. A great example of the suggested procedure is furnished by the case of John Hunter, who recorded his symptoms and on whose body a necropsy was made by his brother-in-law, Everard Home.

#### Shortage of Radium

The National Radium Trust was established in 1929 with a capital of \$1,250,000, contributed by the public to provide radium for the treatment of disease. The trust appointed a national radium commission to distribute the radium to hospitals and clinics. In the report for the year ended July 1936, just published, the commission states that in order to secure efficient radium service for the country it will be necessary for the present radium centers to extend their work, new centers will have to be formed, and further supplies of radium are required. At most of the centers there has been a tendency to replace the interstitial and intracavitary use of small quantities of radium by the application at a distance of large quantities of radium. This method has led to many of the centers pressing the commission for more radium. The report records much progress at almost all the centers and high level of initiative and zeal, which will go far toward solving the grave problem of the commission. The trend of present-day experience indicates the advantages in certain cases of cancer of combining radium and x-ray treatment. It is calculated that in this country about 40,000 persons are suffering from cancer in those accessible organs in which radium may be of value, but that only 8,000 obtain the treatment.

## LOUISIANA

**Dr. Taquino Appointed Head of Department.**—Dr. George J. Taquino, professor of clinical otorhinolaryngology, Louisiana State University Medical Center, has been appointed professor and head of the department of otorhinolaryngology. A graduate of Tulane University of Louisiana School of Medicine in 1911, Dr. Taquino has been connected with the medical center since its establishment in 1931.

**First Graduate Medical Assembly.**—The first New Orleans Graduate Medical Assembly will be held in the Roosevelt Hotel, New Orleans, March 8-11, with Dr. Hyder F. Brewster as general chairman. The following speakers, among others, will be presented:

- Dr. John A. Kolmer, Philadelphia, Immunity and Vaccination Against Infantile Paralysis.
- Dr. George M. Piersol, Philadelphia, Value of Laboratory Studies in the Management of Nephritis.
- Dr. Lewis J. Pollock, Chicago, Physiology of Referred Visceral Pain.
- Dr. Hugh Trout, Roanoke, Va., Cancer of the Breast.
- Dr. Henricus J. Stander, New York, Cardiac Disease and Pregnancy.
- Dr. Clifford B. Walker, Los Angeles, Retinal Detachment and Its Relation to General Medicine and Surgery.
- Dr. Robert B. Osgood, Boston, The Anatomical and Physiological Causes of Low Back Pain; Diagnosis and Treatment.
- Dr. Meredith F. Campbell, New York, Urinary Infections in Children.
- Dr. Gray Gray Ward, New York, Complications of Cancer Therapy in Gynecology.
- Dr. Ralph M. Waters, Madison, Wis., Development of a Science of Anesthesia.
- Dr. Abernethy Benson Cannon, New York, Treatment of Vascular Anomalies of the Skin.
- Dr. Albert C. Furstenberg, Ann Arbor, Mich., Medical Treatment of Ménière's Symptom Complex.
- Dr. Anthony Bassler, New York, Hepatic Insufficiencies in Relation to Biliary Disorders.
- Dr. Russell L. Cecil, New York, Serum Therapy of Lobar Pneumonia With Special Reference to Some of the Newer Types.
- Dr. Rolla E. Dyer, Washington, D. C., Typhus.
- Dr. William W. Babcock, Philadelphia, Common Errors in Clinical Surgery.
- Dr. Julius Hess, Chicago, Present Status of Serum Therapy.
- Dr. Eugene P. Pendergrass, Philadelphia, Silicosis.

## MAINE

**Bills Introduced.**—S. 276 proposes to require all applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination and licensure by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, bacteriology, pathology and hygiene, to be given by a board of examiners in the basic sciences, none of whose members can be licensed to practice the healing art. H. 1113 proposes so to amend the state pure food and drug act as to include "cosmetics" within the act. The bill proposes to define cosmetics "to include all substances and preparations intended for external use in cleansing, altering the appearance, or promoting the attractiveness of the person, except that such term shall not include water or soaps represented for shaving or for cleansing purposes only." A cosmetic is to be deemed to be adulterated "if it bears any poisonous or deleterious substance or any harmful metallic salt in such quantity as may render it dangerous to the user under the conditions of use prescribed in the labeling thereof, or under such conditions of use as are customary or usual." A cosmetic is to be deemed to be misbranded if it is dangerous to health under the conditions of use prescribed in the labeling or advertising thereof, or if it fails to bear a statement of the name and address of the manufacturer, or producer, or seller, or distributor.

## MARYLAND

**Bills Introduced.**—H. 170 proposes to create a state board of naturopathic examiners and to regulate the practice of naturopathy. The bill provides that "Naturopathy and Natureopathy shall be construed as synonymous terms and are hereby defined to mean the use and practice of Psychological, Mechanical and Material health sciences to aid in purifying, cleansing and normalizing human tissues for the preservation or restoration of health according to the fundamental principles of anatomy, physiology and applied psychology, as may be required. Naturopathic practice employs, among other agencies, Phytotherapy, Dietetics, Psychotherapy, Suggesto-therapy, Aone-therapy, Bio-Chemistry, External Applications, Electro-therapy, Mechano-therapy, mechanical and electrical appliances, hygiene, first aid, sanitation and Heliotherapy." Nothing in the act is to be construed to permit a naturopath "to practice Materia Medica or Surgery or Chiropractic." H. 190, to amend the law prohibiting the retail sale and distribution of barbitol and other hypnotic and somnifacient drugs except on the prescription of a licensed physician, dentist, or veterinarian, proposes that nothing in the act shall be deemed to prohibit the administering or dispensing of barbitol or other hypnotic or somni-

ficient drugs in good faith, by duly licensed physicians, dentists or veterinarians to bona fide patients. The bill also proposes to make any violation of the act a misdemeanor punishable by a fine of not more than \$100 for each offense.

## MASSACHUSETTS

**Dr. Miner Awarded Medal.**—Dr. Leroy M. S. Miner, professor of clinical oral surgery and dean of Harvard University Dental School, Boston, was presented with the Achievement Award Medal of the Alpha Omega dental fraternity at a recent dinner. The medal is to be awarded annually for outstanding service in the field of dentistry. Dr. Miner is president of the American Dental Association and has made several contributions to the literature on his specialty. In 1904 he received the degree of doctor of medical dentistry from Harvard and in 1907 the degree of doctor of medicine from Boston University School of Medicine, where he is at present professor of stomatology. Speakers at the dinner included William Rich, D.D.S., New York, chairman of the award committee, who made the presentation address, and Howard M. Marjerison, D.M.D., dean of Tufts College Dental School, Boston.

## MICHIGAN

**Reuben L. Kahn Honored.**—Reuben L. Kahn, D.Sc., since 1928 director of laboratories, University Hospital, and assistant professor of bacteriology, University of Michigan Medical School, Ann Arbor, was recently presented with a gold medal by the Phi Lambda Kappa fraternity for his research work in tissue immunity. The presentation took place at the annual meeting of the fraternity in Detroit. Dr. Edward A. Stern, Detroit, received the national director's gold key for "outstanding work as chairman" of the convention.

**Tularemia in Detroit.**—Eleven cases of tularemia have been reported in Detroit this winter, according to *Detroit Medical News*. For the most part, the patients became ill in a few days after dressing rabbits. Seven patients were employed in meat markets, and two were housewives who purchased the dressed rabbits for food. All the patients admitted having a skin injury on the hand at the time of infection. Up to January 30 there had been no fatalities. The markets where the rabbits were secured were widely distributed. Apparently the rabbits were bought from wholesalers who received shipments from western states.

**Secretaries' Conference.**—The annual conference of county secretaries was held in Lansing, February 7, under the chairmanship of Dr. Louis Fernald Foster, Bay City. The speakers included Drs. Henry E. Perry, Newberry, and Henry Cook, Flint, president and president-elect, respectively, of the state medical society, and Paul R. Urnston, Bay City. The formal program was presented by the following:

- Dr. Perry, What the 1937 Legislature Holds for the Private Practitioner of Medicine.
- Dr. Grover C. Penberthy, Detroit, Scientific Aspects of Medical Practice Today.
- Dr. William W. Bauer, Chicago, Director, Bureau of Health and Public Instruction, American Medical Association, What a Good County Secretary Means to His Society.
- William J. Burns, Lansing, executive secretary of the state society, Leadership by the Physician and by His County Medical Society.

## MINNESOTA

**Bills Introduced.**—S. 611, to supplement the workmen's compensation act, proposes to make pneumoconiosis a compensable occupational disease, and to define pneumoconiosis as "a disease due to breathing air containing dust either organic or inorganic." H. 752 proposes to prohibit the retail sale and distribution of devices, appliances, or medicinal agents used in the prevention of venereal disease except by licensed pharmacies and by licensed physicians and surgeons.

## MISSOURI

**Bill Introduced.**—S. 76 proposes to grant to hospitals, treating persons injured through the negligence of others, liens on all claims, rights of action, judgments, or compromises accruing to the injured persons by reason of their injuries.

## MONTANA

**Bill Introduced.**—H. 59, to amend the workmen's compensation act, proposes to make occupational diseases arising out of and in the course of an employment compensable. The bill is so worded, however, as to make it probable that the only occupational diseases made compensable are silicosis and poisoning by lead, mercury, zinc, arsenic or phosphorus.

sanitary control of milk production. At the close of the meeting a committee was appointed to urge the passage of such a law.

### Cure of Pulmonary Abscess by Nonoperative Treatment

At the November 10 meeting of the Académie de médecine a report of seventy-two cases of abscess of the lung was read by Bezançon, Azoulay and Bernal. All cases in which tubercle bacilli were found in the expectoration, as well as cases that were evidently secondary to a bronchiectasis, were excluded. Of the seventy-two patients, ten died, nine passed into the chronic stage of suppuration and fifty-two (72 per cent) were cured following nonoperative (medical) treatment. The degree of the fetid character of the expectoration served as a basis in making a prognosis. Ninety-three per cent of the abscesses were of this character and the authors believe that the prognosis is good even though the abscess gives rise to a fetid expectoration. The etiology of the abscess is of no aid in making a prognosis. The same is true of the clinical picture. Multiple as well as solitary foci are included in the cured cases. Even though the general condition indicates a severe degree of toxemia, the outlook may be favorable. The results of the examination of the expectoration are of little help from a practical point of view. It was found that even in an abscess with putrid sputum, the case cannot be regarded as a more serious one than in those with nonfetid contents which are the result of ordinary pyogenic infection. In fact, at the present time the most valuable information is obtained by inspection of x-ray films. Every clinician agrees that the localization of the abscess with the aid of iodized oil is the most important diagnostic procedure. This preparation, when insufflated into the bronchi, does not infect an abscess. In the most common form of pulmonary abscess the bronchi are seen to be slightly dilated in the adjacent portions of the lung. In chronic gangrene, one can observe how the insufflation of iodized oil reveals a double process of death of tissue and a destructive sclerosis, which can take place early in the formation of the gangrenous area. In other cases a marked dilatation of the bronchi in the form of cavities arranged like a bunch of grapes is striking. The great value of insufflation with iodized oil as a diagnostic procedure from the beginning of the abscess formation was particularly emphasized, because it reveals the extent of the bronchiectases which make medical treatment almost impossible and are a disastrous complication from the surgical point of view. The roentgenographic study of a case permits one to understand and to determine in advance the variations in development of an abscess by means of the differences to be seen in the local anatomic changes. In cases of solitary circumscribed abscess formation, the evolution is usually uncomplicated, so that most of these heal under medical treatment. Cortical abscesses are the only exceptions to this rule. On the other hand, if there is pyosclerosis, i. e., much fibrous induration around the abscess, which is not frequent, spontaneous recovery is less certain, because there is a tendency for the condition to become more chronic, so that the extent of the lesions and diffusion of the tissue changes are the dominant factors in prognosis. The only cases in which early operation is indicated are those in which the abscess is a cortical one, i. e., near the pleural surface, and those with perforation into the pleural cavity. In the pyoscleroses, a lobectomy appears to be a logical procedure, but in spite of the rapid advances in pulmonary surgery, this operation must still be regarded as serious. Nearly all the patients with multiple abscess have recovered under medical treatment of various kinds, none of which seem to be specific.

In the discussion of this paper, Professor Sergent said that he had always emphasized the possibility of spontaneous recovery, but nevertheless one must always be on the lookout for

cases of apparent, i. e., pseudo, cure. An abscess that is either primarily or secondarily of a putrid character and becomes chronic gives rise to a progressively extensive chronic pneumopathy, which becomes sclerotic and ulceronecrotic. It is in such an area that bronchiectases form, and the result is a bronchiectatic pulmonary abscess. If operative intervention is delayed until this stage is reached, the patient is of course a bad risk for a lobectomy. If too much reliance is not placed on spontaneous recovery by medical treatment or in various methods of drainage, the chances of cure by pneumotomy or by partial cuneiform pneumonectomy would be far more favorable than if one waits too long. Sergent differed from the opinion of Bezançon in trying medical treatment first, because he has more confidence that operation will cure a larger percentage of cases. Professor Lemierre agreed with Professor Bezançon that the appearance and the examination of the expectoration might lead to false conclusions as to the character of a pulmonary abscess. He believes, however, that there is an important difference between an abscess due to ordinary pyogenic bacteria and one due to the bacteria found in a putrid abscess. Spontaneous recovery rarely occurs in the latter group of cases. Professor Debré, based on his experience with children, agreed with the authors of the paper as to the comparative rarity of gangrenous abscesses. Those due to the ordinary pyogenic bacteria usually heal spontaneously.

### Search for Tubercle Bacilli by Cultures of Feces

At the Oct. 27, 1936, meeting of the Académie de médecine Professor Bezançon and two associates, Braun and Aveline, reported the results of their trial of the culture method in the search for tubercle bacilli in the stools. Cultures of the sputum have rendered invaluable service in cases in which repeated examination by the staining method was negative. The Petragani-Loewenstein culture method for tubercle bacilli as developed by Saenz of the Pasteur Institute requires some modifications before it can be used in examination of the stools, according to Bezançon and his associates, who investigated the stools of 231 adults and children. This number included positive and suspected cases of pulmonary tuberculosis as well as normal individuals. Cultures made from the stools of 105 normal adults and twenty-three normal children were all negative. In fifty-seven cases diagnosed clinically as pulmonary tuberculosis, positive results were obtained in all the patients. In six of these it had been impossible to find the bacilli by any other method. In certain cases there are so few bacilli to be found that only a few colonies appear on fifteen or twenty inoculated tubes. In only two cases were paratuberculosis bacilli found, the colonies being chromogenic and avirulent. Whenever the laboratory and clinical observations disagree, it is advisable to check the culture method by guinea-pig inoculation of the colonies obtained on the culture medium.

### New Associate Fellows of Academy of Medicine

At one of the recent meetings of the leading medical society of France, the Académie de médecine, Prof. Ernest Malvoz of Belgium and Sir St. Clair Thomson of England were elected foreign associate fellows. The former is an eminent bacteriologist and has rendered valuable services in establishing anti-tuberculosis centers. Dr. Thomson has made some important contributions to the literature of his special field, otorhinolaryngology.

### Prof. Antoine Béchère Made Commander of Legion of Honor

The Legion of Honor was founded by Napoleon I as an order in which especially meritorious services can receive recognition by the government. The lowest rank is Chevalier, then Officer, and the highest rank is Commander. The last named title has just been bestowed on Dr. Antoine Béchère.

per cent of all deaths. Diabetes, cancer and diseases of the heart, kidneys and arteries and cerebral hemorrhage all showed considerable increases. New York's automobile death rate was 12.6; there has been a steady decline since 1929, when the rate was 19.7. The rate from other accidents was 44 per hundred thousand. Suicides, which reached a high point of 1,595 deaths, a rate of 22.5 in 1932, dropped to 1,087, a rate of 14.8. The birth rate in 1936 was 13.4, having declined to that point from 19.6 in 1927.

#### NORTH DAKOTA

**Bills Introduced.**—H. 193 proposes that in all cases in which any public board is required by law to provide the assistance of a physician to indigent persons, such assistance shall be furnished by a medical doctor, osteopath or a chiropractor as requested by the indigent person. H. 288 proposes to authorize counties to levy a tax not exceeding 6 mills on every taxable dollar of property within the county for the purpose of providing a fund to pay for medical, surgical and hospital care to be rendered all residents of the county. Apparently residents will be permitted to choose physicians, chiropractors and osteopaths of their own choice and to determine the hospital in which they desire hospitalization. The county in turn will pay practitioners and hospitals for care rendered to residents according to a schedule of fees set out in the bill. H. 291 prohibits the sale and distribution of adulterated and misbranded cosmetics. The bill defines cosmetics as "all substances and preparations intended for cleaning or altering the appearance of or promoting the attractiveness of the person except that such term shall not include soaps represented for cleansing purposes only." H. 355, to amend the medical practice act, proposes that "the giving of treatment by baths, massage, therapeutic light rays, natural sun rays or the teaching or the cure of disease by the use of exercise, diet, manner of living or religious rights" shall not be deemed to be the practice of medicine.

#### OHIO

**Bills Introduced.**—S. 132 proposes to establish an independent board of osteopathic examination and registration to consist of five osteopaths, to examine and license applicants to practice osteopathy and surgery "in accordance with the principles as taught in recognized colleges of osteopathy and surgery." No osteopath holding a license to practice osteopathy at the time of the passage of the bill is to be permitted to practice major surgery, which is defined to mean the performance of those surgical operations attended by mortality by the use of the knife or other surgical instruments, until he shall have passed an examination in surgery to be given by the board, but he may practice minor and orthopedic surgery. Applicants for licenses to practice osteopathy and surgery must have a high school education, have attended a recognized college or university two years or more receiving credits for sixty or more semester hours and have a diploma from a reputable school of osteopathy in good standing. S. 204 proposes to authorize municipal hospitals to enter into contracts with insurance companies, service associations or companies, employers of three or more employees, fraternal organizations and other persons or groups of persons, to provide specified hospital care to persons insured, or subscribers for hospital service, employees, members or persons covered by such contracts. H. 210, to amend the law providing that the state insurance laws shall not be construed to apply to hospitals furnishing care by virtue of any contract made with residents of the county in which the hospital is located, proposes to extend the exemption to such contracts made by hospitals "with any resident of this state or with any person employed in this state." H. 172 proposes to create an independent board of chiropractic examiners to consist of three chiropractors, appointed by the governor from a list of names submitted by the Ohio state chiropractic society, and to regulate the practice of chiropractic. The bill defines chiropractic as "the art and science of locating, the procedure preparatory to adjusting, and the adjusting by hand of the subluxations of the articulations of the human spinal column, which is deemed to be the twenty-four movable vertebrae, including the sacrum and coccyx and adjacent tissues, for the purpose of removing any interference with nerve transmission; but it shall not include major surgery, nor the administration or prescription of any drug or medicine included in materia medica." The bill further proposes that "nothing herein contained shall be construed as limiting a licensee in the use of any non-therapeutic procedure generally used by any healing profession either in making a proper analysis and diagnosis, or having such made by any accepted public agency or laboratory."

#### OKLAHOMA

**Syphilis Control Committee.**—The president of the Oklahoma State Medical Association, Dr. George R. Osborn, Tulsa, has appointed the following committee to assist in the syphilis control program now being sponsored by the U. S. Public Health Service: Drs. David V. Hudson, Tulsa, chairman; Shade D. Neely, Muskogee, and Robert H. Akin, Oklahoma City.

#### OREGON

**Alumni Meeting.**—Dr. Karl A. Menninger, Topeka, Kan., will be the guest speaker at the twenty-fifth annual meeting of the Alumni Association of the University of Oregon Medical School in Portland, March 8-10. This is the fiftieth anniversary of the medical school. Details may be obtained from Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland.

**Bills Introduced.**—S. 279 proposes to amend the law so as to require, as a condition precedent to the issue of a marriage license, the presentation of a physician's certificate, showing that both parties to the proposed marriage are free from contagious or infectious venereal diseases, epilepsy, feeble-mindedness, insanity, drug addiction, and chronic alcoholism. The law now requires a certificate from the groom alone showing that he is free from contagious or infectious venereal disease. S. 301 proposes that "in all actions for damages for personal injuries resulting from the use of x-ray, radium, violet ray, artificial heat, permanent wave machines, and from all other electrical and mechanical devices and apparatus, in the treatment of persons, and which are under the exclusive control of the person administering such treatment, proof of injury shall constitute prima facie evidence of negligence." H. 281 proposes to authorize corporations, contracting to furnish medicine, medical or surgical treatment, nursing, hospital service, ambulance service or dental service, to transact a hospital association business. The bill also proposes to authorize physicians and surgeons to contract, contingent on sickness or injury, to perform their own professional services, but not to permit them to agree to furnish in addition to their own services, hospital care, nursing or dental service unless they comply with the hospital association business law. H. 283 proposes to authorize employers to contract with their employees to provide them with medical and surgical care and treatment, nursing and hospital service contingent on sickness or injury and to retain a portion of their wages for that purpose. The bill contemplates that the employer in turn shall enter into agreements with any association or corporation to supply the necessary medical, surgical and hospital care and attention to their employees. The bill proposes to make it unlawful for any employer to retain, directly or indirectly, any part of the money collected for his own use or benefit.

#### PENNSYLVANIA

**Personal.**—Dr. Herbert C. Woolley, Washington, D. C., has been appointed superintendent of Pennhurst State School for mental defectives, to succeed Dr. Walter R. Krauss, resigned. —Dr. Wilbur E. Turner, Montgomery, was honored by a testimonial dinner given by the Montgomery Rotary Club, January 15, in recognition of his election to the presidency of the Lycoming County Medical Society.

#### Philadelphia

**Physicians' Aid Association.**—Dr. John M. Fisher was reelected president of the Aid Association of the Philadelphia County Medical Society at its recent annual meeting, and Dr. Henry P. Brown Jr., secretary-treasurer. In his annual report Dr. Fisher said that the funds of the association had been taxed far beyond their capacity to do more than mitigate the distress of its dependents. Receipts during the year diminished and the number applying for aid increased, Dr. Fisher said. The committee on benevolence distributed \$5,078.11 to eleven annuitants receiving regular amounts and twenty-five beneficiaries receiving varying amounts for emergencies.

**Joint Surgical Meeting.**—The Boston Surgical Society met jointly with the Philadelphia Academy of Surgery, February 15. The morning was devoted to a group of case reports presented at University Hospital. In the afternoon the following program was presented at the auditorium of the College of Physicians of Philadelphia:

Dr. Isidor S. Ravdin, Nutritional Edema.

Dr. Arthur Bruce Gill, Dupuytren's Contracture.

Dr. Lewis K. Ferguson, Treatment of Pilonidal Cysts by Delayed

Excision and Primary Suture in Ambulatory Patients.

Dr. George Wagoner, Haverford, Chronic Sciatic Pain Due to Adhesions About the Nerve Trunk and the Results of Their Removal by Operation.

Dr. Thomas A. Shallow, Esophageal Diverticula.

Dr. Joseph C. Birdsall, The Relationship of Hydronephrosis to Nephrophtosis.



Of the occupational diseases, severe pneumoconiosis was most prevalent among miners and industrial workers in earth and stone. Lead poisoning was most frequent in the metallurgic industries. Cases of infection that could be classed as occupational disease cases were more common among workers in the public health and welfare services and in maritime navigation. The quarry workers' organization reported a decline in the number of cases of occupational disease: in 1934 there were 182 cases; in 1935, 148 cases; in the same period the number of newly compensated cases sank from seventy-three to forty-three and the number of fatalities from thirty to twelve. The campaign against pneumoconiosis receives substantial support in the transactions published by the Antidust Center, which was founded in 1935 as an adjunct of the occupational organization. Originally, provision was made for group examinations of various gangs of endangered workers with a portable x-ray apparatus but this procedure was never actually followed and instead the specialist examined the workers in their home towns, using the local apparatus.

In the metal industry, 2,127 cases of occupational disease were reported during 1935 compared with 2,147 in 1934; there were 104 newly compensated cases in 1935 compared with 124 in 1934, and thirteen fatalities in 1935 compared with twenty-four in 1934. Lead poisoning, carbon monoxide poisoning, skin diseases, pneumoconiosis and so on appeared chiefly to be traceable to ground basic slag.

The printing industry reported 223 cases of occupational disease in 1935 (249 in 1934). Attempts to devise a photo-engraving technic that will in no way injure the worker's health have not been successful.

The professional association for public health and welfare service reported an increase in the number of cases from 556 in 1934 to 703 in 1935; of the latter, fifty-nine cases were incorrectly recorded. In 1935 there were ninety-eight newly compensated cases (1934, ninety), of which eighteen were fatal (1934, nine). This increase in illness was due to a prevalence of mild cases of infectious disease among institutional workers. There was an increase in the number of intoxications from x-rays and other types of radiant energy and from arsenic. On the increase also were cases of diphtheria, scarlet fever, influenza, sore throat, syphilis, pulmonary tuberculosis, erysipelas, whooping cough, measles, furunculosis, gonorrhea and brucellosis. Fewer cases were reported of poisonings from lead, mercury, carbon disulfide and carbon monoxide, chronic recurrent skin diseases, typhoid, lupus, varicella, granulosis and paratyphoid.

## VIENNA

(From Our Regular Correspondent)

Jan. 2, 1937.

### The Sixth International Congress of Urology

The series of medical conventions held at Vienna during September was brought to a close by the Congress of the Internationale Gesellschaft für Urologie. This international society is a small organization, its membership being limited to the leading urologists of various countries. Only papers on well defined and significant topics were submitted at the Vienna convention. The Spanish delegates were unable to attend because of the civil war at home; their discussions were read by Dr. Hryntschak.

The first topic, carcinoma of the prostate, was discussed by Drs. Hryntschak and Bauer. The most important finding from their extensive research is the possibility of an inflammatory etiology of prostatic cancer. Further, it has been demonstrated that in a certain number of cases of prostatic hypertrophy a carcinomatous alteration is present but without clinical grounds for suspicion. Of 310 cases in which prostatectomy was performed, 3 per cent showed the presence of a carcinomatous

alteration without on the whole there being clinically any suggestive manifestation; in a good 7 per cent the histologic picture exhibited modifications that were considered as precancerous.

Dr. C. A. R. Nitch of London discussed the conservative treatment of carcinoma of the prostate. This includes radiotherapy, surgical therapy and combinations of the two methods. Roentgen therapy produces good results at first; the end results are disappointing whether the Holfelder method or the Lewitt intensive irradiation is used. The results are more favorable with radium if the prostate is approached from all sides. The author applies 70 mg. of radium; that is, 14 mg. to the posterolateral surfaces, 50 mg. from the side of the bladder and 5 mg. from the side of the urethra. He estimates the number of cases cured at 28 per cent. The conservative surgical treatment (suprapubic drainage, electrosection) can be introduced only in carefully selected cases; the last named method should in future, in conjunction with radium, become the method of choice.

A discussion by Oreja of San Sebastian had to be read by a proxy, owing to circumstances already mentioned. Oreja emphasizes that an exact and timely diagnosis is of fundamental prognostic importance. The common adenomatous hypertrophy is frequently related to incipient malignancy; thus the presence of this condition is a valuable diagnostic indication of early stage carcinoma. Careful rectal palpation is mandatory in men over the age of 50 who complain of urinary disturbances.

In surgical treatment both the perineal and the suprapubic approaches are used. A majority of surgeons prefer the perineal approach, although a suprapubic prostatectomy is no more difficult. Optimal results are obtained if the prostate is only in a suggestive condition or if the carcinoma is first discovered in the course of the intervention. If, however, an unequivocal diagnosis has been established, radical intervention is not promising. Transurethral resection has had of late more advocates than suprapubic cystostomy and the results of the former appear to be more favorable. With increased experimentation it should shortly become the method of choice.

A discussion of blood stream infection of the kidney was submitted by Cabot of Rochester, Minn. In a group of forty-six patients presenting acute inflammatory processes in the nose, mouth and ear and in which the urine was apparently normal, the presence of bacteria could be detected microscopically in thirty-two cases and culturally in eighteen cases. It was thus demonstrated that in such cases the pyogenic cocci are soon present in the urine; they usually disappear, however, after a short time. The lesions are found in the medullary substance and the cortex of the kidney. Pyelography is an important diagnostic aid. In peracute cases treatment is purely surgical. In cases presenting chills, high fever and leukocytosis but without essential urinary changes, nonsurgical treatment is often advantageous. For a third category, the subacute cases with less turbulent courses, conservative treatment is indicated. But if a perinephric abscess has developed, surgical intervention must be undertaken. The fourth group is composed of borderline cases, which frequently represent the sequelae of disturbances in the upper respiratory tract. The symptoms are slight but the cocci are always present in the urine. In such cases operation has scarcely ever to be considered. Varied types of operation are indicated somewhat as follows: nephrectomy in peracute cases, nephrectomy in cases presenting disseminated foci of infection without massive formation of abscesses; if massive abscesses are present, decapsulation and drainage should be performed. In many cases the perinephric abscess is laid bare and the extent of the disease is estimated on the basis of the process disclosed.

Professor Illyes of Budapest and Dr. Necker of Vienna discussed suppuration in the renal parenchyma. The Hungarian

cedent to the issuance of licenses to marry, that both parties to a proposed marriage shall present "a certificate of health issued and certified by a registered practicing physician, dated for not more than five days prior to application of certificate of marriage, showing that the contracting parties are free from venereal diseases which have been acquired and not of an inherited nature." H. 242 proposes, as a condition precedent to the issuance of a marriage license, to require both parties to proposed marriages to submit a certificate from a licensed physician that neither party has any venereal or other infectious or communicable disease.

### WISCONSIN

**Bills Introduced.**—S. 86 proposes to provide a penalty for any person "who shall refuse to permit any duly licensed physician or surgeon to employ the available facilities and rooms of any hospital at the usual rates of charge of such hospital for such facilities and rooms, and attend and work for his patients therein and to render therein his professional services as a physician or surgeon." S. 100 proposes that (1) if a person afflicted with tuberculosis fails to comply with the regulations of the state board of health, he may be committed to a state tuberculosis hospital or to a county tuberculosis sanatorium which can provide proper care and (2) to authorize the local health officer to quarantine any person with tuberculosis who persistently continues to violate the rules and regulations of the state board of health. S. 88 proposes to require a physician knowing or having reason to know that a person treated or visited by him has poliomyelitis to report the facts to the local health officer and to the state board of health.

### WYOMING

**Bill Passed.**—H. 177 has passed the house, proposing to repeal present laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act.

**Bills Introduced.**—H. 265 proposes to prohibit the retail sale and distribution of appliances, drugs, or medicinal preparations intended or having special utility for the prevention of venereal diseases, except by persons licensed to do so by the state board of health or by licensed physicians, chiropractors or osteopaths. H. 276, to amend that section of the medical practice act stating what persons shall be regarded as practicing medicine, proposes, in effect, that a person holding himself out to the public as being engaged in the diagnosis and treatment of diseases or injuries or deformities of human beings shall be regarded as practicing medicine only if he utilizes medicine and surgery in his therapy.

### GENERAL

**Physical Therapy Meeting.**—A sectional meeting of the American Congress of Physical Therapy will be held in St. Louis March 9 in the auditorium of the St. Louis Medical Society. Among the speakers will be Drs. William H. Schmidt, Philadelphia, on "Evaluation of Fever Therapy After Six Years' Experience"; Miland E. Knapp, Minneapolis, "Ultra-violet Treatment of Erysipelas"; Frank H. Krusen, Rochester, Minn., "Physical Therapy in Fibrositis," and Albert F. Tyler, Omaha, "X-Ray Treatment of Acute and Chronic Infections." Mr. Howard Carter, B.S. in M.E., secretary of the Council on Physical Therapy of the American Medical Association, Chicago, will give a demonstration of "Physical Aspects of Short Wave Diathermy."

**Surgical Congress at Charlotte Instead of Louisville.**—The annual assembly of the Southeastern Surgical Congress will be held in Charlotte, N. C., instead of Louisville, Ky., March 8-10. The change was made because of flood conditions in Louisville. Among the speakers will be Drs. Charles Gordon Heyd, New York, President, and John H. J. Upham, Columbus, President-Elect of the American Medical Association; William Wayne Babcock, Philadelphia; Edward D. Churchill, Boston; Winchell McK. Craig, Rochester, Minn.; George W. Crile, Cleveland; Louis G. Herrmann, Cincinnati; Arthur E. Hertzler, Halstead, Kan.; Herman L. Kretschmer, Chicago; Dean D. Lewis, Baltimore; George H. Semken, New York. At a public meeting Dr. William D. Haggard, Nashville, Tenn., will deliver the first C. Jeff Miller Memorial Lecture. Dr. John Darrington, Yazoo, Miss., is president and Dr. Fred W. Rankin, Lexington, Ky., is president-elect of the congress. Further information may be obtained from the secretary, Dr. Benjamin T. Beasley, 701 Hurt Building, Atlanta, Ga.

**Centennial Edition of Dispensatory.**—The twenty-second edition of the U. S. Dispensatory, called the "centennial edition," has come from the press. The first edition of this encyclopedia of drugs used in the United States, Canada and Great Britain was published in 1833 under the editorship of George B. Wood, great-uncle of the present editor, Horatio C. Wood, Philadelphia. The first volume contained 1,073 pages and listed 4,800 titles; the new one has 1,894 pages and 28,000 titles. More than 300,000 copies have been sold to pharmacists all over the world in the last 100 years. The present edition was eight years in preparation. Dr. Wood is professor of pharmacology and therapeutics at the University of Pennsylvania, professor of pharmacology in the Philadelphia College of Pharmacy and Science and a member of the Committee on Revision of the U. S. Pharmacopeia. Associated with him on the editorial staff is Charles H. LaWall, Pharm.D., professor of pharmacy, Philadelphia College of Pharmacy and Science, and also a member of the revision committee. Other members of the editorial board are Heber W. Youngman, Ph.D., of the Massachusetts College of Pharmacy, Boston; Arthur Osol, Ph.D.; Ivor Griffith, Ph.M., and Louis Gershenfeld, Pharm.M., all of the Philadelphia College of Pharmacy and Science.

**Medical Bills in Congress.**—*Changes in Status:* H. J. Res. 229 has passed the House and Senate, proposing to authorize the President to allocate to the U. S. Public Health Service funds from appropriations available for emergency relief for health and sanitation activities in the flood stricken areas. S. 655 has been reported to the Senate, proposing to add the name of Dr. Roger P. Ames to those honored by the act recognizing the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. *Bills Introduced:* S. 1567, introduced by Representative Sheppard, Texas, and H. R. 4415, introduced (by request) by Representative Hill, Alabama, propose, among other things, to permit the Bureau of Mines to sell to citizens of the United States or to corporations, under regulations approved by the President, any helium that is produced in plants operated by the government or under lease or contract with it for the production of helium, that is not needed for government use. H. R. 4798, introduced by Representative Maverick, Texas, proposes to provide vocational guidance, vocational training, and employment opportunities for youths between the ages of 16 and 25 years. Any young person employed under the act, if injured during the course of employment, is to receive "all necessary medical expenses." H. R. 4808, introduced by Representative Izae, California, proposes to provide pensions for former enlisted men of the Army, Navy or Marine Corps who have heretofore separated or who may hereafter separate from the service with a disability incurred or aggravated in line of duty of such a nature and extent as to disqualify for further military or naval service. H. R. 4843, introduced by Representative Hobbs, Alabama, proposes to repeal the emergency officers' retirement act. H. R. 4857, introduced by Representative Lanzetta, New York, proposes to authorize the Administrator of Veterans' Affairs to furnish domiciliary, medical and hospital care to veterans residing outside of the continental limits of the United States or its Territories, or possessions, if such veterans are citizens of the United States and are suffering from disabilities due to service in the armed forces of the United States. S. 1629, introduced by Senator Walsh, Massachusetts, proposes to regulate traffic in surgical ligatures and sutures. The bill proposes that surgical ligatures and sutures, to be salable in the District of Columbia, or in interstate and foreign commerce, must be prepared at an establishment holding an unsuspended and unrevoked license issued by the Secretary of the Treasury and that the container must be plainly marked with the proper name of the article, the name, address, and license number of the manufacturer, and the date beyond which the contents cannot be expected beyond reasonable doubt to yield their specific results.

## Government Services

### Physicians Wanted for the Conservation Corps

The Medford, Oregon, district of the Civilian Conservation Corps, is in need of physicians. The salary is \$225 a month. Applicants must have licenses to practice. Those interested are asked to wire the District Surgeon, Medford CCC District, Medford, Ore.

## Deaths

**Elias Hudson Bartley**, Brooklyn; Long Island College Hospital, Brooklyn, 1879; member of the House of Delegates of the American Medical Association, 1909-1910; member of the Medical Society of the State of New York; past president of the Medical Society of the County of Kings and the Associated Physicians of Long Island; fellow and formerly vice president of the American College of Physicians; since 1917 emeritus professor of chemistry and pediatrics at his alma mater, dean and professor of pediatrics, 1915-1917, professor of chemistry, toxicology and pediatrics, 1901-1915, professor of chemistry and toxicology, 1886-1901, and instructor of chemistry, 1880-1886; dean and professor of organic chemistry at the Brooklyn College of Pharmacy, 1892-1902; chief chemist for the health department of Brooklyn, 1882-1888; member of the Kings County Board of Pharmacy, 1892-1898; consulting pediatrician to the Long Island College Hospital, Methodist Hospital and the Kingston Avenue Hospital, Brooklyn, where he was also president of the medical board for many years, and the Southside Hospital, Bayshore; had been chief of the department of pediatrics at the Brownsville and East New York Hospital; member of the U. S. Pharmacopeia conventions in 1890, 1900, 1910 and 1930; author of "Textbook on Medical and Pharmaceutical Chemistry," which went through seven editions from 1885 to 1909, and of "Manual of Clinical Chemistry," through three editions; aged 87; died, January 12, of senility.

**Luther Fiske Warren** © Brooklyn; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; professor of medicine, Long Island College of Medicine; past president of the Medical Society of the County of Kings; member of the New York State Board of Medical Examiners; regent and fellow of the American College of Physicians; member of the Association for the Study of Internal Secretions, Congress of Internal Medicine, American Association for the Advancement of Science, National Tuberculosis Association and various others; physician in chief to the Long Island College and St. John's hospitals; medical director of the Brooklyn Home for Consumptives, consulting physician to the Methodist Episcopal and Lutheran hospitals, Brooklyn, Southside Hospital, Bayshore and the Brunswick General Hospital, Amityville; member of the board of trustees of the Polytechnic Institute and the Packer Collegiate Institute; chairman of the public health committee and member of the board of directors of the Brooklyn Chamber of Commerce; formerly president of the Brooklyn Health Council; aged 51; died, January 18, of carcinoma, secondary to carcinoma of the breast.

**Marshall Morgan Cloud** © Captain, U. S. Army, retired, Los Angeles; Kansas City (Mo.) Medical College, 1892; assistant superintendent of the Kansas State Hospital, Topeka, 1893-1895; was appointed a first lieutenant and assistant surgeon in the medical corps of the U. S. Army in 1896, veteran of the Spanish-American War and was retired for disability in line of duty with rank of captain in 1901; on active duty during the World War; fellow of the American College of Surgeons; clinical professor of ophthalmology at the University of Southern California School of Medicine, 1910-1913, and professor of military medicine, 1920-1923; ophthalmologist to the National Soldiers Home, Sawtelle, Calif., 1910-1913, and the Santa Fe Railway, 1910-1921; was examining surgeon for the U. S. Pension Bureau; on the staffs of the Hollywood and Los Angeles General hospitals; author of "Guide to the Chemical Analysis of Water and the Sanitary Analysis of Water," 1905; aged 68; died, Dec. 3, 1936, of amebic dysentery.

**Robert Battey Greenough** © Boston; Harvard University Medical School, Boston, 1896; formerly assistant professor of surgery at his alma mater and the graduate school; past president of the Massachusetts Medical Society; fellow and past president of the American College of Surgeons; member of the American Surgical Association, Society of Clinical Surgery, New England Surgical Society, New England Roentgen Ray Society and the American Radium Society; president and member of the board of directors of the American Society for the Control of Cancer; served during the World War; was a medical inspector in the U. S. Naval Reserve Force; consulting surgeon to the Massachusetts General and the Collis P. Huntington Memorial hospitals; for several years chairman of the Harvard Cancer Commission; aged 65; died, February 16, of arteriosclerosis with coronary occlusion.

**Collins Hickey Johnston** © Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; member of the House of Delegates of the American Medical Association in 1908; fellow of the American College

of Physicians; member of the American Clinical and Climatological Association; for many years chairman of the Kert County Medical Milk Commission; member of the medical advisory board during the World War; formerly member of the board of education and board of health; was surgeon for the Grand Trunk and New York Central Railroad; member of the visiting staff of the Blodgett Memorial and Butterworth hospitals; honorary chief of staff of the D. A. Blodgett Home for Children; aged 77; died, Dec. 29, 1936, of coronary thrombosis and arteriosclerosis.

**Francis Dennis Donoghue** © Boston; Harvard University Medical School, Boston, 1894; for many years instructor in surgery at the Tufts College Medical School; surgeon to the Boston Dispensary and consulting surgeon to the Jordan Hospital, Plymouth, Mass.; in 1912 was appointed medical adviser to the Massachusetts Industrial Accident Board; in 1925 was appointed by the President to represent the United States at the International Conference on Accidents at Amsterdam, was a delegate to all succeeding congresses and was permanent vice president from the United States and a member of the council; aged 65; died, January 4, in the Peter Bent Brigham Hospital, of secondary anemia and complications.

**Dorian Feigenbaum** © New York; Medizinische Fakultät der Universität Wien, Austria, 1914; member of the American Psychoanalytic Association, American Psychiatric Association and the American Psychopathological Association; formerly instructor in neurology at the Columbia University College of Physicians and Surgeons; was medical director of the Hospital for Mental Diseases of Jerusalem; consultant in criminal lunacy to the government of Palestine, 1921-1923; had been an assistant in neurology at the Vanderbilt Clinic, 1931; founder and editor-in-chief of the *Psychoanalytic Quarterly*; aged 49; died, January 2, of pneumonia.

**Frank Caulkins Bunn** © Orange, N. J.; New York Homeopathic Medical College and Hospital, 1889; fellow of the American College of Surgeons; member of the medical advisory board during the World War; a founder, senior surgeon and member of the board of trustees of the Homeopathic Hospital of Essex County, East Orange; consulting surgeon to St. Mary's Hospital, Passaic, Fitkin Memorial Hospital, Neptune, Essex County Hospital for Contagious Diseases, Belleville, Montclair (N. J.) Community Hospital and the Presbyterian Hospital, Newark; aged 68; died, January 9, of coronary disease.

**Fred Gershom Fielding** © Glens Falls, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; member of the American Academy of Ophthalmology and Oto-Laryngology; past president of the Warren County Medical Society; formerly member and president of the board of education; member of the board of managers and vice president of the Westmount Sanatorium; a member of the consultant staff and at one time president of the attending staff of the Glens Falls Hospital; aged 70; died, January 9, of chronic myocarditis.

**Joseph Edward Fuld**, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; member of the Medical Society of the State of New York; was appointed assistant visiting surgeon at the City Hospital in 1912, in 1925 was elected visiting surgeon, and since 1935 consulting surgeon; formerly on the staff of the Gouverneur Hospital, visiting surgeon of the division of surgery and gynecology at the Correction Hospital; aged 64; died, January 3.

**Urban Grant Iles**, Orlando, Fla.; Rush Medical College, Chicago, 1888; in 1920 was appointed medical examiner by the Bureau of War Risk Insurance, and after serving on several boards of appeals was assigned to the Veterans Administration Hospital, Augusta, Ga.; aged 72; died, Dec. 21, 1936, in the Orange General Hospital of coronary sclerosis, pernicious anemia and arteriosclerosis.

**Jean Albin Aubry**, Rochester, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1928; member of the Medical Society of the State of New York; instructor in obstetrics and gynecology at the University of Rochester School of Medicine and Dentistry; on the staff of the Strong Memorial Hospital; aged 35; died, Dec. 20, 1936, of subacute bacterial endocarditis.

**Charles De Lancey Alton** © Hartford, Conn.; Bellevue Hospital Medical College, New York, 1875; member of the American Clinical and Climatological Association; past president of the Hartford County Medical Society; medical referee for the Connecticut Mutual Life Insurance Company; aged 91; died, January 8, of arteriosclerosis and auricular fibrillation.

**George Albion Dickson**, Ogden, Utah; Bellevue Hospital Medical College, New York, 1891; member of the Utah State Medical Association; formerly city councilman and member

## Sir Grafton Elliot Smith

Sir Grafton Elliot Smith, the anatomist and anthropologist, has died at the age of 65. Born at Grafton, New South Wales, of English and Welsh stock, he was educated at the University of Sydney, graduating M.B., Ch.M. in 1892. In 1900 he was appointed the first professor of anatomy at the new Cairo Medical School, established by the government. He supervised the examination of the skeletal remains of 30,000 Egyptian burials, predynastic and dynastic, and also examined mummies. He next studied the history and pathology of the ancient Egyptians and the process of mummification. The results were "The Ancient Egyptians," published in 1911, which was received with enthusiasm by many anthropologists, and "The Royal Mummies," published in 1921, which threw a new light on Egyptian history. He deduced the intrusion of a new racial element (Armenoid) into ancient Egypt.

In 1909 he was appointed professor of anatomy at Manchester University and in 1919 professor at University College, London. He introduced the cranial cast for the study of the brain of early man—a method that has been pronounced probably his greatest contribution to human paleontology. His work on human paleontology was embodied in "The Evolution of Man," published in 1924. He expounded the importance of the "Peking man," discovered by his friend the late Davidson Black.

His peculiar distinction was that he was preeminent both as a physical and as a cultural anthropologist. His studies led him to formulate the theory that all civilization originated in Egypt, whence it spread all over the world. He took the lead in exposing the Aryan and Nordic myths. At the University College he reorganized the department of anatomy with the aid of a grant from the Rockefeller trustees. He planned it so that the study of man's evolution and physical structure should proceed side by side with the study of the development of culture. His plans were brought to fruition by the appointment in 1927 of a co-worker, W. J. Perry, as reader in cultural anthropology.

## PARIS

(From Our Regular Correspondent)

Jan. 28, 1937.

## Transmission of the Human Influenza Virus

At the Nov. 24, 1936, meeting of the Académie de médecine the results of experiments on the transmission of the virus of human influenza to ferrets were reported by de la Rivière and Cheve. They have confirmed the work of British and American investigators who showed that ferrets can be infected either with the rhinopharyngeal mucus of human beings suffering from influenza or from ferrets previously inoculated. The contamination follows either in an indirect manner by placing infected ferrets in cages in which there are noninfected ferrets, or directly by intranasal instillation or intrapulmonary inoculation of the nasopharyngeal secretion of influenza patients. The animals show marked symptoms of influenza, such as oculonasal catarrh, sneezing, a diphasic temperature curve, somnolence and anorexia. These symptoms recede rapidly and the animal recovers in the majority of cases. The virus can be transmitted to a series of ferrets and even to mice. The latter can be infected only following ether anesthesia and only with a virus derived from an infected ferret. Mice cannot be infected directly by the human virus. The disease in ferrets is contagious for human beings, as has been shown in England and the United States. The virus is a filtrable one, which passes through a 12 Chamberland filter as well as collodion filters. Both human beings and animals that have been infected by the ferret virus show marked immunity for a certain length of time.

## Tuberculous Meningitis from Unboiled Cow's Milk

A paper which adds another link in the chain of evidence that unboiled milk from tuberculous cows can result in tuberculous meningitis in children was read by Lesne, Saenz, Salembiez

and Costil at the Nov. 17, 1936, meeting of the Académie de médecine of Paris. The rôle of the bovine bacillus in the etiology of tuberculous meningitis has been studied but little in France, so that a complete review of the experience in other countries was first given. During the past four years the authors studied bacteriologically the cerebrospinal fluid in 138 cases of meningitis in the children's service of Lesne at the Trousseau hospital. None of these children had been given the BCG vaccine. In only eight cases was a negative result obtained. The clinical evolution of these eight cases showed that the meningeal syndromes were nontuberculous and curable (secondary meningeal reactions or serous benign meningitis).

The use of the Loewenstein culture medium as modified by Saenz showed that it was the best which is available at present, for detection of tubercle bacilli in the cerebrospinal fluid, because inspection of the colonies on the inoculated medium, before inoculation of rabbits is done, enables the bacteriologist to distinguish the bovine and human types of tubercle bacilli. Every specimen of the cerebrospinal fluid was inoculated on from six to eight tubes and placed in an incubator at 37 C.

Of the 130 cases thus studied, 121 showed, in the cultures, tubercle bacilli of the human and nine of the bovine type. The date of appearance of the colonies in the case of the human type varied from eleven to twenty-nine days, whereas those of the bovine type appeared later, from thirty to seventy-two days. The number of colonies of the human were far more numerous than those of the bovine type. Inoculation into rabbits of the colonies from the nine patients in whom the bovine type was found confirmed the cultural evidence that the bacilli were of this type. It is a well established fact that the guinea-pig is not susceptible to the bovine type of tubercle bacillus, whereas the rabbit is.

Seven of the nine children in whom the bovine type was found were less than 5 years of age, and eight of the nine had been given unboiled milk during most of their life. Nearly all of the nine children had been raised in country districts, not a single one having ever lived in Paris. In five of the nine cases, familial contamination could be excluded. In the other four, no information as to this point could be obtained. In the ninth case, although the father had suffered from a pulmonary tuberculosis, the child had been given only unboiled milk.

This occurrence of tuberculous meningitis of the bovine type in children who had been given only unboiled milk is in striking contrast to the 121 cases in which the human type was found in the cerebrospinal fluid. Of these 121 patients (human type), 50.61 per cent lived in Paris, 25.70 per cent in the suburbs and only 10 per cent in country districts. In almost all, inter-human contagion was found as the etiologic factor. All of these 121 children were raised on pasteurized or boiled milk.

These studies prove that unboiled milk is the source of infection in children who have tuberculous meningitis of the bovine type. It has been shown that the milk of cows with tuberculous mastitis is a common source of infection. As high as 100,000 virulent bacilli per cubic centimeter have been found in such milk. Other sources of infection of milk are found in soiling of the udders by stable dust or excreta. Gosio of Milan reported that, in a single farm, out of 107 samples of milk examined, sixteen were found to contain tubercle bacilli. Sixteen of these 107 samples were obtained from animals in which no effort had been made to cleanse the udders. On another farm, where such precautions were constantly taken, only one cow of fifty-six had infected milk.

In the discussion Martel maintained that, in spite of the progress in surveillance of cows with and without evident tuberculous lesions, some tuberculous cows are sold because there is no law in France which renders possible an obligatory

## Correspondence

### FACTORS IN THE GROWTH AND IDENTIFICATION OF THE GONOCOCCUS

To the Editor:—I have read with interest in Current Comment (THE JOURNAL, Nov. 7, 1936, p. 1564) the paragraph entitled "Cultural Methods for the Diagnosis of Gonococcal Infections." In the course of several years' study I have had an opportunity to compare the various mediums recommended for the growth of the gonococcus. Included in two papers (Proc. Soc. Exper. Biol. & Med. 31:899 [May] 1934 and J. Infect. Dis. 55:328 [Nov.-Dec.] 1934) is the description of what proved a most efficient medium. This was a modification of Hitchen's semisolid agar, which differs from the standard mediums in that it contains potassium nitrate (0.2 per cent) instead of sodium chloride (0.5 per cent). Enrichment fluids were added to the medium used for plating and these included whole blood, egg yolk, serum and transudates, each with good result. However, ascitic fluid was found more practical since it was easily obtained, could be filtered through a Berkefeld filter to guarantee sterility, and, since it rendered the medium transparent, proved very desirable for colony study. Autoclaved peptones were used in both the semisolid and the solid agar mediums and, contrary to the results of McLeod and his associates, no inhibitory effect was noted.

There are a number of factors about the growth of the gonococcus which are learned by experience and often by trial and error methods. For instance, freshly poured agar plates and the presence of sufficient moisture in the incubator are important to initial growth. If plated directly, dilution of the pus in a few cubic centimeters of physiologic solution of sodium chloride before streaking may mean a positive culture on the one hand, while failure to do so will often result in a negative culture.

Decreased oxygen tension or the addition of 10 per cent carbon dioxide to the atmosphere in which the gonococcus is grown stimulates the growth, it is true, but this is true not only for the gonococcus but for other organisms as well, so that often the separation is made more difficult. The same purpose is served by the maintenance of a proper incubator humidity.

I have tried the "oxydase test" of Gordon and McLeod and have found it helpful in some instances, but when other organisms also take the dye one is again confronted with the task of picking and staining from a plate which is swimming in dye and the whole flora is more or less confluent. Of course, isolation and subculture are made more difficult in the latter event.

My methods of isolation and growth are described in the papers mentioned. I prefer to inoculate the infectious material directly into test tubes containing semisolid medium, staining by Gram's method after incubation of from eighteen to twenty-four hours, then subculturing to ascitic fluid agar plates and finally identifying the colony types within the next twenty-four to forty-eight hours. If preferred, the infectious material may be diluted in a few cubic centimeters of physiologic solution of sodium chloride and planted directly on freshly poured ascitic agar plates. Instances are encountered in which the growth is sluggish and appears as a faint haze in semisolid agar (and negative when planted directly on solid medium); when stained by Gram's method, the culture may show gram-negative particles, which are suggestive but not definite in morphology. These cultures should not be discarded but transplanted to fresh medium and watched carefully. Several transplants in series will be often rewarded by a culture which finally shows typical forms of the gonococcus.

Absolute identification should not only include fermentative tests, dye tests and Gram's staining, which are all presumptive evidence, but also agglutination or complement fixation, with the use of a number of type specific antisera.

The problem of identification in chronic cases must be left in the hands of experienced workers. Although bacterial dissociation of the gonococcus is not yet universally accepted, it has nevertheless proved that the gonococcus may change in morphology, staining and biochemical reactions. This knowledge has shown how hazardous it is to dismiss a patient as cured when he may harbor these changed forms of the gonococcus which under proper conditions, either in the same or on transfer to a new host, may reactivate or initiate an acute manifestation of the gonorrheal infection.

CLARA RAVEN, Chicago.

Resident in Pathology, Cook County Hospital.

### "LIVER DEATH A HEPATORENAL SYNDROME"

To the Editor:—Your editorial entitled "Liver Death a Hepatorenal Syndrome" (THE JOURNAL, January 23, p. 301) directs attention to a very important subject. The discussion following the mention of the three groups is confined largely to the second and third groups, in which death is due to uremia rather than to cholemia and in which a substitution of the term "hepatorenal syndrome" for "liver death" would tend to diminish confusion. In view of the fact that in group 1 death follows not only cholecystectomy but likewise cholecystostomy and other operations not related to the biliary tract, and that it also occurs under certain circumstances without an antecedent operation, the matter of "trauma to the liver" would seem to be a comparatively unimportant factor, with relationship of the liver quite uncertain. Therefore the descriptive term "rapid high temperature death" might very well replace that of "liver death" until more exact information regarding its cause (probably cerebral) has been determined.

FRANK GREGORY CONNELL, M.D., Oshkosh, Wis.

### EUTHANASIA

To the Editor:—An article in the New York Herald Tribune for Sunday, January 17, has just been brought to my attention. It is entitled "Mercy Deaths for 'Incurables' Opposed by 54 per cent in Nation Poll, but Physicians Approve by 53 per cent." This attributes to me, in a survey made by the American Institute of Public Opinion, the following statement:

Sentimental prejudice should not stand in the way of civilization. It is my opinion that not only incurables, but kidnapers, murderers, habitual criminals of all kinds, as well as the hopelessly insane, should be quietly and painlessly disposed of.

Inasmuch as the following paragraph states that you "take violent exception to this point of view," I wish to inform you that I have never advocated the killing of incurables, although quotations of this sort have been attributed to me several times. In my book "Man, the Unknown," on pages 318-319, I wrote:

Those who have murdered, robbed while armed with automatic pistol or machine gun, kidnaped children, despoiled the poor of their savings, misled the public in important matters, should be humanely and efficiently disposed of in small euthanasic institutions supplied with proper gases. A similar treatment could be advantageously applied to the guilty of criminal acts. Modern society should not hesitate to organize itself with reference to the normal individual. Philosophical systems and sentimental prejudices must give way before such a necessity. The development of human personality is the ultimate purpose of civilization.

This is the only statement on the subject of euthanasia that I have ever made. When asked on different occasions for my opinion on "mercy killings of incurables," I have referred the inquirer to this exact reference in my book.

ALEXIS CARREL, M.D.,  
Rockefeller Institute for Medical Research, New York.



the internationally known radiologist, who is still active at the age of 80 years. Dr. Bécère is an ex-president of the Académie de médecine and is an emeritus attending radiologist in the public hospital service of Paris.

#### Annual Election of the Academy of Surgery

The leading surgical society in France, the Académie de chirurgie de Paris, has chosen as officers for 1937 Dr. Baumgartner as president and Dr. Chevassu as vice president. The London surgeons G. E. Gask and G. G. Turner were elected associate foreign members.

#### BERLIN

(From Our Regular Correspondent)

Jan. 16, 1937.

#### The German National Health Bureau

The National Health Bureau, which recently celebrated its sixtieth anniversary, has undergone reorganization within recent years. Ten years ago, at the time of its fifty-year jubilee, the bureau was divided into four sections: the human-medical, the veterinary medical, the food and chemical and the biologic-bacteriologic-zoological. At that time the staff comprised, in addition to the president and the four sectional directors, sixty-one scientific officials and employees, among whom were twenty-five physicians, eighteen chemists and three pharmacists. As Dr. Schütt, the director of a section, states in "Der öffentliche Gesundheitsdienst": The basic acceptance of the National Socialist weltanschauung necessitated a tremendous expansion of public health activities and this called for drastic changes in the organization of the bureau.

In place of the former four sections there are now twelve sections. Section A, the human-medical section, has remained essentially the same and is now as before the foundation of the bureau. It is a clearing house for statistical data on a diversity of subject matter: nationwide campaigns against disease, antituberculosis, anticancer, antivenereal; vaccination legislation, reforms in the curriculums of medical schools, new regulation of roentgen and radium irradiation, affairs of organizations such as the associations of hospitals, of midwives, of watering places and of health stations; problems of maternity, infant and child welfare, dental supervision in the schools and so on. Special circumstances have necessitated the creation of a separate bureau on abuses in the field of medicine.

Section B is devoted to all aspects of veterinary medicine throughout the reich: antiepidemic campaigns and so on.

Section C, food and chemistry, deals with problems presented by trade in foodstuffs and so on. This section makes exhaustive studies of the bread problem. The National Commission for Research on Wine is also a part of section C.

Section D deals with sanitary problems of water supplies, drainage and housing. It no longer exists as a single section, for its functions have been assumed by the State Institute for Hygiene of the Water, Soil and Air, of which the president of the National Health Bureau is also a member.

Section E is the industrial hygiene section. It deals with all questions that relate to labor and the protection of the workers' health. By its merger with the former general hygiene section, new duties have accrued to section E. These have to do with various problems of sanitation and hygiene presented by municipalities, dwellings, rural settlement projects and also the problems of traffic safety and hygiene.

Section F deals with problems of pharmacology and physiology. It has undergone expansion through the creation of a special bureau for homöopathy. For the rest it functions in close collaboration with section G, the section on pharmaceutical substances and opium. The latter section deals with all the problems of pharmacy. The revision of the statutes governing pharmacy, which has been in progress for the past decade, has been among the duties of this section. A special subdivision

is the "opium center"; one of the newly established card catalogues of this department vouchsafes a surveillance of all the narcotics in the German reich.

Section H, which formerly concerned itself with experimental research in bacteriology and biology, has been merged with the Robert Koch Institute for Infectious Diseases.

Section I was formed from a biochemical subdivision of section H for the performance of certain special functions.

Section K is synonymous with the before mentioned Robert Koch Institute, which now confines its activities to the human-medical-bacteriologic sphere. The former section on veterinary medicine has been annexed to section B.

Section L, on eugenics and racial supervision, is a complete innovation, an outgrowth of the new official German ideology. It was set up in March 1935. Its principal objective is the organization of a genetic-biologic survey of the entire German population. The section itself serves as headquarters for this project. Already it has assembled more than a million catalogue cards. These are uniform for the entire reich and are at present undergoing scientific and statistical evaluation. Moreover, it is contemplated to introduce uniform criminologic-biologic investigations of all penal institutions and to initiate a survey of the psychopathic hospitals. Next will follow a study of the inmates of orphanages.

Section M, the section for genetic research, is likewise a new creation. Its aim is to study problems of public health policy while making ample use of scientific genetic experimentation with animals and plants. The attempt is being made to arrive through such experimentation at conclusions applicable to human biology. Various laboratories are given over to special fields of research, such as *Drosophila* genetics, genetic population research, fish genetics, protozoology, and experimental constitutional research.

Section N is concerned with the physiology of nutrition. It is also a new unit organized for the study of national food problems. This section maintains a laboratory for research on the physiology of nutrition. The German Society for Research on Nutrition and the National Cooperative Association for Nutrition collaborate closely with the work of section N (THE JOURNAL, May 5, 1934, p. 1510). The ultimate objective of this section is a domestic production of foodstuffs sufficient to sustain the entire nation.

The staff of the National Health Bureau comprises at present about 500 persons, 200 of whom are university trained. The personnel of the Robert Koch Institute for Infectious Diseases and of the National Institute for Hygiene of the Water, Soil and Air are included in these figures. The bureau is under the ministry of the interior but because of its manifold functions it is also affiliated with other ministries. Among the current publications of the bureau are "Reichs-Gesundheitsblatt," "Arbeiten aus dem Reichsgesundheitsamt" and more recently "Schriftenreihe des Reichsgesundheitsamt" and the journal *Die Ernährung*.

#### The Increase in Occupational Diseases

The increase of around 22 per cent in the number of full time employees, which took place in 1934, was paralleled by an increase of around 7 per cent in the number of reported cases of occupational disease. But the number of such cases in which compensation was granted for the first time in that year showed a decrease of 17 per cent compared with 1933. In 1935 the number of full time workers underwent a further increase of 10 per cent: from 9,450,000 in 1934 to 10,430,000 in 1935. The number of reported cases of occupational disease increased 12.2 per cent in 1935 compared with the preceding year; there were 7,664 cases in 1934 and, according to tentative computation, 8,601 in 1935. Newly compensated cases increased by a mere 0.7 per cent: 1,043 cases in 1934, 1,125 cases in 1935.

doses of the alkyl nitrates, aminophylline, bismuth subnitrate 0.65 Gm. three times a day or intramuscular magnesium sulfate may be tried. (See Stieglitz, *Abnormal Arterial Tension*, New York, National Medical Book Company, 1935.) Sodium thiocyanate is a dangerous drug in inexperienced hands and in the presence of renal impairment is contraindicated. The only safe method of using thiocyanate clinically is that of Barker (*THE JOURNAL*, March 7, 1936, p. 762), which involves frequent determination of the blood and urine thiocyanate content to warn of retention of the drug. The last principle of therapy, which is often grossly neglected, includes energetic attempts at correcting anemia, which is commonly present in hypertensive disease, and in insuring adequate nutrition.

#### EFFECTS OF ALUM IN DIABETES

*To the Editor:*—A woman, aged 52, had markedly severe diabetes some years ago and with diet now has only infrequent symptoms. She can make herself sugar free if and when she does adhere to a more or less restricted diet. Like all patients with diabetes, she likes to go on a spree once in a while. To get to the point in question, however, she tells me that for a number of years she has been able without dieting much, if any, after one of these sprees to cause her urine to test sugar free and to feel much better by taking a solution of ordinary alum; i. e., 4 teaspoonfuls of water and one teaspoonful of powdered alum, taking one teaspoonful in half a glass of milk from three to four times daily. This, she says, will make her urine "clear" in about three days to one week, being "red" at the start. Can you tell me the pharmacology and possibly the physiologic reason for this? I have not tested her urine before and after this medication, as she is a thoroughly reliable person. Needless to say, blood sugar tests are done infrequently here and I have not done them. I thought that possibly the alum might have an action on the kidneys to raise the threshold for sugar. However, it seems to me that if that were true her blood sugar would rise and she would feel worse instead of better. Please omit name.

M.D., Michigan.

**ANSWER.**—We have been unable to find any reference in the scientific literature to the use of alum in the treatment of diabetes.

If, as suggested, the alum raises the kidney threshold for sugar, simultaneous blood and urine sugar determinations at that time would reveal this effect.

This patient can render herself sugar free after a spree by following a restricted diet. A more probable explanation of the effect of alum may therefore be that this strongly astringent material interferes with the absorption of foodstuffs from the gastro-intestinal tract and is therefore equivalent to a dietary restriction.

#### KINGSBURY-CLARK METHOD FOR ALBUMIN IN URINE

*To the Editor:*—Recently I have had the opportunity of seeing described in several medical journals various methods for rapidly determining the presence of albumin in the urine. Though the Kingsbury-Clark method has been described previously I feel that it again should be called to the attention of the general profession, especially since the model C Clark lamp has been placed on the market. During the past ten months all the urinalyses made in the office laboratory have been done by this method, which include approximately 3,000 examinations. This lamp is so devised that it is possible, by an extremely simple procedure, to examine fifteen specimens within fifteen minutes and the results obtained are unusually accurate. The apparatus has been most beneficial for making urinalyses for insurance companies, in which a definite amount of albumin in 100 cc. of urine can be reported. This method is also most helpful when combined with a microscopic study of the urine in observing the progress of the various inflammatory conditions of the kidneys. The model C Clark lamp with instructions for the technic employed can be purchased from R. P. Cargille Company, 118 Liberty Street, New York, at a very reasonable cost.

CUESTER W. LONG, M.D., Milwaukee.

**ANSWER.**—The Kingsbury-Clark method for the determination of albumin in the urine was described by N. R. Blatherwick, Ph.D., in the *Journal-Lancet* 53:57 (Feb. 1) 1933. The article also included a technic for the Benedict picrate method for sugar determination in the urine.

This method is quantitative and therefore of great value in following the progress of renal disease. The test is based on the precipitation of albumin by sulfosalicylic acid. The amount of albumin is determined by comparing with a series of standards representing from 10 to 100 mg. of albumin per hundred cubic centimeters of urine. This comparison can be made by daylight or better still by using the model C Clark lamp, to be described.

The Kingsbury-Clark test is performed as follows: Pipette 2.5 cc. of centrifugated urine into a test tube graduated at 10 cc. and add 3 per cent sulfosalicylic acid to the 10 cc. mark. The sulfosalicylic acid solution is made by dissolving 30 Gm. and diluting to 1,000 cc. with distilled water. Invert the tube to mix and allow to stand ten minutes, and compare the tur-

bidity with the permanent turbidity standards. Record the value of the standard most closely matched as the albumin content of the urine. The standards are 10, 20, 30, 40, 50, 75 and 100 mg. of albumin per hundred cubic centimeters of urine. When more than 100 mg. is present the urine is diluted quantitatively and reexamined. A value of 50 mg. per hundred cubic centimeters corresponds to what is usually called a trace by the Heller nitric acid or heat and acetic acid tests. The standards should be replaced every nine months.

The model C Clark lamp was originated by Dr. Charles P. Clark of the Mutual Benefit Life Insurance Company. It has been used by life insurance and clinical laboratories since 1923. It provides a constant source of light which permits comparisons to be made independently of variations of natural daylight. It yields results of great accuracy. Differences of 0.001 per cent of albumin in the range 0 to 0.03 per cent of albumin are said to be detectable with this lamp. The tubes are lighted nephelometrically, but a black strip at the bottom of the rack enables the observer to make comparisons by transmitted light, or turbidimetrically. The lamp is also useful for observing minute traces of any precipitate, or insoluble or suspended matter.

The price of the Clark lamp, model C, is \$26.50. The set of eight standards costs \$7, and matched tubes graduated at 2.5 and 10 cc. are \$2 a dozen. These are supplied by the R. P. Cargille Company, 118 Liberty Street, New York.

#### SENSITIZATION DERMATITIS IN ASTHMATIC PATIENT

*To the Editor:*—I am 24 years old and for six years have had what has been diagnosed as chronic eczema, allergic eczema and neurodermatitis of the face, neck and scalp, and at various times on the antecubital and postpopliteal areas, the wrists and the groin. The eczema of the head followed a severe impetigo for which ammoniated mercury was used. During the past two years I have been subject occasionally to asthmatic attacks. During these six years I have used various metallic and other ointments and also received a great variety of injections, both metallic and endocrine in nature. I also received x-ray and ultraviolet ray treatments. I have also experimented extensively with elimination diets and have spent several weeks in "allergen-free" rooms. None of these therapeutic efforts have been of any avail. About seven months ago, blurring of the vision led to the discovery of incipient bilateral cataracts, which have progressed rapidly until now reading is impossible. The opacities are located centrally near the posterior capsules of both lenses. I should like what information you can give me as to the etiology and prognosis of these cataracts. I have received different opinions from different sources, some saying that operation is inevitable and others telling me of cases in which the cataracts receded with a cure of the eczema. My next therapeutic effort will be a change of climate and I should like to know whether to relieve my eye symptoms before I do so. Could you also tell me how often these stubborn eczemas respond to changes of climate and are there any particular localities that you recommend? I thank you for any information you may give me and for any suggestions you may offer. I should appreciate a prompt reply, as my eye condition is progressing rapidly and I should like to make a decision. Please withhold name.

M.D., New York.

**ANSWER.**—The description is that of a sensitization dermatitis occurring in an allergic individual (asthma). This type of eczema is usually stubborn in its response to therapy, because of the multiplicity of factors that usually form the basis for the sensitivity. Nervous factors such as strain or exhaustion are profound contributors in the precipitation or aggravation of the attack.

The effect of climate on cases of this type is variable. Improvement is often noted after a change, but it is a question in some cases whether this improvement is due to a change of certain sensitizing factors in the old environment or is a result of the calm and relief of nervous tension usually obtained in new surroundings. The choice of a locality should be governed chiefly by previous experience with the effect of hot dry climates, or of moisture and dampness on the asthma.

Although mention is made of numerous intelligent therapeutic measures, together with elimination diets, there is no comment regarding skin tests. Investigation by scratch, intradermal or patch test methods for possible sensitivity to foods, pollens, bacterial proteins and animal epidermals should be instituted to see whether any information can be gained from these sources regarding precipitating factors for the asthma and eczema. Such information would be of value also in the selection of suitable regions to accomplish a beneficial change of climate.

There is probably no direct relation of the lens opacities to the eczema, except as a possible associated defect of vulnerable ectodermal tissue. If there is definite injury of the lens fibers with opacities, this damage is permanent, and one cannot expect a restoration of these definitely damaged areas with clearing up of the eczema.

If the eye condition is making rapid progress, the decision of the attending ophthalmologist should be followed as to the

scholar divided the infections into urogenic or ascending, hematogenic or descending, and lymphogenic. In each type bacteria may enter the blood stream of the kidney and obstruct the vascular loops of the glomeruli. In urogenic infections the lower urinary passages have been for the most part already infected, and from this location the infection travels to the kidneys. The lymphogenic infection is only rarely demonstrable with certainty. It may develop in cases of appendicitis or suppurative adnexitis. The colon bacillus appears as the most frequent agent in renal abscess. Streptococci and staphylococci follow in the order named. Differentiated clinically are (1) suppurative nephritis, (2) suppurative pyelonephritis and (3) pyonephrosis or contracted kidney. The greater number of cases fall into the second group.

Illyes makes the following recommendations with regard to therapeutic measures: In the cases of group 1, nephrectomy for patients who are in poor general health and who have chills, pain and fever; otherwise decapsulation. In renal carbuncles, either nephrectomy or, if the carbuncle is more favorably situated, incision and drainage (open treatment). For the cases of group 2 in which the retention of urine plays the most important part (renal calculi, calculi in the ureters, prostatic hypertrophy, stricture, compressions) the conservation method is preferable, as the author has been persuaded after observation of 455 cases. Pyelitis gravidarum requires operation only infrequently (sixteen of 207 cases). For the cases of group 3, which represents the terminal form of the renal suppuration, diagnosis is not difficult and the therapy should, wherever possible, consist of radical operation, although the latter is frequently difficult and heroic. Only in the most urgent cases is nephrotomy to be performed.

Necker's discussion dealt with other aspects of the same topic: On the basis of animal experimentation and after observation of a large number of cases, Necker differentiates a primary and a secondary parenchymatous suppuration. Primary suppuration denotes a circumscribed disease process of the cortex of the kidney, produced by pyogenic cocci. There are present diffuse miliary abscesses and infarcts as well as large intrarenal abscesses. The cortex is always involved.

The secondary parenchymatous suppuration is usually a colon bacillus infection. Its development depends on dynamic factors in the excretory urinary passages. Predominant symptoms are fever and pain due to pressure in the renal region. The pathologic pictures are seldom typical, usually obscure. Diagnosis is in many instances difficult, since the temperature becomes normal from time to time and the changes in the urine are not always unequivocal. Of greater significance is the continuous observation of the hemogram and of the blood sedimentation rate. If the condition is detected early enough, a surgical intervention (incision, excochleation) will produce favorable results. Secondary parenchymatous suppuration frequently causes such damage to a kidney that the maintenance of the organ is rendered impossible, although in certain cases favorable results may still be obtained by removal of obstructions from the urinary tract. Prognosis is, however, at best none too good, as not infrequently both kidneys are affected.

Professor Rubritius of Vienna next discussed the physiology of the excretory urinary passages. The basis of his experimentation was the behavior of the muscular hollow organs. He pointed out the close relationship between the function of the particular zones of these muscular organs. One section acts as a detrusor, another as a sphincter; the entire hollow organ is, so to speak, split up into functional segments that are coupled together with one another. For example, while the bladder is contracted, the peristalsis of the upper urinary passage ceases. In addition, however, the mucous membranes of the urinary tract are not without function, as they are the

seat of resorption. The excretory urinary passages constitute a closed system, the individual parts of which work together hand in hand. Therein are to be found both muscular activity and resorption; the latter supplies important data for future investigations.

A final discussion was provided by Professor Snapper of Amsterdam on the pathologic physiology of urinary secretion. The urine is a functional result of the various, wholly disparate physiologic processes in the glomeruli and the tubules. In the glomeruli an ultrafiltrate is separated from the blood plasma and this exhibits all the crystalloids of the plasma in the same concentration as in the blood. The colloids (proteins) do not pass through the glomerulus membrane. In the canaliculi a resorption of water and of various substances takes place, however. Experimentation has demonstrated that in one minute's time the astonishingly large amount of from 110 to 170 cc. of glomerular filtrate may be secreted and that from 97 per cent to 99 per cent of this water is reabsorbed in the canaliculi. The level of the blood pressure is of essential importance for the glomerular function, and this means not only the pressure in the aorta but also the independent self-sustaining alterations of blood pressure in the glomerulus. For the protection of the renal parenchyma during the secretion of the acids, the formation of ammonia is of greater significance. For clinical diagnosis the different functional tests are of the greatest value; in particular the urea-clearance test, the phenolsulfonphthalein test, the creatinine test and the dilution-concentration test. The nonsecretory renal functions should also be considered: important syntheses (hippuric acid), oxidations (acetone bodies) and the formation of ammonia.

In addition to these principal discussions, a hundred other important communications were scheduled to be submitted; so the Austrian delegates, as hosts, waived the reading of their own papers. More than eighty foreign urologists were accordingly given time in which to present their contributions. In the open discussion, however, all the delegates participated in appropriate measure, each speaker being allowed the floor for only five or ten minutes.

There were also the customary social and official receptions and entertainments, as well as the tours of inspection of scientific institutions.

## Marriages

BENNETTE EDWARD STEPHENSON JR., Weldon, N. C., to Miss Alma Hazel McGee of Willow Springs in Raleigh, Dec. 26, 1936.

HENRY CLAY ROBERTSON JR., Charleston, S. C., to Miss Caroline Elizabeth Lebby of Washington, D. C., January 2.

GEORGE AUDNEY REYNOLDS, Bowling Green, Va., to Miss Pearle Maupin Young of Fredericksburg, Dec. 31, 1936.

BENJAMIN WHEELER JENKINS, Philadelphia, to Miss Mary Agnes Wills of Jenkintown, Pa., Dec. 30, 1936.

WALLACE BROWN BRADFORD, Charlotte, N. C., to Miss Margaret Godfrey of Ambler, Pa., January 8.

LLOYD L. THOMPSON, West Point, Neb., to Miss Betty Lou Tapscott in Greenfield, Ind., Dec. 29, 1936.

JOHN THOMAS ASSEY JR., Georgetown, S. C., to Miss Helen Louise Maguire of Charleston, January 5.

KUTCHEN T. KLEIN, Meridian, Miss., to Miss Thelma Weatherford of Decatur, Dec. 30, 1936.

GUSTAVUS A. RUSH JR., Meridian, Miss., to Miss Helen Virginia Arline of Atlanta, Ga., January 11.

ARTHUR DAVID BUSSEY, Two Rivers, Wis., to Miss Henrietta S. Heller of Milwaukee, Nov. 14, 1936.

PAUL K. CANDLER, Emory, Va., to Miss Leah Estelle Haynie of Reedville, Dec. 22, 1936.

DANIEL CATLIN to Miss Doris Havemeyer, both of New York, February 9.

## EDEMA OF ANKLES

*To the Editor:*—A man, aged 38, complains of swelling of both ankles and feet for the last fifteen years. He has been employed in a slaughterhouse for the past twenty-two years and has been handling hogs and hog meat constantly during this period. He works at least ten hours a day and is called on to perform duties in the smokehouse, where the temperature averages 100 F., and in the refrigerators, where the temperature averages 30 F., continually going from the one extreme to the other for short intervals. The family history is entirely negative; his past history is noteworthy because he states that he has had none of the childhood diseases. He had influenza in 1918, has occasional sore throats, and three years ago had "yellow jaundice" and vomiting, which was diagnosed by a physician as ptomaine poisoning. There is no history of cardiac, lobar, renal, circulatory, syphilitic or malignant states. His ankles began to swell about 1920, when they "puffed up considerably all of a sudden." They do not swell at all in winter but, as soon as warm weather begins, "puff up and hang that way." The swelling disappears completely during the night but begins immediately on arising and gradually grows more severe as the day progresses. The condition has become worse during the last four weeks, so that he is no longer able to tighten his shoes. The last four days, since the onset of the extremely warm weather, the swelling has not receded at all during the night. He is able to walk without any difficulty, though he is "very tired in his legs." Above his knees he feels perfectly well but below them he feels played out. Other contributing facts are that the bowels are constipated; purgatives are necessary but the medication has not been too severe and has varied. There are occasional frontal headaches, probably due to refractive error; he drinks from eighteen to twenty cups of coffee every day, sleeps well and is not nervous. He has no aches or pains and is in excellent health, excepting for the condition described. On examination he is apparently healthy, is well developed and nourished, and lies comfortably on his back. There is no cyanosis. The pupils react to light and in accommodation. There is a superficial grayish ulceration of the lower gum which the patient ascribes to irritation from his dental plate. There is no glandular enlargement. The lungs are clear on auscultation and there is no impairment on percussion. The heart sounds are clear and are regular in rate, force and rhythm. The abdomen is normal; there is no enlargement of the liver or tenderness over this region. The genitalia and rectum are normal. Both ankles and the dorsum of both feet are edematous; the skin is tense and shiny and pits deeply on pressure. There is no discoloration of the skin. However, there are numerous small crusted excoriated areas with an inflamed areola over both legs and feet. There are a few small blebs present and one large area where a large bleb ruptured. Complete laboratory work (blood and urine) is negative. The blood pressure is 130 systolic, 80 diastolic. Is this edema due to circulatory deficiency resulting from the long standing exposure to variable extremes in temperature? Is there any occupational disease that would account for the condition? Do you think that passive vascular exercise would be helpful? Please omit name.

M.D., Maryland.

*ANSWER:*—The edema described is suggestive of some impediment to the return venous flow. It is sometimes seen in those whose employment forces them to work for long periods in a standing position, and especially when associated with high room temperature. It is at first due to a decreased tone in the vessel walls, secondarily to the heat, and to the prolonged standing position. Later varicosities frequently develop. Other sources of mechanical obstruction to the return venous flow should be considered. The condition appears from the description to be of circulatory origin, but a lymphatic edema must be considered. Passive vascular exercise is not indicated in this case. Well fitting elastic stockings might be tried.

## ZINC OXIDE FUMES FROM EFFECTS OF ACETYLENE TORCH ON GALVANIZED IRON

*To the Editor:*—I am interested in knowing what type of fume or gas is given off in the process of cutting galvanized iron sheeting with an acetylene torch; also which of these gases are deleterious when inhaled in the process of cutting galvanized iron sheeting with an acetylene torch and without the use of any mask for protection. Do the fumes from ordinary tar when boiling, and inhaled in the course of work, entail any great danger? I should also like to be referred to any literature that I can investigate.

M.D., Ohio.

*ANSWER:*—The chief fume produced in the burning off of galvanizing with an acetylene torch is zinc oxide. This zinc oxide is likewise the chief disturbing agent for exposed workmen: The high temperature of an acetylene torch readily vaporizes galvanized coating. This operation, because of the high temperatures involved, constitutes one of the most ready causes of zinc "metal fume fever." In the trades this condition is widely known as "zinc chill," "zinc ague," "spelter chill," "brassfounders' ague," and so on. Remotely the possibility exists that other gases or fumes might arise from this operation. Lead may be present in small quantities as an impurity in the zinc. Carbon monoxide has been known to arise. Hydrogen sulfide has been found in acetylene gas. However, the presence of these other gases or fumes ordinarily may be disregarded as improbable. The practical hazard is from the zinc.

Ordinary coal tar, when boiling, emits vapors that may be somewhat irritating to the skin, conjunctivae and mucous membranes. So complex is the mixture of these vapors that significance may not be attached to any one agent. One case attributed to boiling tar was reported in *THE JOURNAL*, March 2, 1929, page 695. In view of the wide applications of hot tars and asphalts, both inside buildings and in the open, such as on road work, it would appear that proved ill effects are not well established.

## DINITROPHENOL—DELAYED HEALING OF WOUNDS

*To the Editor:*—In July 1934 a patient of mine took an advertised dinitrophenol product for one month. During this period she lost 15 pounds (13.6 Kg.). Thereafter she took no more of this preparation and soon regained the pounds that she had lost. In October 1935, a year and three months after the dinitrophenol episode, she was operated on by a surgeon for prolapse of the uterus. The usual midline incision was made. Following the operation the patient developed a "stitch abscess" and this was followed by complete nonunion and sloughing of the tissues of the abdominal wall. In spite of all the usual methods of combating such a problem, namely, the use of various antiseptic dressings, exposure to the air, light therapy, and so on, the process has been progressive. Recently there has been a breaking down of the tissues overlying the anterior spines of the ilia, with tunneling extending to the original site of incision. The laboratory work in this case has not been comprehensive, showing only the presence of staphylococcus organisms. There does not appear to be any evidence of actinomycosis, blastomycosis or other fungus disease. In summary it may be said that the abdominal wall tissues apparently have no resisting and healing properties and the question arises whether the dinitrophenol medication fifteen months before operation could be a factor in the lack of healing properties demonstrated at this time. I should appreciate some word as to whether the dinitrophenol could be a factor in the nonhealing of this wound. Please omit name.

M.D., Illinois.

*ANSWER:*—Dinitrophenol has no influence on the healing of wounds. Experimental attempts have been made to determine whether or not it might increase the speed of healing of incisions, but carefully controlled experiments showed that it had no effect whatever. Dinitrophenol is excreted from the body within a few days after taking, so that there could not possibly be any effect on the healing of a wound incurred fifteen months after the administration of dinitrophenol.

The infection sustained in this instance resembles the type of infection so aptly and completely described by Melency of New York. He finds that a 50 per cent suspension of zinc peroxide in water is a very effective agent in the treatment of these infections. The infection described is probably due to the so-called micro-aerophilic hemolytic streptococcus. Zinc peroxide slowly liberates oxygen in the depths of the tissue and in Melency's hands has proved an excellent therapeutic agent. There are three cases reported in the literature of similar infections controlled by the use of maggots according to the method of Baer of Baltimore. Allantoin is replacing maggot therapy, and more recently urea, a decomposition product of allantoin, has been indicated as the basic agent in the effectiveness of this therapy.

## ANESTHESIA OF CHILD

*To the Editor:*—A girl of 6, of what used to be called "nervous temperament," who has a mitral systolic murmur but no other evidence of heart disease, was given ether for a tonsillectomy. No drugs were given before the ether. She went to sleep without any struggle and as soon as she was under the anesthetic her pupils dilated to the full extent and would not respond to light. The cornea remained moist. All other ways she seemed in good condition. Pulse, respiration, etc., were all good, and only a minimum amount of ether was needed to keep her quiet, and the anesthetic was continued until the operation was finished. She recovered well. I was alarmed, because I understood that such pupils are a danger signal unless the patient is coming out of the anesthetic. Did I need to be alarmed? The pupils remained dilated until she was well awake.

C. E. CASWELL, M.D., Wichita, Kan.

*ANSWER:*—Anesthesia may be divided into several degrees or stages of narcosis. The three stages recognized are the stage of light anesthesia, the stage of deep anesthesia and the stage of paralysis or death. The depth or degree of narcosis may be known by the pupillary reaction to light.

When patients have been given no hypnotic drug as a preliminary to anesthesia, the pupillary reaction is the most valuable guide that the administrator has to the depth or degree of narcosis. Dilatation from operative stimuli is transient and need not be confounded with that produced by the anesthetic. A dilated pupil that reacts quickly to light indicates a light anesthesia. A dilated pupil that reacts slowly to light means a deep anesthesia. A pupil that is widely dilated and does not react to light shows a dangerously deep anesthesia, and respiratory paralysis is at hand. A contracted pupil indicates

of the school board; for many years attending physician at the Utah State Industrial School; aged 69; died, Dec. 28, 1936, of cerebral hemorrhage.

**George W. Moore**, Ashland, Ky.; University of Louisville Medical Department, 1889; member of the Kentucky State Medical Association; formerly county health officer; director and member of the staff of the King's Daughters' Hospital; aged 78; died, Dec. 24, 1936, of myocarditis and chronic bronchitis.

**Jesse J. Adams**, Glasgow, Ky.; Hospital College of Medicine, Louisville, 1890; member of the Kentucky State Medical Association; formerly secretary of the Hart County Medical Society; at one time member of the Hart County Board of Health; aged 70; died, January 6, of heart disease.

**Nathaniel Palmquist**, Smithland, Iowa; Barnes Medical College, St. Louis, 1909; served during the World War; visiting member on the staff of the Methodist Hospital, Sioux City; aged 58; died, Dec. 26, 1936, in the Veterans Administration Facility, Des Moines, of coronary occlusion.

**James Laurence McCarthy**, Butte, Mont.; John A. Creighton Medical College, Omaha, 1900; member of the Medical Association of Montana; county physician and county health officer; on the staff of St. James Hospital; aged 59; died, Dec. 20, 1936, of coronary occlusion.

**Frank Jay Murphy**, Sioux City, Iowa; Rush Medical College, Chicago, 1887; member of the Iowa State Medical Society; served during the Spanish-American and World wars; aged 71; died, Dec. 23, 1936, of carcinoma of the testicle with metastasis to the retroperitoneal glands.

**Andrew Joseph Noome**, Wheeling, W. Va.; Jefferson Medical College of Philadelphia, 1900; fellow of the American College of Surgeons; on the staff of the Wheeling Hospital; aged 67; died, Dec. 4, 1936, of carcinoma of the colon with metastasis to the liver.

**Eugene B. Pribble**, Salem, Ill.; Medical College of Ohio, Cincinnati, 1906; member of the Illinois State Medical Society; formerly member of the city council; aged 59; died, Dec. 30, 1936, of pneumonia, fracture of the hip as the result of a fall, and hypertension.

**William F. X. Dierkes**, Westfield, Mass.; Kansas City (Mo.) University of Physicians and Surgeons, 1920; veteran of the Spanish-American War; on the staff of the Noble Hospital; aged 64; died, Dec. 5, 1936, in Northampton, of cerebral hemorrhage.

**Charles Ross Johnson**, Cambridge, Ohio; Starling Medical College, Columbus, 1898; president of the Guernsey County Medical Society; served during the World War; on the staff of the Swan Hospital; aged 61; died, Dec. 25, 1936, of lung abscess.

**Jesse Lee Russell**, Adairville, Ky.; University of Louisville Medical Department, 1911; also a graduate in pharmacy; past president of the Logan County Medical Society; served during the World War; aged 51; died, Dec. 23, 1936, of heart disease.

**George Moses Felton**, Schenectady, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1910; member of the Medical Society of the State of New York; aged 52; died suddenly, Dec. 31, 1936, in Fort Lauderdale, Fla.

**Septimio Caruso**, Boston; Tufts College Medical School, Boston, 1918; member of the Massachusetts Medical Society; aged 44; died, Dec. 24, 1936, in St. Elizabeth's Hospital, of ruptured diverticulitis of the sigmoid and general peritonitis.

**William M. Lively**, Dallas, Texas; Arkansas Industrial University Medical Department, Little Rock, 1892; formerly professor of obstetrics at Baylor University College of Medicine; aged 72; died, Dec. 27, 1936, of coronary occlusion.

**James L. Seibert**, Bellefonte, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1883; county medical director; on the staff of the Center County Hospital; aged 85; died, Dec. 29, 1936, of coronary artery occlusion.

**Joseph Wade Thompson**, Independence, Miss.; University of Tennessee College of Medicine, Memphis, 1915; member of the Mississippi State Medical Association; aged 61; died, Dec. 25, 1936, in Sanatorium of pulmonary tuberculosis.

**Frederic D. H. MacMaster**, Syracuse, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1897; veteran of the Spanish-American War; aged 68; died, Dec. 24, 1936, of arteriosclerotic heart disease and bronchopneumonia.

**Gustave Adolph Thielke**, Wausau, Wis.; Milwaukee Medical College, 1903; served during the World War; aged 61; died, Dec. 20, 1936, in the Wisconsin General Hospital, Madison, of hypertensive heart disease and bronchopneumonia.

**Charles Calvin Addoms**, Hondo, Calif.; Ensworth Medical College, St. Joseph, Mo., 1891; formerly a practitioner in St. Louis; aged 84; died, Dec. 16, 1936, of arteriosclerosis, hypertension and chronic myocarditis.

**Louis Philippe Adelard Dorion**, Haverhill, Mass.; School of Medicine and Surgery of Montreal, Que., Canada, 1888; also a druggist; aged 72; died, Dec. 23, 1936, in Montreal, of carcinoma of the descending colon.

**J. Chauncey Huntsinger**, Muskegon Heights, Mich.; Hahnemann Medical College and Hospital, Chicago, 1889; aged 79; died, Dec. 29, 1936, of acute pericarditis with effusion and chronic valvular heart disease.

**John Mettauer Williams**, Roanoke, Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1874; member of Medical Society of Virginia; aged 85; died, Dec. 24, 1936, of chronic myocarditis.

**Eliza Carl Porter**, Chicago; University of Illinois College of Medicine, Chicago, 1927; served during the World War; on the staff of the Lake View Hospital; aged 38; died, Dec. 25, 1936, of lobar pneumonia.

**Guy Boyd Maxwell**, Canton, Ohio; Chicago College of Medicine and Surgery, 1911; served during the World War; aged 50; died, Dec. 22, 1936, in the Mercy Hospital, Brownsville, Texas, of nephritis.

**Elwin Otis Church**, Menno, S. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 64; died suddenly, Dec. 3, 1936, of heart disease.

**Charles William Igou**, Colorado Springs, Colo.; Northwestern University Medical School, Chicago, 1896; aged 66; died, Dec. 23, 1936, of amebic dysentery and coronary thrombosis.

**Ora Waldo Drake**, Grand Rapids, Ohio; Toledo Medical College, 1906; formerly member of the board of education; aged 58; died, January 1, of arteriosclerosis and complications.

**Robert Edward Fortune**, Damascus, Va.; University College of Medicine, Richmond, 1898; member of the Medical Society of Virginia; aged 66; died, Dec. 26, 1936, of pneumonia.

**Redmond O. Davis**, Princeton, Ky.; Hospital College of Medicine, Louisville, 1900; member of the county board of education; aged 68; died, Dec. 23, 1936, of cirrhosis of the liver.

**William H. Farrar**, Hickory, N. C.; St. Louis Medical College, 1875; member of the Missouri State Medical Association; aged 80; died, Dec. 23, 1936, of intestinal obstruction.

**Zuingless U. Loop**, Los Angeles; Kentucky School of Medicine, Louisville, 1882; formerly a practitioner in Galveston, Ind.; aged 85; died, Dec. 27, 1936, of coronary thrombosis.

**E. Herman Wakelee**, Big Flats, N. Y.; University of Maryland School of Medicine, Baltimore, 1884; also a pharmacist; aged 78; died, Nov. 23, 1936, of coronary thrombosis.

**George P. Paschal**, New York; National University of Athens School of Medicine, Greece, 1911; aged 47; died, Dec. 13, 1936, of angina pectoris and coronary sclerosis.

**Rosalie M. Blitzstein**, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1898; aged 62; died, Dec. 25, 1936, of hemiplegia and arteriosclerosis.

**Thomas F. Costner**, Lumberton, N. C.; Jefferson Medical College of Philadelphia, 1882; aged 78; died, Dec. 27, 1936, of cerebral hemorrhage and hypostatic pneumonia.

**Gilbert Simpson Bovard**, Sierra Madre, Calif.; Stanford University School of Medicine, San Francisco, 1922; aged 46; died, Dec. 12, 1936, of pulmonary tuberculosis.

**John C. Toler**, Los Angeles; Missouri Medical College, St. Louis, 1881; aged 76; died, Dec. 18, 1936, of teratoma of the left testicle with metastases to the lung.

**Frank E. Corwin**, Morro Bay, Calif.; Keokuk (Iowa) Medical College, 1897; aged 63; died, Dec. 11, 1936, in Fresno, of gangrene of the leg and arteriosclerosis.

**Joseph Patrick Sweeney**, Springfield, Mass.; Jefferson Medical College of Philadelphia, 1920; aged 43; died, Dec. 26, 1936, of illuminating gas, self administered.

**James Edward Pounds**, Avondale Estates, Ga.; Atlanta College of Physicians and Surgeons, 1911; aged 49; was killed, Dec. 23, 1936, in an automobile accident.

**Jessie Helen MacDonald**, Montreal, Que., Canada; University of Bishop College Faculty of Medicine, Montreal, 1897; aged 76; died, Nov. 24, 1936.

**Joseph Kernochan Miller**, Bloomingburg, N. Y.; Boston University School of Medicine, 1912; aged 56; died, Dec. 13, 1936, of angina pectoris.



tions. If granulations are found, these should be treated with sounds. Sounds should be passed once every five days and allowed to remain in the urethra for two or three minutes and it might be well to massage the urethra on the sound. Following the passage of sounds a urethral injection of from 0.5 to 1 per cent silver nitrate should be done at the office. At home the patient may use a hand injection of 0.26 Gm. of zinc sulfate, alum and phenol in 120 cc. of water, every morning and evening. The complement fixation test would not add anything much in the way of mapping out the program of treatment.

#### INVOLUNTARY BOWEL ACTION IN DIABETIC PATIENT

*To the Editor:*—A diabetic patient consulted me recently concerning a distressing condition; namely, involuntary bowel movements while asleep. He is a white man, aged 29, fairly well nourished, and is able to do office work. He has been under diabetic treatment for about twelve years, during which time he has been hospitalized both for hyperglycemia and for insulin shock. He is doing well now on 30 units of insulin before meals. Last September he had a severe edema of the lower extremities and was told by his doctor that it was due to an existing hyperglycemia. This condition gradually cleared up, but he immediately developed the present bowel trouble. He has complete control of defecation while awake. The involuntary action occurs almost every morning about 3 o'clock. Other history and examination are essentially negative except for an infected antrum, which developed after the present complaint. The blood Wassermann reaction is negative. Paregoric has been taken in large doses and gives slight relief. Please inform me as to the cause and treatment of this condition. Omit name, please, if published.

M.D., West Virginia.

*ANSWER.*—Usually in diabetic patients, diarrhea can be traced to some such cause as colitis, enteritis or achlorhydria, or to some other complication. However, diarrhea without blood or pus in the movements is especially difficult to contend with at night. Sometimes it occurs in young or middle-aged patients. Usually, but not always, it is associated with emaciation and lack of control of the diabetes, and achlorhydria is usually present. Sometimes a deficiency of the external secretion of the pancreas and an increased fat content of the stool can be demonstrated.

In a man, aged 25, recently studied, x-ray evidence of a deficiency disease was shown in the roentgenograms of the small intestine. The treatment of the condition is often unsatisfactory. The use of vitamins, sometimes of liver extract, and adequate control of the diabetes are of fundamental importance.

#### CANCER OF CERVIX IN PREGNANT WOMAN

*To the Editor:*—A sextigravida, aged 35, with four living children, has an epidermoid carcinoma of the cervix proved by biopsy. She is also pregnant at about the four and one-half to fifth month. I sent her to a well known cancer hospital in New York for confirmation of these observations. Epidermoid carcinoma of the cervix also was found, but whereas I felt that it was an early case, the hospital examiners felt that it was midway between the early and the middle stage of growth. Every competent person, from both the obstetric and the radium therapeutic point of view, agreed that one of the following two procedures is the treatment of choice: (1) simple cesarean section with radium treatment of the cervix, and x-ray treatment of the pelvis; (2) simple hysterectomy with radium treatment of the cervix and x-ray treatment of the pelvis. All but one agreed that to allow this woman to carry her pregnancy to completion would be definitely detrimental to her future welfare. The doctor taking exception to this agreement is a very competent man. I would therefore like to obtain your opinion in this matter. Should the woman be allowed to go to term under the circumstances?

M.D., New York.

*ANSWER.*—The pregnancy would have to continue at least ten weeks to secure a viable premature infant whose chances of survival would be about 50 per cent.

Every week during which active treatment of the carcinomatous lesion is postponed lessens the chances of a cure in the mother, who already has four living children, who will need her for years to come.

The best chance for increasing her life expectancy and possibly effecting a cure would be by complete radium and x-ray therapy. This cannot be carried out effectively as long as the pregnancy exists. The production of an abortion by means of x-rays is a questionable and certainly not an established procedure.

In most cases of cervical carcinoma there exists a superimposed infection. An abdominal hysterectomy or cesarean section would carry with it a relatively high mortality. A Porro operation or an incomplete hysterectomy with bilateral salpingo-oophorectomy should be the procedure of choice. Enough cervix could be left to permit subsequent treatment with radium—or such treatment could precede the operation by not more than twenty-four hours. As soon as the operative field is free from

actual or potential infection, high voltage x-ray therapy should be instituted and carried to the limit of tolerance, preferably by the use of six portals with probably a total of about 150 roentgens to each portal. The amount of filtered radium should probably be somewhere between 3,500 and 4,000 hours.

#### FOREIGN BODY AND INFECTION OF TOOTH SOCKET

*To the Editor:*—About six or seven weeks ago annoying pains in the right elbow and knee that existed for some time prompted me to have my teeth roentgenographed, when the dentist found an abscessed second lower left molar, which he proceeded to extract. One root defied his efforts, and he referred me to an oral surgeon in the big city, who completed its extraction. The cavity showed evidence of good healing until two weeks later, when some "proud flesh" appeared in the socket, which was accompanied by some pus and bled easily. The face was slightly swollen. A visit to the oral surgeon resulted in a curetting and packing, with the prognosis of good healing. About two or three weeks later the condition recurred and to this date there is some red, hypertrophied tissue with some pus and bleeding. 1. What could be the cause of this delayed healing of a socket after an extraction? My general health is good and the joint pains that occasioned the extraction have never recurred. 2. Is there a possibility of a malignant condition? 3. Do you recommend another curetting? What other treatment would you recommend? Please omit name.

M.D., Michigan.

*ANSWER.*—1. The usual cause for the symptoms described after the extraction of a tooth is the presence of some foreign body plus infection. The commonest foreign bodies are broken fragments of tooth root not removed in the extraction, and large or small fragments of necrosed bone broken from the supporting bone in the extraction. Rarely are other forms of foreign matter found. As long as the drainage is free, the relief of the systemic symptoms is to be expected.

2. There is virtually no possibility of a malignant condition. 3. The question of another curettement can be decided only by the appearance of the case. The first thing that should be done is to roentgenograph the area to determine the possible presence of foreign bodies. There may be portions of necrotic bone in a case in which the roentgenogram is otherwise negative. If so, the wound will not heal until the sequestrum is absorbed or exfoliated. Roentgen and violet ray treatment are sometimes helpful in these cases.

#### H. G. WELLS AND DIABETES

*To the Editor:*—Is H. G. Wells (British author) a victim of diabetes? Was he an organizer and is he now an officer in a lay organization of diabetic patients? Does he and do they use insulin?

F. GREGORY CONNELL, M.D., Oshkosh, Wis.

*ANSWER.*—Mr. H. G. Wells would undoubtedly resent the implication that he is a "victim" of diabetes. More likely he glories in it and oft repeats to himself those lines of Hemley, written some time ago:

It matters not how straight the gate,  
How charged with punishments the scroll;  
I am the master of my fate,  
I am the captain of my soul.

As a matter of fact, he is president of the "Diabetic Association," an English society organized for the benefit of and service to persons with diabetes. The association issues a quarterly journal of high character in which any diabetic person would find reliable, useful and entertaining information. Full membership in the association is 1 pound 1 shilling and association membership (confined to patients of the "hospital" class) 2 shillings 6 pence a year. All classes of members receive a copy of the *Diabetic Journal*. The address of the secretary, Miss Crerar, is 124 Baker Street, W. 1, London, England.

Insulin is the only medicine recommended by the Diabetic Association for the treatment of diabetes.

#### PROPHYLAXIS OF VENEREAL DISEASE IN FEMALE

*To the Editor:*—In a recent answer to a query you gave the prophylaxis treatment against syphilis, but for the male only. What do you advise for the female? Also what prophylaxis do you advise the female to take against gonorrhea? Please omit name.

M.D., New York.

*ANSWER.*—Chemical prophylaxis, either for gonorrhea or for syphilis, is unsuitable for the female. The best method of protection from either one of these diseases for the female sex is mechanical prophylaxis; i. e., that the woman insist that her sexual partner wear a condom. While this mechanical protection does not eliminate infection with syphilis from lesions elsewhere than on the penis, and while it obviously does not protect against extragenital infection by kissing, it is nevertheless the only satisfactory prophylactic treatment for the

## CHEMOTHERAPY IN STREPTOCOCCIC INFECTIONS

To the Editor:—One sentence in the leading editorial in THE JOURNAL, January 2, might suggest that my colleagues and I were the first to investigate the protective action of *p*-aminobenzenesulfonamide in streptococcic infections of mice. I should much appreciate it if you would allow me to point out that J. and Mme. Tréfouël, F. Nitti and D. Bovet (*Compt. rend. Soc. de biol.* 120:756 [No. 36] 1935) were the first to show the activity of this substance in streptococcic infections. We were able to confirm their work, and we further showed that the sulfonamide treatment of mice infected with hemolytic streptococci and meningococci (see also Proom, *Lancet* 1:16 [Jan. 2] 1937) was more effective than that with the original protosil.

G. A. H. BUTTLE, Langley Court,  
Beckenham, Kent, England.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

## SKIN DISCOLORATION

To the Editor:—Will you kindly let me know the etiology, treatment and medical term of the condition of skin discoloration, especially during the summer months? This condition is not due to argyria or to "bismuthia," for the patient has not partaken of any of these drugs at any time. Please omit name.

M.D., New York.

ANSWER.—Any pigmentary disorder in which melanin is the pigment concerned is apt to take a deeper shade in the summer, as the production of melanin is stimulated by the more intense light. The query does not state definitely which of the hyperpigmentations is meant; but it is assumed that common sun tan, freckles or pigmented nevi are not intended.

Chloasma is the most common of the really pathologic hyperpigmentations, characterized by patches, usually ill defined, of light yellow to brown or almost black, occurring most frequently in females and located usually on the forehead or cheeks. The lesions may, however, be anywhere on the skin, symmetrical or asymmetrical, even unilateral at times. The skin is of normal texture in most cases.

Many cases of chloasma occur in women who are pregnant or who suffer from pelvic disorders, or even in young girls about puberty, some of whom have chlorosis. Termination of the pregnancy or cure of the underlying disease often clears the complexion. Several recent writers have maintained that a number of these cases are due to avitaminosis, yielding to administration of vitamin C. Schroeder and Einhauser (Ueber einen Zusammenhang zwischen gestörter Vitamin-C-Resorption und pathologische Pigmentierung bei Gastroenteritis und Achylia gastrica, *München. med. Wchnschr.* 93:923 [June 5] 1936) assert, however, that infections of the upper bowel may destroy the vitamin ingested or that achylia gastrica may inhibit its absorption. Because of this they recommend its parenteral administration.

It has long been recognized that hypofunction of the anterior lobe of the pituitary gland may cause abnormal pigmentation, just as disease of the adrenal gland causes the pigmentation of Addison's disease. Exophthalmic goiter, the administration of arsenic over long periods, Hodgkin's disease, leukemia, scleroderma, pellagra and many other diseases are associated with abnormal pigmentation of the skin, subject to increase in the summer.

Tinea versicolor increases in the summer because of increase of sweating. The action of sunlight on skin that has recently been wet with certain perfumes or toilet waters may result in sharply defined patches of pigment.

For the removal of pigment not amenable to treatment of its cause or in the numerous cases in which no cause can be found, local bleaching may be tried, it being kept in mind that too

energetic methods may result in the increase of the color instead of its removal. The commonest method is the application every evening of:

	Gm. or Cc.
Mercury bichloride .....	0.6
Alcohol .....	40.0
Distilled water .....	to make 120.0

M. Sig.: For external use. (Poison.)

This is allowed to dry on and is washed off in the morning. After a number of applications, a slight inflammation may indicate that the process has been carried far enough and the application of the lotion should cease until exfoliation has been completed. Then, if necessary, the process may be repeated.

Other methods of bleaching the skin were mentioned in Queries and Minor Notes in THE JOURNAL, Aug. 22, 1936, page 608.

## ESSENTIAL HYPERTENSION

To the Editor:—A French-Canadian boy, aged 17 years, has had more or less continuous headaches for the last four years confined chiefly to the back and right side of the head. The headache is much worse on exertion and precludes all forms of exercise or games. Physical examination showed a systolic blood pressure of 190, diastolic 120, urinalysis negative. No other pathologic condition is found on examination. The condition is presumed to be one of essential hypertension. Please outline treatment and prognosis. Please omit name.

M.D., Ontario.

ANSWER.—The data presented are inadequate for the formulation of proper treatment or prognosis. It is almost inconceivable that, other than the arterial hypertension, "no other pathologic condition is found on examination." If hypertensive arterial disease is responsible for the boy's headaches and his hypertension and it has persisted for at least four years, as intimated by the duration of the occipital pain, certainly changes in the heart, retinas and kidney function should be detectable. The fact that the urinalysis is "negative" does not preclude impairment of the renal function. In chronic glomerular nephritis, such as may be a late sequel of acute nephritis following scarlet fever, the urine may be free of more than traces of protein and show only a few erythroplasts and casts and yet the ability of the kidneys to concentrate the urine may be grossly impaired.

A truly comprehensive, useful diagnosis should so far as possible include consideration of the probable etiology, the anatomic or organic condition and the degree of functional impairment. Merely giving a disorder a name does not suffice. In view of the patient's youth, certain possible etiologic factors stand out with prominence. The following factors must be considered and either ruled out or proved present: pituitary basophilism, brain tumor (both suggested by the severe headaches), coarctation of the aorta (rare, but a factor one must not forget), nephritis, chromaffin tumor, usually of the adrenal (very rare, but still worthy of thought), and metal intoxication such as from arsenic (exposure perhaps due to previous and unsuspected medication, as with solution of potassium arsenite). Polycythemia vera may also be mentioned as a possible factor. Data regarding the boy's family history might be most valuable in revealing constitutional vulnerability.

In hypertensive arterial disease, commonly called "essential hypertension," it is the rule that the younger the patient the more rapid is the progression of the disease and therefore the darker the prognosis. In brain tumor the prognosis depends not on the hypertension but on the primary disease. A persistent diastolic tension of 120 mm. is of ominous import, particularly if it is fixed and does not fall with vasodilator medication. The amyl nitrite test should determine this point. If the diastolic tension remains relatively fixed, it is more than probable that extensive nephrosclerosis exists. This should be confirmed by renal function studies. Uremia is the more common termination of hypertensive disease in patients as young as this one. On the other hand, hypertension due to coarctation of the aorta offers a relatively good prognosis.

Therapy is dependent on accurate diagnosis and recognition, so far as possible, of the probable etiologic factors. Curative therapy is logically divided into three principles: (1) therapy directed against etiology, (2) therapy to aid in giving rest to the injured structures and (3) therapy attempting to insure adequate tissue nutrition and oxygenation. The first principle is applied in removal of foci of infection, correction of dietary and other indiscretions, attention to noninfective intoxications and recognition of other causative factors. As in hypertensive arterial disease the arterioles, myocardium and renal parenchyma are the structures primarily injured, rest for these is best assured with vasodilator medication, which may (if arteriolar sclerosis is not extensive and if the causative pressor factors are not too active and persistent) reduce the arteriolar spasm, relieve the myocardium of some of the excessive burden and improve the renal circulation. Small, frequently repeated

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, February 20, page 666.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written examination* will be held simultaneously in different centers of the United States and Canada in March. *Practical examination* will be given in St. Louis in April and at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the United States and Canada, March 6. *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 1-4. *Must be received at least sixty days prior to the examination.* Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (Pa.).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7. *All applications and case reports, in duplicate, must be filed not later than April 7.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Philadelphia, June 12. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June. Sec., Dr. Walter Freeman, 1028 Connetquot Ave., D. C.

AMERICAN BOARD OF RADIOLOGY: Philadelphia, June 4-6. Sec., Dr. Byrl R. Kirklín, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

### New York June Examination

Mr. Herbert J. Hamilton, chief, Professional Examinations Bureau, reports the written examination held by the New York State Board of Medical Examiners at Albany, Buffalo, New York and Syracuse, June 22-25, 1936. The examination covered 9 subjects and included 10 questions. An average of 75 per cent was required to pass. Six hundred and sixty-six candidates were examined, 539 of whom passed and 127 failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
University of Arkansas School of Medicine... (1932), (1934)	2		
Stanford University School of Medicine... (1931)	1		
University of Colorado School of Medicine... (1936)	1		
George Washington University School of Medicine... (1932), (1934), (1935, 3), (1936)	6		
Georgetown University School of Medicine... (1934)	2		
Howard University College of Medicine... (1933)	2		
Loyola University School of Medicine... (1936)	7		
Rush Medical College... (1936)	3		
School of Medicine of the University of Illinois... (1935), (1936)	2		
Louisiana State University Medical Center... (1936)	1		
Tulane University of Louisiana School of Medicine... (1936)	1		
University of Maryland School of Medicine and College of Physicians and Surgeons... (1936)	1		
Harvard University Medical School... (1934), (1935), (1936, 2)	1		
Tufts College Medical School... (1935)	4		
University of Michigan Medical School... (1933), (1935), (1936, 2)	1		
St. Louis University School of Medicine... (1935, 2), (1936, 3)	5		
Washington Univ. School of Medicine... (1934, 2), (1936, 2)	4		
Creighton University School of Medicine... (1935), (1936, 2)	3		
Albany Medical College... (1935), (1936, 20)	21		
Columbia University College of Physicians and Surgeons... (1933, 2), (1934), (1935), (1936, 55)	59		
Cornell Univ. Medical College... (1934, 2), (1935, 2), (1936, 28)	32		
Long Island College of Med... (1934), (1935, 2), (1936, 66)	69		
New York Homeopathic Medical College and Flower Hospital... (1935, 3)	3		
New York Medical College and Flower Hospital... (1936, 6)	6		
New York University, University and Bellevue Hospital Medical College... (1934, 2)	2		
New York Univ. College of Medicine... (1935, 7), (1936, 81)	88		
Syracuse University College of Medicine... (1936, 31)	31		
University of Buffalo School of Medicine (1933), (1934), (1935, 2), (1936, 38)	42		
Univ. of Rochester School of Med... (1932), (1935, 4), (1936, 25)	30		
University of Oklahoma School of Medicine... (1935)	1		
University of Oregon Medical School... (1931, 2)	2		
Hahnemann Medical College and Hosp. of Philadelphia... (1933)	1		
Jefferson Medical College of Philadelphia... (1934), (1936, 4)	5		
Temple University School of Medicine... (1931), (1935)	2		

Univ. of Pennsylvania School of Medicine... (1933), (1934, 2)  
 Woman's Medical College of Pennsylvania (1933), (1934), (1935), (1936)  
 Baylor University Medical College  
 Marquette University  
 University of Alberta Faculty  
 Dalhousie University Faculty  
 Queen's University Faculty  
 University of Toronto Faculty  
 University of Ontario  
 Faculty of Medicine... (1936)  
 der Universität Wien (1935, 7), (1936)

(1936, 3)†  
 Licentiate of and Member of the Royal College of Physicians and Surgeons of England  
 Univ. of Durham  
 University of London Faculty of Medicine  
 University of Sheffield Faculty of Medicine  
 Université de Paris Faculté de Médecine (1936)†  
 Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg (1934)†  
 Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin (1934)†  
 München  
 Medizinische Akademie Düsseldorf  
 Universität Heidelberg Medizinisch  
 National University of Athens School of Medicine  
 Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia (1935)†  
 Regia Università degli Studi di Roma, Facoltà di Medicina e Chirurgia (1933), (1934)†  
 Regia Università di Napoli Facoltà di Medicina e Chirurgia (1934)†  
 University of Lwów (1931)†  
 Licentiate of the Royal College of Physicians and Surgeons of Glasgow (1935, 2)†  
 University of Aberdeen Faculty of Medicine... (1934)  
 University of Glasgow Medical Faculty... (1935)  
 Universität Basel Medizinische Fakultät... (1935), (1936)†  
 Universität Bern Medizinische Fakultät (1934)† (1935)  
 Universität Zürich Medizinische Fakultät (1934), (1935)  
 (1935, 5)† (1936)†  
 Université de Genève Faculté de Médecine (1934)† (1935, 3)†  
 Université de Lausanne Faculté de Médecine... (1934)†

School	FAILED	Year Grad.	Number Failed
Georgetown Univ. School of Medicine... (1934), (1935), (1936)	3		
Howard Univ. College of Medicine... (1931), (1934), (1935)	2		
Northwestern University Medical School... (1929), (1931)	1		
University of Kansas School of Medicine... (1931)	1		
Johns Hopkins University School of Medicine... (1935)	2		
University of Michigan Medical School... (1930), (1931)	1		
Medical School... (1936)	1		
School of Medicine... (1935, 2), (1936)	1		
School of Medicine... (1936)	1		
School of Medicine... (1935), (1936)	2		
School of Medicine... (1935, 2), (1936, 2)	2		
School of Medicine... (1936, 5)	5		
Medical College and Flower Hospital... (1934), (1935, 2)	3		
New York Medical College and Flower Hospital... (1936, 31)	1		
New York University, University and Bellevue Hospital Medical College... (1933)	1		
New York University College of Medicine... (1935), (1936, 2)	6		
Syracuse University College of Medicine... (1935), (1936, 3)	2		
University of Buffalo School of Medicine... (1934), (1936, 3)	4		
University of Rochester School of Medicine... (1932), (1934)	1		
Jefferson Medical College of Philadelphia... (1936)	1		
Medical College of the State of South Carolina... (1935)	1		
University of Vermont College of Medicine... (1935, 2)	2		
Medical College of Virginia... (1935, 2)	1		
Marquette University School of Medicine... (1932)	1		
Queen's University Faculty of Medicine... (1930), (1935)	1		
McGill University Faculty of Medicine... (1933, 3)†	9		
Medizinische Fakultät der Universität Wien (1921), (1933, 3)†	1		
(1935, 3)† (1936, 2)†	1		
Deutsche Universität Medizinische Fakultät, Prag... (1928)	1		
Masarykova Universita Fakulta Lékařská, Brno... (1935)†	1		
Universita Karlova Fakulta Lékařská, Praha... (1935)	1		
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London... (1935)	1		
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England... (1936, 2)†	1		
Université de Paris Faculté de Médecine... (1936)†	1		
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg (1930)	1		
Eberhard-Karls-Universität Medizinische Fakultät, Tübingen (1936)†	1		
Friedrich-Alexanders-Universität Medizinische Fakultät, Erlangen (1930)	1		
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin (1933)† (1934)† (1935)† (1936)†	2		
Hamburgische Universität Medizinische Fakultät... (1935, 2)†	1		
Goethe-Universität Medizinische Fakultät... (1933)	1		
Universität Bonn Medizinische Fakultät... (1936)†	1		
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau... (1931)†	1		

present immediate management. However, if in his judgment a delay of a few months is not associated with any great danger of marked progression, a change of climate, in the light of these comments, might be in order. Improvement in the skin condition may result in considerable improvement of the general and nervous state, with its associated possible beneficial influence on the eye condition, and favorably influence subsequent operative procedures.

#### PYELITIS IN PREGNANCY

*To the Editor:*—A primigravida one week over seven months, aged 27, weight 115 pounds (52 Kg.), started vomiting early in January, about as usual. Early in April she complained of her urine scalding her and then of frequent urination. In about one week she went to bed with a pronounced chill, a temperature of 103 F., and severe pain in the back midway between the kidney and the bladder, sensitive to touch and not relieved by any medicine or posture. Methenamine made little difference in the slide picture, which had plenty of pus cells, some blood cells, little clumping and no casts. After one week in bed the patient was up and about, feeling well, although medicine was continued, when in a week's time the same chill, temperature and pain recurred. She got so she could not even take water and keep it down. I took away all medicine and sent her to the hospital in care of one of our best surgeons, and now after one week of dextrose intravenously she is back home in bed and taking three meals; but still the first thing in the morning she raises or spits up. Now delivery is as yet seven weeks away. This in my opinion will light up again as soon as she gets about. She certainly cannot lose any more and go that long. If a cesarean is the elected operation, should she be sterilized? I should think that a catheter would be dangerous in a pyelitis of this type. How much longer am I to chance with nature? What will be the borderline here? Please advise me what to do and when to do it or just to keep her in bed. If she becomes pregnant again will the same condition recur or is this the colon bacillus? Please withhold my name.

M.D., New York.

**ANSWER.**—The patient should have ureteral catheterization for drainage of the kidney pelvis if there is persistent pyuria and fever. That should suffice to permit the pregnancy to progress to a normal termination. If nourishment sufficient to maintain nutrition is retained, the blood pressure remains low and the urine remains relatively free from albumin and casts, expectant care is preferable to intervention.

The patient should be at rest, most of the time in bed.

Pyelitis is not, in itself, an indication for sterilization at the time of cesarean section. The general health of the patient and her wishes relative to having more children are equally important factors in determining whether further childbearing should be prevented. Many patients escape recurrence of the pyelitis in subsequent pregnancies.

#### PERIPHERAL NERVE INJURY DURING CHILDBIRTH

*To the Editor:*—I have under my care a 2 weeks old male infant who has a congenital deformity of the right external ear, it being about one-fourth the size of the left. The child has also a right facial paralysis (central). The pregnancy was normal and the labor was short and not difficult. However, the infant was pale and lethargic for about four days after birth. Now it is alert, takes feedings well and is gaining properly. The facial paralysis persists even though there is apparently no evidence of increased intracranial pressure or other neurologic signs indicating an extensive lesion. The questions confronting me are these: 1. Does the facial paralysis result from a birth injury or is it congenital? 2. If either, what therapeutic procedures may be followed advantageously? Should one consider nerve transplanting later? When should plastic surgery be resorted to for correction of the ear deformity? If delay is advised are there any measures that might prove helpful if done in the meantime. Kindly omit name.

M.D., Tennessee.

**ANSWER.**—1. It is possible that facial paralysis may have resulted from a trauma inflicted on the peripheral nerve during birth, in which case the electrical excitability of the area supplied by the peripheral nerve would be diminished or absent. It has also been suggested that retardation of the growth of the external ear and injury to the peripheral facial nerve might be due to the pressure of amniotic bands in utero. In the central or supranuclear form of paralysis either the upper or the lower branches of the facial nerve are involved, and consequently there is an absence of complete paralysis of this nerve. The response to electrical stimulation in cases of facial paralysis of central origin is normal. A lesion of central origin may be due to hemorrhage or edema or aplasia of the nuclear centers.

2. Peripheral lesions frequently recover spontaneously. Treatment with the faradic current has been advised in the later stages. Nerve transplantation would offer no hope in the treatment of this patient.

The congenital deformity of the ear, also known as microtia, may be of variable degree, from defective development to complete absence of the external ear. It has been observed that

most of these malformations occur on the right side. Not infrequently there is associated with this deformity partial or complete atresia of the external meatus or of the auditory canal. Gustav Alexander believes that, on account of the undeveloped condition of the cartilage, plastic operations in this region should not be undertaken until the sixth or eighth year (*Die Ohrenkrankheiten im Kindesalter*, Pfäundler and Schlossmann, *Handbuch der Kinderheilkunde*, vol. 7). Joseph C. Beck (in Jackson and Choates, *The Nose, Throat and Ear, and Their Diseases*) notes that there is great difficulty in obtaining a good cosmetic result when the external ear is more than two-thirds absent. He believes that surgery has not proved equal to the task. Both he and Alexander believe that for the present the use of a prosthesis, the replacement of an absent part by an artificial one, gives the most satisfactory results.

#### MENSTRUAL SKIN ERUPTIONS

*To the Editor:*—A white woman, aged 28, married and childless, has been complaining intermittently for several years of irritation of the inner aspects of the labia minora. This condition presents itself in the form of sebaceous cysts ranging in size from a green pea to the head of an ordinary straight pin. I have removed under local anesthesia two of the larger cysts in toto and have opened the smaller ones and expressed sebaceous material or thin watery appearing pus. At the menstrual period these lesions become extremely painful from the contact of the sanitary pad. I have advised the use of mildly antiseptic and healing douches and also application of butyn or nupercaine ointment. These measures give only temporary relief and in a few days there appear one or two small white beads at the opening of the ducts of the labia. The vaginal secretion is normal in amount and alkaline in reaction. I have not attempted any form of cauterization because the appearance of the cysts and the frequency of recurrence almost prohibit it. Please advise me as to some method of treatment. Please omit name.

M.D., Florida.

**ANSWER.**—The local measures employed would seem in the main to have been rational, though ointments are usually not as satisfactory in the treatment of such local infections as the frequent application, two or three times a day, of some mild antiseptic, such as 5 per cent mercurochrome. As douches have been recommended, it is assumed that the patient has a leukorrhea, which might well be keeping up the vulvar infection. If, as is likely, the leukorrhea is of cervical origin, active treatment of the latter is indicated, preferably with cauterization if there is a definite endocervicitis or erosion.

Increased activity of the vulvar sebaceous glands is normal during menstruation, so that a flare up of the condition at this time is not surprising, aside from possible irritation by the menstrual napkin or discharge. In fact, it is not rare to see vulvar skin eruptions, especially herpes, occurring only in relation to the periods. For this reason it may be worth while to try organotherapy in this case. Good results have been reported in various menstrual skin eruptions from the use of both estrogenic substances and the anterior pituitary-like principles of pregnancy urine. If the former are used, a good plan would be to give theelin or similar type of preparation in hypodermic doses of about 2,500 international units every second or third day, beginning five or six days before the periods and keeping these up until after the period is over. If this is not effective, the same plan may be followed with antuitrin-S or follutein, in an intramuscular dosage of 100 units.

#### TREATMENT OF ASPHALT BURNS

*To the Editor:*—Kindly inform me as to what is the best method of caring for asphalt burns—immediate as well as office care.

C. J. PATTHOFF, M.D., Springfield, Ill.

**ANSWER.**—Asphalt burns and tar burns are characterized by a rapid fixation on the surface of the traumatizing agent. In burns of this type the crust formed by the fixation of the tissues with asphalt or tar may be allowed to remain if it is obvious that the burn is superficial. When the burn is severe and deep, débridement should be done, preferably under gas anesthesia. A satisfactory dressing of the wound following débridement is accomplished by the direct application to the surface of fine mesh gauze (40 by 44), over which fluffs of gauze should be placed. In this second layer, several perforated tubes should be incorporated to serve as a means of keeping the wound constantly wet with saline solution. In large wounds, skin grafting should be resorted to as soon as practicable. When burns are superficial and there has been no fixation of the tarry substance on the surface, tanning of the burned area with 5 per cent tannic acid solution is a satisfactory method of treatment. Butesin picrate ointment is also an efficacious dressing for these relatively mild burns.

The purpose of the book seems to be to present the results of treatment with so-called protein stabilization. This means that sufficient protein is given for the metabolic needs of the mother, the fetus, and whatever protein is lost in the urine. Improvement in patients with preeclampsia and the fact that they have had no patients with eclampsia who were treated with their protein stabilization methods leads him to ascribe the results to this treatment. However, it is well known that most large clinics, with varied types of treatment, many of them almost starvation, have too few cases of eclampsia for study or demonstration to students.

*Die Wege und Ergebnisse chemischer Krebsforschung.* Von Privatdozent Dr. R. Wilhelm, Assistent am Institut für medizinische Chemie der Universität Wien, und Dr. K. Stern. Paper. Price, 9 marks. Pp. 473. Vienna: Aesculap-Verlag, Gesellschaft m. b. H., 1936.

This is an elaborate and comprehensive book dealing with all phases of the relationship of cancer to chemistry in the broadest meaning of both words. It deals with the chemical aspects of cancer etiology, diagnosis and therapy. The broad scope of the book can be seen from the subjects of its chapters: inorganic chemistry, organic chemistry, physical chemistry, ferments, nutrition and vitamins, tumor metabolism, endocrine glands and hormones, immunology, and biologic and chemical tumor diagnosis. Although one might believe it impossible to cover this enormous field adequately in such a comparatively short presentation, this has been accomplished not only by an enumeration of the facts but always with an effort to give a critical evaluation of these facts. Naturally, the value of the chapters is not equal, depending on the actual state of our knowledge as well as on the special interest and experience of the authors. In spite of this, one must appreciate that there is always the tendency not to overemphasize particular sections because of a personal interest but to give every phase of the subject its merited importance. Since in almost all these fields definite conclusions are lacking today and the experimental results as well as the conclusions of different authors are in many instances completely contradictory, naturally this book could not become and was not intended to become a textbook reaching definite conclusions and doctrines. It affords, however, an extremely valuable basis for any one interested in one of these problems, since it gives a comprehensive and reliable summary of what is known today and what is not known. The critical and objective discussion, together with the extensive bibliography, makes the book extremely valuable as a reference work which will be consulted by every one in the future who might need reliable and complete information as to the objective status of these problems without toilsome search in the scattered literature.

*Lecciones de patología médica.* Tomo II. Por el Dr. C. Jiménez Díaz. Half-leather. Pp. 1,403, with 297 illustrations. Barcelona: Editorial Científico Médica, 1936.

It is hard to review a book of this character because of the rather unusual form in which it has been compiled. As explained in the title page, these are a professor's lectures to his class as taken down by a stenographer, lacking in other words the final touches and polish which any work of such technical nature requires. Much of the criticism that could be aimed at this bulky volume probably arises from this cause. There is a lot of valuable, painstaking and perhaps too minute and often unmethodical pathologic information in these pages, especially on the kidneys (548 pages), but also on the nervous system and a number of its diseases, and various lung, heart, gallbladder and bowel conditions, including appendicitis and colitis. Much of it, however, seems rather incoordinated and unnecessarily prolix. Too much space appears also to be taken by the presentation of patients and the discussion of symptoms. Although the characteristics of the audience may explain this, it often deflects the discussion from its textbook nature into a series of clinical reports without general conclusions as to the disease dealt with. A number of original illustrations bring out salient points. Various authors have contributed sections on diagnosis and even treatment, which is a rather unusual feature in a textbook on pathology. On some points the author does not seem to have kept up with the latest developments; for instance, in his statement (p. 1242) that sprue is a disease of the tropics and especially of Puerto Rico. The lack of an index is almost inexcusable in a book of this size and scope.

*Paget's Disease of the Nipple and Its Relation to Surface Cancers and Precancerous States in General.* By Keith Inglis, M.D., Ch.M., Professor of Pathology in the University of Sydney. Cloth. Price, \$13. Pp. 155, with 237 illustrations. New York & London: Oxford University Press, 1936.

This book is a valuable archive of detailed reports of cases of Paget's disease together with excellent and beautiful gross pathologic and histologic illustrations. On the basis of his carefully examined material and a critical consideration of the literature, the author believes that Paget's disease is a special variety of cancer of the mammary ducts, beginning at the junction of the lactiferous duct with the epidermis and growing downward in the epithelium lining the duct wall of the acini as well as outward in the epidermis of the nipple. The most important difference between this disease and diseases that might produce similar changes in the squamous cell epithelium (as for instance Bowen's disease, Paget's disease in other parts of the body and precancerous lesions in the squamous cell epithelium of the mucous membrane of the upper respiratory tract or of the cervix) is that in these conditions the malignant cells originate in situ whereas in Paget's disease the author considers that the cancerous cells have already invaded the epithelium of the overlying skin.

*Apicius: Cookery and Dining in Imperial Rome.* A Bibliography, Critical Review and Translation of the Ancient Book Known as *Apicius de re Coquinaria*, now for the First Time Rendered into English. By Joseph Domers Velling. With a Dictionary of Technical Terms, Many Notes, Facsimiles of Originals, and Views and Sketches of Ancient Culinary Objects Made by the Author. Introduction by Prof. Frederick Starr. Boards. Price, \$7.50. Pp. 301, with 40 illustrations. Chicago: Walter M. Hill, 1936.

This cookery book, dating back to imperial Rome, contains some 500 recipes in cookery with a sprinkling of medical formulas and hints as to hygiene. The author of the volume is unknown, and it is presumably a repetition of Greek knowledge compiled by an unknown Roman cook. Especially interesting are the equivalents of our modern cocktails, laxative wines, the salts, vegetable dinners, and the various items which, because of symbolism, were supposed to have special value in relationship to body function. Special interest attaches to the product *Garum*, which was a fish oil made from the livers of fish, exposed to the sun, fermented and preserved. This product in ancient Rome was renowned for its medicinal properties.

*El tratamiento médico-quirúrgico de las supuraciones pulmonares.* Por Hernán Oyangueren M. Prólogo del Dr. Gonzalo Corbalán T. Paper. Pp. 94, with 45 illustrations. Santiago de Chile: Imprenta "Leblanc," 1936.

In this short monograph Dr. Hernán Oyangueren M. reviews his experience in the treatment of pulmonary infections (lung abscess, bronchiectasis, and so on). His opinions follow, in general, those expressed in almost every modern textbook on the subject and in most of the literature of today. The monograph might well be used as a chapter in such a work. Although written in Spanish, it is easily read by any one who has a slight knowledge of that language, and the summary, which is translated into English, makes it available for American physicians. The author demonstrates that even a comparatively small number of cases can be used as a basis of an excellent piece of work, provided sufficient care is taken in their study.

*The Physiology of the Elephant.* By Francis G. Benedict, Director, Nutrition Laboratory, Carnegie Institution of Washington. Publication No. 474. Paper. Pp. 302, with 13 illustrations. Washington, D. C.: Carnegie Institution of Washington, 1936.

By means of an apparatus developed particularly for the purpose, the author was able to make a study of the respiratory exchange in the elephant. This original investigation is associated with the important facts regarding the physiology of the elephant, including the relationship between the weight of the new-born elephant and that of its mother, necropsies, basal metabolism and similar factors. It is interesting to know that the average length of life of an elephant is probably about that of man. Many elephants sleep standing up. The elephant matures sexually at about 10 years of age and its period of gestation is about twenty months. A new-born elephant weighs about 200 pounds. A full-grown elephant drinks about 50 gallons of water a day, preferably warm. The total basal metabolism of the average elephant is 4,900 calories for twenty-four hours. A large elephant produces about as much heat as thirty men.



a moderate degree of anesthesia. In testing the pupillary reaction, the amount of light that strikes the pupil must be taken into account. Naturally, if the light is dull the reaction will not be so active. When elevating the lid, the finger should be gently but firmly pressed close to the margin, and the lid suddenly raised. If the lid is slowly brought up and the narcosis is very light, the reaction may be lost. When there is any resistance to manipulating the lid, the anesthesia is very light, too light for operative work.

In all probability, as only a minimum amount of ether was needed for the anesthetic, the patient was in a stage of light anesthesia and there was no cause for alarm.

#### SPONTANEOUS PNEUMOTHORAX

*To the Editor:*—A man, aged 35, whose past history is negative for any serious illness except for a toxic goiter which was removed ten years ago, suddenly developed a spontaneous pneumothorax on the right side six years ago, although apparently in good health. There was no injury or strain, the left lung was normal, and he had no fever at any time, no loss of weight or weakness, and no cough or sputum. Tuberculosis was assumed to be present and he was kept at rest for three months. The lung expanded completely and x-ray examination showed no evidence of tuberculosis, except some pleural adhesions at the base. The man gained in weight, remained in good health for six years, and then again, without apparent cause, there was a recurrence of the spontaneous pneumothorax on the same side. I would appreciate any suggestions as to cause and further treatment, especially as to prevention of future accidents.

E. M. BERGER, M.D., Chicago.

**ANSWER.**—The most common cause of rupture of the visceral pleura producing pneumothorax is tuberculosis. From 70 to 90 per cent of cases may be traced to this cause. When pneumothorax develops in tuberculosis it is usually seen in moderately or well advanced cases. It may be found in minimal cases in which the initial lesion is situated close to the surface of the lung, more commonly in the lower part of the lung rather than at the apex. The x-ray evidence of pleural adhesions at the base of the lung in this case is at least suggestive of tuberculosis as the cause of the pneumothorax. There is a group of cases, which have been called spontaneous or idiopathic, in which a healthy young person develops pneumothorax without any apparent cause. In such cases it is always difficult to exclude tuberculosis with absolute certainty. The most common cause of spontaneous idiopathic pneumothorax is the rupture of an emphysematous vesicle. These vesicles depend on scar tissue involving a bronchiole in such a manner as to produce expiratory obstruction. There results gradual overinflation of the affected lobule, with ultimate perforation into the pleural cavity. The great majority of these cases occur in the male sex, more than 60 per cent in the third decade. This might be explained in part by the greater physical activity of the sex and also suggests the treatment as to the prevention of future accidents; that is, to lessen the activity of the patient.

#### BITE OF BLISTER BEETLE

*To the Editor:*—I would appreciate information on a case which I have, the history of which is as follows: The patient left my office late one evening and proceeded to his home in Philadelphia by way of automobile. In the course of the drive he felt an insect on the anterior region of his neck, which he crushed and killed where it had alighted. The insect, he states, felt like a beetle. About six hours later he felt an intense burning in this same area on the neck. A few hours later he noticed a large bleb, which peeled off, leaving an area approximately an inch square, which had the appearance and feeling of a severe burn in which the epidermis is destroyed and part of the dermis. Two days later the wound was of the same size, still painful and burning, red, oozing a serous fluid, depressed and sharply margined, with destruction of the superficial layer of the skin. What is the cause of this lesion, what insect could produce it, and what would be the treatment?

M.D., Pennsylvania.

**ANSWER.**—There are many beetles throughout the United States that are related to the *Cantharis* beetle of Europe, from which cantharides powder is made by drying and crushing the bodies. All these insects are known popularly as blister beetles. Some forms are so destructive to potatoes, beans, beets and other vegetables that they have been called potato bugs. They also destroy clematis, asters and other flowers and appear in great numbers in years following those in which grasshoppers have been abundant, as they breed in the ground and their early metamorphic forms feed on the egg cases of the grasshoppers.

One of these blister beetles is so common in Pennsylvania that it is known as the Pennsylvania blister beetle, *Epicautis pennsylvanica*. All forms, as the name implies, have the property, when crushed, of blistering human skin.

The best treatment is prophylaxis. Brush the beetle off respectfully, instead of rudely crushing it. After the bulla

forms, puncture and drain it with care, so that its contents are not left on the neighboring skin, and apply a dry dressing over the collapsed bulla. When the crushed bodies of the beetles come in contact with raw surfaces they sometimes produce serious necrosis. If the top of the bulla has been removed, a cool wet dressing of 8 per cent solution of aluminum acetate may be applied, and then a dressing of 10 per cent boric acid in cold cream.

#### TREATMENT OF SYPHILIS

*To the Editor:*—About a year ago I received the report of an early case of syphilis. The lesion had been diagnosed as a chancre and the darkfield examination had been reported positive by a reliable laboratory. The patient then changed doctors. His present physician told him that he was healed and did not need further treatment and took two Wassermann tests, which were both reported negative. I called the boy in and explained the situation to him, but he is convinced that he is safe and nothing short of armed force, which I hate to resort to, will bring him in for treatment. I dislike also antagonizing the older practitioner by insisting that this case is not closed. I would like your opinion at least for my own satisfaction. To summarize: A young healthy man, aged 20, reports with a clinical chancre, proved by darkfield, and receives a few injections of neoarsphenamine, whereupon the lesion disappears. A month later the Wassermann reaction is negative and he refuses further treatment. Am I within my rights, as assistant health officer in charge of the county venereal clinic, in insisting that he take further treatment? Is the second consultant wrong in advising him that he does not need "any more shots"? What is the ethical thing to do?

M.D., Michigan.

**ANSWER.**—In a seronegative primary syphilis, which the description indicates, continuous treatment for one year should be given. The negative Wassermann reaction mentioned does not relieve the patient of taking or his physician of giving an adequate amount of treatment. Adequate treatment includes approximately twenty-six injections of arsphenamine or its equivalent in neoarsphenamine and from twenty-eight to thirty-two injections of a bismuth compound or its equivalent in mercury. (See Moore, J. E.: *Ven. Dis. Inform.* 10:53 [Feb. 20] 1929.)

#### EPIDIDYMITIS AND PROSTATITIS

*To the Editor:*—A man patient developed a urethral discharge twelve days after sexual intercourse. Fearing gonorrhea, he visited a local doctor. Urethral smears were positive for gonococci. Anterior urethral instillations of 0.5 per cent strong protein silver were instituted by the physician and given daily over a period of two months. Two weeks after the onset of the urethral discharge, a left epididymitis developed, which cleared up in about ten days. However, with the two-glass urine test, shreds persisted in being present in the first glass with the second glass being entirely clear. Because of this, the patient decided to change physicians and came to me two months and one week after onset of the urethral discharge. On examination he presented nontender testicles, normal in size. There was no urethral discharge. The prostate was normal in size and not tender. The first glass of urine showed the presence of a few shreds, the second glass being clear. Treatment instituted was the discontinuance of anterior instillations of strong protein silver and substitution of intradermal injections (0.1 cc.) of Corbus-Ferry gonococcus filtrate every six to seven days. These injections have been given for the past six weeks and also the local use of bacterial antigen daily for the past two weeks. The first urine glass still shows a few shreds with the second glass being clear. A prostatic smear showed no gonococcus organisms. Would a gonococcus complement fixation test be indicated to determine whether gonococcal infection is still present? What does the persistence of shreds in the urine indicate? Does the use of the Corbus-Ferry gonococcus filtrate influence the result of the complement fixation test? Would dilation of the urethra on several occasions aid in clearing up the urine? If so, would full dilation of the urethra be indicated in this case? Kindly omit name.

M.D., New York.

**ANSWER.**—In view of the fact that the patient developed an acute epididymitis following urethral infection, he has, or had at that time, an infection in the prostate and seminal vesicles. Therefore an examination of the strippings from the prostate and seminal vesicles should be made to determine whether or not the strippings show pus. If it is not possible to obtain the expressed fluid at the external urethral orifice, a three glass test should be made and the contents of the third glass centrifugated and the sediment examined for the presence of pus. If there is evidence of prostatitis and vesiculitis the patient should use heat by rectum in the form of a rectal heater or sitz baths and gentle massage every five days, the treatment to be continued until the infection in the prostate and seminal vesicles has cleared up.

The shreds in the first glass mean infection in the anterior urethra. If pus is present at the external urethral orifice, it should be examined for gonococci. If no pus can be obtained, the shreds should be fixed on the slide and stained for gonococci. If no gonococci are found either in the urethral discharge or in the shreds, it is justifiable to examine the anterior urethra with a diagnostic bougie for the presence of granula-

not, the court pointed out, a collateral and conditional promise to pay the debt of the boy's parents, but a primary and direct obligation incurred by the railroad company through the promise of a duly authorized representative. While the acts and promises of the local agent in bringing the boy to the hospital and asking that he be taken care of might not in itself be sufficient to bind the company, yet his acts were ratified by the payment of the ambulance bill incurred in bringing the boy to the hospital and by the subsequent promise by the claim agent to pay the bill. There was no similarity, in the opinion of the court, between the present case and those cited by counsel for the defendants where a person present at an accident calls for medical assistance for one seriously injured without any promise or agreement by the person so making the call to pay for the services, and where the person so making the call owes no legal duty to the injured person to render assistance. In such a case the person is acting the part of a good Samaritan, and no legal obligation is incurred. In the present case, however, the plaintiff proved an agreement to pay for the services. Even though no legal liability for damages may have been incurred by the railroad company because of the accident, nevertheless a claim for damages was made possible by the accident, and the railroad company had an interest in minimizing the damages had the facts developed a liability. At least the company was not in the position of a disinterested stranger.

In the opinion of the court, the judgment of the lower court for the hospital was justified and that judgment was affirmed.—*Eunice Clinic & Hospital, Inc., v. Baldwin et al. (La.)*, 167 So. 868.

**Privileged Communications: Widow's Right to Waive Privilege.**—Section 11494, Ohio General Code, provides in part:

The following persons shall not testify in certain respects:

... a physician, concerning a communication made to him by his patient in that relation, or his advice to his patient. But the . . . physician may testify (1) by express consent of the . . . patient; (2) and if the . . . patient voluntarily testifies, the . . . physician may be compelled to testify on the same subject.

The appellee's husband died from an injury allegedly sustained in the course of his employment. The appellee, as his widow, was denied benefits by the industrial commission of Ohio. She further prosecuted her claim in the court of common pleas, and to establish the claim she introduced the testimony of a physician who had attended the deceased both before and after the accident. The industrial commission objected to the admission of this testimony on the ground that it came within the purview of the privileged communications statute and that the privilege could be waived only by the patient, that the right to waive does not survive but dies with the patient. The trial court overruled this contention and subsequently gave judgment for the widow. This judgment was affirmed by the court of appeals, and the industrial commission sought a reversal in the Supreme Court of Ohio.

An injured employee, said the court, cannot hide his physical condition and draw compensation under the workmen's compensation act. He must, so long as he lives, give the medical adviser of the industrial commission opportunity to examine him and learn all that his family physician could possibly know. If his dependents make claim for death because of an occupational disease, the industrial commission can pursue his body after death and examine it, before the dependents will be permitted to participate in the state insurance fund. The workmen's compensation act has taken away the privilege the employee enjoyed under the general privileged communications statute. In the present case, the testimony of the attending physician was introduced for the purpose of proving the nature and extent of the personal injuries sustained by the employee. To entitle the widow to death benefits under the workmen's compensation act it was incumbent on her to prove that her husband died from injuries sustained by him during the course of his employment. To do so, it was necessary that she introduce testimony concerning the nature and extent of the injuries sustained by her husband and to establish causal connection between those injuries and his death. To deprive her of the right to waive the privilege accorded by the privileged

communications statute would be to deny her the means of enforcing the rights given to her by the workmen's compensation act. It is inconceivable, said the court, that the legislature intended, on the one hand, to extend to the widow of an employee, whose injuries resulted in death, certain financial benefits, and, on the other hand, to place her beyond reach of such benefits by the interposition of a technical rule of evidence. The privileged communications statute must be construed, the court continued, so as to afford rather than deny to the widow the legal means available for the enforcement of the rights accruing to her under the workmen's compensation act. Furthermore, the weight of authority supports the view that the right to waive the privilege survives the patient. With this view, the court expressed itself as in accord, thereby departing from the holding in a case previously decided, *Swellard v. Miles*, 101 Ohio St. 501, 130 N. E. 22.

The court held, therefore, that the trial court did not err in permitting the attending physician to testify. The judgment of the trial court for the widow was affirmed.—*Industrial Commission of Ohio v. Warnke (Ohio)*, 2 N. E. (2d) 248.

**Evidence: Admissibility of Roentgenograms for Purposes of Comparison.**—The plaintiff's pelvis was fractured when she was struck by an automobile driven by the defendant. She sued the defendant to recover damages and obtained judgment in the trial court. The defendant thereupon appealed to the district court of appeal, third district, California.

The defendant contended that the trial court erred in admitting in evidence, without proper foundation, a roentgenogram of a normal pelvis apparently for the purpose of comparison with a roentgenogram taken of the plaintiff's pelvis. The contention of the defendant was without merit, in the opinion of the district court of appeal. The use of skeletons, charts and diagrams is common in trials to show the normal structure of the human body and the court of appeal could not perceive why the use of roentgenograms of a normal bone arrangement may not likewise be used for illustration and comparison. The roentgenogram offered in evidence was that of the pelvis of a normal woman about the age, size and figure of the plaintiff and, in the opinion of the court, was properly admitted for the purpose of enabling the witness to explain to the jury a roentgenogram already in evidence. Finding no error, the judgment of the trial court was affirmed.—*DeMartini v. McDonnell (Calif.)*, 58 P. (2d) 170.

## Society Proceedings

### COMING MEETINGS

- Alabama, Medical Association of the State of, Birmingham, April 22-23. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association of Anatomists, Toronto, Ont., March 23-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
- American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. E. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Gelling, 947 East 1st St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. E. bridge, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. Z. Brookshier, 602 Garrison Ave., Ft. Smith, Secretary.
- Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- Florida Medical Association, St. Petersburg, April 5-7. Dr. E. A. Richardson, 111 West Adams St., Jacksonville, Secretary.
- South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
- Southeastern Surgical Congress, Charlotte, N. C., March 24-27. Benjamin T. Beasley, 45 Edgewood Ave., S.E., Atlanta, Ga., Secretary.

occasionally exposed female. Sonnenberg of Lodz has been experimenting with the bismuth prophylaxis of syphilis in prostitutes. By means of intramuscular injections of an insoluble bismuth salt, given every two weeks over an indefinite period, even a professional prostitute can be protected against syphilitic infection with a fair degree of certainty.

#### ALLERGIC RHINITIS

*To the Editor:*—A man, aged 36, for the last fifteen years has had sneezing, a running nose and reddened eyes every time he goes to the mountains or the seashore. While there he feels well but on arising in the morning the symptoms appear. He may feel slightly better in the evening but next morning the symptoms appear. He has had submucous resection. He has not had treatments for the nose. Because of the history I am doing the allergic diagnostic tests. Is this the correct procedure? At the present time I have found a two plus positive test for horsehair. Is this enough to cause the symptoms? While in the city, the patient feels well. The reason prompting this letter is whether the present procedure of diagnosis is in keeping with the history. The brother of the patient has hay fever. Please do not publish name.

M.D., New York.

*ANSWER:*—The case is apparently a typical one of allergic rhinitis. The history given does not suggest any clues as to the allergic causes. Skin tests constitute the correct procedure in such a case. If insufficient information is obtained from such tests, intracutaneous tests should be tried. A reaction to horsehair may be significant, especially if there are any horses in the vicinity or if there are any objects in the home in which the hair might be found (mattress, furniture).

#### HEXYLRESORCINOL IN ASCARIASIS

*To the Editor:*—About one year ago there appeared in *THE JOURNAL* an article on the subject of the treatment of roundworm infestation with hexylresorcinol. I should like to know whether this treatment is still considered good and, if so, where these capsules may be obtained. Will you please send all the information available on the treatment of roundworm infestation.

M.D., Pennsylvania.

*ANSWER:*—Hexylresorcinol is considered by some authorities the treatment of choice in ascariasis, as this drug is much less toxic than either santonin or oil of chenopodium. The dosage is 1 Gm. for adults, and from 0.2 to 0.8 Gm. for children 10 years of age. The drug is administered in hard gelatin capsules of 0.2 Gm. each on an empty stomach in the morning followed by a saline cathartic and abstention from food for five hours. Sanitary disposal of feces to prevent ground pollution with Ascaris eggs is the requirement of prophylaxis.

#### CESSATION OF FERTILITY IN MENOPAUSE

*To the Editor:*—Is there any test available to the general practitioner whereby he can determine when, in the period of the menopause, a woman is no longer capable of conception? A patient recently stated that his wife, now 42 years of age, had menstruated regularly until about two years ago; then there were one or two scanty menses and since then no menses have occurred. He wished to know whether precautions to avoid pregnancy were still necessary. Hence my inquiry.

M.D., Pennsylvania.

*ANSWER:*—There is no test available for determination of cessation of fertility at the menopause. Testing for the estrogenic hormone is of no clinical value in this type of case.

There is a current impression that women approaching or in the menopause are peculiarly susceptible to conception. Such is not the case. This view has evidently been accepted because women who become pregnant late in their childbearing period are much talked about by their friends and neighbors.

#### DIAGNOSIS OF DIPHTHERIA

*To the Editor:*—Is it possible to make a definite diagnosis of diphtheria from a smear alone? Can the laboratory man be certain without a culture? Will diphtheroid and diphtheria organisms have the identical staining appearance and characteristics on the uncultured smear stain?

E. H. COACHMAN, M.D., Muskogee, Okla.

*ANSWER:*—It is not possible to make a definite diagnosis of diphtheria from a smear alone or even from a culture. It is always necessary to consider the clinical symptoms. Diphtheria organisms may be found in smears or cultures taken from the throat or nose of a diphtheria carrier. In cases of active diphtheria, smears taken early might be negative. Diphtheroid and diphtheria organisms cannot be differentiated in an uncultured smear stain in many instances. The diagnosis of diphtheria should be based on the clinical observations and confirmed by nose and throat culture. This does not mean, however, that the antitoxin should be withheld in suspected cases until clinical symptoms are fully developed.

#### HAZARDS OF MOUTH GAG WITH ELECTRIC LIGHT

*To the Editor:*—Please advise me if the Cameron mouth gag with electric light is safe to use with ether anesthesia in the removal of tonsils. This instrument is four or five years old.

JOHN P. SEARLS, M.D., Malakoff, Texas.

*ANSWER:*—So far as we are aware, no accidents have happened with the Cameron mouth gag equipped with an electric light and used with ether anesthesia for tonsillectomy. So long as all connections are secure so that no short circuit or sparking can occur, there seems no reason why this sort of mouth gag should be a menace. We know that it has been used by some operators for some time and believe that with the precautions mentioned its use should be safe.

#### FLUID IN CHEST

*To the Editor:*—A man, aged 74, about four weeks ago developed a cough with free fluid in the left side of the chest. His temperature has been normal for the past three weeks; x-ray examination reveals a moderate amount of free fluid present. This fluid seems to be absorbing very slowly. Would diathermy to the chest help? I hesitate to aspirate because of the patient's age, and complications set in from aspiration. His temperature has been normal and he feels well except for occasional coughing. He feels better with the chest strapped. Any suggestion besides the use of diathermy will be appreciated.

JOSEPH A. SILEO, M.D., Brooklyn.

*ANSWER:*—If the temperature is normal, the fluid is best left alone. At that age there may be some circulatory element, and a mild diuretic, such as some form of theobromine, might be tried. Diathermy is not indicated.

#### DURATION OF POTENCY IN MALES

*To the Editor:*—At about what age does the average male in good health cease to have live active spermatozoa? When does he become impotent? Please omit name.

M.D., Mississippi.

*ANSWER:*—The fact that there are authentic cases of men over 90 who have impregnated women shows that potency and spermatic function can persist to very old age. Even in men who have ceased to cohabit on account of their age, live spermatozoa have been found at necropsy in the seminal vesicles. The average normal man ought to be able to indulge in coitus between 65 and 70 years of age. In the normal individual, live active spermatozoa should persist at least as long as ejaculation is possible.

#### "ICTERUS DURING THE TREATMENT OF SYPHILIS"

*To the Editor:*—In reading *Queries and Minor Notes* in *THE JOURNAL*, January 2, page 67, I noticed that the answer to the query entitled "Icterus During the Treatment for Syphilis" recommended the cessation of arsphenamine therapy during icterus. I should like to call attention to the article by Jankelson and me, entitled "Treatment of Arsenical Hepatitis with Sodium Dehydrocholate" (*Arch. Dermat. & Syph.* 32:422 [Sept.] 1935). In a case of early active syphilis, in which vigorous antisyphilitic treatment is indicated, I have shown that it is possible to continue arsenical therapy, even in the presence of jaundice. If there is bile in the stools, and this is the only important factor to consider, each dose of the arsphenamine may be mixed with 10 cc. of 5 per cent solution of decholin sodium and slowly administered intravenously. Just before each injection blood is withdrawn in a dry, sterile syringe for a quantitative van den Bergh determination. If the figures of this determination show a progressive decrease or if they do not increase, the treatments are continued. Eventually the icterus clears up and treatment may be then continued, either with or without the decholin sodium, cautiously.

If, however, there is no bile in the stools, this treatment is not indicated. The protective effect of the decholin sodium (sodium dehydrocholate) on the liver is entirely adequate for the dose of arsphenamine that is being administered, provided there is some flow of bile out from the liver into the intestinal tract. In such a case there is also a curative effect on the damage already done, because of the washing out effect which the cholerisis produced by this drug establishes. Sodium thio-sulfate is a very poor second under these circumstances.

BERNARD APPEL, M.D., Boston.

#### HEIGHT, WEIGHT, AGE RELATIONSHIP IN CHILDREN

*To the Editor:*—In *Queries and Minor Notes* in *THE JOURNAL*, January 16, page 227, a physician asks for a height, weight, age chart, or a method of calculation. He might be interested in an article by Dr. David Willoughby of Los Angeles, who wrote an article entitled "An Anthropometric Method for Arriving at the Optimal Proportions of the Body in an Adult Individual," published in the *Research Quarterly* of the American Physical Education Association, volume 3, No. 1, 1932.

C. H. WARFIELD, M.D., Wichita, Kan.

## American Review of Tuberculosis, New York

35:1-146 (Jan.) 1937

- Brief Comparison of Tuberculosis in the White, Indian and Negro Races. E. R. Long, Philadelphia.—p. 1.
- Racial Aspects of Tuberculosis in Mexico. D. G. Alarcón, Mexico City, Mexico.—p. 6.
- Tuberculosis in Puerto Rico. J. Rodríguez Pastor, San Juan, Puerto Rico.—p. 13.
- Tuberculosis Among Negroes in the United States. P. P. McCain, Sanatorium, N. C.—p. 25.
- Tuberculosis and Bush Negroes of Dutch Guiana: Tuberculin Survey of Inhabitants of Tapanahoni River Region. M. C. Kahn, New York.—p. 36.
- Brief Comment on Race and Tuberculosis. M. Pinner, Oneonta, N. Y.—p. 41.
- Distribution of Tuberculosis Mortality in Southeastern United States. C. C. Dauer and L. L. Lumsden, New Orleans.—p. 43.
- Results of Surgical Treatment of Pulmonary Tuberculosis in the Negro. L. Fisher, Mansfield, Ohio.—p. 62.
- Pregnancy and Parturition During Course of Bilateral Artificial Pneumothorax: Report of Successfully Delivered Case. A. Peters and L. F. Davenport, Waltham, Mass.—p. 71.
- \*Blood Studies in Selection of Cases of Pulmonary Tuberculosis for Thoracoplasty. Gulli Lindh Muller, Rutland, Mass.—p. 83.
- Thoracotomy and Accessory Instruments for Severance of Intrapleural Adhesions Through Single Cannula. J. W. Cutler, Philadelphia.—p. 99.
- Spontaneous Hemopneumothorax: Report of Six and One-Half Year Follow Up of Case. A. T. Milhorat, New York.—p. 106.
- Tuberculous Laryngitis: Basis of Its Symptoms and Treatment. B. T. McMahon, Loomis, N. Y.—p. 109.
- Nervous Disorders Associated with Pulmonary Tuberculosis. K. Schaffle, Asheville, N. C.—p. 117.
- Composite Blood Chart as an Aid in Control of Treatment of Tuberculosis. H. C. Sweany, Ingrid Strom and Wilma Cannemeyer, Chicago.—p. 129.
- Tolerance Tests with Ferric Chloride on Advanced Tuberculosis Patients. V. Menkin, Boston.—p. 134.
- Multiple Calcification. P. D. Crimm and J. W. Strayer, Lafayette, Ind.—p. 143.

**Blood Studies in Tuberculosis Before and After Thoracoplasty.**—Muller analyzed and correlated blood studies, including the corrected sedimentation rate and leukocytic counts, to various factors in forty-seven cases of pulmonary tuberculosis, prior to thoracoplasty and six months after the operation. Patients with a favorable leukocytic index and with a normal or practically normal sedimentation rate before a thoracoplasty are likely to respond well to the operation. Patients with marked activity of the disease process, as revealed by the leukocytic index and the sedimentation rate, likewise respond well if the trend of the blood, as revealed by serial examinations, indicates progressive improvement before the operation. Patients who shortly before the operation show an increase in the sedimentation rate and the leukocytic index and a neutrophilic shift to the left on serial examinations do not derive the expected benefit from the operation and some are made definitely worse. More reliable information is obtained by evaluating all factors combined than by the consideration of a single factor alone.

## Annals of Surgery, Philadelphia

105:1-160 (Jan.) 1937

- Complications of Gallbladder Surgery. C. G. Heyd, New York.—p. 1.
- Mortality in Surgical Diseases of Biliary Tract: Analysis of 130 Autopsies. R. Colp and L. Ginzburg, New York.—p. 9.
- Surgical Aspects of Adenoma of Liver. V. L. Schragar, Chicago.—p. 33.
- Perforated Peptic Ulcer in Meckel's Diverticulum: Report of Case Occurring Intramenteric. J. E. Thompson, New York.—p. 44.
- Mortality in Acute Appendicitis. F. W. Bancroft, New York.—p. 56.
- Drainage of the Abdomen. J. E. Jennings, Brooklyn.—p. 67.
- \*Experimental Studies in Carotid-Jugular Anastomosis, with Especial Reference to Role of Carotid Sinus. A. H. Blakemore, G. H. Humphreys and B. G. King, New York.—p. 74.
- Treatment of Tetanus with Antitoxin: Analysis of Outcome in 642 Cases. R. W. Huntington Jr., St. Louis; W. R. Thompson, New Haven, Conn., and H. H. Gordon, New York.—p. 93.
- Acute Suppurative Tenosynovitis of Flexor Tendon Sheaths of Hand: Review of 125 Cases. R. S. Grinnell, New York.—p. 97.
- \*Prophylactic Foot Treatment in Patients with Diabetes Mellitus: Analyses of Its Effect on Prevention of Infection of Lower Extremities and Operative Prognosis in Series of 576 Cases. H. Brandaleone, S. Standard and Elaine P. Ralli, New York.—p. 120.
- Adamantinoma of the Jaw. R. H. Ivy and L. Curtis, Philadelphia.—p. 125.
- Ununited Fractures of Shaft of Humerus. W. C. Campbell, Memphis, Tenn.—p. 135.

## Experimental Studies in Carotid-Jugular Anastomosis.

—The phenomena that Blakemore and his associates observed following anastomosis of the carotid artery to the jugular vein

in dogs resembled those reported by previous workers following both experimental and clinical arteriovenous communication between other vessels: there was dilatation of the artery between the fistula and the heart, the heart was both dilated and hypertrophied and the cardiac output was increased greatly. These phenomena differed from those previously reported in the greater degree of the changes in proportion to the size of the fistula and in the fact that hypertension ensued. These differences can be explained by the more direct effects on the carotid sinuses of carotid-jugular fistulas than of fistulas between other arteries and veins. In view of these effects, the production of a carotid-jugular fistula as a therapeutic procedure seems ill advised in any case, is contraindicated in degenerative diseases of the aorta and is dangerous in cases with cardiac damage.

## Prophylactic Foot Treatment in Diabetes Mellitus.

By comparing a group of diabetic patients whose foot ailments were attended to with a group that had no such care Brandaleone and his colleagues find that, in the group in which neither the diabetes nor the feet had been treated, 41.6 per cent required amputation and 38.4 per cent of these patients died. In their clinic group prior to prophylactic foot care, 32.4 per cent required amputation and 8.8 per cent died. Previous control of the diabetes improves the prognosis in a patient with infection of the feet, but, if prophylactic care of the feet is carried out systematically at the same time, the prognosis is improved greatly. Care of the diabetes alone improved the prognosis 77 per cent; when prophylactic foot care was added to this, prognosis improved 90.5 per cent. The major portion of infections occurred between the ages of 50 and 70. There was a definite rise in infections after 40 years of age. The large and small toes were involved almost equally. The care of diabetic patients should include prophylactic foot treatment as a routine part of the treatment. This involves the recognition of vascular inadequacies of the extremities and their dangers to the patient and should always be under the supervision of a physician. The most frequent cause of infection of the feet in these patients is improper shoes. This superimposed on arteriosclerosis, which undoubtedly exists in patients of the age group most frequently involved, is too much for the resistance of a patient with diabetes mellitus.

## Archives of Internal Medicine, Chicago

59:1-174 (Jan.) 1937

- \*Development of Tuberculosis in Adult Life. J. A. Myers, H. S. Dismuth, Ruth E. Boynton and B. Trach, Minneapolis.—p. 1.
- High Altitude Disease. C. Monge, Lima, Peru.—p. 32.
- Brittle Bones and Blue Scleras in Five Generations. R. G. Hills and S. McLanahan, Baltimore.—p. 41.
- Diverticulum of Pericardium. E. H. Cushing, Cleveland.—p. 56.
- \*Pathogenesis of Erythema Nodosum, with Especial Reference to Tuberculosis, Streptococcal Infection and Rheumatic Fever. W. W. Sykes, Boston.—p. 65.
- Essential Thrombophilia: Report of Five Cases. K. K. Nygaard and G. E. Brown, Rochester, Minn.—p. 82.
- Reversible Autohemagglutination with Peripheral Vascular Symptoms. R. P. McCombs, Abington, Pa., and J. S. McElroy, Indianapolis.—p. 107.
- Salmonella Suipestifer Infection in Human Beings: Review of Literature and Report of Twenty-One New Cases. A. M. Harvey, Baltimore.—p. 118.
- Treatment of Essential Hypertension with Depressor Substance Prepared from the Urine. F. R. Nuzum, A. H. Elliot and F. Bickel, Santa Barbara, Calif.—p. 136.

**Development of Tuberculosis in Adult Life.**—In schools of nursing and medicine where the students come in contact with tuberculous patients, in the absence of an adequate technique for dealing with contagious disease there has in recent years been presented an opportunity to study the development of tuberculosis in young adults that is rarely equaled by animal experimentation. Since 1927 Myers and his associates have seen many students of nursing and medicine become contaminated with tubercle bacilli for the first time, the evidence of this contamination being a positive reaction to tuberculin which appeared after the student was exposed to tuberculous patients. In many of these students there has been no other manifestation of tuberculosis as yet. They are classified as having the first infection type of disease somewhere in their bodies, with the location undetermined. Among this group they have observed lesions developed in such locations or to such an extent that

Thüringische Landesuniversität Medizinische Fakultät, Jena	(1928)†	1
Universität Leipzig Medizinische Fakultät	(1927),† (1934)†	2
Universität Rostock Medizinische Fakultät	(1935)†	1
Regia Università degli Studi di Palermo. Facoltà di Medicina e Chirurgia	(1935)†	1
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia	(1934, 4),† (1935)†	5
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1933),† (1936)†	3
University of Licentiate of Royal Coll. Royal Facu	Kiev. (1913) of the of the asgow. (1936)	1
University of Edinburgh Faculty of Medicine	(1933)	1
University of St. Andrews Conjoint Medical School, Scotland	(1935), (1935)†	2
Universität Basel Medizinische Fakultät	(1934), (1935, 3),†	5
Universität Bern Medizinische Fakultät	(1934), (1935, 5),	8
Universität	(1936)†	2
Université	(1935, 2)†	2
Université de Lausanne Faculté de Médecine	(1935, 3)†	3
Nongraduate		1

\* This applicant has received the M.B. degree and will receive the M.D. on completion of internship.

† Verification of graduation in process.

## Book Notices

**Food, Health and Income: Report on a Survey of Adequacy of Diet in Relation to Income.** By John Boyd Orr. Boards. Price, \$1. Pp. 72. New York & London: Macmillan & Co., Limited, 1936.

This book reports the results of a large scale investigation of the nutrition of the people in the British Isles, which was carried out by the staff of Rowett Institute in cooperation with the Market Supply Committee. It attacks the problem of nutrition from a more fundamental and comprehensive standpoint than has heretofore been done, for it considers the food supply of the country in relation to the nutrition and health of the people and to their incomes. The total food supply of the country was estimated from agricultural statistics and records of imports, exports and manufacturing output. The nature of dietaries for six different income levels was obtained through analysis of 1,200 family budgets secured in various sections of the country. The adequacy of the diets was determined by comparison of their yield of dietary essentials with Stiebling's standards (U. S. Bureau of Home Economics, Diets at Four Levels of Nutritive Value and Cost). The health and nutritional status was judged by the growth of children in the different income levels, the incidence of diseases in which nutrition plays a part, and the results obtained by supplementary feeding of children of the lower income groups.

The outcome is such as to raise important economic, political and health problems. The total national weekly income was found to average about 30 shillings a head, of which 9 shillings, or about one third, goes for food. In the three lower income groups (under 20 shillings) the food money is less (4, 6 and 8 shillings) but its percentage of the income is higher (from 45 to 60 per cent). The consumption of particular foods shows a striking relation to income. Expenditures for fresh milk, butter, fruit, fresh vegetables, eggs, fish and meat—the foods that are depended on to furnish the protective minerals, vitamins and high quality protein—rise sharply in the three upper income groups, while those for condensed milk and margarine decrease in the same order. The expenditures for cereals, fats and potatoes are similar for all incomes. When the diets obtained in the family budgets are analyzed, the degree of adequacy is also seen to rise with the income. The average diet of the poorest group, which includes four and a half million people, is deficient in every dietary constituent; the diet of the second group comprising nine million people is deficient in all the vitamins and minerals; and though the diets of groups 3 to 5 show progressive improvement, all are lacking in some of the dietary essentials. Only group 6, comprising only 10 per cent of the population, with an average income of 45 shillings per head and a food expenditure of 14 shillings, has a diet that is completely adequate.

The physical status is what would logically be expected from the food consumption studies. Growth data on nearly 68,000 children of different socio-economic levels show striking superiority in height of children in the more favored groups; a difference of 2½ inches at 13 years and of 3½ inches at 17 years.

The incidence of dietary diseases, such as rickets, anemia, dental caries and tuberculosis, is—so far as can be determined from available evidence—also greater at the lower economic levels. That these deficiencies are due to dietary inadequacies rather than to hereditary limitations has been demonstrated by a number of supplementary feeding projects. Such studies of hundreds of children in various parts of the country have shown marked improvement in growth for the supplemented groups as compared with the controls.

Considering these observations in relation to one another, the author concludes that the standard which should be held for the country is that of optimal, not minimal, requirements and he tentatively assumes that this level is the one reached by the higher income groups whose diets were completely adequate. To attain this ideal for the entire country "would involve increases in consumption of a number of the more expensive foodstuffs, viz., milk, eggs, butter, fruit, vegetables, and meat, varying from 12 to 25 per cent."

It is pointed out that the economic, political and health problems involved are not within the sphere of any single department of state and that their solution would involve concerted and cooperative action on the part of all. The conclusions in the report are already being given serious consideration by the departments concerned and "the prominence given to this new social problem at the last assembly of the League of Nations shows that it is occupying the attention of all civilized countries."

**Gesetz zur Verhütung erbkranken Nachwuchses vom 14. Juli 1933 nebst Ausführungsverordnungen.** Bearbeitet und erläutert von Dr. med. Arthur Güit, Ministerialdirektor im Reichsministerium des Innern, Dr. med. Ernst Rüdin, o. ö. Professor für Psychiatrie an der Universität und Direktor des Kaiser Wilhelm-Instituts für Genealogie und Demographie der Deutschen Forschungsanstalt für Psychiatrie in München, und Dr. jur. Falk Ruttko, Geschäftsführender Direktor des Reichsausschusses für Volksgesundheitsdienst beim Reichsministerium des Innern. Mit Beiträgen: Die Eingriffe zur Unfruchtbarmachung des Mannes und zur Entmannung. Von Geheimrat Prof. Dr. med. Erich Lexer. Die Eingriffe zur Unfruchtbarmachung der Frau. Von Prof. Dr. med. Heinrich Eymmer. Second edition. Cloth. Price, 8 marks. Pp. 418, with 26 illustrations. Munich: J. F. Lehmanns Verlag, 1936.

This book in somewhat more abbreviated form was reviewed in THE JOURNAL Sept. 29, 1934. In the second edition it has been enlarged and revised. Eymmer is substituted for Döderlein as author of the technical aspects of sterilization in women. Otherwise the authorship appears to be unchanged. The greater part of the revision since the first edition is in the introductory portion, dealing with the genetics of the diseases for which sterilization has been declared mandatory in Germany. There is also a much greater emphasis laid on the studies outside Germany and the development of sterilization laws in other countries. Thus, the laws relative to sterilization both of the United States and of Canada are discussed. No apparent change has been made in the laws as they exist in Germany since the first edition. The book contains a satisfactory glossary, and a bibliography that should be useful to any one interested in eugenics. Although national mandatory sterilization seems to be not yet wholly justified by scientific knowledge, there is no choice but to observe closely the results of the German experiences. Even if nothing else is accomplished, the results should aid in the formulation of eugenic policies elsewhere. It is to be hoped that the next edition will include some preliminary criticism of the policies so far pursued.

**A Study in Pre-Eclampsia and Eclampsia with Special Reference to Protein Stabilization Treatment.** Compiled by Boyd Harden, Instructor in Obstetrics. From the Department of Obstetrics, School of Medicine, University of Pittsburgh, and the Elizabeth Steel Marce Hospital. In Affiliation with the Departments of Medicine, Chemistry, Pathology, Ophthalmology, Otolaryngology and Rhinology of the School of Medicine. Paper. Pp. 99, with illustrations. Pittsburgh: University of Pittsburgh, 1936.

The author, in a small book of which the bibliography fills twenty-two pages, has attempted to present certain of the chemical and metabolic changes which occur in normal pregnancy and eclampsia. The style is supposed to be terse but becomes choppy and quite often difficult to read. Little space is devoted to hemoglobin, and here the author uses percentages but does not give the standard to which the percentage refers. He also ascribes significance to changes in hemoglobin of from 6 to 10 per cent. There seems to be no definite system to the arrangement of subject matter. For example, one finds data for normal pregnancy interspersed in the chapter in which the author is presenting his views on the stabilization of eclampsia.



chiatrist for diagnosis and treatment. At least 45.5 per cent of the so-called functional cases were incorrectly diagnosed and unsuccessfully treated as cases of hyperthyroidism. The anxiety syndrome occurs in an individual who is tense and uneasy and is characterized by rather suddenly occurring, transient attacks lasting from a few seconds to an hour, during which the patient subjectively experiences difficulty in breathing, palpitation, precordial discomfort, perspiration or "cold sweats," vertigo, various complaints referable to the gastrointestinal tract and a feeling of weakness. With these attacks there is invariably existent an underlying and accompanying emotional factor which is best described by the term "anxiety." If the physician elicits the complete complaint, he will usually learn that the patient has difficulty in sleeping, has some anorexia, tires easily, has a "tight" pain in the head, feels slowed up or confused in his thinking, is irritable, is restless, has lost weight, has not been up to par for some time, "feels worried" without knowing what about or why, and almost always feels cold and "cannot get warm enough." The first step in therapy is the elicitation of the complete complaint of the patient. Any situational factors dominant in the production of the illness must be altered if possible, or, if impossible, the patient, through discussions, should be led either to accept the facts as they exist or to modify his attitude toward them. Practically never is one situation or one factor the whole cause of the illness. Any medication given such a patient should be accompanied by a careful and painstaking explanation that the particular medication is only a means of giving symptomatic relief. In the young and middle aged, barbitol in doses of 1 grain (0.065 Gm.) morning and noon, and perhaps 2 grains (0.13 Gm.) at bedtime, will relieve the patient of considerable tension and uneasiness and thus promote clearer thinking, make less likely the occurrence of an anxiety attack, relieve the head sensations and allow for more adequate rest and sleep. In elderly patients isobutylallyl barbituric acid seems to be better tolerated. When gastro-intestinal symptoms exist, 10 drops of tincture of belladonna three times daily, liquid petrolatum and a full diet with some roughage have proved helpful. If the gastro-intestinal symptoms are due more to an atonic condition of the intestine, ergotamine tartrate in doses of 1 mg., twice daily, for a few days, often gives relief. In case of a profound and prolonged anxiety attack with a tendency of the patient to become panicky, acetylcholine bromide in a dose of 1½ grains (0.1 Gm.), given intramuscularly, may aid in ameliorating the attack and thus save the patient from panic.

### Journal of Biological Chemistry, Baltimore

117: 1-428 (Jan.) 1937. Partial Index

- Method for Protecting Imidazole Ring of Histidine During Certain Reactions and Its Application to Preparation of *l*-Amino-N-Methylhistidine. V. du Vigneaud and O. K. Behrens, Washington, D. C.—p. 27.
- Coloring Matters of Grimes Golden, Jonathan and Stayman Winesap Apples. C. E. Sando, Washington, D. C.—p. 45.
- Exchange of Salt and Water Between Muscle and Blood: I. Effect of Increase in Total Body Water Produced by Intravenous Injection of Isotonic Salt Solutions. A. B. Hastings and Lillian Eichelberger, Chicago.—p. 73.
- Studies on Constitution of Insulin: I. Properties of Reduced Insulin Preparations. K. G. Stern and A. White, New Haven, Conn.—p. 95.
- Chemistry of Lactogenic Hormone Extracts. W. H. McShan and H. E. French, Columbia, Mo.—p. 111.
- Phosphoric Acid Esters from Yeast Extract: Isolation of Crystalline Calcium Salt Consisting of Equimolar Mixture of Glucosemonophosphate and Glycerophosphate. C. V. Smythe, New York.—p. 135.
- Use of Iodine and Other Modifications in Van Slyke Manometric Amino Nitrogen Method. A. B. Kendrick and M. E. Hanke, Chicago.—p. 161.
- Activity of Glycine in Aqueous Solution at Twenty-Five Degrees. Elizabeth R. B. Smith and P. K. Smith, New Haven, Conn.—p. 209.
- Oxidation of Ascorbic Acid and Its Reduction in Vitro and in Vivo. H. Borsook, H. W. Davenport, C. E. P. Jeffreys and R. C. Warner, Pasadena, Calif.—p. 237.
- Concentration of Total Cholesterol in Blood Serum. W. M. Sperry, New York.—p. 391.
- Apparent Creatinine of Serum and Laked Blood Ultrafiltrates. O. H. Gahler, with cooperation of L. DeF. Abbott Jr., Detroit.—p. 397.
- Experiments on Precipitation of Creatinine Rubidium Picrate from Blood Plasma Filtrates. Jeanette Allen Behre and S. R. Benedict, New York.—p. 415.
- Improvements in Methods of Hydrolysis of Protein: Shortening Time for Estimating Cystine. M. X. Sullivan and W. C. Hess, Washington, D. C.—p. 423.

### Journal of Comparative Neurology, Philadelphia

65: 1-712 (Dec.) 1936

- Nerve Roots and Nuclear Groups in Spinal Cord of the Pigeon. J. F. Huber, Ann Arbor, Mich.—p. 43.
- Reptilian Vestibular and Cerebellar Gray with Fiber Connections. J. E. Weston, Ann Arbor, Mich.—p. 93.
- Acusticolateral Centers and Cerebellum, with Fiber Connections, of Fishes. A. A. Pearson, Ann Arbor, Mich.—p. 201.
- Nuclear Pattern and Fiber Connections of Noncortical Centers of Telencephalon of Rabbit (*Lepus Cuniculus*). M. W. Young, Ann Arbor, Mich.—p. 295.
- Phylogenetic Consideration of Primary and Secondary Centers and Connections of Trigeminal Complex in Series of Vertebrates. R. T. Woodburne, Ann Arbor, Mich.—p. 403.
- Phylogenetic Study of Visceral Efferent Areas Associated with Facial, Glossopharyngeal and Vagus Nerves, and Their Fiber Connections: Efferent Facial Nucleus. J. W. Barnard, Ann Arbor, Mich.—p. 513.
- Telencephalon of the Bat: I. Noncortical Nuclear Masses and Certain Pertinent Fiber Connections. Tryphena Humphrey, Ann Arbor, Mich.—p. 603.

### Kentucky Medical Journal, Bowling Green

35: 1-38 (Jan.) 1937

- Syphilis from the Standpoint of Public Health. J. E. Paullin, Atlanta, Ga.—p. 4.
- Fractures of Upper Extremities. E. W. Northcutt, Covington.—p. 8.
- Intrapartum Infection Due to *Bacillus Welchii*: Case Report. R. F. Monroe, Louisville.—p. 10.
- \*Sulfur Therapy in Arthritis: Preliminary Report of Some Clinical Results. D. C. Parmenter, Harrodsburg.—p. 14.
- Headache. C. L. Woodbridge, Middlesboro.—p. 24.
- Coronary Occlusion. C. W. Justice, Ludlow.—p. 26.
- Hypertensive Disease of the Brain. C. H. Fortune, Lexington.—p. 33.
- Angina Pectoris. A. J. Schwertman, Covington.—p. 35.

**Sulfur Therapy in Arthritis.**—Parmenter administered a solution containing alkaline sulfides and colloidal sulfur to patients with varying types of arthritis, chiefly atrophic. The treatment resulted in complete recovery in 30 per cent of the cases, with relief of pain and reduction of joint swelling; considerable improvement in function in 58 per cent, and no improvement except perhaps in appetite, sleep and general well being in 12 per cent. The results indicate that sulfur in the form used, administered concurrently by bath and orally, has no toxic effect on the system. Rather its action is definitely detoxifying and nonirritant to a degree not true of other drugs in arthritis. It tends to normalize body metabolism and revitalize cell tissues by replenishing existing sulfur deficiencies, as demonstrated by its favorable action on blood pressure, weight and the patients' general symptomatology. Sulfur therapy seems definitely indicated in arthritis and its results, with this method of administration, have been very satisfactory. The healing action of sulfur on the kidneys was quite evident when patients had such complications incidental to the arthritis.

### Medicine, Baltimore

15: 453-510 (Dec.) 1936

- Influenzas of Swine and Man. R. E. Shope, Princeton, N. J.—p. 431.
- Significance of Allergy in Disease. E. L. Opie, New York.—p. 487.

### Michigan State Medical Society Journal, Lansing

36: 1-76 (Jan.) 1937

- Endocrines in Gynecology and Obstetrics. E. Novak, Baltimore.—p. 1.
- Limitations of Transurethral Resection of Prostate Gland. H. W. Plaggemeyer and C. G. Weltman, Detroit.—p. 5.
- Eczema, Urticaria and Allied Dermatoses. F. Blumenthal, Eloise.—p. 9.
- Hysterectomy for Fibroids: Study of Postoperative Complications. S. Gardiner and N. R. Kretzschmar, Ann Arbor.—p. 13.
- Oxycephaly: Report of Two Cases with Summary of Literature. E. L. Cooper, Detroit.—p. 17.
- Significance of Chronic Hoarseness. J. H. Maxwell, Ann Arbor.—p. 23.
- Urethritis: Statistical Study. L. W. Hull, Detroit.—p. 25.
- A Visit to Scandinavia. J. E. Davis and B. H. Larsson, Detroit.—p. 27.
- \*Treatment of Acute Diarrheal Disorders of Infancy and Early Childhood with Banana and Banana Powder. E. W. Brubaker, Lansing.—p. 47.

**Treatment of Acute Diarrheas with Banana.**—Brubaker presents the clinical aspects of banana therapy in the treatment of fifty-six ward or outpatient cases of acute diarrheal disorders. Twenty-four control cases were treated with well recognized methods of therapy. The fifty-six patients ranged in age from 3 weeks to 7 years, the greater number being less than 2 years of age. Several types of infection were present, with rectal temperatures ranging from 98 to 104 F. and with histories of from one to fourteen days of illness prior to the treatment. The general picture is that of the usual diarrheas of infancy and early childhood, occurring during the summer

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Malpractice: Rubber Drainage Tube Left in Patient; Accrual of Right of Action.**—The defendant, a physician, performed an abdominal operation on Mrs. Huysman, Jan. 3, 1931. A rubber drainage tube was accidentally left in the patient. It was removed by the defendant, Sept. 26, 1932. Mrs. Huysman and her husband filed suit, Jan. 7, 1933, attributing her postoperative suffering to the defendant's negligence in failing sooner to remove the tube. The trial court held that the plaintiff's cause of action arose when the defendant failed to remove the drainage tube after it had served its purpose, namely, Jan. 9, 1931, and that since in California a malpractice suit must be instituted within one year after the cause of action arises, the plaintiffs' suit was barred by the expiration of that time limit. The district court concurred in the judgment of the trial court (*Huysman v. Kirsch* (Calif.), 47 P. (2d) 332; abstr. THE JOURNAL, Feb. 1, 1936, p. 410), and the plaintiffs appealed to the Supreme Court of California.

It is settled in California, said the Supreme Court, that an action by a patient against a physician, for injuries resulting from negligent or unskilful treatment, sounds in tort and is barred unless suit is instituted within one year after the date of the injury. When did the cause of action arise in the present case? In *Sly v. Van Lengen*, 198 N. Y. S. 608, a sponge left in a patient was not removed until two and one-half years thereafter. It was held that the patient's cause of action accrued on the removal of the sponge. In *Gillette v. Tucker*, 67 Ohio St. 106, 65 N. E. 865, another sponge case, the court said:

The facts in the case at bar show a continuous obligation upon the plaintiff in error so long as the relation or employment continued, and each day's failure to remove the sponge was a fresh breach of the contract implied by the law. The removal of the sponge was a part of the operation, and in this respect the surgeon left the operation uncompleted.

The foregoing authorities, said the Supreme Court of California, announce a just and equitable rule and the present case is much stronger than either of the cases cited. In each of those cases the negligent act consisted in not removing the sponge at the time of the operation. The negligence there occurred in the performance of the operation. In the present case the operation, up to the closing of the wound and the leaving of the drainage tube therein, was entirely proper. The negligence occurred thereafter, when the surgeon neglected to remove the tube after it had served its purpose. The negligence continued during the entire time the tube was left in the body of the patient and ended only when it was removed. The plaintiffs' cause of action, therefore, accrued at the time the tube was removed.

There is another principle, said the Supreme Court, on which it might be held that the plaintiffs' cause of action is not barred. An operation like that performed on Mrs. Huysman is not complete until the wound has been closed and all appliances used in the operation have been removed. In *Barnett's Administrator v. Braud*, 165 Ky. 616, 177 S. W. 461, the court said:

In performing an operation, it is the duty of a surgeon to exercise reasonable care and skill. The operation begins when the incision is made and ends when the opening has been closed in the proper way, after all the appliances necessary to a successful operation have been removed from the body. Throughout the operation the law imposes on the surgeon the duty of exercising such care and skill. The removal of the sponges or pads is a part of the operation, and an operation cannot be said to be concluded until such removal takes place.

If the principle thus announced, said the Supreme Court, is applied to the present case, the plaintiffs' cause of action is not barred. Furthermore, it has been held that the statute of limitations should not run against an injured employee's right to compensation during the time the employee was in ignorance of the cause of his disability and could not with reasonable care and diligence ascertain such cause. *Marsh v. Industrial*

*Accident Commission*, 217 Calif. 338, 18 P. (2d) 933. If the principle thus laid down is applied to the present case, said the court, the same result will follow, since the plaintiffs had no knowledge of the presence of the drainage tube in the body of Mrs. Huysman until it was removed Sept. 26, 1932. During all this time she was under the exclusive care of the defendant, and both Mrs. Huysman and her husband relied solely on him for information as to her physical condition and as to her failure to regain her health.

For the reasons stated, the judgment of the superior court for the defendant was reversed.—*Huysman v. Kirsch* (Calif.), 57 P. (2d) 908.

**Privileged Communications: Nurses Not Entitled to Privilege.**—Under the common law, communications between a patient and a physician were not privileged. An Indiana statute, however, provides that the following persons, among others, shall not be competent witnesses:

Physicians, as to matter communicated to them, as such, by patients, in the course of their professional business, or advice given in such cases.

This statute, said the appellate court of Indiana, in banc, is in derogation of the common law and must be strictly construed. The statute refers specifically to "physicians." The privilege does not extend to third persons who are present and overhear a conversation, unless such third person was necessary for the purpose of transmitting the information to the physician. The Supreme Court of Indiana, in *William Laurie Co. v. McCullough*, 174 Ind. 477, 90 N. E. 1014, 92 N. E. 337, Ann. Cas. 1913A, 49, defined the term "physician" as follows:

"The word 'physician' is defined to mean a person who has received the degree of doctor of medicine from an incorporated institution; one lawfully engaged in the practice of medicine." 30 Cyc. 1544.

A nurse, said the appellate court, certainly does not come within this definition and any observation of her own could not be a privileged communication within the meaning of the Indiana statute. To the argument that public policy demands that nurses be included within the privileged class, the court replied that this was a matter solely for the legislature, and that the statute could be extended to cover nurses only by it and not by judicial construction.—*General Accident, Fire & Life Assur. Co., Limited, of Scotland v. Tibbs* (Ind.), 2 N. E. (2d) 229.

**Compensation of Physicians: Liability of Railroad Company for Medical Services Rendered at Request of Claim Agent.**—A boy was severely injured while attempting to board a train of the New Orleans, Texas and Mexico Railway Company. The local agent secured an ambulance and had the boy sent to the Eunice Clinic and Hospital, Inc. The serious nature of the injury necessitated an emergency operation and the boy's leg was amputated on the same day of the accident. The following day, a claim agent of the railroad company whose duty it was to investigate accidents came to the hospital to see the boy. In response to a question propounded by the president of the hospital corporation as to who would be responsible for the expenses, the claim agent replied, according to the testimony of the president: "We will take care of the expenses of this case." The claim agent subsequently denied making this statement. Following a refusal of the company to pay expenses, the plaintiff hospital instituted suit against the defendant trustees of the railway company. Judgment was rendered for the plaintiff, and the defendants appealed to the court of appeal of Louisiana, first circuit.

There can be no serious question, said the court of appeal, of the authority of the claim agent to bind the railway company. He was vested with full authority to handle accident cases of this kind. While he denied having stated that the company would take care of the expenses, other facts and circumstances in the record indicated to the satisfaction of the court that he did make such a statement. The defendants objected to the introduction of evidence to show a promise on the part of the railway company to pay the bill on the ground that it was an effort to prove by parol testimony a promise to pay the debt of a third person—the debt being that of the boy's parents—contrary to article 2278 of the Civil Code. This was

**Appendectomy for So-Called Chronic Appendicitis.**—During the last few years Feldman has encountered a large number of adult patients on whom an appendectomy had been performed for so-called chronic appendicitis in order to obtain relief of their symptoms. A thorough painstaking roentgen examination of the gastro-intestinal tract, gallbladder, colon and genito-urinary tract, including cystoscopic and pyelographic studies when indicated, is necessary in every case of suspected chronic appendicitis. In a study of 115 cases of so-called chronic appendicitis, following removal of the appendix, the roentgen examination revealed pathologic conditions other than in the appendix, which accounted for the gastro-intestinal disturbance. Peptic ulcers accounted for 36.5 per cent of the disorders, pathologic states of the gallbladder for 26 per cent, and the genito-urinary tract was involved in 6 per cent. The differential diagnosis of chronic appendicitis is almost impossible without the aid of roentgen studies, by which means a large number of conditions producing gastro-intestinal symptoms that closely mimic appendical disease may be ruled out. In no instance should operative measures be undertaken for chronic appendicitis until all other conditions have been eliminated. The roentgen method of investigation is of the greatest importance as an aid in the ultimate diagnosis.

### Science, New York

85: 27-60 (Jan. 8) 1937

\*Interrelationship of Vitamin A and Glycuronic Acid in Mucin Metabolism. I. A. Manville, Portland, Ore.—p. 44.

**Vitamin A and Glycuronic Acid in Mucin Metabolism.**—To throw light on the mechanism of mucus production, Manville instituted means to deplete the glycuronic acid of experimental animals. He has gained the impression that the fundamental cause of ulcerative and erosive changes in the gastro-intestinal mucosa is due to the presence in the body, from any source whatever, of toxins so constituted that for their detoxication they must be conjugated with glycuronic acid. The demands for detoxication evidently take precedence over the demands of mucin production, with the result that, when there is a sufficient accumulation of toxins, erosion and ulcers in the gastro-intestinal tract will develop. Since the conjugation of glycuronic acid and toxins occurs in the liver, any impairment in hepatic function will predispose to an earlier appearance of mucosal damage. It appears that vitamin A is involved in this mechanism. The evidence of Clausen and others that the reserves of vitamin A or its provitamin are nearly, if not entirely, exhausted in septic diseases is not to be explained entirely on the basis of impaired absorption. The fact that it does not seem probable that all the benefit derived by vitamin A deficient animals, when fed whole apple, is due to vitamin A only is further evidence in this connection.

### Surgery, Gynecology and Obstetrics, Chicago

64: 1-128 (Jan.) 1937

- Osteomyelitis of Bones of Hand. S. L. Koch, Chicago.—p. 1.  
Small Bone Repair. K. Speed, Chicago.—p. 9.  
Transformation of Gastric Ulcer into Gastric Carcinoma. J. W. Hinton and M. Trubek, New York.—p. 16.  
Ectopic Ureteral Orifice: Report of Seventeen Cases in Children. M. F. Campbell, New York.—p. 22.  
Treatment of Cancer of Cervix Uteri at the Rhode Island Hospital: Report of 293 Cases with Five Year Follow Up. H. C. Pitts and G. B. Waterman, Providence, R. I.—p. 30.  
\*Cardiac Asthma and Acute Pulmonary Edema: Complications of Non-convulsive Toxemia of Pregnancy. H. M. Teel, D. E. Reid and A. T. Hertig, Boston.—p. 39.  
\*Physiologic Changes in Ureter Associated with Pregnancy: Relationship Between Atony and Dilatation of Tract. H. F. Traut, C. M. McLane and Alberta Kuder, New York.—p. 51.

**Cardiac Asthma and Acute Pulmonary Edema.**—Teel and his associates have observed a dramatic and dangerous syndrome, which they call "cardiac asthma," in the course of severe nonconvulsive toxemia. In these cases the toxemic patient, while at bed rest, often without previous dyspnea or signs of embarrassment of the pulmonary circulation, is seized with a severe paroxysm of dyspnea associated with extreme orthopnea, cyanosis and acute pulmonary edema. The behavior of these nonconvulsive toxemic patients suggests an explanation for the development of acute pulmonary edema in eclampsia as well. When cardiac asthma and acute pulmonary edema

have occurred during the course of nonconvulsive toxemia, it may be that hypertension, coronary disease or nephritis was present before the onset of pregnancy. This has been particularly true of a number of emergency patients in whom past histories and knowledge of the blood pressure and uric acid observations in the early months of pregnancy were lacking. The case histories of six toxemic patients who developed this syndrome are presented. None of them had valvular heart disease. There were known past histories and prolonged subsequent observation in some, and a necropsy was obtained in one instance. Study of these cases seems to indicate that, in at least four, previous hypertension, coronary disease and nephritis were not involved and that the symptom complex of cardiac asthma and acute pulmonary edema may complicate simple acute preeclampsia. The immediate prognosis for patients who develop this syndrome is grave. If they survive delivery and the early puerperium, the ultimate outlook as regards chronic cardiovascular and renal disease seems to be good. Left ventricular failure may be an important factor in the precipitation of these attacks of "cardiac asthma" in patients with severe preeclampsia. It may also play a dominant part in the production of acute pulmonary edema in eclampsia. The fact that a number of the preeclamptic patients recovered indicates that such left ventricular failure is not necessarily an agonal phenomenon. It might be advisable as a prophylactic measure to digitalize all eclamptic patients and those patients more than 30 years of age who have severe toxemia.

**Changes in Ureter in Pregnancy.**—Traut and his co-workers present new evidence indicating that the physiologic dilatation of the ureter in pregnancy is not due to the weight of the pregnant uterus primarily, although this is undoubtedly a contributing factor. The characteristics of the ureteral atony are thought to be similar in many respects to that affecting the uterine musculature. It is suggested that the phenomena in the two organs may have a similar etiology which is unknown. The ureteral dilatation is roughly proportional to the degree of atony, and both appear and disappear at similar times with regard to the course of pregnancy. Dilatation and atony appear in the third month and are progressive to the seventh month of pregnancy. During the last two months there is a marked increase in motility, accompanied by a moderate decrease in the dimensions of the tract. Following delivery, atony is again marked until the third week, subsequent to which motility returns rapidly to normal levels, which are usually attained during the sixth or the seventh week post partum. Dilatation of the tract decreases progressively after delivery and reaches practically the normal values at the seventh week of the puerperium.

### Texas State Journal of Medicine, Fort Worth

32: 575-638 (Jan.) 1937

- Conservative Treatment of Appendical Peritonitis. A. Ochsner, New Orleans.—p. 579.  
Planned Appendectomy. J. P. Barnes, Houston.—p. 584.  
Treatment of Peptic Ulcer with Posterior Pituitary Extract: Preliminary Report. M. H. Metz and R. W. Lackey, Dallas.—p. 589.  
Surgery in Presence of Cardiovascular Disease. W. B. Whitte and Q. B. Lee, Wichita Falls.—p. 590.  
Pruritus Ani or Vulvae. G. A. Davidson, Dallas.—p. 594.  
Vesicovaginal, Urethrovaginal and Vesico-Uterine Fistulas. E. W. Bertner, Houston.—p. 597.  
Infectious Mononucleosis. W. L. Marr, Galveston.—p. 603.  
Roentgen Therapy for Severe Asthma. C. K. Maytum and E. I. Leddy, Rochester, Minn.—p. 610.  
Histologic Grading of Tumors. J. E. Robinson, Temple.—p. 612.  
Obstetric Judgment. L. G. Sewall, Waco.—p. 616.  
The Problem of Temperature as It Relates to Pulmonary Tuberculosis. W. F. Wagner, Sanatorium.—p. 621.

### West Virginia Medical Journal, Charleston

33: 1-48 (Jan.) 1937

- Head Injuries. W. R. Geraghty, Baltimore.—p. 1.  
Skull Fractures. R. E. Pickett, Morgantown.—p. 3.  
The Relationship of Nasal Accessory Sinus Infection to Nontuberculous Chest Involvement. A. A. Seletz, Charleston.—p. 8.  
Collapse Therapy in Treatment of Pulmonary Tuberculosis. E. W. Salem, Va.—p. 13.  
Postbronchoscopic Treatment of Vegetal Foreign Bodies in Tracheobronchial Tree, with Particular Reference to Use of Oxygen Tent. Sobiesca S. Hall and H. V. Thomas, Clarksburg.—p. 16.  
Gallbladder Disease. B. M. Stout, Morgantown.—p. 23.  
Strides in Public Health. T. H. Blake, Charleston.—p. 25.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Medical Sciences, Philadelphia

193:1-148 (Jan.) 1937

- Independence of Chorea and Rheumatic Activity. A. F. Coburn and Lucile V. Moore, New York.—p. 1.  
Note on Duration of Symptoms and Age at Death in Chronic Rheumatic Valvular Disease, Especially in Tricuspid Stenosis. W. P. Thompson and S. A. Levine, Boston.—p. 4.  
Studies in Diabetes Mellitus: V. Heredity. E. P. Joslin, Boston; L. I. Dublin and H. H. Marks, New York.—p. 8.  
Gastric Juice in Patients with Pernicious Anemia in Induced Remission. S. M. Goldhamer, Ann Arbor, Mich.—p. 23.  
Leukemoid Response of Tuberculous Rabbits to Administration of Tuberculin. W. H. Feldman and J. Stasney, Rochester, Minn.—p. 28.  
Plasma Cell Leukemia. B. R. Reiter and J. T. Freeman, Philadelphia.—p. 38.  
Preliminary Pain in Coronary Thrombosis. H. Feil, Cleveland.—p. 42.  
Infections with Pneumococcus Type VII. M. Finland, Boston; J. M. Rueggesser, Cincinnati; H. F. Dowling, Washington, D. C., and R. C. Tilghman, Baltimore.—p. 48.  
Clinical and Immunologic Observations in Cases of Pneumococcus Type VII Pneumonia Treated with Concentrated Type-Specific Antibody. M. Finland, Boston; R. C. Tilghman, Baltimore; J. M. Rueggesser, Cincinnati, and H. F. Dowling, Washington, D. C.—p. 59.  
Agenesis of Lung: Review of Literature and Report of Case. S. Hurwitz and H. B. Stephens, San Francisco.—p. 81.  
Clinical Significance of Effects of Posture on Blood Pressure: Postural Test as Means of Classifying Hypotension. C. H. Lutterloh, Hot Springs, Ark.—p. 87.  
Chronic Meningococcal Septicemia. E. Appelbaum, New York.—p. 96.

**Chorea and Rheumatic Activity.**—Coburn and Moore made a study of the incidence of chorea in relation to rheumatic activity. The material consisted of 114 patients with chorea who have been seen once a month in the rheumatic clinic for from two to ten years and 137 consecutive admissions to the Babies Hospital for chorea. In the rheumatic clinic group, thirty-four of 114 patients with chorea failed to develop any evidence of rheumatic activity other than repeated chorea. In the Babies Hospital group, sixty-nine attacks of chorea occurred in patients without either history or stigmas of rheumatic disease. The other sixty-eight attacks of chorea were in patients who had shown other rheumatic manifestations. However, twenty-nine of these sixty-eight attacks occurred when the rheumatic process appeared quiescent. The remaining thirty-nine attacks of chorea were accompanied by frank manifestations of rheumatic activity. All of which indicates that one half of all cases of chorea in New York may occur in individuals who are not susceptible to rheumatic fever. Choreic children of this type developed no stigmas of rheumatic disease, although each experienced from one to five attacks of chorea. These individuals did not have a familial history of rheumatic fever. Their attacks were not preceded by respiratory infections but seemed to be associated with psychic trauma. Their blood sedimentation rates and leukocytic counts were usually normal.

**Leukemoid Response of Tuberculous Rabbits to Tuberculin.**—To obtain experimentally a leukocytic response comparable to the so-called leukemoid reaction described as occasionally associated with tuberculosis in human beings, Feldman and Stasney observed eleven tuberculous rabbits. The hematologic observations were restricted to the quantitative and qualitative characteristics of the leukocytes. The results indicate quite definitely that tuberculin given to sensitized rabbits provokes an elevation of the leukocyte count, which is often of striking proportions. This increase is predominantly granulocytic and there occurs a marked shift to the left. The definite hyperplasia of the bone marrow, mitosis of the immature myeloid cells of the peripheral blood and other significant changes suggest a condition similar to the "leukemoid" reaction. The monocytes participate in the leukocytosis rather insignifi-

cantly, whereas the lymphocytes show a definite tendency to diminish in number during the reaction that follows the administration of tuberculin. Tuberculin given to nontuberculous rabbits has no significant effect on the leukocyte count.

**Preliminary Pain in Coronary Thrombosis.**—Feil believes that in about 50 per cent of patients the attack of coronary thrombosis is preceded by angina, unrelated to effort or emotion. He has seen fifteen cases with substernal pain preceding the onset of the severe symptoms by hours or days. Substernal or epigastric (rarely precordial) pain is complained of—mild, not related to effort or emotional strain, not severe enough to confine the patient to bed and often not severe enough to lead the patient to consult a physician. This pain is more or less constant, is of a burning and oppressive character and is not relieved by rest or by nitrites. The pain lasts from a few hours to four weeks. If the physician is consulted, he finds no change in the objective symptoms—the blood pressure is unaltered and there is no fever or leukocytosis. The heart sounds are unchanged. After a variable period of preliminary pain, the clinical picture of acute coronary thrombosis suddenly makes its appearance and with it the typical electrocardiographic changes. This preliminary pain occurred in approximately 50 per cent of the cases of coronary thrombosis observed in the last two years. The nature of the preliminary pains was suspected in three of the fifteen cases.

#### American Journal of Physiology, Baltimore

118:1-206 (Jan.) 1937. Partial Index

- Transient Hypertension in Rats Following Extravascular Administration of Fluid. J. Q. Griffith Jr., W. A. Jeffers and M. A. Lindauer, with technical assistance of R. Campbell and F. Jankuska, Philadelphia.—p. 1.  
Movements of Eyes When Lids Are Closed. W. O. Fenn and J. B. Hursh, Rochester, N. Y.—p. 8.  
Tone in Mammalian Ventricle. V. Johnson and L. N. Katz, Chicago.—p. 26.  
\*Alleged Validity of Coronary Sinus Outflow as Criterion of Coronary Reactions. J. R. Johnson and C. J. Wiggers, Cleveland.—p. 38.  
Study of Secretory Nerves of, and Action of Certain Drugs on, the Prostate Gland. J. I. Farrell and Y. Lyman, Chicago.—p. 64.  
Cardiac Changes During Progressive Hypothermia. J. B. Hamilton, M. Dresbach and Ruth S. Hamilton, Albany, N. Y.—p. 71.  
Maintenance of Adrenalectomized Dogs Without Cortin, Through Control of Mineral Constituents of Diet. W. D. Allers and E. C. Kendall, Rochester, Minn.—p. 87.  
Methods of Collecting Fluid from Known Regions of Renal Tubules of Amphibia and of Perfusing Lumen of Single Tubule. A. N. Richards and A. M. Walker, Philadelphia.—p. 111.  
Site of Acidification of Urine Within Renal Tubule in Amphibia. H. Montgomery, Philadelphia, and J. A. Pierce, Baltimore.—p. 144.  
Mechanism of Convulsions in Insulin Hypoglycemia: Interrelationship of Blood Concentration, Cerebrospinal Pressure and Convulsions. D. L. Drabkin and I. S. Ravdin, Philadelphia.—p. 174.  
Influence of Adrenalectomy on Ketosis of Fasting and on Action of Anterior Pituitary Ketogenic Principle. E. M. MacKay and R. H. Barnes, La Jolla, Calif.—p. 184.  
Carbohydrate Storage and Maintenance in Hypophysectomized Rat. Jane A. Russell and L. L. Bennett, Berkeley, Calif.—p. 196.

**Coronary Sinus Outflow as Criterion of Coronary Reactions.**—By recording the velocity of coronary sinus flow, returned at once to the superior vena cava, and by calculating the flow per beat and per minute, Johnson and Wiggers observed that the coronary sinus normally empties into the atrium only during systole, that increasing the right ventricular pressure by compression of the pulmonary artery—the heart rate and aortic pressures remaining the same—causes a proportional augmentation of coronary sinus flow, and that the increase in minute flow following only slight elevation of systolic right ventricular pressure is of the same order of magnitude as that frequently reported from stimulation of cardiac nerves or actions of drugs. They present a theory, supported by experiments, that the division of coronary return flow between coronary sinus and thebesian veins is determined not only by the anatomic resistance of these respective paths but by the height to which right ventricular pressure rises during each systole. This accounts for the proportionally larger flow from the coronary sinus in normally beating hearts and the greater drainage by thebesian vessels in dead hearts. It proves that a greater coronary sinus flow can occur through secondary increase in right ventricular pressure alone. Inferences regarding vasomotor actions in the coronary system based on alterations in coronary sinus outflow cannot be accepted as crucial unless it is demonstrated that right ventricular systolic pressure remains unchanged.

## Medical Journal of Australia, Sydney

2: 771-804 (Dec. 5) 1936

- Placing of Long Radon Needles in Treatment of Carcinoma of Breast: Preliminary Note. J. L. Grove and W. P. Holman.—p. 771.
- Infections of Upper Respiratory Tract in Children. H. M. Jay.—p. 774.
- Id. R. L. T. Grant.—p. 776.
- Streptococcal Infections. A. Aspinall.—p. 778.
- Robert Boyle and His Influence on Scientific Medicine. A. R. Southwood.—p. 780.
- \*Result of Routine Use of Wassermann Test in 3,404 Patients Attending for Antenatal Care. T. D. Hughes and Charlotte Gammie.—p. 783.
- Local Anesthesia in Abdominal Surgery. V. J. Kinsella.—p. 785.

**Routine Wassermann Test.**—From March 1933 Hughes and Gammie performed the Wassermann test on every patient as part of the routine antepartum examination, irrespective of age, parity or social position. In all, 3,404 patients were tested, 3,016 of the tests being true routine tests. The remaining 388 are from another outpatient day and are a routine test on all primiparas. Among the 3,016 patients who were submitted to a routine test the Wassermann reaction was found to be positive thirty-two times, or in 1.06 per cent of patients. When the incidence in multiparous and primiparous women is calculated, it is found that in the former it is 1.31 per cent and in the latter 0.47 per cent. A fact elicited in the investigation was the utter lack of previous history, which might have given a clue to the possibility of a positive result; in other words, if the test had not been done as a routine, but only in suggestive cases, the majority of cases would have been missed, especially in those multiparas whose previous pregnancies had been normal. That is, ten out of twenty-four multiparas with a positive Wassermann reaction had no history of miscarriage, premature labor, neonatal death or stillbirth, infection occurring apparently after the birth of the last child or not showing up in the children till a later date and thus giving a misleading history. The fact remains, however, that these cases will not be detected unless a Wassermann test is carried out as a routine procedure.

## South African Medical Journal, Cape Town

10: 763-798 (Nov. 28) 1936

- Some Aspects of Jaw Growth. M. R. Drennan.—p. 765.
- \*Coronary Infarction in Young Adults. W. J. May.—p. 772.
- Albuminuria. R. W. H. Welsh.—p. 775.
- Balneotherapeutic Importance of Caledon Baths. H. Husserl.—p. 777.
- Oral Sepsis as Cause of Paralysis of External Ocular Muscles. E. A. Seale.—p. 779.

**Coronary Infarction in Young Adults.**—May reports four cases (in persons aged 19, 20, 39 and 38 years) which according to clinical investigations present the symptom complex associated with coronary thrombosis. All the ordinary known causes of changes in the T wave and the like could be excluded in these cases. The one condition about which there could reasonably be some doubt is acute rheumatic fever. None of these patients, however, fitted in with a picture of acute rheumatic fever. The argument, therefore, is advanced that the patients under discussion have on some previous occasion suffered from a rheumatic infection which has impaired the coronary circulation in certain limited areas. If the infective processes associated with rheumatism can cause sclerosis of a valve, then in view of the postmortem changes observed in rheumatic fever hearts it can be argued that such changes (venous thrombosis, periarteritis and adventitial infiltration) in a milder infection can cause sclerosis and deformity of limited areas of the coronary circulation. The analogy with the case of mitral stenosis in which the infective processes have been arrested would also explain why many of these cases show no further symptoms. It may also explain the etiology of many of the cases of coronary thrombosis occurring in the fourth and fifth decades in which it is difficult to find any other evidence of arteriosclerosis. The argument, therefore, is put forward to explain the symptom complex, as described in young persons, which in all other ways conforms to the accepted description of an attack of coronary thrombosis. Another possible explanation of these cases is the theory proposed by Leary: The presence of coronary sclerosis in young persons is due to an atherosclerosis, and these lesions arise from the entrance of lipoids into the subendothelial layer of the intima and their phagocytosis by cells referred to as lipid cells.

## Archives des Maladies de l'Appareil Digestif, Paris

26: 1121-1256 (Dec.) 1936

- Surgical Forms of Ascariasis. M. Guilleminet, L. Morenas and P. Magnin.—p. 1122.
- \*Shock as Therapeutic Measure in Treatment of Diseases of Digestive Apparatus. S. Ryss.—p. 1141.
- Problem of Duodenitis. Gubergritz and E. Tchayka.—p. 1158.
- Diabetes Improved During Progressive Development of Pulmonary Tuberculosis. L. Szyfman and I. Lebowicz.—p. 1172.

**Shock in Treatment of Diseases of Digestive Apparatus.**—Ryss states that a whole series of factors sensitize the gastric cell. They modify its process of reaction and displace the threshold of irritability quantitatively and qualitatively. In other words, they make it "allergic." Allergy provoking factors are toxic and chronic infections, heterogenous and endogenous poisons under certain favorable conditions which are the result of a chain of events: in the vegetative nervous system, nervous trophism and activity of superior nervous centers. The anaphylactic reaction is primarily a cellular process; proteolysis, colloidoclasia in the plasma and in the tissues and also nervous disorders assume an important rôle. The author states that 65.5 per cent of the gastric and duodenal ulcers are of an allergic nature. There exists a local allergy of the gastric tissues. If the tissue is hyperergic, the pathologic reaction manifests itself in the shape of an inflammation which may have the characteristics and, as a nosologic unit, the symptoms of purely mechanical factors. Certain forms of enterocolitis are likewise of an allergic nature. The intestinal inflammation presents itself as mucous catarrh, fibrinous, necrotic and ulcerous forms (processes of fermentation or putrefaction). These disturbances modify the intestinal milieu, its bacterial flora and the antigenic properties of its bacteria and protozoa. In treating allergic disorders of the digestive tract the author uses the shock therapy by means of hemoprotein. However, the shock does not always communicate to the organism an immunity and a permanent desensitization. The shock therapy acts on the injured cell by bringing forth a hyperergic inflammation ending in cicatrization. The choice of the antigen is regarded as important, but the author fails to state his procedure in order to "obviate the repetition of the treatment." He looks forward to future treatment of allergic disturbances of the digestive tract, aware of the complexity of their pathogenesis.

## Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

52: 1653-1684 (Dec. 21) 1936. Partial Index

- \*Severe Nervous Accidents and Profound Disorders of Dextrose Regulation in Children. R. Debré, J. Milhit, J. Marie, D. Nachmansohn and P. de Font-Réaulx.—p. 1653.
- Hematexody: Process of Erythrocyte Disintegration with Projection of Microcinematographic Film. R. Waitz.—p. 1663.
- Professional Oxycarbonemia. M. Loeper, E. Gilbrin and F. Signier.—p. 1671.
- Endogenous Oxycarbonemia. Loeper, Bioy, Gilbrin and Tonnet.—p. 1676.

**Accidents of Dextrose Regulation.**—Debré and his colleagues call attention to a type of nervous disorder characterized by unusual symptoms. It was observed by them in a child aged 3½ years. The child was in coma, which lasted several hours and was accompanied by abolition of the tendon reflexes and a bilateral Babinski sign. On regaining consciousness, the child was agitated, trembling and not prostrated as is a child recovering from an epileptic attack. She again entered a profound state of coma with abolition of the reflexes. The acetone odor of the breath was noted and resulted in an examination of the urine. The Legal test was strictly positive, but there was neither sugar nor acetic acid. On recovering from these nervous crises, clinical examination was totally negative. No organic disorder was demonstrated. The child was submitted to case study and examination and it was found that the trouble was due to lack of equilibrium in the dextrose regulation. This seemed to be allied to a neuro-endocrine disorder involving the nervous centers and the glands that control the harmonious metabolism of carbohydrates. It did not seem possible to explain the morbid phenomena by a single organic lesion or by deficiency in the production of a single hormone. From a practical standpoint it must be remembered that the presence of acetone and even dextrose in the urine does not indicate the treatment of an infant with insulin before



they could be demonstrated by roentgenograms or other phases of the examination. These subjects are grouped on the basis of the tuberculin reaction, the type of lesion that subsequently developed and other factors. In their experience adults in whom the first infection type of tuberculosis develops, even with considerable involvement of the pulmonary parenchyma and regional lymph nodes, do not require treatment in any form. The prevention of tuberculosis of the first infection type among young adults consists in protecting them against exposure to patients with communicable tuberculosis. For students of nursing and medicine this amounts to a strict technic for dealing with contagious diseases. When the first infection type of disease occurs in the second and third decades of life, it is just as benign as when it occurs in childhood.

**Pathogenesis of Erythema Nodosum.**—Spink gives data which indicate a causal relationship between *Streptococcus haemolyticus* and erythema nodosum: In five of the ten patients that he observed, erythema nodosum was preceded by a sore throat, and cultures in four cases revealed *Streptococcus haemolyticus* of the beta type; intradermal injection of a streptococcus endotoxin (nucleoprotein) produced nodules similar to the lesions of erythema nodosum in eight of the ten patients; excised streptococcal nodules and the lesions of erythema nodosum showed the same histologic appearance, and similar lesions were produced by the injection of broth filtrates of streptococci isolated from two of the patients. The same picture has been produced by the injection of tuberculin. An analysis of the records of 133 patients treated for erythema nodosum at the Boston City Hospital from 1924 to 1934 revealed a similar causal relationship to streptococcal infections and, in addition, to rheumatic fever. Erythema nodosum appears to be a non-specific inflammatory reaction of the skin to a variety of bacterial, toxic and chemical agents.

### Archives of Surgery, Chicago

34:1-200 (Jan.) 1937

- \*Subungual Neuromyo-Arterial Glomus Tumor of Toe: Effect of Increased Peripheral Temperature. F. V. Theis, Chicago.—p. 1.
- \*Hemangioma of Tendon or Tendon Sheath: Report of Case with Study of Twenty-Four Cases from Literature. H. N. Harkins, Chicago.—p. 12.
- Platyspondyly. J. Buchman, New York.—p. 23.
- Streptococcus Haemolyticus* Bacteremia: Study of 168 Cases. G. Shwartzman and J. L. Goldman, New York.—p. 82.
- \*Late Effects of Various Types of Trauma to Kidney. J. A. C. Colston and W. W. Baker, Baltimore.—p. 99.
- Traumatic Rupture of Thoracic Duct with Bilateral Chylothorax and Chylous Ascites: New Operation; Report of Case. A. L. Brown, San Francisco.—p. 120.
- Intra-Abdominal Adhesions: Experimental and Clinical Study. L. M. Bogart, Flint, Mich.—p. 129.
- Differential Analysis of Bile Acids in Human Bile from Fistulas. H. Doubilet and R. Colp, New York.—p. 149.
- A Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Berlin, Germany; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn., and V. J. O'Connor, Chicago.—p. 174.

**Subungual Neuromyo-Arterial Glomus Tumor of Toe.**—Theis cites a case of senile arteriosclerotic circulatory disease in which normal thermocouple temperature readings followed treatments with alternating positive and negative pressure. After complete relief was obtained from the subjective symptoms, an excruciatingly painful and tender bluish pea-sized tumor was discovered protruding from beneath the right first toe-nail. This nodule had not been noticed previously. Histologic examination of the tumor confirmed the diagnosis of a subungual glomus tumor. In a review of more than 1,400 reported cases of peripheral circulatory disease in which alternating positive and negative pressure therapy was employed, no other glomus tumor was found.

**Hemangioma of Tendon or Tendon Sheath.**—On the basis of a review of all types of tumor of a tendon, Harkins concludes that hemangiomas of a tendon or tendon sheath comprise only a small proportion of tumors of such origin. His study of twenty-four such cases, including a personal case, reveals that in nineteen instances in which the sex was stated there were twelve women and seven men. The side on which the tumor occurred was stated in eighteen instances, the left being involved ten times and the right eight times. This does not indicate the marked preponderance of left-sided involve-

ment mentioned by Burman and Milgram. The upper extremity was involved thirteen times and the lower seven times. This is in opposition to the selective localization of hemangioma of the muscle in the lower extremity, as noted by Jenkins and Delaney. Observation of change in size on elevation and depression of the limb and after application of a constrictor is of importance in the diagnosis. Roentgen examination, as in the case of hemangioma of the muscle, will often reveal multiple calcified phleboliths. Positive results in this regard were reported in five of the twenty-four cases, as well as in Bouquet's case of hemangioma of a muscular aponeurosis. In only one instance were no phleboliths found on roentgen examination. Pathologic examination, as in the case of hemangioma elsewhere in the body, cannot always clearly differentiate between the predominance of endothelial, of fibrous and of hemangiomatous involvement. Likewise, the line of demarcation between lymphangioma and hemangioma and also between capillary and cavernous hemangioma must often be arbitrary. Three definite recurrences are mentioned, as well as two instances in which the operative removal was possibly not complete. Surgical treatment seems to be fairly efficacious, although many of the reported cases were not followed long enough to rule out recurrence.

**Effects of Trauma to Kidney.**—Colston and Baker discuss a series of thirteen cases, in all of which clinical examination or operation has revealed definite pathologic changes either in the kidney or in the perirenal tissue. The patients had been severely injured in the region of the kidney, at varying intervals of time before the patient was seen. The definite relationship of the trauma to the conditions described in these cases has been established, the conditions encountered varying from those causing minimal disability to those causing complete incapacity. The surgeon should be completely familiar with what changes may occur in the kidney or perirenal tissue as a late result of the injuries and should take the proper steps to prevent their development. All patients in whom injury to the kidney is suspected should be studied with special reference to the demonstration of persistent perirenal extravasation. It should be easily recognized by a palpable mass or the obliteration of the outline of the kidney and shadow of the psoas muscle on roentgen examination. In patients in whom hematuria has occurred as a result of an accident, an injury to the pelvis or calices should be suspected, and subsequent pyelographic studies should be carried out to make certain that distortion or particularly obstruction has not occurred as a result of the formation of scar tissue that may lead to subsequent serious damage to the kidney.

### Canadian Public Health Journal, Toronto

27:529-580 (Nov.) 1936

- Staphylococcus Toxin, Toxoid and Antitoxin.* C. E. Dolman, Vancouver, B. C., and J. S. Kitching, Toronto.—p. 529.
- Coordination of Medical Practice with Public Health in Manitoba, Saskatchewan and Alberta: The Outlook in Health Preservation Through Properly Supervised Medical Service. F. W. Jackson, Winnipeg, Manit.—p. 536.
- The Use of the Profession in Part Time Health Activities. R. O. Davison, Regina, Sask.—p. 542.
- Provision of Medical Clinics for People by Provincial Department of Health. M. R. Bow, Edmonton, Alta.—p. 546.
- Control of Efficiency of Pasteurization of Milk: The Phosphatase Test. H. D. Kay, Reading, England.—p. 551.
- Survey of Pasteurization in Canada with Record of Epidemics Due to Raw Milk. R. H. Murray, Regina, Sask.—p. 555.
- Bacillus Alkaliscens* (Andrews): Its Relation to Members of Typhoid Dysentery Group. M. H. Brown and E. A. Anderson, Toronto.—p. 560.
- Ensuring Safety of BCG Vaccine by Animal Inoculation. A. Frappier and Victorien Fredette, Montreal.—p. 563.

### Colorado Medicine, Denver

34:1-72 (Jan.) 1937

- \*Anxiety Syndrome: Everyday Problem of General Medicine Frequently Confused with Hyperthyroidism. E. G. Billings, Denver.—p. 14.
- Diagnosis and Treatment of Peripheral Vascular Disease. A. W. Metcalf, J. R. Plank and F. J. Rittersbach, Denver.—p. 20.
- Surgical Indications for Sympathectomy. M. C. Johe, Denver.—p. 26.

**Anxiety Syndrome Confused with Hyperthyroidism.**—Billings asserts that, during the last two years, one out of every twenty-one of the new adult admissions to the Colorado General Hospital and Dispensary was referred to the psy-

the coagulation time. The bleeding time is almost unchanged. The coagulation time increases early and intensely. Lesions of the liver parenchyma, diminished fibrinogenesis, changes of the calcium metabolism and toxic general conditions due to absence of bile in the intestine are the causes which alone or in association induce increase of the coagulation time. The latter is not favorably modified by administration of coagulants from blood platelet extracts. It diminishes transiently by administration of calcium salts and by blood transfusion. The transient results of calcium and roentgen treatments show that they have only a substituting action. Roentgen irradiation of the liver or of the hypogastric regions shortens the coagulation time for a period longer than that induced by calcium and roentgen treatments. It seems advisable to give roentgen irradiations over a region of the abdomen in order to shorten the coagulation time in jaundice. The results of the author's experiments show that the removal of the obstacle to the passage of bile into the intestine is the causal treatment of the disturbances of coagulation in mechanical jaundice. The coagulation time returns to normal, without further changes, as soon as the passage of bile into the intestine is reestablished.

### Minerva Medica, Turin

1:1-28 (Jan. 7) 1937

Diagnosis of Multiple Myeloma by Sternal Puncture. A. Ferrata and E. Storti.—p. 1.

\*Histopathologic Study of Carotid Glands. G. M. Rasario.—p. 4.

**Histologic Study of Carotid Glands.**—Rasario studied the histologic and nervous changes of the carotid glands on cadavers of men who died from various diseases at different ages. The carotid glands were found in all cases, regardless of age. Both glands were removed. One of the glands was subjected, after fixation, to the De Castro-Cajal silver impregnation method for the study of the ends of the nervous fibers. The other gland was stained, after fixation, for study of the cellular alterations. The latter as a rule are of lesser importance. They consist especially in proliferation of the connective tissue and small cell infiltration. Alterations of the parenchymal cells cannot be noticed (perhaps because of the early changes of the glandular parenchyma after death). Senile sclerosis of the carotid glands begins at the age of 60 and is obvious at 70, with exceptions, however, because there are cases in which the glands are well preserved after 70. There are two types of cells in the parenchyma of the carotid glands: Cells with large hypochromic nuclei exist in the glands of young persons, whereas cells with dark, round, small nuclei are present in the glands of the elderly. The structure of the specific cells of the carotid glands indicates that the glands have secretory functions which, up to the present, have not been proved. The alterations of the ends of the nervous fibers of the glands are also of lesser importance and probably do not prevent the functions of the gland. According to the author, the carotid glands are not rudimentary, accessory or involutive structures but organs with definite functions which form a part of the depressive vasosensorial system of the carotid sinus.

### Policlinico, Rome

44:153-208 (Jan. 25) 1937. Practical Section

New Therapeutic Trends in Field of Minor Surgery. A. Comolli.—p. 153.

Permeability of Capillaries in Gastrectomized Persons. S. Ciancarelli.—p. 159.

\*Ascoli's Treatment in Malaria. A. M. Cicchitto.—p. 165.

New Technic for Preparation of Sheep Erythrocytes for Wassermann Reaction. A. Frates.—p. 170.

Spontaneous Amputation of Appendix: Case. G. Cardì.—p. 173.

**Ascoli's Treatment in Malaria.**—Cicchitto reports satisfactory results from Ascoli's treatment (intravenous injections of epinephrine) in malaria. Epinephrine is given in increasing doses of from 0.02 to 0.1 mg. The first two days it is given in association with 0.5 Gm. of quinine, in intravenous injections. An intravenous injection of epinephrine and an intramuscular injection of quinine, of the same amounts as those administered in the morning, are given at noon in severe cases for the first two days. The third morning the patient is given 0.5 Gm. of quinine by mouth and the intravenous injection of epinephrine. The noon treatments are discontinued. From the third day on, administration of quinine is discontinued. Intravenous injections of increasing doses of epinephrine are continued up to com-

pletion of six or eight injections, one every morning, besides those which are administered at noon in grave cases. The author succeeded in controlling many cases of malaria with visceral, digestive, hepatic circulatory, nervous, adrenal, sensorial and sympathetic complications. There are no recurrences or reinfections after the treatment, which has the advantages that quinine resistance is controlled, the dose of quinine given to the patient can be diminished, the disease evolves to rapid recovery and the development of posttropical benign malaria is prevented.

### Beiträge zur klinischen Chirurgie, Berlin

164:513-672 (Dec. 23) 1936. Partial Index

Urographic Diagnosis of Renal Tumors. W. Staehler.—p. 513.

\*Hereditary Character of Neurofibromatosis of von Recklinghausen. C. H. Schröder.—p. 563.

\*Value of Indirect Roentgenologic Signs in the Diagnosis of Endocrinal Tumors. H. Hellner.—p. 573.

Chondroma of Short Tubular Bones. F. Golla.—p. 613.

Amniotic and Hereditary Nature of Flatfoot. C. H. Schröder.—p. 619.

Treatment of Dislocation Fracture of Capitellum Radii. E. Madarasz.—p. 628.

**Hereditary Character of Neurofibromatosis.**—According to Schröder, the multiplicity of symptoms of von Recklinghausen's disease is simplified by the grouping proposed by Ferdinand Curtius, according to which all its manifestations are divided into three groups: (1) multiple skin tumors (fibromata mollusca) frequently associated with nerve tumors, (2) anomalies of pigmentation of the skin, particularly smaller or larger pigmented nevi referred to as coffee spots, and (3) psychic disturbances, particularly imbecility, more rarely psychoses and psychopathies. Among other symptoms are mentioned skeletal changes, kyphoscolioses, asymmetries of the skull, thickening or rarefaction of bones and subperiosteal cysts. The bones may undergo decalcification or an abnormal increase in calcium. Pseudarthroses are noted in childhood. Another peculiarity is a keloid-like hypertrophy of scars, while disturbances of the glands of internal secretion may lead to hypogenitalism, acromegaly, myxedema, hyperthyroidism and Addison's disease. The histologic study of the multiple tumors reveals that they are neuromas, neurofibromas or pure fibromas. The origin of these tumors is to be seen in faulty differentiation of mesenchymal tissue from the ectoderm. The embryologic origin of the disease is indicated by its hereditary character. Of the 466 cases reported in the literature, a hereditary character was present in 18 per cent of the children and in 16 per cent of the adults. The author reports an observation of a family in which the hereditary transmission of the dominant type was traced for three generations. A father and twin sisters exhibited pigment anomalies and characteristic tumors confirmed by histologic examination. Four other members of the family exhibited an abortive type of the disease in the form of typical pigmentation anomalies of the skin; namely, the so-called coffee spots. One case presented an unusual location of a tumor under the tongue. Two cases of imbecility were present in relatives. Seven of the affected persons showed similar anomalies of pigmentation, while three showed rather large single tumors. Similarity of the symptoms and of the development of the disease suggests the existence of a familial type of the disease.

**Signs of Brain Tumors in Roentgenogram of Skull.**—Diagnosis of brain tumors must answer three questions: the location of the tumor, the size of the tumor and its nature. According to Hellner, the usual roentgenogram of the skull is capable of contributing important information to these queries. The knowledge of the alterations caused by tumors and visualized in an ordinary roentgenogram of the skull, while not as important as the neurologic examination and the knowledge of the course of an individual tumor, is nevertheless of considerable value. The author cites Kornblum, who found in 446 cases of brain tumor confirmed by operation or at necropsy that 6.5 per cent showed calcification. The intracranial tumors exhibiting bone formation were, in the author's experience, principally parasagittal meningiomas, neurinomas and cholesteatomas. Here the roentgenogram furnishes information as to the localization, the size and, to some extent, the nature of the tumor. The author describes localized hyperostoses of the vault and the base of the skull. These were likewise observed principally in meningiomas and occasionally in gliomas and in neurinomas of the acoustic nerve. The roent-

and early fall. The results indicate that banana powder or pulp may receive favorable consideration in the treatment of those intestinal upsets occurring during the summer and fall months in infants and young children. The greater percentage of success was found in the older group of children. A much greater success was had even with the youngest infants with the banana therapy than with the accepted methods of treatment. Banana pulp therapy gave even better results than the banana powder. The patients of this group were in the outpatient department and were able to be taken care of at home, which does not give one as fair a comparison as do the hospitalized groups, who were more adequately under control and observation. But this treatment is just as efficient as the banana powder therapy, if not more so.

### Nebraska State Medical Journal, Lincoln

22:1-40 (Jan.) 1937

- Psychologic Factors in Medical and Surgical Conditions. W. C. Menninger, Topeka, Kan.—p. 1.  
Some Surgical Problems of Thyroid Gland. N. F. Hicken, Omaha.—p. 8.  
Late Results of Head Injuries. K. S. J. Hohlen, Lincoln.—p. 12.  
Short Wave Diathermy Treatment of Chronic Sinusitis. O. C. Nickum, Omaha.—p. 14.  
Diagnosis and Treatment of Anemia: VIII. Anemias of Infancy. J. C. Sharpe, Omaha.—p. 16.  
The Healing Arts. C. Johnson, Lincoln.—p. 18.  
Scurvy in Twins: Report of Cases. F. Clarke and C. W. Byrnes, Omaha.—p. 21.  
Severe Burn, with Especial Reference to Tannic Acid Treatment: Case Report. S. M. Weyer, Omaha.—p. 23.  
Bronchoscopic Diagnosis of Carcinoma of Lung: Report of Two Cases. H. E. Kully, Lincoln.—p. 25.

### New England Journal of Medicine, Boston

216:1-42 (Jan. 7) 1937

- Cesarean Section: Ten Year Study of 703 Cases at the Boston City Hospital. C. J. Duncan, Brookline, Mass., and J. B. Doyle, Boston.—p. 1.  
Trichinella Antigen: Further Observations on Its Use in Diagnosis of Trichinosis. W. W. Spink, Boston.—p. 5.  
Psychiatric Work in the Hygiene Department of Harvard University. K. J. Tillotson, Waverley, Mass.—p. 9.  
Gentian Violet Treatment of Leg Ulcers: Preliminary Report. F. M. Thurmon and H. Chaimson, Boston.—p. 11.  
Suggestions for Bacteriology Laboratory of the Small Hospital. S. C. Dalrymple, Newton Lower Falls, Mass.—p. 15.  
Religion in Medicine. J. M. T. Finney, Baltimore.—p. 16.  
Dr. Jacob Bigelow. C. F. Painter, Boston.—p. 20.

**Gentian Violet Treatment of Leg Ulcers.**—Thurmon and Chaimson believe that any therapeutic measure that may be proposed for the treatment of ulcers not only should aim at correcting an impaired vascular balance but also should possess bactericidal properties and an ability to control excessive granulation and, at the same time, should not injure the tissue cells. Gentian violet in 2 per cent aqueous solution is an agent possessing these qualities. Its use as a topical application in fifteen patients with chronic leg ulcers forms the basis of the authors' study begun Jan. 11, 1934. A topical application of the solution was applied from three to five times the first day, the patient being instructed to repeat this procedure through the following two or three days or until a hard, firm, dry, adherent crust had formed. With each application the solution was permitted to air-dry and at no time were the ulcers bandaged. As long as the violet-stained crust remained firm, dry and adherent it was not disturbed. Should any portion of the crust become loose or pocketed, that portion of the crust was removed with sterile forceps and scissors, the ulceration cleansed with dry sterile gauze and gentian violet reapplied as previously directed or until a new dry crust had formed. Loosening of the crust or pocketing beneath it is usually due to a collection of thin gray purulent material beneath the crust. During the entire period of treatment each patient remained ambulatory. With the exception of the edematous type of ulceration, treatment with 2 per cent aqueous gentian violet solution resulted in progressive healing. Pain and irritation materially subsided after the third or fourth application and usually disappeared after the first two or three days. Similarly the exudate from secondary infection was controlled within a short period of time. Once a firm, dry, adherent crust had formed, no reinfection occurred. Epithelization took place satisfactorily. Complete healing of all ulcers occurred in from eight weeks to seven months. The resulting scars were thin and flexible and in some instances difficult to distinguish from the surrounding

normal skin. With the edematous ulcers the results were unsuccessful until the edema was brought under control. Topical application of gentian violet during the edematous stage was ineffective, since the stain was diluted or completely washed away by the serous exudate. Whenever it was possible to control the local and surrounding edema, the gentian violet treatment was of definite aid in hastening healing.

### Radiology, Syracuse, N. Y.

27:651-780 (Dec.) 1936

- Radiation Biology of Cutaneous Glands. J. Borak, Vienna, Austria, translated from the German by E. T. Leddy, Rochester, Minn.—p. 651.  
Cathode Bias for Supervoltage Tube. J. E. Rose and D. H. Loughridge, Seattle.—p. 656.  
Simultaneous Infra-Red Roentgen Photography: Method of Obtaining a Photograph in Total Darkness, and a Radiograph, Simultaneously, on the Same Infra-Red Plate. L. C. Massopust, Milwaukee.—p. 663.  
Roentgen Aspects of Congenital Aplasia of Lung. J. F. Elward, Washington, D. C.—p. 667.  
\*Carbohydrate Meal Instead of Fat Meal in Cholecystography. J. L. Kestel, Waterloo, Iowa.—p. 672.  
Köhler's Metatarsal Disease: Case Report. S. Hatchette, Lake Charles, La.—p. 675.  
Some Physical Aspects of 650 Kilovolts Constant Potential X-Ray Apparatus at the Lincoln General Hospital. T. R. Folsom, New York.—p. 679.  
Fluoroscope Attachment for Cross-Section Drawing and Localization, with Adaptation for Radiography. M. Szabados, Brooklyn.—p. 689.  
Radiation Intensities of X-Ray Generators: Some Observations During Calibration of Machines for Therapy Purposes. C. E. Nurnberger, Peiping, China.—p. 696.  
\*Roentgenologic Study of 115 Cases of Appendectomy for So-Called Chronic Appendicitis. M. Feldman, Baltimore.—p. 699.  
Lateral Roentgenography of Femoral Neck. A. B. Ferguson and F. L. Liebolt, New York.—p. 704.  
Pituitary Adenomas and Differential Diagnosis. J. T. Travers, New York.—p. 708.  
Roentgenologic Study of Mastoid Area. F. L. Schumacher, Pittsburgh.—p. 717.  
Osteochondrosis-Osteochondritis Ischiopubica. A. A. Zeitlin, Moscow, U. S. S. R.—p. 722.  
The Planeogram: Analysis and Practical Application, with Especial Reference to Mensuration of Pelvic Inlet. J. Kaufman, Brooklyn.—p. 732.  
Echinococcus Cyst of Sternum. S. E. Sinberg, New York.—p. 736.  
Pneumothorax Treatment of Tuberculosis: Clinical and Roentgenologic Evaluation. R. K. Childerhose, Allenwood, Pa.—p. 741.

**Carbohydrate Meal Instead of Fat Meal in Cholecystography.**—Believing that dextrose must have some advantages over fat, Kestel used a carbohydrate meal instead of the usual fat meal when relatively faint shadows were obtained. Two hours later a slightly smaller but considerably denser gallbladder shadow was obtained in each instance. This procedure was then adopted as a routine to replace the fat meal. In fourteen of thirty cases a heavier, smaller shadow was obtained after the carbohydrate meal. In eight cases the shadow was as intense, although reduced in size. Of the remaining eight cases, two showed little change in the shadow, in three it was smaller and fainter, and in the remaining three it had disappeared completely. In one instance a shadow was visualized after the carbohydrate meal when it had not been present before. While the results have not been perfectly uniform, it is certain that the procedure has advantages. With the smaller shadow of relatively increased density, stones or other negative shadows might be discovered when overlooked in the original roentgenogram. For a person of average weight a meal at noon devoid of fats is followed in thirty minutes by 2.5 Gm. of dye. The evening meal at 6:30, consisting largely of carbohydrates, is again followed by 2.5 Gm. of dye. Fruit juices are allowed during the first hour after either administration of the dye. The first roentgenogram is taken the following morning at 8:30 and is followed by a carbohydrate meal. This meal consists of two slices of toast with jam or jelly, a glass of orange juice, and either tea or coffee with sugar. The second and last roentgenogram is taken two hours later. Patients with faint or absent shadows are given the carbohydrate meal and it is repeated two hours later. If the patient has vomited part of the dye or developed diarrhea and the carbohydrate meal fails to intensify the shadow adequately, the cholecystograph is repeated after the intravenous administration of the dye. A second roentgenogram is again taken two hours after a carbohydrate meal. If there is any question of slight motion, another roentgenogram is taken. In the small number of cases examined by this method, no errors have been detected.

an infection of the blood stream, from which the infection was carried in one of the patients to the lung, kidney and brain, and in the other patient to the right cerebral hemisphere, lung, frontal sinus, skin and endocardium. Regarding the location of the primary focus, only suppositions are possible. In the first patient there were indications that it might have been in the intestine, in the second patient in the tonsil.

### Polska Gazeta Lekarska, Lwów

16:21-40 (Jan. 10) 1937

- Psycho-Anaphylaxis. H. Sochański.—p. 21.  
\*Late Postmortem Demonstration of Carbon Monoxide. M. Pieczarkowski.—p. 24.  
Immunobiologic Reaction of Rheumatism. A. Mester.—p. 27.  
Allergic and Nonallergic Eczema. A. Nadel.—p. 29.

**Late Postmortem Demonstration of Carbon Monoxide.**—Pieczarkowski states that the literature on death by asphyxiation from illuminating gas is scanty from the medicolegal point of view of demonstrating the cause of death after exhumation of the suspected body. His experiments show that: 1. Demonstrating death from illuminating gas by means of spectral and chemical analysis of the blood and the edematous condition of the exhumed organs was easy after two months. 2. In atelectatic and decomposed parts of the body illuminating gas has been demonstrated even after two and one-half years. 3. If a vessel is filled to the top with blood poisoned by illuminating gas and is sealed air tight, the positive presence of illuminating gas may be demonstrated after twenty years (and even for a much longer time) by chemical and spectral analysis. 4. During one year illuminating gas in the blood may be demonstrated by pouring thickly and drying the blood in a porcelain dish or in a watch glass. 5. If the blood is poured in a vessel which it does not fill completely, and is sealed and shaken so that the air left in the vessel is mixed with the blood, the illuminating gas cannot be demonstrated any more after one month. 6. It can be found for twice as long (fifty-five days) when the vessel has not been shaken. 7. The blood left in an uncovered vessel shows the presence of illuminating gas for about two weeks. 8. If the blood is regularly stirred with air, the illuminating gas is lost in about five hours. 9. The blood mixed with Jäderholm's solution shows illuminating gas for only a short time.

### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81:1-96 (Jan. 2) 1937. Partial Index

- Use of Liquid (Roche) in Culturing Micro-Organisms from Blood. J. Van Der Hoeden.—p. 10.  
Acute Articular Disturbances in Tuberculosis. J. H. Reichart.—p. 17.  
Acute Nicotine Poisoning. J. J. Jüngerhans.—p. 21.  
\*Parenteral Liver Therapy in Two Cases of Sinus Thrombosis. H. Engelkes.—p. 25.

**Parenteral Liver Therapy in Sinus Thrombosis.**—Engelkes, after citing the decrease in rapidity of the blood current and changes in the endothelium and in the blood as the factors that play a part in the pathogenesis of thrombosis, points out that several authors observed that the injection of liver extract exerts a favorable influence on the course of postoperative thrombosis and thrombophlebitis. He describes the histories of two patients with sinus thrombosis, one of whom had the "spontaneous" and one the suppurative type. In both of these patients he resorted to the intramuscular injection of liver extract, giving 2 or 3 cc. twice daily and continuing the injections for two weeks. Later the liver was given by mouth. Both patients recovered. The author concludes that in operative as well as in nonoperative cases of sinus thrombosis injections of liver extract should be given for about a week, eventually followed by oral medication.

81:161-236 (Jan. 16) 1937. Partial Index

- Chronic Intestinal Catarrh. J. Van Lookeren Campagne.—p. 165.  
\*Contribution to Knowledge of Phosphorus Lipoids on Basis of Study of Phosphorus Lipoid Content of Blood of Patients with Cancer. G. F. Gezelle Meerburg.—p. 170.  
Simple Determination of Urea in Blood and Urine. A. C. M. Lips.—p. 175.

**Phosphorus Lipoids in Blood of Patients with Cancer.**—Gezelle Meerburg points out that the phosphorus lipoids or phosphatides, the chief representative of which is lecithin, play an important part in the organism. He reviews the reports of other investigators, such as Marsman's study on the lipid content of the blood of patients with tuberculosis, and then

reports his own studies on twenty-nine cancer patients and on three with other chronic disorders. All the patients were rather undernourished. Tabular reports show that the values varied between 4 and 11.7 mg. per hundred cubic centimeters of blood. In the men the average value was 8.05, in the women 7.62 mg. per hundred cubic centimeters of blood. The author thinks that the undernourished condition influences the phosphatide content of the blood.

### Acta Medica Scandinavica, Stockholm

91:1-212 (Jan. 20) 1937. Partial Index

- \*New Blood Pressure Reducing Substance Within Organism and Its Significance for Essential Hypertension. E. Wollheim.—p. 1.  
Observations on Uveoparotitis and Allied Conditions with Especial Reference to Symptoms from Nervous System. J. Waldenström.—p. 33.  
\*Edema of Temples in Thyrotoxicosis. J. Wahlberg.—p. 107.  
Origin of Vesicular Murmur. E. Bárány.—p. 115.  
Bacterial Endocarditis Caused by Hemolytic Fecal Streptococci (Enterococci). E. Waaler.—p. 121.  
Ventilation in Essential Hypertension and in Anemia. P. J. Wis'ns.—p. 159.  
\*Disturbances of Plasma Protein Metabolism and Experiments with Bone Marrow Therapy. M. C. Ehrström.—p. 183.

**Blood Pressure Reducing Substance.**—Wollheim demonstrates that the urine of normal subjects and of horses contains a blood pressure reducing substance. The urine of patients with essential hypertension is either entirely free from the substance or it is present in only small quantities. The author describes the chemical and physical behavior of this thermostable substance. It is well characterized and readily differentiable from other blood pressure reducing substances by its behavior during boiling with acid and lye and toward the usual solvents and precipitants and by the use of dialysis and electrolysis. A blood pressure reducing substance that is essentially the same can be extracted from the posterior lobe of the hypophysis. The physiologic action of the substance that is extractable from the urine as well as from the posterior hypophysis consists in a considerable dilatation of the peripheral vessels. Its blood pressure reducing effect persists for comparatively long periods and in this respect it differs from all formerly known blood pressure reducing substances. Pure preparations do not influence the heart, the respiration or the intestine. The intramuscular injection of the substance reduces the blood pressure of patients with essential hypertension.

**Edema of the Temples in Thyrotoxicosis.**—Wahlberg describes six cases of edema of the temples in thyrotoxicosis. The edema appeared at the height of the disease or when the other symptoms were subsiding and, as a postoperative symptom, simultaneously with myxedema or during seemingly normal thyroid function. In one case it seemed to be an early symptom of the disease. He discusses the pathogenesis of the eye symptoms in thyrotoxicosis, especially the exophthalmos and the edema of the eyelids.

**Disturbances in Plasma Proteins and Bone Marrow Therapy.**—Ehrström points out that quantitative and qualitative changes in the plasma proteins are quite common. In infections of various types, particularly chronic suppurations, tuberculosis and syphilis, the globulins are increased. Multiple myeloma is usually accompanied by an increase in the total amount of proteins; here too the globulins are usually the chief factor. The hyperproteinemia that is due chiefly to an increase in the albumins is often present in essential hypertension. Hypoproteinemia is even more common than is an increase in the plasma proteins. In this connection the author mentions nephritis, starvation edema, pernicious anemia, myeloid leukemia, cardiac insufficiency, cirrhosis and atrophy of the liver, diarrheas and so on. He reviews what is known about the localization and the manner of production of the plasma proteins, pointing out that investigations in recent years have disclosed that changes in the plasma proteins concur with pathologic processes in certain cells of the bone marrow. After making a comparison between the plasma protein metabolism and the hemoglobin metabolism, he reports a case of hypoproteinemia in which the plasma proteins remained practically the same during nine months of treatment with liver and a diet that had a high protein content. However, when thereafter treatment with a bone marrow extract was continued for only a month, a considerable increase was produced, which involved only the albumins.

# FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Ophthalmology, London

20: 657-704 (Dec.) 1936

- Postoperative Distress in Cases of Senile Cataract. W. H. McMullen.—p. 657.  
The Optic Foramen. J. G. Clegg.—p. 667.  
Industrial Eye Injuries and Their Prevention. J. Minton.—p. 673.  
A New Eye Shield for Use in Industry. C. G. Kay Sharp.—p. 683.  
Sulfur Metabolism in Senile Cataract. Margherita Cotonio Bourne and Dorothy Adams Campbell.—p. 684.

## British Medical Journal, London

2: 1179-1242 (Dec. 12) 1936

- Amnesia: Component Functions in Remembering. R. D. Gillespie.—p. 1179.  
\*Cirroid Aneurysm of Scalp. T. Clunie.—p. 1183.  
\*Blood Transfusion: Report of Six Fatalities. N. S. Plummer.—p. 1186.  
Estrin and Progesterin in Secondary Amenorrhoea. S. M. Davidson.—p. 1190.  
The Problem of Otosclerosis. G. Chubb.—p. 1192.  
\*Estimation of Coagulation Time of Blood: Simplified Method. H. Troughton and J. W. Riddoch.—p. 1194.

**Cirroid Aneurysm of Scalp.**—Clunie points out that the etiology of cirroid aneurysm of the scalp does not appear to have been settled. An attractive theory is that cirroid and racemose aneurysm, the aneurysm of anastomosis and the pulsating angioma are due, as is arteriovenous aneurysm, to an abnormal communication between the arterial and venous systems and that such a communication may be either developmental or traumatic in origin. Even large cirroid aneurysms of the scalp may be extirpated by a method which depends for its success on the easy stripping of thrombosed and edematous tissue, including the aneurysm, from the skin layer of the scalp flap. Despite the fact that the vascular layer is stripped from the flap with the aneurysm, the skin flap receives sufficient nourishment and but little sloughing takes place even with a large flap. In the case described the whole aneurysm was excised. Seaby, dealing with a larger aneurysm, excised only two thirds of it and the results were excellent, because the abnormal communication between the arterial and venous systems was abolished. An interval of ninety-six hours between the two stages of the operation should not be exceeded, as necrosis of the flap edges might occur. The operation should not be a formidable one in practiced hands, despite the vascularity of the scalp; hemorrhage will naturally be greater and the operation time will be longer if aneurysmal tissue has to be cut through.

**Blood Transfusion.**—Plummer stresses the risks of transfusion that are dependent on the condition of the recipient. He reports six fatal cases: 1. A case of Addison's anemia in which pulmonary edema developed after transfusion and death occurred in ten hours. 2. In a case of gastric carcinoma with moderate anemia, death took place nineteen hours after transfusion. 3. In a man of 72 with multiple telangiectases and severe anemia, death occurred four hours after transfusion. 4. The fourth case was one of hemolytic anemia with mitral stenosis. After transfusion, pulmonary edema developed and death ensued in two hours. 5. Death occurred in half an hour in a case of chronic empyema after a second transfusion from the same donor. 6. The last case was one of esophageal ulcer with secondary anemia. The patient had had five previous transfusions with a hemolytic reaction and died four days later from uremia. Doubt is cast on the accepted theory of hemoglobin plugging of the tubules in all cases of uremia following transfusion. With all ordinary precautions of grouping and selection of cases, blood transfusion carried with it a risk which indicates that it has to be used with considerable discretion in a number of conditions.

**Estimation of Coagulation Time of Blood.**—In estimating the coagulation time of blood, Troughton and Riddoch need one glass tube drawn out into a capillary tube open at both ends and a filter paper divided by pencil into segments from the center for receiving the drops of blood expelled from the tube. Blood is drawn up into the capillary tube by surface tension, and at minute intervals the end is placed in a slanting direction on to the segments of the filter paper. Before coagulation the drop of blood is absorbed into the filter paper. After an interval varying from five to nine minutes for specimens of normal blood, a tiny thread of fibrin stretches out from the filter paper to the end of the capillary tube. The appearance of this thread of fibrin is taken as the coagulation time of the blood in question, and there is no possibility of mistaking the appearance of the fibrin thread in practice, so that uniform results can be easily obtained on repetition.

## Clinical Journal, London

65: 481-530 (Dec.) 1936

- Neuritis. W. R. Russell.—p. 481.  
Fractures of External Condyle and Capitellum of Humerus. N. Roberts.—p. 484.  
\*Treatment of Obesity in Children. P. Mallam.—p. 491.  
The Practical Use of Analgesics. H. Balme.—p. 495.  
Coronary Thrombosis: Case. G. Lambert.—p. 500.  
Illustrating Symptoms and Treatment of Hemophilia: Case. G. E. F. Sutton.—p. 505.  
Puerperal Jaundice. J. Grant and J. H. Miller.—p. 509.

**Treatment of Obesity in Children.**—Mallam is convinced that dieting is the keystone to treatment in almost all cases of obesity in children, but before prescribing a system of diet a careful family history and knowledge of conditions under which the child is being reared must be obtained. Obesity beginning in childhood often gives rise to endocrine trouble later on, and when one finds a strong dominant obesity factor in the family one should always be prepared to face a more difficult task than in a purely fortuitous case arising from normal stock. Even then, however, a cure, permanent and complete, can be obtained in the majority of cases by simple measures. The treatment must be explained carefully to the child and need not be elaborate. A simple practice is to weigh and measure the child and give it a diet based on the calculated basal requirements for this particular height and size. This is merely a beginning figure, and it may be necessary either to add to or subtract from the initial starting point. The question of the fluid intake is of considerable importance. If these children are counseled to drink early in the morning and then to try not to drink at all through the day, this is often a great help in reducing weight. Appetite is largely a question of satiation and these children must be schooled to eat slowly. Salt and sugar should be cut down to a minimum. Many children appear even fatter than they are because of postural defects. Exercises devoted to training the recti abdominis and correcting any possible lordosis and to making them stretch their overloaded limbs are all valuable. Such exercises are always more effective under trained supervision and are usually better done in a class of several children. Some sort of abdominal support employed temporarily often gives considerable help. At the same time strengthening exercises are absolutely essential, for without them one must either rely on artificial means or face a serious chance of visceroptosis. If a child loses weight consistently under treatment, the treatment is being overdone. If one treats an overweight child of 10 years and at 12 the child weighs the same, one should realize that a great deal has been achieved.

## East African Medical Journal, Nairobi

13: 229-262 (Nov.) 1936

- Scientific Diets for African Children. A. T. Schofield.—p. 230.  
Spinal Anesthesia, with Especial Reference to Its Uses in Nyasaland. H. D. Cronyn.—p. 246.  
Subtertian Malaria: Some Cases with Unusual Clinical Features. R. R. Murray.—p. 250.  
Atabrine in Tropical Typhus. J. H. Tennent.—p. 254.

## Irish Journal of Medical Science, Dublin

No. 131: 661-708 (Nov.) 1936

- Angina Pectoris and Coronary Thrombosis. E. T. Freeman.—p. 661.

## Journal of Neurology and Psychopathology, London

17: 97-192 (Oct.) 1936

- Cerebrospinal Fluid in "Essential" Epilepsy. W. G. Lennox and H. H. Merritt.—p. 97.  
Sensation of Vibration, with Especial Reference to Its Clinical Significance. I. Gordon.—p. 107.  
Bilateral Atrophic Lobar Sclerosis Following Thrombosis of Superior Longitudinal Sinus. R. M. Norman.—p. 135.  
Degrees of Automatic Action: Some Psychiatric Applications of Hughlings Jackson's Concept of "Reduction to a More Automatic Condition." M. Levin.—p. 153.



## NEGRO EDUCATION

Our surveys showed a definite improvement in those few medical schools that are devoted to the training of Negro physicians; but there is much to be done if we are to ensure adequate medical care for some 11 per cent of our population, which is widely scattered throughout the nation and in which certain diseases, such as tuberculosis and syphilis, have a very high rate of incidence.

## COMMENT

Some physicians may wonder why such a report as I have just given comes from a council of the American Medical Association. Let us look back for a moment to the rôle which this association has played in medical education:

It is customary to refer the origin of the American Medical Association to a national convention of delegates from medical societies and medical colleges called in 1846 by the Medical Society of the State of New York, mainly through the efforts of Dr. Nathan Smith Davis, for the purpose of raising the standard of medical education, which was then in a deplorable condition in this country. A year later, in Philadelphia, a permanent organization was effected with the avowed objective, according to the preamble of the constitution, of "cultivating and advancing medical knowledge; elevating the standard of medical education; promoting the usefulness, honor, and interests of the medical profession; enlightening and directing public opinion in regard to the duties, responsibilities and requirements of medical men; exciting and encouraging emulation and concert of action in the profession; facilitating and fostering friendly intercourse between those engaged in it." The present constitution, adopted in 1901, has not materially modified this declaration of purpose; but in the light of the vastly increased importance of preventive medicine, the phrase "the broad problems of hygiene" has been substituted for "the duties, responsibilities and requirements of medical men" as the subject regarding which public opinion should be informed.

At the second meeting of the Association, in Baltimore, the Committee on Education reported on existing conditions and recommended, among other things, that greater care should be exercised in the selection of medical students. Unfortunately, the warnings of this committee and its successors were not heeded, and the Association had not at its command the resources with which to follow up the efforts of these pioneers.

Half a century later, under the leadership of Dr. George H. Simmons, the Association again tackled the problem of raising medical education from the deplorably low level to which it had sunk. First he secured from every school, if possible, a catalogue or published announcement of its program and by analysis of these statements was able to show what sort of a medical curriculum was offered, or at least claimed. With few exceptions he found that educational requirements for admission were practically nonexistent. In the laboratory branches trained teachers were rare, and in the clinical subjects teaching was almost wholly didactic. Opportunity for personal contact of student with patient in taking histories and making examinations was for the most part conspicuously absent.

Reports from state licensing boards revealed an excessively large number of failures, although the examinations of these boards were certainly not unreasonably severe.

These facts, reported in *THE JOURNAL*, led to the formation of the Council on Medical Education in order

that the current procedure for training and licensing physicians might be more adequately studied and that written reports might be supplemented by personal visitation. A permanent secretary was appointed, who visited the schools in the United States, reporting his observations to the Council. Two years later all schools were revisited and on the basis of these inspections were classified as A, B or C. Naturally, there was a strong reaction from the schools, and the Association was attacked as a "medical trust."

At this juncture the recently organized Carnegie Foundation for the Advancement of Teaching was brought into the picture. Mr. Abraham Flexner, a man of excellent academic training but with little knowledge of medicine, was employed to make a survey of medical teaching in this country. Accompanied by Dr. Colwell, he visited the schools and recorded his conclusions in the historic Carnegie Report. His criticism, more scathing than that of the Council, could not be discounted on the ground of professional jealousy, and trade union motives could not be attributed to the Carnegie Foundation. The report was accepted by the nation. Public opinion, deeply aroused, compelled a radical revision of the methods and standards of the medical schools and likewise of the state examining boards. In response to public demand, many states passed laws restricting the licensing examination to graduates of class A, or "reputable," schools.

Low grade schools could not exist if their graduates could nowhere obtain a license to practice; but, unfortunately, some states have been slow to adopt the measures necessary to safeguard the health of their citizens. In consequence, even after a quarter of a century some such institutions exist. Public opinion must be again aroused and crystallized in legislative action if all our people are to enjoy the benefits of modern medicine at the hands of properly trained physicians. To arouse and direct public interest, and particularly that of the medical profession, is the present duty of the Council.

It may be asked why the American Medical Association, a professional group, should have assumed responsibility for regulating the training of candidates for medical licensure. Is it not the function of the state to protect the lives of its citizens, and is it not the express purpose of the statutes governing medical practice to discharge this responsibility by excluding all those who have not satisfactorily demonstrated their competence by passing the examination of the state board? In theory this is true, but in fact no merely written examination can test the physician's skill. Only by confronting the candidate with a series of patients can one learn whether he is able to make the requisite examination of the patient and from his observations draw reliable conclusions. Such examinations cost money, and as yet no state has made appropriations to defray the cost of its licensing examinations; the boards exist only on the fees which they can collect from examinees, which are nowhere sufficient to conduct the kind of an examination which would surely exclude the ignorant and incompetent. Having, then, no means of adequately discharging their responsibilities, the boards have necessarily sought elsewhere a method of safeguarding their public, and such assistance they have found in the classification of medical schools by the American Medical Association. Such boards as admit to the examination only the graduates of schools approved by the Council can at least be

verification of the level of blood sugar. Without this precautionary measure, hypoglycemic coma might be caused, possibly with fatal results.

### Presse Médicale, Paris

44: 2057-2080 (Dec. 19) 1936

- \*Sexual Function in Chronic Adrenal Insufficiency. G. Marañon.—p. 2057.
- Alimentary Equilibrium and Vitamins. R. Lecoq.—p. 2060.
- Coexistence of Two Recklinghausen Diseases in One Subject. R. Cohen and D. Douady.—p. 2063.
- \*Polyposis of Small Intestine. A. Mukbil Atakam.—p. 2065.

**Sexual Function in Adrenal Insufficiency.**—Many clinical observations have indicated that the adrenals, especially the cortex, exert a definite action on the sexual function. Marañon reports a further clinical and experimental study of this relationship. The majority of cases of Addison's disease begin after puberty; consequently it seems that the relation between the age of first menstruation and the disease cannot give important information. Nevertheless, a study of the age of onset of menstruation indicated that the puberty of women with Addison's disease begins on the average later than that of normal women. Furthermore, it was found that the proportion of cases of menstrual insufficiency in Addisonian women was especially high, which fact reinforces the hypothesis of the action of the adrenal hormone on the gonadal function. A large number of women with Addison's disease were infertile in a much higher percentage than healthy women of the same age groups. The proportion of abortions among the thirty-one Addisonian women was not higher than that of normal pregnant women. Pregnancy, however, in women later affected with Addison's disease was accompanied by a higher percentage of intoxications than normally. Mammary atrophy is also common in Addison's disease and furnished some evidence that the adrenal hormone exerts a stimulating effect on the breast. In the author's observations, symptoms of adrenal insufficiency did not seem to be especially aggravated during the menopause. A definite weakening of the sexual impulse in Addisonian men was frequently noted. The author believes that all these facts coincide with the experimental observations made on adrenalectomized animals and previously reported clinical observations.

**Polyposis of Small Intestine.**—According to Mukbil Atakam, polyposis of the small intestine is encountered rarely. Acute invagination of intestine is seen most often in nurslings and is relatively easy to diagnose. The chronic form, of insidious onset, is difficult to diagnose and less dangerous but is a disease of childhood and adolescence. It is rare in nurslings. The onset is sometimes acute, with periods of quiescence. The severe pain sometimes lasts several weeks. Vomiting is usual after a meal. Sometimes there is constipation and sometimes diarrhea, and sometimes alternation of the two. The general condition is changed from day to day. Recurrences are observed, with periods of quiescence, during which the child sleeps and gives hope of cure. These periods follow one another for a duration of a month to a year. Without surgical intervention the child dies from an occlusion or an intestinal invagination. Intestinal polyposis is dangerous from all points of view and especially from the standpoint of malignant degeneration. Once diagnosed, operation is necessary. Solitary polyps should be excised. Multiple disseminated forms should be resected with the intestine. General treatment must be administered and directed especially against anemia and inanition.

### Schweizerische medizinische Wochenschrift, Basel

67: 45-68 (Jan. 16) 1937

- Chronic Types of Poisoning. W. Heubner.—p. 45.
- Injuries on Tendons of Hand. W. Stahel.—p. 51.
- \*Some Experiences in Quantitative Determination of Alcohol Content of Blood. F. Schwarz.—p. 54.
- \*Treatment of Habitual Dorsal Luxation of First Metacarpus. K. Lenggenhager.—p. 58.

**Determination of Alcohol Content of Blood.**—Schwarz discusses the quantitative determination of the alcohol content of the blood and its significance in connection with motor vehicle accidents. In the living, it is best to examine the blood, for the results of the analysis of the urine are unreliable; however, after death, the analysis of the brain gives the most exact information about the amount of alcohol that has been

taken. The objection repeatedly is made that human subjects do not react to alcohol in a uniform manner, some persons being more sensitive to it than others and the same person being more sensitive at one time than at another. Nevertheless, the reliability of a method is determined by the practical experience with it. The author evaluates the results of alcohol analyses in more than 1,000 cases and reaches the conclusion that his results dispel any doubt as to the practical value of the quantitative alcohol analysis. He maintains that, if values of less than 0.05 per cent are found, the effect of alcohol cannot be considered a causal factor, for with such a concentration of alcohol the majority of persons show no signs of an acute effect of alcohol. If the concentration is between 0.05 and 0.1 per cent, the majority of persons are still free from the signs of alcohol intoxication, but in approximately one third of the cases, particularly in women and young persons, a concentration near 0.1 per cent causes signs of alcohol intoxication. Consequently, such values do not entirely exculpate a person, nor can they alone, without attention to the clinical signs, be considered a sufficient basis for legal evidence. Alcohol concentrations between 0.1 and 0.15 per cent are accompanied by signs of alcohol intoxication in 93.7 per cent of the cases, signs of excitation predominating over paralytic manifestations. Concentrations between 0.1 and 0.15 per cent are found most frequently in cases of traffic accidents, excessive speed and neglect of safety rules, as the result of the excitation caused by alcohol, being the usual causes of such accidents. Concentrations between 0.15 and 0.2 per cent are in the majority of cases accompanied by the signs of true intoxication in that paralytic symptoms are present, but some persons are in a state of excitation, some have already impaired consciousness and a few (2.3 per cent) still appear free from the effects of alcohol. The author thinks that in concentrations of 0.2 per cent and more it may be asserted that the person in question was incapable of coping even with comparatively simple traffic problems. He emphasizes that the withdrawal of the blood specimen should be made as soon after the accident as possible.

**Treatment of Habitual Dorsal Dislocation of Metacarpus.**—In the case reported by Lenggenhager a man, aged 23, in a fall on the left hand sustained a hyperflexion of the carpometacarpal joint and dorsal subluxation of the first metacarpus. The first reduction was effected without great effort, but the dislocation recurred and neither a plaster-of-paris splint nor a leather wristband counteracted the defect. After a surgical intervention had been rejected as useless by others, the patient came under the author's observation, who decided to resort to surgery. He exposed the capsule of the joint and found that the laxity of the formerly torn capsule was responsible for the habitual dorsal dislocation. After studying the mechanism of the dislocation on the exposed capsule, the author decided to secure the joint on both sides by means of sutures in such a manner that a dorsal dislocation of the metacarpus was made impossible. In a diagram the author shows where the sutures were fastened on the articular capsule. The skin was sutured and a volar plaster-of-paris splint was put on to immobilize the basal joint of the thumb. After six days the skin sutures were removed and after ten days the basal joint of the thumb was carefully mobilized. At the end of three weeks a small thread fistula had formed in the otherwise closed surgical wound. Five weeks after the operation the capsule suture could be pulled out and after another week the small fistula had closed. The function of the joint was almost normal and the patient was able to take up his occupation again. Examination four years later showed that the patient was free from trouble, but a slight grating was still perceptible on movement of the carpometacarpal joint.

### Clinica Chirurgica, Milan

39: 825-911 (Dec.) 1936

- Myomatosis of Prostate: Pathogenic Role in Hypertrophy of Prostate. C. Spangaro.—p. 825.
- \*Experimental Mechanical Jaundice. A. De Blasi.—p. 859.
- Right Abdominal Syndrome in Children and Adolescents. F. Rabbini.—p. 878.

**Experimental Mechanical Jaundice.**—De Blasi studied the behavior of the bleeding and coagulation time in experimental mechanical jaundice and the action of coagulants, blood transfusion and roentgen irradiations of an abdominal region on

out in 1933<sup>4</sup> that the occurrence of a secondary rise of pressure is beside the point clinically, as no one relies on a single dose of dextrose in a serious case. Later doses, at intervals of from four to six hours, can be relied on to overcome the secondary elevation along with the excessive pressure attributable to the trauma itself.

Rand,<sup>5</sup> discussing brain injury in 1934, wrote: "During the past decade, the use of hypertonic solutions, especially glucose, has become almost universal in treating cerebral edema." With reference to the secondary rise he stated: "Whatever physiological arguments can be brought forth, for or against its use, I am convinced that, since its employment, the necessity for decompressive operations has been greatly reduced." He further stated: "I believe that the use of glucose has saved many lives."

Davis,<sup>6</sup> as late as 1934, continued to recommend osmotic therapy by means of dextrose, and in his textbook,<sup>7</sup> published in 1936, he presents it as a standard treatment.

Numerous clinical papers of recent date could be cited to show that many surgeons continue to adhere to the hypertonic dextrose therapy in cases of brain injury. Apparently they are more persuaded by their clinical observations, which have been favorable on the whole, than by reports of adverse effects of single doses of dextrose given experimentally.

The present authors made use of intravenous dextrose in 50 per cent solution in a series of approximately 100 cases of brain injury and were convinced that it had a life-saving effect on many occasions. We came to the conclusion that there is little profit in withholding, in the face of threatened disaster, a therapeutic agent of known immediate efficacy merely because it may exert an adverse influence later when the patient may be better able to stand it. If the treatment of acute brain injury is conceived of as a race against time, any agent powerful enough to prevent impending death in crises should not lightly be discarded on the ground of delayed disadvantages, which are certainly not prohibitive, as has been proved by countless clinical experiences.

Not to our knowledge has any responsible proponent of osmotic therapy by means of dextrose ever recommended it as other than an adjunct to the management of brain injuries. It seems necessary to stress that brain injuries constitute a group of such varied pathologic features that correct treatment includes many other procedures than intravenous injections.

From our experience in the use of dextrose we came to recognize that dehydration therapy can be carried too far. The patient's water metabolism needs to be maintained at a level adequate for the elimination of nitrogenous wastes and in protracted cases blood chemical determinations should be used as a guide. We also learned that injections of concentrated dextrose can be badly timed. It is certainly wrong to give an intravenous dehydrating agent in every case of acute brain injury immediately on admission to the hospital. There is need to know by clinical signs or by spinal manometry whether the condition to be treated by the osmotic agent really exists. Therefore we came to value lumbar puncture, performed periodically and by a meticulous

technic, as a means of keeping informed of intracranial conditions, of gaining exact indications for administering osmotic treatment, and of assisting in the maintenance of intracranial pressures consistent with life.

The foregoing principles are pertinent to this report of our experience with osmotic therapy in brain injury cases, in which we used 50 per cent sucrose in place of dextrose. In osmotic therapy it is not only the agent that is important but the way in which it is used.

#### EXPERIMENTAL BASIS FOR SUBSTITUTING SUCROSE FOR DEXTROSE

Masserman,<sup>8</sup> in 1934, offered decisive evidence of the late rise of intracranial pressure to levels far higher than the initial ones following the intravenous injection of hypertonic dextrose solution in eighty-five human subjects whose brains were untraumatized. Bullock, Kinney and Gregerson,<sup>9</sup> using dogs, confirmed this relationship. In the same paper, citing the proof by Keith, Power and Peterson<sup>10</sup> of the rapid and almost quantitative excretion of sucrose after its intravenous injection, they reported marked reductions of cerebrospinal fluid pressures without secondary rise during a seven hour period, following the intravenous injection of from 3 to 8 Gm. of sucrose per kilogram of body weight.

Gregerson and Wright<sup>11</sup> found no significant increase in hydrolyzable carbohydrate in the cerebrospinal fluid after the injection of sucrose intravenously, establishing that the substance is unable to pass the blood-brain barrier, at least as far as the cerebrospinal fluid is concerned and in the intact brain. Dextrose, on the other hand, produced a marked glycorrhachia—a result consistent with the preponderance of evidence in a long standing controversy over the relation between blood and spinal fluid dextrose.

Bullock, Gregerson and Kinney<sup>12</sup> reviewed the whole subject very completely and reported additional animal experiments which confirmed their previous report of the efficacy of sucrose in producing large decreases of cerebrospinal fluid pressures without subsequent rise to pressures above the initial ones in twelve hours of observation. Usually the pressure, after a period of marked hypotension lasting about four hours, gradually rose to a level about 10 mm. (of Ringer's solution) below the initial one.

Finally, Masserman,<sup>13</sup> working with thirty-five human intact brains, found that doses of 300 cc. of 50 per cent sucrose produced falls of cerebrospinal fluid pressure as great as 50 mm. of Ringer's solution with no subsequent rise in many hours of observation. With doses of 500 cc. he noted falls of from 75 mm. to 150 mm., lasting from two to three hours. After the larger doses, transient and slight secondary increases to levels above the initial ones were occasionally observed. There were no toxic effects.

8. Masserman, J. H.: Effects of Intravenous Administration of Hypertonic Solutions of Dextrose with Especial Reference to Cerebrospinal Fluid Pressure, *J. A. M. A.* 102: 2084 (June 23) 1934.

9. Bullock, L. T.; Kinney, R., and Gregerson, M. I.: The Use of Hypertonic Sucrose Solution to Reduce Cerebrospinal Fluid Pressure Without a Secondary Rise, *Am. J. Physiol.* 109: 17 (July) 1934. The following references comprise investigations of sucrose as an intravenous osmotic agent.

10. Keith, N. M.; Power, M. H., and Peterson, R. D.: The Excretion of Intravenously Injected Sucrose, *Am. J. Physiol.* 109: 62 (1934).

11. Gregerson, M. I., and Wright, Lillian: Effect of Intravenous Injection of Sucrose and Glucose upon the Reducing Power of Cerebrospinal Fluid Before and After Glycolysis, *Am. J. Physiol.* 112: 77 (May) 1935.

12. Bullock, L. T.; Gregerson, M. I., and Kinney, R.: The Use of Hypertonic Sucrose Solution Intravenously to Reduce Cerebrospinal Fluid Pressure Without Secondary Rise, *Am. J. Physiol.* 112: 82 (May) 1935.

13. Masserman, J. H.: Effects of Intravenous Administration of Hypertonic Solutions of Sucrose with Special Reference to Cerebrospinal Fluid Pressure, *Bull. Johns Hopkins Hosp.* 57: 12 (July) 1935.

4. Sachs, Ernest: Head Injuries, *Internat. J. Med. & Surg.* 46: 567 (Dec.) 1933.

5. Rand, C. W.: Craniocerebral Injuries: Their Management, *California & West. Med.* 41: 257 (Oct.) 1934.

6. Davis, Loyal: The Treatment of Craniocerebral Injuries, *J. Michigan State M. Soc.* 34: 463 (Aug.) 1935.

7. Davis, Loyal: *Neurological Surgery*, Philadelphia, Lea & Febiger, 1936.

genogram furnishes information as to both the localization and the nature of the tumor in the case of meningioma. Histologic studies of meningiomas characterized by a tendency to form hyperostosis demonstrated invasion of bone by tumor cells. The roentgenologic and clinical differentiation of osteoma and meningioma no longer offers serious difficulty. One must be careful in interpreting erosions and atrophies of the skull. They can be caused by general increased brain pressure as well as by the direct pressure of a tumor. They do not furnish any definite evidence of a topographic, qualitative or quantitative kind. The value of roentgenologic signs in the diagnosis of the nature of tumors of the cerebellopontile angle is limited. On the other hand, the topographic diagnosis of tumors of the acoustic nerve is, as a rule, reliable. The size of the tumor cannot be told from a roentgenogram.

### Strahlentherapie, Berlin

57:553-720 (Dec. 12) 1937. Partial Index

- Short Wave Therapy in Internal Medicine. E. Schliephake.—p. 553.  
Theoretical Foundations of Short Wave Therapy. F. Dessauer.—p. 582.  
\*Foundations and Therapeutic Results of Nearly Athermic Short Wave Therapy. P. Liebesny.—p. 615.  
Further Studies on Deep Heating of Pelvic Organs in Short Wave Therapy. W. Reeh and W. Raab.—p. 623.  
\*Experiments on Treatment of Cutaneous Cancers with Extremely Soft Roentgen Rays. E. Ebbelshøj.—p. 661.  
\*Changes in Blood Picture and Their Prognostic Significance in Cases of Uterine Carcinoma Before and After Ray Treatment. H. Goecke.—p. 675.  
Experiences with Radium Treatment of Hemangiomas. H. Aretz.—p. 682.

**Short Wave Therapy Without Heat Effect.**—Liebesny says that the aim of the short wave therapy recommended by him is the opposite of that of diathermy. Whereas in diathermy a more or less intense heating is desired, the athermic short wave therapy avoids heating as much as possible. The author states that short wave therapy with excessive or moderate thermic action involves dangers. He shows the picture of a necrosis that resulted in a case in which relatively high doses were administered and in which the condenser electrodes had been in direct contact with the skin. To be sure, such burns do not result when the distance method is used, which was recommended by Schliephake and by the author. It is pointed out further that, in case of high thermic action of the short waves, tissue injuries may develop also in the deeper lying organs. Athermic short wave therapy exerts a biologic action. He cites examples which prove that short waves elicit biologic actions that are the opposite of heat actions. Finally he demonstrates that by athermic short wave therapy, that is, by excluding heat action as much as possible, favorable therapeutic effects can be obtained in suppurating and inflammatory processes on the surface of the body as well as in the deeper layers.

**Treatment of Cutaneous Cancers with Soft Roentgen Rays.**—Ebbelshøj points out that the biologic reactions will be the same with any quality of gamma rays, provided the distribution of rays within the tissue is the same. He cites reasons why it is desirable to replace radium rays with roentgen rays in the treatment of cutaneous cancer and describes his own efforts with extremely soft roentgen rays. He emphasizes that the rays he uses are not the ones which are usually designated as soft roentgen rays but are "extremely" soft. They are produced with tensions of less than 30 kilovolts and are so soft that, in order to obtain a sufficient quality from the tube, it is necessary to have a so-called Lindemann window melted into the tube. Their half-layer value in aluminum varies between 0.015 and 0.2 mm. and their half-layer value in the skin varies between 0.2 and 2 mm. After citing preliminary experiments on animals and tissues, the author describes his experiences on patients. First he employed borderline rays, which were produced with 12 kilovolts and had a half-layer value in the skin of 0.3 mm. The application of 6,000 roentgens in one session proved adequate in nonmalignant cutaneous growths, but from 8,000 to 20,000 roentgens was applied in patients with cancer. This mode of treatment was employed during 1933, 1934 and 1935 in seventy-two patients with non-malignant growths, ninety-five patients with cancer and seventeen patients with doubtful growths. It was found that 20,000 roentgens applied with a tension of 12 kilovolts cured cutaneous cancers of a depth of 1 mm. In cases in which the cancer was deeper, the top was removed with a sharp curet and the bed

was irradiated. This procedure did not result in disfiguring scars. Later the author discovered that a slightly harder type of ray could be used successfully for cutaneous cancers of a depth up to 5 mm. These rays are of a quality that is determined by a tension of 25 kilovolts and a half-layer value in the skin of 1.6 mm., following filtration through 0.19 mm. of aluminum. With this type of ray, 5,600 roentgens is applied at once. This quantity can be administered in about eleven minutes. The author emphasizes that the treatment with extremely soft roentgen rays is simple, rapid and inexpensive.

**Blood Picture in Uterine Carcinoma.**—Goecke studied the hematic changes in 110 patients with uterine carcinoma before and after irradiation. He found that before the irradiation the reduction in the hemoglobin content is the greater, the more extensive the carcinoma. The erythrocyte values show a similar behavior. If the carcinoma is in the beginning stage, there is a slight increase in the leukocytes; if it is in a more advanced stage, the increase in leukocytes is more noticeable. During the beginning stage, this is not due to an increased production of granulocytes but rather to a stimulation of the lymphocytopoiesis. This is proved by the high numbers of lymphocytes in comparison to the slight degree of deviation to the left. In the unfavorable cases, however, the leukocytosis is a result of an increase in the neutrophilic cells. This can be deduced from the greater deviation to the left and the small number of lymphocytes. The author emphasizes that the influence of radium and roentgen rays on the blood picture in case of uterine carcinoma cannot be determined by simply comparing the blood status before and after the treatment, as has been done by other investigators, for it cannot be doubted that during the time of observation the blood picture is influenced not only by the irradiation but also by the carcinoma. Consequently, in comparing the blood changes before and after irradiation the author gave especial attention to whether the carcinoma had become improved or exacerbated in the course of the irradiation. He found that in case of exacerbation the signs of secondary anemia are greatly increased. In the white blood picture the leukocytosis increases in case of exacerbation, whereas in case of improvement the opposite behavior is observable. The author admits that, if the condition of the carcinoma is taken into consideration, it cannot be definitely stated how the irradiation has influenced the blood picture, but he considers the fact that the changes in the blood picture have a prognostic value of more importance than the demonstration of a ray effect. He concludes that the prognosis is generally favorable if after the irradiation the hemoglobin content and the erythrocyte values increase and the leukocyte numbers and the deviation to the left decrease. It is unfavorable if the blood status shows the opposite behavior.

### Wiener klinische Wochenschrift, Vienna

50:1-50 (Jan. 8) 1937. Partial Index

- Occurrence of Goiter in Animals. W. Hausmann and J. Wagner-Jauregg.—p. 4.  
Mountain Climate in Pediatrics. F. Hamburger.—p. 17.  
High Altitude Climate and Diseases of Bronchi and of Lungs from Point of View of Atelectasis. F. Fleischner.—p. 21.  
Poisonous Mushrooms and Poisonings Caused by Them. R. Wasicky.—p. 22.  
\*Enterococcal Infections of Central Nervous System. F. J. Lang, A. Lode and F. Schmuttermayer.—p. 29.

**Enterococcal Infections of Central Nervous System.**—A review of the literature on enterococci revealed to Lang and his associates that it records only three cases of enterococcal infections of the central nervous system. Therefore they feel justified in giving detailed reports of two cases, both of which ended in death. The enterococcal strains that were isolated from these two patients showed great similarity, such as in regard to the multiformity of shapes with predominantly pointed ends, in regard to the clouding of the bouillon and profuse growth already after twenty-four hours and in regard to the great resistance, the fermentative action and the reduction of dyestuffs in milk. In both patients enterococci were found in the cerebrospinal fluid that was withdrawn from the lumbar region and from the cistern. The enterococcal meningitis, which was deduced from the presence of the enterococci in the spinal fluid, was found to be the result of a cerebral abscess and of softening of the brain, which, in turn, had been caused by way of infection of the blood stream. A primary process produced

for a bilateral Babinski sign during the first week. During the first two weeks there were frequent periods of profound coma, associated with bradycardia, Cheyne-Stokes respiration and blood pressures in excess of 200 mm. Sucrose in doses of 100 cc. of 50 per cent solution was given intravenously at these critical periods. A typical response to the procedure was noted: Respirations became more regular, cyanosis was relieved, the pulse rate was increased approximately from 64 to 90, and systolic blood pressures declined from levels around 210 to readings between 150 and 160. There were occasions when deep coma and respiratory difficulty unaccompanied by hypertension and bradycardia were alleviated by the sucrose treatment. Caffeine was also employed several times.

At the end of two weeks the patient began to respond to various stimuli. Although he frequently lapsed into mild coma, he no longer suffered from recurring episodes of medullary distress. At this time he was placed on a program of intravenous sucrose (100 cc. of 50 per cent solution) every other day with spinal fluid drainage on the alternate days. On this treatment the level of consciousness gradually improved, the blood pressure became stabilized at 110/60 and the spinal fluid pressure dropped progressively from a maximum of 25 mm. to 8 mm. of mercury, a level which was reached twenty-three days after admission. During the entire course the patient's water metabolism was carefully controlled to guard against dangerous dehydration. Since his discharge from the hospital he has returned to his usual employment.

During the first phase in this case hypertonic sucrose solution proved its efficacy in relieving dangerous degrees of intracranial hypertension, as was indicated by favorable changes in those cerebral and medullary functions known from experience and experiment to be correlated with intracranial pressure. Drainage of cerebrospinal fluid probably would have been employed during the first phase had the patient not been obese and extremely difficult to manage. It was accounted an advantage that therapeutic results could be achieved without the disturbance of lumbar puncture. The steady decline of cerebrospinal fluid pressures noted during the second phase of the treatment may or may not have been due to the sucrose, which was given every other day.

#### SUMMARY

In the cases that have been presented, the efficacy of hypertonic sucrose solution administered intravenously in reducing traumatically increased intracranial pressure was demonstrated by means of the well established correlation between intracranial hypertension and compensatory arterial hypertension. In all three of these cases, compensatorily elevated systolic pressures were repeatedly lowered with concomitant improvement in the functions of the medullary centers, following administration of the agent.

It is our belief that the vasomotor, cardiomotor and respiratory functions of the brain stem constitute indicators of intracranial tension, at certain critical levels of intracranial hypertension, which probably surpass cerebrospinal fluid manometry in delicacy. Clinical signs such as depth of coma and motor activity are also indicators, and in these cases they were in agreement with the blood pressure changes reflecting improved brain function after the administration of sucrose. These are the results which would be expected from consideration of the experimental work with sucrose reported by others and cited in previous paragraphs.

The dose of sucrose most frequently employed by us was 100 cc. of 50 per cent solution, corresponding to from 0.25 to 1 Gm. of the sugar per kilogram of body weight. Occasionally we gave as much as 2 Gm. per kilogram. In the cited experimental work, doses from 3 to 6 Gm. per kilogram of body weight were

employed. We contented ourselves with the smaller doses because we could see definite therapeutic results from them and because we conceived that a violent osmotic effect on the brain might be injurious, just as the abrupt and extreme reduction of pressure by lumbar drainage of cerebrospinal fluid is known to be dangerous.

In no instance did we observe any untoward effects that could be attributed to sucrose, although in our opinion disadvantageous and even dangerous tissue dehydration might have occurred had the patients' water metabolism not been given careful attention. Profuse diuresis always occurred after the administration of sucrose, and the specific gravity of the urine was always high, owing to the direct excretion of the sugar. For this reason concentration-volume data, which would ordinarily indicate satisfactory renal elimination of nitrogenous products, could not be relied on and recourse was made to determination of blood nitrogen in several instances.

When due consideration is given to questions of nitrogen elimination and water metabolism and to indications for operative intervention, we believe that osmotic therapy is a valuable adjunct in the management of some cases of brain injury and that sucrose is as effective as dextrose in producing therapeutic changes when intracranial pressure is elevated to a critical level. If further experience confirms this impression, sucrose should be adopted as the agent of choice for influencing the brain osmotically because of its freedom from the objectionable (but not prohibitive) feature of producing a secondary rise of intracranial pressure, experimentally proved with respect to dextrose.

#### CONCLUSIONS

1. Literature and our personal experience indicate the usefulness of intravenous treatment with hypertonic dextrose solution as an adjunct in the management of cases of acute brain injury.

2. Literature establishes that the intravenous injection of a single dose of 50 per cent dextrose solution leads to an eventual rise of cerebrospinal fluid pressure beyond the initial pressure. This action of dextrose is interpreted as a disadvantage even though clinical experience shows that repeated, correctly timed doses of the substance obviate serious consequences.

3. Literature establishes that sucrose in 50 per cent solution can be administered intravenously in experimental animals and in human beings with intact brains without producing a secondary rise and with an effective, protracted depression of cerebrospinal fluid pressure.

4. Clinical experience with twenty-five cases of acute brain injury tends to show that 50 per cent sucrose solution injected intravenously is without untoward effects and effectively replaces dextrose for osmotic therapy.

5. In three cases that are presented in summary, clinical signs and blood pressure responses established with considerable certainty that the intravenous injection of 50 per cent sucrose solution led to effective reductions of intracranial pressure.

6. In view of all the facts cited and of our own experience, it is concluded that there is considerable advantage in the substitution of sucrose for dextrose in the osmotic therapy of increased intracranial pressure occurring in cases of acute brain injury.

445 North Pennsylvania Street.



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## LEADERSHIP IN MEDICAL EDUCATION

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Medical education slipped during the depression and has not yet regained its full stride. The recent nationwide survey of the medical schools made by the Council on Medical Education and Hospitals of the American Medical Association has compelled it to remove some medical schools from its approved list and to give warnings or suggestions to others so that improvements can be made. The main functions of the Council are to hold the level of medical education as high as is reasonable, to detect and report weaknesses that may occur, and to bring out the changes taking place in medical knowledge that require a shift in the emphasis on the various subjects making up the medical curriculum.

Primarily the cause of the decline in the efficiency of our medical schools is due to lack of adequate financial resources. More endowments and annual appropriations are needed by practically all the medical schools in the country in order to ensure the carrying on of medical education on a university basis.

Bringing medical education up to university standards has been the great achievement in American medical education of the last quarter of a century.

Private hospitals and university hospitals associated directly with medical schools have had unusual problems to meet because of increased costs, decreased occupancy and lower rates. This has been combined with a growing competition of hospital beds supported in one way or another by taxation. The evidence in our hands at present indicates that there will continue to be further absorption of the hospital field by various units of government. For the general welfare it is most important that the private hospitals, particularly those used by medical schools for the instruction of students, should be strengthened in every way that is possible.

### MEDICAL STUDENTS

There has been a marked increase in the number of students applying for admission to our medical schools. The temptation to take more students than could be well handled was a natural one under the financial pressures to which our schools have been subjected. A reduction in the quota of students received for admission is now being made by a number of our medical schools. When the entering classes are brought into line with the existing facilities there is good reason to believe that a sufficient number of well trained physicians will be graduated to care for the medical needs

of the nation. The range of the ordinary physician has been vastly increased by assistants, nurses, hospitals, automobiles, good highways and telephones.

Most of the students entering our medical schools are well selected and have a good preliminary training. The attempt to evaluate their personal qualities, aside from their records on paper, is beginning to show encouraging results. This is the most difficult part in making selections, for the value of the physician to his patient and to his community depends so much on his own personal qualifications aside from the medical training itself.

Medical students are still deficient in adequate training in those subjects that have to do with our social and economic structure. The specific requirements are held at such a level that only the exceptional student gets that training in language, history, psychology, economics, biology, chemistry and physics that is desirable. The junior college period is too short for an adequate preparation for the medical course. A longer preparation with a required and supervised intern year is needed to ensure a medical profession that knows its job and can keep up to date with all its responsibilities.

### MEDICAL CURRICULUM

Our medical schools still for the most part endeavor to impart too large a body of information to the medical student. There is an aim to be inclusive, rather than selective, in presenting the vast knowledge of the medical world. It is hard for us to realize that we must teach the student to swim in a steadily changing current and that there is no possibility of teaching him all of medicine. Throughout his life he must accommodate himself to new facts as they are brought forward by medical research.

The sense of proprietorship that various well placed departments have in regard to the time of the student has made it difficult in many institutions to bring in adequate training in the prevention of disease, public health, psychiatry, physical therapy, and the social and economic phases of medical practice which have now become dominant in various medical fields.

There is a specific need to coordinate and unify the instruction of the medical student so that such a disease as syphilis, for instance, may be studied in all its aspects rather than handled by a single clinic. It may simplify the treatment of syphilis to have it given in one place, but its diagnosis is a part of every department in the medical school.

### GRADUAL MEDICAL INSTRUCTION

The United States is far behind its possibilities in the instruction of medical graduates. There has been some improvement in certain of our large cities; and the increase in emphasis of the special boards on adequate training is having its influence on our hospitals as well as on the training of specialists.

On admission he had been unconscious for eighteen hours. The respiration was typically Kussmaul and the pulse rate was 120. The blood pressure could not be obtained because he was nearly pulseless. The skin was cold and dripping wet. The urine showed a red test for sugar and no diacetic acid. Although he had received 150 units of insulin before admission, the blood sugar was 0.35 per cent and the plasma carbon dioxide combining power was 17 volumes per cent. The nonprotein nitrogen of the blood was 80 mg. He was given 800 units of insulin during the next seven hours, but during this time the blood sugar steadily rose to 640 and finally to 780 mg. with the carbon dioxide still at 17 volumes per cent. The nonprotein nitrogen rose before death to 93 mg. per hundred cubic centimeters. At autopsy, March 30, the main changes were acute pancreatitis with many areas of fat necrosis. The main pancreatic duct was filled with pus. The liver, weighing 2,400 Gm., showed liver cells infiltrated with fat droplets, but scattered nuclei were distended with glycogen.

CASE 4.—A factory worker, 40 years of age at the onset of diabetes in July 1918, had been under careful treatment since 1920. He began the use of insulin in 1923 and had continued it faithfully since, although he had not constantly been on a careful dietary regimen. He was known to have had angina pectoris, for which treatment had been given in February 1936. February 8 the blood sugar was 0.28 per cent. He entered the Framingham Union Hospital March 6 in the service of Dr.

TABLE 2.—*Lipemia in Diabetic Coma with Pancreatitis (Case 2)*

Date, 1931	Plasma		
	Cholesterol, Mg. per 100 Cc.	Total Lipid, Mg. per 100 Cc.	Fatty Acid, Mg. per 100 Cc.
April 10, 11 p. m. ....	1,162	7,536	6,291
April 11, 2 a. m. ....	1,084	7,000	6,480
April 11, 4 a. m. ....	1,020	8,032	6,322

Roy Morse, through whose courtesy I saw the patient and am able to report the case. The history preceding the onset of coma was vague. Recently he had omitted insulin. Four days previously a tooth had been extracted without anesthesia and he had seemed drowsy ever since that time. On the night before admission he asked for water, suddenly became stiff and appeared to stop breathing. From this time on he was semiconscious.

The blood sugar was 640 mg. per hundred cubic centimeters and the carbon dioxide combining power was 15 volumes per cent. The nonprotein nitrogen was 75 mg. per hundred cubic centimeters. During the first three hours in the hospital he received 170 units of insulin. Gastric lavage gave a large amount of dark brown fluid. A total of 6,000 cc. of salt solution was given during the first ten hours of his stay in the hospital. By that time the blood sugar had fallen to 0.12 per cent. During the night he began to sweat and received 500 cc. of 5 per cent dextrose solution. The next morning he seemed rather bright and in good condition at 10 o'clock; however, the pulse was irregular and some extrasystoles were present. It was thought at this time that coronary occlusion was a possible complication. He died suddenly later that same day. At autopsy the chief pathologic changes were in the pancreas. The entire length of the pancreas was found to contain scattered areas of firm, greenish white tissue, most marked about the head. The pancreatic tissue was reddened and firm and weighed 150 Gm. Scattered over the surface in the upper left quadrant of the abdomen the omentum showed a number of small white rounded fecal areas rather soft in consistency, which gave the appearance of fat necrosis. When the omentum was drawn up the transverse colon and its surface showed also minute white areas of fat necrosis. The liver weighed 1,800 Gm. and showed lipid infiltration.

#### INCIDENCE OF PANCREATITIS

Fitz<sup>1</sup> divided acute pancreatitis into three types in 1889, hemorrhagic, gangrenous and suppurative. Of these three types the suppurative type may be subacute or chronic, although it may also be acute. Acute pancreatitis is rare.

1. Fitz, R. H.: *M. Rec.* 33:197, 225, 253, 1889.

Rienhoff and Lewis<sup>2</sup> analyzed all the cases of pancreatic disease (excluding diabetes) admitted to Johns Hopkins Hospital from 1889 to 1932. Only 16 cases occurred in the surgical service of 78,000 patients. In this group only eighteen cases of acute pancreatitis were found, including two cases of pancreatic abscess. It was diagnosed only seventeen times in seven years at the Mayo Clinic, according to Walters, Puestow and McCaughan.<sup>3</sup> These seventeen cases were not all of the hyperacute stage but included varying degrees of acute and subacute inflammation. Apparently acute pancreatitis is on the increase, however. Hamperl<sup>4</sup> reports sixty-seven cases of acute necrosis of the pancreas among 20,000 autopsies, or one in 300. This is about double the rate in a similar series of autopsies in an earlier period and must have included cases in which there were only small areas of necrosis. Among 21 autopsies on diabetic patients at the Deaconess Hospital, acute pancreatitis was found only in the five cases of coma.

Acute pancreatitis has been extremely rare in diabetes, so far as the clinical diagnosis is concerned. Among 2,052 operations on diabetic patients at the New England Deaconess Hospital in thirteen years, of which 213 were abdominal, primary acute pancreatitis has never been diagnosed preoperatively and has been found only rarely as a complication of acute gallbladder disease. One operation was performed for a pancreatic cyst. In another case chronic pancreatitis had been diagnosed by x-ray examination by means of the numerous calcified areas throughout the pancreatic tissue. In comparison with general autopsy or clinical series, therefore, the frequency of acute pancreatitis in diabetic coma appears extraordinary.

#### GENERAL SYMPTOMS OF ACUTE PANCREATITIS

The symptoms are variable, but the main symptoms are pain, obstipation, collapse and vomiting. The pain is usually epigastric and severe and an important point is that the pain and tenderness to palpation extend to the left as well as the right of the midline. The tenderness corresponds with the actual anatomic outline of the pancreas. Often the onset is with a dull pain, which rapidly increases to maximum severity in a few hours. Sometimes the pain is dull or crampy. The pain simulates gallbladder disease in some instances. Frequently the patients give a history of intermittent abdominal distress or discomfort over a considerable period preceding the present illness. Vomiting is a most important symptom. Persistent vomiting over a period of days, suggesting intestinal obstruction, should lead to the diagnosis of pancreatitis, especially when the vomitus is not fecal in nature. Cyanosis and profound shock are outstanding features in severe cases. The white count is usually elevated. Jaundice occurred in eight of the seventeen cases at the Mayo Clinic, and in 44.4 per cent of the cases at Johns Hopkins Hospital as described by Rienhoff and Lewis.<sup>2</sup> Two patients with jaundice in the Mayo Clinic series gave no evidence whatever of cholecystitis or cholelithiasis even at operation. Diarrhea, often mentioned as a symptom of pancreatitis, was not present in any of their cases. At operation the pancreatitis was found to be the primary cause in ten of the seventeen cases. In the other seven pancreatitis was present, but it was of less importance.

2. Rienhoff, W. F., Jr., and Lewis, Dean: *Bull. Johns Hopkins Hosp.* 54:386 (June) 1934.

3. Walters, Puestow and McCaughan in *Cyclopedia of Medicine* 5:509, 1935.

4. Hamperl, quoted by Böse: *Zentralbl. f. Chir.* 3:251 (Feb.) 1936.

assured that the candidates have been exposed to sound training. There is no other agency capable of supplying the boards with reliable and disinterested information of this character.

It has been said that the medical schools should be allowed to regulate their own affairs and appraise their own efforts; that a professional body should not intervene in matters pertaining to education; that, in any case, a policeman is no longer needed. In the United States, at least, the history of medicine, law and dentistry demonstrates incontrovertibly that professional schools, with their proprietary and commercial background, cannot lift themselves by their own bootstraps. The weaker schools always oppose any raising of standards; and the stronger schools, even though themselves not directly affected, too often lend their influence to protect institutions and practices which they ought fearlessly to condemn. "Senatorial courtesy" and "group solidarity" prevail over sound and unbiased judgment as to the interest of the public and the profession.

From a purely practical standpoint, no other body than the American Medical Association has the means with which to carry out an effective appraisal of medical schools. In connection with the current survey, the Association will have spent between forty and fifty thousand dollars. Is the College Association, the Federation of State Medical Boards or any other group except one of the foundations in a position to do as much? And yet we feel that our study was not as thorough as it should have been. More important is the fact that only the American Medical Association can approach the problem uninfluenced by political pressure or local self interest. Would any one have more confidence in a grading of medical schools conducted by themselves? Or what chance would there be of freedom from political intervention if the approval of schools rested with the state boards?

The record of thirty years shows that the Council on Medical Education, exercising an effective and impartial supervision over the training of physicians, has brought about an advance unparalleled in the history of education. It alone can furnish the state boards a trustworthy list of schools from which graduates should be admitted to the licensing examination, which, in the absence of a comprehensive practical examination, is the only safeguard against ignorance and incompetence in medical practice.

In the efforts of the Council to study the medical schools and the hospitals and thereby protect the public welfare, we have had the assistance of the Association of American Medical Colleges and that of the Federation of State Medical Boards of the United States. As has just been shown, it was inevitable that the primary responsibility of the survey should fall on the Council. All three organizations have a common purpose, however: the improvement of medical education and the protection of the public. At times the Council has sought and received considerable cooperation from the representatives of both these boards, but of late there has been a tendency in some quarters to criticize the Council and to oppose its policies. This is probably inevitable, under the pressures that exist. We hope, though, that there will come about a better understanding of the common purposes which these organizations have in mind and that we can get a degree of cooperation that will permit a uniform and united front in dealing with the inadequacies of some of our medical

schools and hospitals and in raising our standards to keep in harmony with the steady and persistent advances in medical knowledge. Some one organization has to take the lead and the responsibility in difficult and somewhat disagreeable tasks of this kind. That the Council has done for many years, and that it proposes to do in the future. By all working together toward a common end we should be able to improve medical education, hospital care and postgraduate medical instruction in the United States and thereby do more than could be done in any other way to improve the private and public health of the future.

## CLINICAL EXPERIENCE IN THE USE OF SUCROSE INSTEAD OF DEXTROSE

IN THE OSMOTIC THERAPY OF INCREASED INTRACRANIAL PRESSURE OCCURRING IN CASES OF  
ACUTE BRAIN INJURY

E. VERNON HAHN, M.D.

FRANK B. RAMSEY, M.D.

AND

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Since 1922, concentrated dextrose solution injected intravenously has been widely recommended and used in the management of cases of acute brain injury for the purpose of reducing excessive intracranial pressure.<sup>1</sup> Almost from the inauguration of this osmotic therapy, various critics advanced suspicions and ostensible proofs that it does not regularly reduce intracranial pressure and that, when it does, the reduction is followed by a reactive elevation.<sup>2</sup>

Notwithstanding these criticisms of intravenous, concentrated dextrose therapy, the method has continued in use. Sachs,<sup>3</sup> one of the earliest sponsors of osmotic treatment of increased intracranial pressure, pointed

The cooperation of Eli Lilly & Co., which provided 50 per cent sucrose in ampules for the cases treated in the Indianapolis City Hospital, is gratefully acknowledged.

1. Favoring intravenous hypertonic dextrose treatment: Sachs,<sup>3</sup> Sachs,<sup>4</sup> Rand,<sup>5</sup> Davis,<sup>6</sup> Davis,<sup>7</sup> and:

Dowman, C. E.: Management of Head Injuries with Real or Potential Brain Damage, *J. A. M. A.* **79**:2212 (Dec. 30) 1922.

Peet, M. M.: Reductions of Increased Intracranial Pressure by Intravenous Administration of Glucose and Hypertonic Ringer's Solution, *ibid.* **84**:1994 (June 27) 1925; Treatment of Cranial and Intracranial Injuries, *Michigan State M. Soc.* **26**:16 (Jan.) 1927.

Keegan, J. J.: Traumatic Edema and Encephalitis, *Nebraska M. J.* **15**:97 (March) 1930.

Brown, E. J.: Head Injuries: Extracranial, Cranial, and Intracranial, *Ohio State M. J.* **27**:627 (Aug. 1) 1931.

Furlow, L. T., and Sachs, Ernest: Classification and Treatment of Acute Head Injuries, *J. Missouri M. A.* **32**:177 (May) 1935.

Swift, G. W.: Cerebral Injuries Due to External Trauma, *Surg., Gynec. & Obst.* **62**:340 (Feb.) 1936.

Reed, J. V.: Treatment of Acute Head Injuries, *Am. J. Surg.* **32**:79 (April) 1936.

2. Expressing criticism of intravenous hypertonic dextrose treatment, or establishing occurrence of secondary rise of cerebrospinal fluid pressure:

Brain, W. R.: Use of Hypertonic Solutions in Treatment of Increased Pressure, *Brit. M. J.* **1**:86 (Jan. 21) 1928.

Claude, H.; Lamache, G.; Cuel, J., and Dubar, J.: Action of Hypertonic and Hypotonic Solutions on Normal and Pathologic Pressure, *Presse méd.* **36**:305 (March 10) 1928.

Browder, Jefferson: Dangers in Use of Hypertonic Solutions in Treatment of Brain Injuries, *Am. J. Surg.* **8**:1213 (June) 1930.

Coleman, C. C.: Management of Acute Brain Injuries with Especial Reference to Indications for Operations, *J. A. M. A.* **97**:1691 (Nov. 23) 1931.

Milles, George, and Hurwitz, Paul: Effect of Hypertonic Solutions on Cerebrospinal Fluid Pressure with Special Reference to Secondary Rise and Toxicity, *Arch. Surg.* **24**:591 (April) 1932.

Jackson, Harry; Kutsunai, T.; Leader, L. O., and Joseph, L. D.: Effect of Hypertonic Dextrose Solutions on Intracranial Pressure in Acute Cranial Injuries, *J. A. M. A.* **100**:731 (March 11) 1933.

Dandy, W. E.: Diagnosis and Treatment of Injuries of the Head, *J. A. M. A.* **101**:772 (Sept. 2) 1933.

Maserman, J. S.:  
3. Sachs, Ernest: Fractures of the Skull, *Wisconsin M. J.* **26**:65 (Feb.) 1927.

Abnormalities in the lipid content of the blood, liver and spleen represent a fascinating problem alike to pathologist, physiologist and clinician. The large liver with fat-filled cells often associated with lipid histiocytosis in the spleen is familiar to the pathologist in cases of advanced diabetes, either with acidosis or with great emaciation and often occurring with lipemia. Warren and Root<sup>7</sup> reported three cases studied with various stains to determine the type of fat deposited. Two of these patients died in coma. All three showed fatty deposits in the liver cells and reticulo-endothelial cells lining the sinusoids. Fatty invasion of the liver cells is seen in acute toxic conditions, such as phosphorus or chloroform poisoning, and in a variety of metabolic disturbances, such as pernicious anemia, the Schüller-Christian or the Niemann-Pick syndrome, and obesity. Also in certain stages of glomerulonephritis an increase in the cholesterol of the blood, often with fatty degeneration in the kidney, occurs. To the physiologist the variation in fat content of the liver, produced almost at will in the depancreatized animal by varying the carbohydrate and fat proportions of the diet and the amount of insulin given, represents perhaps the best known method of demonstrating the influence of a hormone on fat deposition. Best<sup>8</sup> has shown that the deposition of fat in the liver in the depancreatized dog can be controlled by the addition of choline in the diet. The influence of the pituitary gland on the fat content of the liver, studied by many physiologists, may be reviewed in the work of Raab<sup>9</sup> and of Houssay.<sup>10</sup> Only recently Dragstedt<sup>11</sup> has isolated a hormone ("lipocain") from the pancreas with which he is able to influence the amount of fat deposited in the liver cells.

To the clinician accustomed to thinking of lipemia in association with the most severe types of diabetes, the concurrence of acute pancreatitis with severe diabetes would be expected to result in severe lipemia with fat deposition in the liver and spleen. The fact that lipemia occurs in only a limited proportion of cases of coma suggests that in these some special added factor is present. Possibly lipemia is due in such cases to acute pancreatitis. Brunner<sup>12</sup> described lipemia occurring in acute pancreatitis without diabetes, Joël<sup>12</sup> found lipemia in chronic pancreatitis and also in a case of acute pancreatitis without carbohydrate disturbance. Brunner<sup>11</sup> reports four cases of acute pancreatitis without autopsy or surgical verification. The diagnosis rested on the symptoms, physical signs and increased diastase in the blood and urine. In the first of the four cases, a man, aged 35, the total cholesterol of the plasma was 1,040 mg.; free 540 and ester 500. The urine contained 3.2 per cent of sugar, and the blood sugar was 0.218 per cent in one analysis. However, after recovery from the acute attack no evidence of the diabetes could be found, even with dextrose tolerance tests, and he regarded his patient as nondiabetic. In the other three patients plasma cholesterol values were 264 mg. in one and normal in the other two. The first patient was treated with insulin, and a fall in the lipemia occurred. In ten days hypoglycemia attacks were observed. There was no evidence of abnormal fat breakdown, as shown

by acetone tests. It seems possible that the lipemia was not a simple transport lipemia but that the pancreas was directly involved in fat metabolism and so was responsible for the lipemia.

#### CONCLUSIONS

1. Acute pancreatitis, unsuspected during life, was found as a cause of death in four cases out of twenty-six in which death occurred during or after recovery from diabetic coma.

2. Causes of death in diabetic coma cannot be ascertained and statements regarding the efficiency of treatment should not be made without the knowledge afforded by postmortem examinations.

3. Acute pancreatitis must be searched for in every case of severe diabetic coma, and the differential diagnosis should include acute hepatitis, perforated ulcer and acute cholecystitis, as well as the other causes of acute upper abdominal symptoms.

4. Lipemia occurred in the only one of the four patients on whom blood analyses were made. Lipoid infiltration of the liver with enlargement of the latter occurred in all four cases.

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### CLINICAL PROBLEMS IN SYPHILIS CONTROL TODAY

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Gentlemen, the surgeon general and his aides have invited me to perform a high pressure miracle by compressing a syphilis text into thirty minutes of manuscript. I must therefore warn you that alternations of heat and frost are inevitable in such an experiment, that pressure will be enormous, and that any one who leaves the caisson during the presentation will be seized not with the "bends" but with the "whoopees." As the performer of the experiment, allow me to hope that the product will read hot, and the experiment not end in frost.

#### PROBLEM I. THE CHIEF AND HIS CLINIC

The League of Nations investigation brought to the dignity of statistical demonstration the fact that clinics, widely regarded as the chief instruments for the control of syphilis, are so inefficiently run the world over that 20 per cent of their early syphilis material has not received even the minimum of darkfield examination and serologic testing required by the past two decades' knowledge of the disease. It was apparent, moreover, though our faces were saved by an absence of figures, that chiefs do not know what systems their clinics are following, are not able to describe what is actually going on, and believe methods to be in use and procedure in process of study which are not. The moral is obvious, nor can we flatter ourselves that our own country or our most select organizations are exceptions. Know your machines; appear at unexpected times and places, call periodically onto linoleum if not carpet even the most trusted members of your staffs; maintain disagreeable (or what one of my associates once called "bristling") conferences. Insist on annual comparative reports, maintain an arsenical injection register, treatment records that show on a single sheet and at a glance all a patient is receiving and as much of what it is doing to him serologically and symptomatically as

Read before the Conference on Venereal Disease Control Workington, D. C., Dec. 28, 1936.

7. Warren, Shields, and Root, H. F.: *Am. J. Path.* 2: 69 (Jan.) 1926.

8. Best, C. H., and Channon, H. J.: *Biochem. J.* 29: 2651 (Dec.) 1935.

9. Best, C. H., and Campbell, J.: *J. Physiol.* 86: 190 (Feb. 8) 1936.

10. Raab, Endocrinology 14: 385 (Nov.-Dec.) 1930.

11. Houssay, B. A.: *New England J. Med.* 214: 913 (May 7), 971 (May 14), 1023 (May 21), 1086 (May 28), 1128 (June 4) 1936.

12. Dragstedt, L. R.: Van Prohaska, John, and Harms, H. P.: *Am. J. Physiol.* 117: 175 (Sept.) 1936.

11. Brunner, W.: *Klin. Wchnschr.* 14: 1853 (Dec. 28) 1935.

12. Joël, E.: *Ztschr. f. klin. Med.* 100: 46 (May) 1924.

In the literature just cited, as well as in other contributions on dealing with sucrose, it is pointed out that this disaccharide, when injected intravenously, is not hydrolyzed in the blood stream or tissues. It therefore does not add to the available dextrose of the body and is totally without nutritional value. This fact has obvious bearing on the choice between dextrose and sucrose in the treatment of certain cases of brain injury when the nutritional factor is important.

If the effect of hypertonic sucrose solution observed experimentally, as cited in the foregoing account, can be duplicated clinically in cases of brain injury, it is obvious that sucrose offers advantages over dextrose in the treatment of this condition. Indeed, we suspect that many others than ourselves have made this substitution. Nevertheless, we have seen no report of the use of sucrose in brain injury cases, except for brief references by Davis,<sup>7</sup> and by Glass,<sup>14</sup> and feel that our experiences with it will be of interest.

OSMOTIC THERAPY WITH FIFTY PER CENT  
SUCROSE SOLUTION IN CASES OF  
ACUTE BRAIN INJURY

Our combined clinical experience with the administration of 50 per cent sucrose intravenously in cases of brain injury comprises twenty-five cases in which one or more doses of the agent were given. Much of this material does not lend itself to an analysis of the effect of the treatment. Mortality statistics, particularly, would be of no value because of the differing severity of the cases, some of which were so grave that no therapy could be expected to succeed. However, it is pertinent to note that in none of this experience have we seen any untoward results which could reasonably be attributed to the use of sucrose.

For a demonstration of the results which we believe can usually be expected, under certain pathologic conditions, from the intravenous injection of 50 per cent sucrose, we have selected the following three cases, presented in summary together with interpretative comment:

CASE 1.—R. H., a boy, aged, 12 years, sustained a compound fracture a little to the left of the vertex, with depression of fragments. Coma was continuous from the time of the accident for four days and was followed by extremely limited responsiveness for the next two weeks. After this the condition gradually improved and we are advised that he is now substantially normal.

Immediately on admission the compound fracture was treated surgically without anesthesia. Depressed bone was partly removed and partly elevated. The dura was intact and was not opened, in view of the contamination of the wound.

In addition to profound coma, the patient displayed spontaneous convulsive movements involving all the extremities, often with the head and body turning. Babinski's sign was present on both sides and hyperreflexia was general. Periods of Cheyne-Stokes respiration occurred. The blood pressure varied from 110 to 172 systolic, the higher pressures corresponding with pulse rates from 60 to 70.

For the first four days the patient was given 50 per cent sucrose in 50 cc. doses approximately every three hours. The urinary output was watched and kept above 600 cc. for each twenty-four hours by hypodermoclyses until swallowing became effective.

Lumbar puncture was not done in this case, and we have no manometric data as to the effect of the sucrose on intracranial pressure. Clinically, however, it was invariably noted by the intern, by the special nurses and by ourselves that improvement followed each hypertonic treatment. Cheyne-Stokes respiration would frequently give way to normal rhythm within ten minutes after a dose of sucrose. Slight cyanosis and convul-

sive phenomena were likewise abated. On one occasion a blood pressure of 172 systolic, 78 diastolic prior to sucrose fell to 142/88 coincident with improvement of color and respiration. The same sequence was noted a number of times in smaller degree.

It is possible to argue that this extremely severe injury might have been survived without specific treatment. On the other hand, the patient's condition appeared to be critical many times during the first four days, and each time a favorable response to sucrose was obtained. Caffeine, which the special nurse had been ordered to give as a last resort, was never needed.

CASE 2.—C. L., an obese, plethoric man, aged 68, with a history of excessive wine drinking, fell, striking his head in the right occipital region on a concrete floor. After about ten minutes of unconsciousness he was able to walk with assistance. Three hours later he vomited, became semicomatose and was brought to the hospital. Neurologic signs and the general course suggested compression of the right hemisphere. A hematoma was present at the site of the trauma, but a roentgenogram showed no fracture. Lumbar puncture proved to be impossible because of a large hematoma, which added to the excessive thickness of the back. On account of the patient's precarious condition, operation for intracranial hemorrhage could not be carried out until two weeks after his admission, when lumbar puncture showed xanthochromic fluid under a pressure of 30 mm. of mercury. Perforation of the skull in the right parieto-occipital region revealed a subdural hematoma of about 50 cc. Contralateral exploration was not done, since the brain was flaccid after the evacuation of the hematoma and since the patient was still in a most serious condition. Following operation, the patient improved. Lumbar punctures on the third and fourth days showed clear fluid under a pressure of 12 mm. of mercury. The second week after operation, he developed jaundice, hiccup, difficult swallowing and pneumonia, and he died one month after admission. Autopsy was refused.

Treatment during the first two weeks consisted of elevation of the back rest, sedation with codeine when necessary, limitation of fluids to 750 cc. for each twenty-four hours, and 50 per cent sucrose solution intravenously as often as every five hours in doses of 100 cc. when deep coma and Cheyne-Stokes respirations indicated dangerous cerebral and medullary distress.

During the first three days sucrose was given nine times. A record of the blood pressures during this period shows that in no instance was the systolic level raised significantly following the treatment. On the contrary, drops of from 10 to 40 mm. were observed in from one to three hours after the injections in five instances. Each of these periods of lowered systolic pressure corresponded with clinical improvement as indicated by decreased cyanosis, more normal respiratory rhythm, better pulse and rallying consciousness. Fortunately the patient's physician took his blood pressure immediately after the fall, finding it 148/80. On admission it was 174/108. Except for the periodic drops mentioned, it hung about this hypertensive level until after the evacuation of the hematoma, when it became fairly stable at 130/80, persisting at that level until the last few days of the illness.

It appears unlikely that this patient would have survived many of his periods of medullary crisis if nothing had been done to relieve his vital centers of excessive pressure as manifested by the well known compensatory rise of blood pressure as well as by trustworthy clinical signs. During the first two weeks, lumbar puncture was not possible and osmotic therapy was the only alternative to operative treatment, which we feared to employ at that time. Sucrose apparently answered the purpose of osmotic treatment satisfactorily, enabling us to tide the patient over to a time when trephination could be done without precipitating a fatality.

CASE 3.—D. Z., a man, aged 57, sustained a basal skull fracture in an automobile accident and was brought immediately to the hospital in a state of coma, which persisted for three weeks. Neurologic examination was negative at all times except

14. Glass, R. L.: Head Injuries, *J. Indiana M. A.* 29: 565 (Nov.) 1936.



the fourth injection leads to 64 per cent relapse; treatment prolonged to from five to nine injections leads to only 14 per cent relapse. The Cooperative Clinical Group dividing line of 20-20 between much and little is a good one on which to set up one's first target, for twenty injections each of arsenical and heavy metal, or more, have so consistently shown themselves to be superior at all points to anything less that they may well serve as the ring just outside the bullseye of individual cure, for one's shooting efforts.

It is now reasonably established that neoarsphenamine is an adequate drug, even in comparison with its solitary superior, arsphenamine. It should be recognized that its adequacy depends to an unknown degree on the prolonged use with it of a heavy metal, and particularly bismuth, in a continuous system. One should think of neoarsphenamine then only in terms of what I call the standard or 30-60-03 system—thirty injections of the arsenical, sixty of bismuth subsalicylate, no rest intervals during the arsenical phase, three years' minimum of treatment-observation. In terms of courses this is five arsenical, ten bismuth, in sixty-five weeks. Again, one who has been interested for years in testing new drugs takes the liberty of urging physicians as part of public health control not to depart from the established drugs and methods at the lure of each new "discovery," each new sales campaign, or even any single authoritative appraisal. The business of the physician just now is with the established, not the experimental, and experimental a new arsenical remains for five years after its birth, even so far as mere infection control values are concerned. Its ultimate evaluation takes a decade and more at the least.

There is now satisfactory evidence for the belief that arsenical dosage must be larger rather than smaller than it has been in the past. The differences traditional between men and women can be ironed out. The average therapeutic dose of neoarsphenamine should be 0.3 Gm. for the first and from 0.6 to 0.75 Gm. for subsequent injections of a course. Before the dose is set, look at the patient: is it shrimp or a sea-going 500 pound lawyer? Give to each his full desert, by weight.

Thanks to the material of the Cooperative Clinical Group, one can, turning now to the heavy metal factor, define several points of interest. Bismuth has apparently established its worth over mercury, especially in the prevention of relapse; nearly three times as frequent under arsenical-mercury as under arsenical-bismuth therapy in early syphilis. Speaking from personal impression, the use of bismuth does seem to prolong or even stir up seropositiveness, but this is no necessary disadvantage, though the serologic results of a bismuth therapy can often be better judged at the beginning of the next than the end of the present course, so to speak. The heavy metal is apparently the chief aggregate reactivity provoker in treatment, but as between continuous and intermittent use, excluding the arsenical from consideration, there seems to be little difference. With bismuth at least it is possible to give astonishingly long courses of standard preparations without a sign of difficulty, provided the dose is not excessive and the mouth is watched and protected. With bismuth the need for the routine weekly urine examination passes, a great relief to the conscientious clinician.

The serologic and spinal fluid tests in early syphilis deserve several emphatic words. A drug-testing organization should run a weekly test on all patients, but others can reduce the strain on their laboratories by testing only by the course. In the present state of

public understanding of serologic procedures, it is essential to make it clear to the patient at the start that his blood test means nothing with reference to his treatment schedule. One large public, the British, is actually withheld, by recommendation at least, from any knowledge of its serologic progress through the use of code in records, lest it adopt the "fiscal landmark" of Colonel Harrison and vanish with the first or second negative. The performance of multiple tests on treatment patients is not essential as a routine, but it is essential to take seriously weak positives, when they do occur in treated early syphilis, as forewarnings of a relapsing tendency. It is wise, too, to repeat the test on seronegative primary syphilis the week after the first arsphenamine and, if it is then even partially positive, to rate the case as a seropositive primary rather than a seronegative, from the standpoint of total amount of treatment required. A return to a strongly positive blood after a series of negatives in either early or latent syphilis is a serious warning. One should at once examine the spinal fluid and incidentally inspect the skin, feel for the liver and spleen and look at the iris and sclera. The most recent Cooperative Clinical Group studies, under O'Leary, establish this warning of asymptomatic neurosyphilis beyond doubt.

The fixed positive serologic test, emerging from the smoke of a syphilologic battle, especially early in the disease, is apparently one of the most discouraging dénouements the patient and his doctor have to face. It is more than anything else the penalty of irregularity and noncontinuity in treatment, and it would almost seem worth while to tell the patient so at the start, if boggy-man tactics ever do any good. Once the event is established (and it takes a year of effective treatment to prove it), the following lights define the course: Examine the spinal fluid—if negative, draw two full breaths; one for the patient, one for yourself. Then give ten more neoarsphenamine injections if tolerance has been good, and another year of ten-injection bismuth courses with eight week rest intervals. Next stop for a year, or give potassium iodide 20 grains (1.3 Gm.) three times a day, two months on and two off during that time. Don't take tests oftener than once in three months; don't chase a positive through a series of laboratories, multiple test methods and a forest of one, two and three pluses. Unless marriage or child-bearing is imminent, be content to wait awhile at the end of the extra year of treatment. If still positive after that, don't buy or patronize a fever therapy machine or enthusiast; try a little boiled milk intramuscularly first and then some more bismuth. Take the blood serologic test three months after the last bismuth. Panic over irreversible positives in spinal fluid-negative patients is, it seems to me, often needless and rarely calls for anything extreme. A living dog is better than a dead lion, and a wisely indifferent, reassured patient better than a phobic nervous wreck.

The principles governing the examination of the spinal fluid, now a proved necessity in the management of early syphilis, seem to me to be these: The test should not be done until rapport with the patient is fully established. It need not be done before the sixth month of a routine continuous schedule in early syphilis. It should not be deferred beyond the fiftieth to the period, which usually means about the fiftieth to the fifty-fifth week. A fluid normal except for a slight rise in cell count, e. g., above 4, I believe demands a repetition of the test within the ensuing year. On the other hand, an absolutely uneventful serologic reaction

# DIABETIC COMA AND ACUTE PANCREATITIS WITH FATTY LIVERS

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The occurrence of acute pancreatitis in cases of diabetic coma explains occasional deaths that would seem to be examples of failure in the treatment of the acidosis. In my experience, among twenty-six patients who died during or following diabetic coma, the post-mortem examination revealed acute pancreatitis in four instances, in none of which the diagnosis had been suspected during life. In table 1 only ten of the twenty-six fatal cases of coma represented uncomplicated deaths. These were due to tardy diagnosis and delay in treatment before admission to the hospital. Septicemia and infections, such as pneumonia and renal abscesses, account for nine deaths. In three cases the causes were respectively coronary occlusion, pulmonary embolus, and hemorrhage for a duodenal ulcer. The remaining four cases of acute pancreatitis represent an incidence of nearly 15 per cent. So high a frequency clearly indicates that the diagnosis of acute pancreatitis must always be considered in any case of diabetic coma in which the condition of the patient is extreme and in which prompt recovery does not ensue. Therefore it has seemed worth while to report these four cases of acute pancreatitis in diabetic coma which were proved at autopsy, with details of their clinical history.

## REPORT OF CASES

CASE 1.—An American housewife was 40 years of age at the onset of diabetes in September 1922. Aug. 8, 1923, the urine contained 6.6 per cent of sugar, the blood sugar was 0.27 per cent, and she weighed 147 pounds (66.7 Kg.). At this time she was treated in the hospital with good results and discharged, taking 15 units of insulin in two doses, 8 units in the morning and 7 at night.

She reentered the Deaconess Hospital Sept. 25, 1925, with the history that during the past five months she had been breaking her diet and losing strength. Two days before admission she was given a cathartic and hot whisky and had pain in the abdomen. When first seen by her local physician she was thought to be in an insulin reaction and was given the juice of an orange with sugar. Her breathing became labored. On the day before admission, nausea and repeated vomiting occurred; the food was undigested and not bloody. She had received 225 units of insulin. She was finally sent to the hospital because of failure to improve. On admission she had typical Kussmaul respiration, the eyeballs were slightly soft, the tongue was brown and dry, there was a slight acetone odor to the breath, the pulse rate was 108 and the blood pressure was 110 systolic, 80 diastolic. No abdominal tenderness or masses were made out. The report of the chemistry of the blood and urine was important. The specimen of urine showed 0.3 per cent of sugar with only a faint trace of diacetic acid, and an examination of the plasma for acetone (qualitative test) showed a moderate amount. The white blood count was 24,500, the blood sugar was 0.44 per cent, the plasma carbon dioxide combining power was 8 volumes per cent and the non-protein nitrogen of the blood was 98 mg. Red blood cells numbered 4,616,000 and plasma chloride was 607 mg. per hundred cubic centimeters. Between 5 o'clock in the afternoon, when she was admitted, and 7 o'clock the next morning she received 160 units of insulin; the blood sugar had fallen at that time to 0.25 per cent and the carbon dioxide combining power of the blood done on five occasions had risen to 14 volumes per cent. During the next twelve hours she was entirely unresponsive; breathing continued to be labored and gradually became much more feeble and shallow. Râles developed in both bases and over the front of the chest. The liver edge was palpable three fingerbreadths below the costal margin. The abdomen became distended at the time of her death, 7:15

p. m., September 27, when the nonprotein nitrogen was 81 mg. per hundred cubic centimeters and the blood sugar was 0.23 per cent. The autopsy report may be summarized as follows: Numerous areas of fat necrosis were found on the serous surface of the transverse colon medial to the hepatic flexure and on the peritoneum overlying the pancreas. A large firm liver, weighing 2,280 Gm., showed extensive fatty metamorphosis throughout. A gallbladder was filled with small stones with delicate adhesions to the surrounding structure. The heart weighed 310 Gm.; the coronary arteries were hard and tortuous owing to calcified atheromas. Calcified atheromas were present in the aorta. The spleen weighed 185 Gm. and the pancreas weighed 85 Gm. The latter was normal in appearance externally, with the exception of numerous small yellow elevations over its surface. A grayish yellow thick fluid was expressed from the pancreatic duct. Branching areas of necrosis extended throughout the gland, apparently following the course of the pancreatic duct and its branches. The kidneys were large and soft, with a glistening capsule, granular surface and microscopic evidence of chronic vascular nephritis.

CASE 2.—A factory worker was 17 years of age at the onset of diabetes in June 1930. He entered the hospital April 10, 1931, with a history of diabetes in two other members of the family and a record from his physician stating that he had consistently refused to take insulin and follow treatment during the six months preceding his admission. Two days prior to his admission he complained of pain across the upper part

TABLE 1.—Causes of Death in Twenty-Six Cases of Diabetic Coma Occurring from Two to Thirty-Two Days After Admission, with Autopsy

	Cases
Acute pancreatitis .....	4
Septicemia following local infections (appendix, foot, labium, mastoid, prostate, neck) .....	6
Other causes (1 case each with coronary occlusion, lobar pneumonia, pulmonary embolus, embolic lung abscess, renal abscesses, hemorrhage from duodenal ulcer) .....	6
Coma uncomplicated .....	10
	26
Twenty-five cases from the George F. Baker Clinic, N. E. Deaconess Hospital, Boston	
One case from the Framingham Union Hospital, Framingham, Mass.	

of the abdomen with nausea, but he did not vomit. He was excessively thirsty and complained of labored breathing and cramplike pains in the upper part of the abdomen, which were chiefly on the left side. Labored breathing began on the day of admission and he was unconscious from 4 o'clock in the afternoon until midnight, when he entered the Deaconess Hospital. Respiration was of the typical Kussmaul type; the pulse was of good quality and the systolic blood pressure was only 90. The lungs and abdomen were essentially normal. No patellar reflexes were obtained and there was no Babinski sign. The white blood count was 11,400. The eyeballs were soft. On admission the urine contained 2.9 per cent of sugar, 2 plus diacetic acid and the blood sugar was 0.46 per cent. The plasma carbon dioxide combining power was 9 volumes per cent. During the next twelve hours he received 430 units of insulin and the blood sugar dropped to 0.37 per cent. The plasma carbon dioxide combining power rose to 14 volumes per cent. However, the next day there was no improvement. The white blood count was 10,900. He was not anemic. The blood at all times was lipemic (table 2). The plasma cholesterol was 1,162 mg. on admission and fell during the next five hours to 1,020 mg. per hundred cubic centimeters. The total lipid values, on the contrary, rose to 8,032 mg. per hundred cubic centimeters, as did also the fatty acid value from 6,291 to 6,922 mg. per hundred cubic centimeters. The postmortem examination, April 11, showed an extensive septic pancreatitis with many areas of fat necrosis throughout the peritoneum in the neighborhood of the pancreas.

CASE 3.—A letter carrier was 41 years of age at the development of diabetes in January 1923. He had taken insulin since June 1923. He entered the hospital May 29, 1931, in profound coma. For three days he had not been well. Owing to his wife's illness, his son and daughter had been giving him his insulin. He had not complained of abdominal pain but had spoken of pain in the chest.

appropriately equipped for speculum examinations and all centers prepared for the study of every significant presenting case. For those who have Negro women to deal with, it is worth while to recall that the Cooperative Clinical Group investigation established the special importance of the control of the infectious colored female, in whom secondary infectious genital lesions are three and one-half times as common as in the white male, three times as common as in the colored male, and more than twice as frequent as in the white female. To point the moral of the potentially unmoral, so to speak, let it also be noted that the same study showed the married white woman to stand next to the male of either race and ahead of the colored woman, married or single, as a social factor in the spread of the disease.

In detecting syphilis in the woman, you will be brought into head-on collision with the adamantine inertia of a medical profession opposed through mental logic-tight compartmentism to the alleged degradation of motherhood by the suggestion of a shadow of venereal disease. Two blood tests in each pregnancy is the logical order for present knowledge. The first at the third month makes possible the treatment-before-the-fifth-month rule. The second at the eighth month detects the syphilis transmitted by the husband who stepped out during his wife's carrying of the child. Little short of a public educational backfire will remove this standing block of dead professional timber from the path of progress. The call, therefore, is for torches.

It is impossible to minimize the advance made by the demonstration of the effect of treatment for the syphilitic mother on the health expectancy of the child. The principles, astonishingly simple, are summarizable as follows: (1) recognize infection before the fifth month of the pregnancy; (2) treat every woman known to have had syphilis through each pregnancy, whether Wassermann positive or negative. Take blood pressure and test urine for albumin before each injection; (3) give in excess of 4 Gm. of neoarsphenamine, in a total of at least ten injections; (4) give also at least ten injections of a bismuth compound; (5) rely chiefly on the arsphenamine—end with it; (6) have cord and tenth day blood tests on the baby, not the former alone; (7) follow the child for at least two years, more if possible; have x-ray studies of the bones if suspect, regardless of blood examinations, shortly after birth.

The two weakest spots in our position with reference to antepartum treatment for syphilis are our relative ignorance or indifference to its possible effects on the mother, which have been lost in the chorus of hurrahs in behalf of the child, and our ignorance of the ultimate result for the child. We have been Wassermann bound in our outlook here. It will take years of persistent prolonged observation, utilizing especially Ingraham's contribution on the study of the bones, to enlighten physicians fully here and to clear the air of tosh. Meanwhile let us accept the reality of seminal transmission of the disease to the mother by the asymptomatic carrier-father; the worthlessness of history of infection in the mother; the benignity and obscurity of her still infectious course, as reasons for a thoroughgoing family follow up every time a syphilitic infection, acquired or prenatal, appears. Promise no woman cure, and control her every pregnancy if possible.

#### PROBLEM V. THE SYPHILITIC CHILD

I have but two further advances to record here. First, call again for torches to smoke the ultraconservatives out of their standing prejudice against the ars-

phenamines. Use tear gas on ophthalmologists who refuse to recognize that intensive arsenical and bismuth therapy similar to that for early syphilis or latency can save the involved eye and prevent involvement of the other. A group of competent observers from the late Derby and his associate Carvill, to Guy and to the most recent Cooperative Clinical Group demonstration under Cole's sponsorship, has proved it beyond a doubt. And, second, include fever therapy with malaria or typhoid vaccine systematically in the treatment of resistant prenatal syphilis. By resistant I do not mean mere Wassermann fastness, which is common and relatively unimportant, but all other refractory cases for interstitial keratitis and severe bone involvements, to juvenile dementia paralytica. As soon as possible after the recognition of prenatal syphilis, especially of the tardive type, examine the spinal fluid to forestall the onset of grave neurosyphilis by fever therapy, precisely as one does in acquired syphilis. Few rules will thwart more tragic consequences.

#### PROBLEM VI. NEUROSYPHILIS

It is obviously impossible at this point to review this colossal subject. You have heard me stress the preventive meaning of the routine spinal fluid examination in early and latent syphilis. "No rest without a spinal test"—my unacknowledged slogan baby. Always ask for a spinal fluid examination when a blood test, repeatedly negative, becomes positive or fluctuant in treated early syphilis; the same rule to be applied to latency, though with fewer positive results. There is no need to repeat after an initial negative in a patient first seen in latency; usually no need to repeat if the first test is negative after a year of treatment in early syphilis. Require a spinal test on every tardive prenatal or congenital syphilitic patient; a spinal test at least every six months in every neurosyphilitic under treatment until repeatedly negative. Have no serious anxiety about the spinal fluid picture within two years after malarial therapy in the patient with dementia paralytica. The same rule is good in tryparsamide therapy, continuously given, in both cases provided the patient is making symptomatic improvement. Remember that there are vascular neurosyphilitic patients who tend to have negative spinal fluids at all stages of the disease; that there seems to be even vascular or pseudo-arteriosclerotic dementia paralytica. Remember, too, that there can be false positive serologic reports on spinal fluids—technical from bad handling, biologic, I believe, in encephalitides.

Of the therapy of neurosyphilis, let us first say this. Ravaut, who brought asymptomatic neurosyphilis to light, died ten years too soon. He suggested and would probably have shown, though as a Frenchman he might have disdained statistically to prove, that a great deal of neurosyphilis recovers of itself; that even the parietic formula is compatible with a long, effective and healthy life. Just here is one of the rubs today; one of the flies in our unguentum tryparsamofebrilis, the current popular injunction for all neurosyphilis which does not yield a blank report sheet in the first two years. It is clearly proved that asymptomatic neurosyphilis tends to be withheld from symptomatic expression or cured by a prolongation plus some form of intensification of standard treatment for the disease. It is also pretty well proved that the incidence of asymptomatic neurosyphilis is reduced practically to zero by sufficiently intensive treatment begun early in the disease. The Zurhelle and Krechel figures show

than other conditions, such as perforating peptic ulcers or severe cholecystitis in three cases, and chronic infection located in the gallbladder with extension up the pancreatic ducts.

#### ETIOLOGY

In our series in case 1 gallstones and chronic cholecystitis afford a possible explanation for the pancreatitis. In case 2 the pathologist judged from the distribution of the infection along the course of the pancreatic duct that there had been an ascending infection of the pancreas. In the other two cases there is no clue from the postmortem examination as to the cause of the pancreatitis. The possibility of a blood-borne infection cannot be dismissed, although we have no blood culture or other evidence of a septicemia or bacteremia. It is to be noted that the pancreatitis in all four of these cases was of the septic or infectious type rather than a hemorrhagic pancreatitis. The ages of the subjects varied from 17 to 58 years. The presence of diabetes in the family was known in two of the cases but not known in the other two. In case 4 there was a marked alcoholic history, but the liver was less enlarged and showed no more extensive lipid infiltration than the livers in the other three cases.

The typical necrosis of acute pancreatitis depends on the activation of trypsinogen to trypsin. Ascending infections have been reported in which the active organism has been *Bacillus coli*, *Streptococcus faecalis*, *Ascaris* and other organisms. Proof of blood-borne infection as a cause of pancreatitis has been conspicuously rare. The classic case of Opie in which a gallstone was so impacted at the ampulla of Vater that bile was forced up into the pancreatic ducts suggests strongly that such invasion of the pancreatic ducts may be a cause. Any of the bile acids present in the normal bile possess the power of activating the trypsinogen to trypsin. When by reason of reverse peristalsis or duodenitis there is extension into the pancreatic ducts of the duodenal contents, the enterokinase may be assumed to cause an activation of trypsinogen.

Spasm of the sphincter of Oddi has been suggested by Archibald as a means of causing bile to enter the pancreatic duct. Flexner<sup>5</sup> was able to produce the worst cases of hemorrhagic pancreatitis by injection into the pancreatic duct of bile infected with *Bacillus coli*. Typical fat necrosis has been shown by Langerhans, Hildebrand and Flexner to be due to the action of the fat-splitting ferment present in pancreatic juice. The result is that the neutral fat of the fatty tissue is hydrolyzed by the lipase of the juice, permitting the formation of both soluble soaps and insoluble calcium soaps. It is well known that bile may activate the enzymes and cause destruction of the pancreas. However, Mann and Giordano<sup>6</sup> found in only 3.5 per cent of their experimental cases that it would be anatomically possible for obstruction of the orifice of the ampulla to convert the two ducts into a single channel and allow bile to pass into the pancreatic duct. Although acute pancreatitis could be produced by injecting bile into the pancreatic duct with a syringe, the amount of pressure required to bring about this injection exceeded 1,000 millimeters of bile in all but one case. Furthermore, in eleven cases of acute pancreatitis careful study showed that it was impossible for bile to be injected into the pancreatic duct. Therefore, entrance of bile into the duct by obstruction of the orifice is certainly not always and probably is seldom a cause of acute pancreatitis.

#### DIAGNOSIS OF PANCREATITIS AND DIABETIC COMA

Each of these four cases when first admitted to the hospital seemed to be typical cases of advanced diabetic coma. It is only during their course in the hospital under treatment that one might have noted points which suggested the presence of some condition in addition to diabetic coma. The points may be listed as follows:

1. Prostration more severe than one would expect with a blood pressure of over 100 systolic. This point was shown by the first case.

2. Failure to improve under adequate treatment. Case 1 presented no very great degree of hyperglycemia and yet large doses of insulin failed to improve the clinical condition. In case 3 a steady rise in the blood sugar occurred in spite of large doses of insulin. Similarly in case 4, in spite of chemical improvement, the general condition regressed with a rising pulse and repeated vomiting.

3. Sweating led to a mistaken diagnosis of hypoglycemia in one case and was present in a second case. A dry skin is typical of uncomplicated coma.

4. Sudden onset of extreme pain in the upper part of the abdomen, particularly if it goes through to the back, as an outstanding symptom, and rapid development of coma within six to ten hours suggest the possibility of pancreatitis.

5. Examination of the abdomen in an early stage before unconsciousness may show tenderness and spasm limited to the epigastrium and extending to the left of the midline.

Case 5 illustrates the difficulty of excluding acute pancreatitis in the presence of diabetic coma:

CASE 5.—A youth, aged 21, entered Deaconess Hospital May 31, 1936, with diabetes of seven years' duration. On the previous day the family physician had been called because of pain in the upper part of the abdomen. At this time the urine was practically sugar free. He had been taking 50 units of insulin a day for several years. The doctor found no cause for the pain in the abdomen. That night the condition rapidly became worse, and by 6 o'clock the next morning the patient was unconscious and entered the hospital five hours later, at 11 o'clock. There was profound unconsciousness, with a blood sugar of 0.56 per cent, and carbon dioxide combining power of 2 volumes per cent. With 320 units of insulin during the day and a large amount of salt solution he became conscious at 6 o'clock in the evening. At this time the liver was felt as low as the umbilicus and could be traced into the epigastrium. He complained of great distress in the upper part of the abdomen and into the back. He had vomited throughout the night. The vomitus obtained was clear green fluid such as has been described by Rienhoff and Lewis<sup>2</sup> and other writers. The abdominal examination showed the lower half to be soft, but the upper half was full, resistant and generally tender above the umbilicus. Extremely tender points could be elicited 1 inch to the left of the midline in the epigastrium, over the gallbladder and in the right flank. The tenderness over the pancreas was deep. The blood plasma was lipemic and the plasma cholesterol was 592 mg. per hundred cubic centimeters. The pulse rate had risen to 160. The white blood count was 12,600. The blood bilirubin was 0.9 mg. per hundred cubic centimeters. In differential diagnosis acute hepatitis, acute pancreatitis, perforated ulcer and gallstones were considered. Surgical consultants advised against operation. During the next week he had mild jaundice with fever for three days. The highest fever was 104 F., reached twelve hours after admission, although the rectal temperature on admission was 96 F. Roentgenograms of the gastro-intestinal tract and of the gallbladder by means of the gallbladder dye, however, were negative. The lipemia slowly disappeared.

#### CHANGES IN LIPID METABOLISM

There was definite fatty invasion of the liver cells in three of the four cases and lipid histiocytosis of the spleen in one.

5. Flexner, quoted by Archibald, E. W.: *Internat. Clin.* 2: 1, 1918.  
6. Mann, F. C., and Giordano, A. S.: *The Bile Factor in Pancreatitis*, *Arch. Surg.* 6: 1 (Jan. pt. 1) 1923.

During the winter of 1935 and 1936 this work was carried on with an evaluation of the work done by a number of state, municipal and private laboratories.

It should be mentioned that the work dealt with the use of serodiagnostic tests, and not with the tests used to govern treatment. In other words the quantitative tests were not evaluated, although the committee fully recognized the fact that quantitative tests are of more value in controlling treatment than the purely qualitative tests. There is a prevailing impression among many physicians that the symbols +, ++, +++ and ++++ represent a truly quantitative value in the serodiagnostic tests. This is not true, for there is a wide field beyond the four plus one which can be measured accurately only by determining the number of units of antigen employed to produce a reaction. A very considerable improvement in the serologic condition of the patient can usually be noticed while the ordinary qualitative test still gives a complete positive. The use of the quantitative test is especially urged in the tests on the spinal fluid as an index to the efficacy of treatment. It should be noted that the complement fixation tests lend themselves more readily to quantitative readings than do the flocculation tests. The committee has strongly recommended that tests be reported as negative, positive or doubtful.

The tests naturally fall into four divisions: the complement fixation tests, the flocculation tests, the microscopic tests and the tests on the spinal fluid. Most microscopic tests are modifications of the flocculation tests. They usually require a small amount of blood and the reading is done by means of the microscope. It is obvious that a test which can be done with a little blood drawn from the finger or ear is of great value in infants and stout women, and also on chancre fluid.

Attention should be directed to the Hinton "microscopic test," which in the second evaluation study gave 100 per cent specificity and 91.9 per cent sensitivity. Dr. Kline writes that a single diagnostic or exclusion test can be done on "as little as 0.15 cc. of blood collected in a narrow pipet," although he considers 0.5 cc. to be desirable. In our second evaluation study the specificity of the Kline exclusion test was not satisfactory in two of the three laboratories performing the test. The sensitivity of the Kline diagnostic test is lower than that of the exclusion test but the specificity is much higher.

In the first study a total of 14,238 samples of blood was examined, each serologist receiving comparable samples. In addition, 2,860 comparable samples of spinal fluid were examined. In the second evaluation study a total of 18,840 blood samples was examined. Because of the fact that in the second study there were thirty participating serologists with sixty performances, there was a division into four groups and the members of each group received comparable samples; but the samples sent to the four groups were from different patients and so were not comparable.

The tests were evaluated according to their sensitivity and specificity. It is obvious that sensitivity and specificity alone do not indicate the entire value of a test. Other factors which should be considered are the applicability of the test to other laboratories, the time consumed in making the test, the cost of the test, the amount of blood necessary and, lastly, the adaptability of the test, with certain modifications, to both blood serum and spinal fluid examinations. Could there be a general agreement as to the value to be given

each of these seven factors, the various tests could be evaluated definitely and decisively.

In the first study it was found that in general the tests showed a rather high specificity, although four of the participating serologists had a rating of less than 99 per cent, and only five had a rating of 100 per cent. The committee feels very strongly that any test which fails to show a rating of over 99 per cent specificity should be corrected, as it is believed that a false diagnosis of syphilis is, in the words of Moorc, "a major calamity." The sensitivity of the tests varied to a considerable degree. The ratings given were from 65.8 per cent to 88.2 per cent. The committee feels that there is no choice between good complement fixation and good flocculation tests. It is obvious that the use of the latter is on the up grade and the use of the former on the down grade. But again complement fixation tests are the best quantitative ones.

A study of the tests used on the spinal fluid<sup>2</sup> has revealed that certain of the flocculation tests are not suitable, although some others are just as efficient as are the complement fixation tests. It is important to note that tests on patients who have been treated with malaria or with more than twelve injections of trypanamide or fifteen injections of arsphenamine show marked discrepancies in the reports of individual observers. Tests on the fluid from untreated cases of cerebrospinal syphilis show more uniform results. In general it should be noted that even in untreated patients the sensitivity of many tests is unsatisfactory. It is certain that tests on the spinal fluid must be chosen with the greatest care.

From the standpoint of specificity the committee found the following tests satisfactory: Brem, Eagle flocculation, Kahn diagnostic and presumptive tests, Kline diagnostic and exclusion tests, Kolmer, and Lufkin and Rytz. From the standpoint of sensitivity the leading tests are the Kahn diagnostic and the Ruediger tests, with the Brem and Kline diagnostic tests close behind.

A number of special problems were studied in the first project. Patients with leprosy yielded most divergent results.<sup>3</sup> Nearly 59 per cent of all tests performed on lepers yielded positive results. More or less similar results have been reported by other observers. Certain it is that the serologic tests for syphilis are of little value in differentiating syphilis from leprosy, except possibly during the period of septicemia. It would also seem that in suspected instances of leprosy in nonsyphilitic individuals a positive serodiagnostic test for syphilis may be of value as indicating leprosy. Malaria showed an unexpectedly high proportion of positive results, about 15 per cent. Further studies on malaria, as yet unpublished, have strongly fortified this statement. Tuberculosis, jaundice, malignancy, acute febrile conditions, pregnancy and menstruation did not affect the results.

The first study was an evaluation of tests done by expert serologists under relatively ideal conditions and it was expected to produce better results than would be obtained from state, municipal or private laboratories throughout the country. The second study was from such laboratories, and predictions proved correct.

2. Hazen, H. H.; Farran, Thomas; Sanford, A. H.; Sencar, F. E.; Simpson, W. M., and Vonderlehr, R. A.: The Evaluation of Serologic Tests for Syphilis on the Spinal Fluid, to be published in the Southern Medical Journal and Venereal Disease Information.  
3. Hazen, H. H.; Farran, Thomas; Sanford, A. H.; Sencar, F. E.; Simpson, W. M., and Vonderlehr, R. A.: The Occurrence in Leprosy of Positive Serodiagnostic Tests for Syphilis, Ven. Dis. Inform. 17:253 (Sept.) 1936 [Internat. J. Leprosy 4:315 (July-Sept.) 1936].



paper can record. Have your serologic laboratory in close contact or under your own thumb. When you become too old to be virulent, retire. In all imaginable seriousness, I place the problem of headship, personnel, coordination, check from every angle, first among the problems of organized syphilology. Discipline among clinicians, physicians, health officers, technicians, non-medical, public health and social service personnel is indispensable—but discipline with inspiration, not subordination, as its keystone.

#### PROBLEM II. EARLY SYPHILIS

Two adequate systems for the treatment of early syphilis can now be issued in black and white for your public health and voluntary agents, including private physicians' reference and use: the British-Danish intermittent and the American continuous alternating. Of the two the Cooperative Clinical Group and the United States Public Health Service believe they have proved the alternating continuous to be the better. Certainly it is better than any American intermittent system which simply departs from the continuous by introducing rest periods and lapse into a system of drug, dosage and interval usage that should be continuous. Against American intermittent procedure of this lapsing type you should be warned and warned again. A simultaneous use of arsenical and heavy metal, as in the British-Danish, can permit short rest periods between double-deck courses. But an American alternating (single-deck) system cannot do so without a striking drop in effectiveness, a sharp rise in relapses, delayed serologic reversals, and irreversible positives. The American continuous alternating system has moreover the additional advantage of saving the difference between sixty-five weeks and ninety weeks, or about six months; and the League report concedes its probable greater effectiveness in keeping the patient in contact and control. Furthermore, intensive study of our American material has shown that under continuous treatment reaction to the arsenical and to the heavy metal is no different, or slightly less, than under the American intermittent systems; rest intervals do not increase the tolerance of drugs. Reaction data for the British-Danish or League intermittent system do not suggest any increased risk from their simultaneous and somewhat more intensive use of arsenical and heavy metal, or yet any gain from their rest periods. It is notable that jaundice seems to assume the character of a regional rather than a treatment system type of reaction. Do not therefore be deterred from the use of the superior continuity by fear of reactivity, for the consequences of noncontinuity are serious and the dangers of increased reactivity are nil. If anything, I give it to you as my personal impression that I would fear more the simultaneous use of arsenical and heavy metal than I would the continuity of a strictly alternate use of the two. There is good evidence that it is the heavy metal that raises the reaction tendency of a system of treatment rather than the arsenical, and the double load, especially in a continuous technic, needs fuller investigation.

The next point of considerable public health as well as individual significance is the difference between the treatment results obtainable in seronegative, seropositive and florid secondary syphilis by continuous and intermittent treatment. It is now apparent that the most refractory stage of early syphilis from the standpoint of control of relapse, serologic results and "cure" is the seropositive primary. Yet, in view of the slow progress being made in darkfield diagnosis, the inevita-

ble tendency of the uneducated public, to bring a self-concealing disease to late diagnosis and treatment and the serologic-mindedness of the medical profession, this is precisely the stage in which most early syphilis will tend to present itself for treatment for a long time to come. Let doctor and patient therefore be warned that this stage of the disease carried the worst, not the best, expectancy; that it can be brought up to the general level only by the use of some fifteen more arsphenamine injections than are called for in seronegative primary syphilis and ten more injections than are called for in a fully developed secondary case, with a corresponding increase in the amount of bismuth administered. The results for seropositive primary syphilis, even with the increased treatment described, are 20 per cent (65 per cent versus 85 per cent) below the best obtainable by treatment begun in the seronegative primary stage.

Fully developed secondary syphilis treated by intermittent or catch-as-catch-can methods yields even worse results than seropositive primary (58 per cent). But in compensation it appears that if secondary syphilis is treated by a continuous system the results quite closely approximate the best obtained in seronegative primary syphilis (81 per cent as compared with 86 per cent). The theoretical basis for this very interesting observation cannot be here discussed but is brought out in recent publications. It offers substantial encouragement for the individual who appears with secondaries in contrast with the comparatively unsatisfactory status of seropositive primary syphilis.

Let me impress you, then, once more with the importance of the continuous treatment of syphilis. Every study of every phase of the disease from chancre to late neurosyphilis conducted by the Cooperative Clinical Group has thus far shown its undoubted superiority to intermittence and the introduction of rest intervals or lapses in American systems of practice. Too much emphasis cannot be placed particularly on the concentration of effort that should be made on the first year of a syphilitic infection; on the first six months, the first three months if nothing better can be done—for every day of treatment continuity means less relapse, less resistant serologic reaction, less visceral, vascular and neurosyphilis for the future. With this final thump on the big bass drum, I turn to the arsenical phase of treatment.

Within the past few years several critically important facts regarding the arsphenamines have been established. First of all, these drugs are the infection controllers of our modern treatment for the disease, and their public health import is therefore paramount. No plan of treatment which excludes or substitutes inferior spirillicides or nonspirillicidal technics for the twenty-four to ninety-six hour surface sterilization obtainable by arsphenamine or neoarsphenamine has a right to consideration in early syphilis in the present stage of knowledge. I emphasize this advisedly because it is inevitable that methods with the drive of enthusiasm behind them, such as fever therapy of primary and secondary syphilis, will attempt to and have already thrust themselves between the established methods and their public health ideal. I hold no brief against the use of new drugs alone or in combination with the arsphenamines, but I insist that spirillicidal value remain the turnstile in the gate to therapeutic acceptance for use in early syphilis.

The critical point in the arsphenamine control of infectiousness lies between the fourth and the ninth injection. Treatment discontinued between the first and

ficity of well over 99 per cent and a sensitivity considerably greater than is usual at present. The work of numerous serologists shows that this is perfectly feasible.

It goes without saying that syphilis can often be diagnosed by other means than serologic. It may be true that during the early eruptive period the serologic test is much the best confirmatory evidence that we possess, but in the early chancre the darkfield in skilled hands is infinitely better. Here it would be well to point out that the mouth contains spirochetes very similar to *Spirochaeta pallida*. Parenthetically it may be remarked that it is conceivable that such organisms might be found on other portions of the body, if only for a short time. In late syphilis an x-ray study of the bones or the aorta may be invaluable. In neurosyphilis there are other valuable tests on the spinal fluid in addition to the serologic ones. It has been my experience that women who have been pregnant frequently show a negative blood serologic test. In this class the history of repeated miscarriages, or the finding of a syphilitic placenta, are of the greatest aid. It should be distinctly understood that I feel that every pregnant woman should have her blood examined for syphilis, preferably during an early period. These few examples by no means complete the list but they should suffice to show that serologic study is not the only way to diagnose syphilis. As is invariably the rule, a laboratory procedure is a good servant but a bad master.

Some may well inquire what can be done without serologic diagnosis of late syphilis. In the second evaluation study my service was being used to furnish donors for blood sent to one group of serologists. It was suddenly discovered that the blood reports furnished by our laboratory were absolutely without value. It was essential to continue the collection of specimens, and this was done on purely clinical and historical evidence. The percentage of positive reports on blood drawn from this series of donors was higher than on two other groups in which the collectors had the additional advantage of serologic information.

Lastly, one type of survey has been made as to the prevalence of syphilis in the United States, based on serologic observations. It is an uncomfortable fact that out of sixty performances in our second evaluation study no fewer than eleven reported a sensitivity of less than 50 per cent, and five reported sensitivity figures of less than 40 per cent. It is obvious that the survey figures must be regarded as entirely too low. The only way to remove this suspicion would be to evaluate the tests as performed at the time of the survey, and this is clearly impossible.

1911 R Street N.W.

**The Common Road Forks Only at Treatment.**—A clinic, let us say on aneurysm, is given on very much the same plan by both physician and surgeon, and their common road forks only at the post of treatment, where down one (and the longer) path beckon Valsalva, Tuffnell and Balfour to rest, a low diet and potassium iodide, and down the other (and shorter) Hunter, Corradi and Matas to some method requiring exposure of the lesion through an incision. The internist has learned that effective operative work cannot be done well for him by one who merely represents his hands, and he would not venture to refer his patients with obstructive jaundice or hematuria or pyloric stenosis to a mere operator who did not have the same knowledge of and the same attitude toward the pathological lesion of liver or kidney or stomach that he himself has.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

## MODERN CLINICAL MANAGEMENT OF GONORRHEA

P. S. PELOUZE, M.D.

PHILADELPHIA

Today we are to launch a nation-wide campaign against the genito-infectious diseases. It is to be expected that syphilis will receive most attention because it has been studied more closely and all those conversant with it and its therapy are sure that it practically can be stamped out or at least greatly reduced. If we allow this phase of the campaign so greatly to overshadow that far more prevalent disease gonorrhea as to make it appear a poor second in importance, we shall play our citizenry a rather sorry trick. My plea, therefore, is that the one receive as much attention as the other and that the seeming hopelessness of the one from the standpoint of disease reduction be viewed as a challenge rather than an excuse for neglect.

I am sure that, if physicians give proper attention to the barriers that in the past have stood in the way of success, the incidence of gonorrhea can be reduced far more than any one has thought it could be reduced. This will not be done by following either your particular plan of treatment or mine. We shall do it by analyzing the disease and its peculiarities, the human beings who have it and the medical agencies that care for it. This is not a battle to be won by air or by water. It is a warfare the success of which depends mostly on just what happens in those front line trenches where the infected patient and the doctor meet. We may reduce contacts in a measure by education, but history tells us that human beings are rather heedless of warnings, that they learn most from their own experiences. And, if they will turn toward sex outlets, as many of them will, the doctor stands at the crossroad and on just what he thinks and does depends a large measure of success or a wealth of dismal failure.

Gonorrhea is a disease that can be transmitted to others as long as there is a single gonococcus present. It is a disease the cure of which depends on the patient's ability to develop certain curative responses. These responses are not developed in patients who repeatedly consume alcohol or indulge in sexual excitement, and there are other factors that often retard them.

There is no treatment known today that lends itself to mass application that quickly renders the patient noncontagious.

In the male the disease is practically 100 per cent curable and in the female it should be almost as much so, so far as the eradication of the gonococcus is concerned. No one can predict just how long it will take each case to reach the point of cure.

In view of these facts our clinical problem is the same as holds with every other contagious disease: the avoidance of contagion-spreading contacts, and the cure of those who have the disease. In other words, it rests in the avoidance of sex contacts during the entire time the gonococcus is present, and no one who knows human beings will think that this is a small order. And, yet, every time it is successful a possible endless chain of infection is broken. Unlike some foreign countries, we have no laws compelling such patients to be treated. True, the boards of health of some of our states and municipalities can isolate the infected, but, in the main, *treatment depends solely on*

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both blood and fluid throughout the sixty-five weeks' course makes a reexamination unnecessary, unless in the ensuing probation a blood test turns up positive. Spinal fluid examinations are unusable for interpretation unless they include cell counts and protein and colloidal tests; and the commonly linked phrase "blood and spinal fluid Wassermann," which one still hears from all quarters, should go into the discard. Knowledge of the grade of involvement of the nervous system, following Moore's and O'Leary's classification, is as important to the patient's future management and outlook as is the mere abnormality. Extended routine management will iron out the slight grades indicated by cell counts and weak positive serologic reactions alone. It is the involvements detected by four abnormal tests that must have special measures to do away with neurosyphilis as a late complication. For on those who treat early syphilis will rest absolutely, barring changes in the disease itself, the responsibility in treated persons for tabes, dementia paralytica and their camp followers. Granted the importance of the spinal test, how make it easy for doctor, clinic and patient? Lumbar puncture can be made an acceptable ambulatory procedure in our experience at the University of Pennsylvania, thus relieving clientele congestion and delay, by the following measures: (1) a reasonably humane and careful operator; (2) 3 grains (0.2 Gm.) of sodium amytal by mouth forty minutes before the test, after a light breakfast; (3) 2 per cent procaine hydrochloride skin and subcutaneous anesthesia, including infiltration of the ligament; (4) keeping the knees and chin as nearly together as possible; (5) keeping the upper shoulder in the same vertical plane with the lower; (6) talking to the patient before, not after; (7) using a conical-pointed small (Greene point) needle; (8) keeping the patient on his face for one hour after puncture, then sending him home with the advice to rest the day in bed; (9) giving another 3 grains of sodium amytal to the very nervous or overactive patient, to be taken at the evening meal. These steps make painless, almost reactionless lumbar puncture possible to any clinic or operator who deserves the name and do away, I feel, with the unwise exploitation of the much more difficult and risky cistern puncture, at least for any but the most specialized and expert.

The duration and nature of post-treatment probation and observation has been a bit enlightened for us in the past year. To me the curious thing is the way time stretches when one wishes to be absolute, from two to three to five years of observation and then to the individual indefinite reappraisal at such critical junctures as the pregnancy and each decade mark. Can we ever tell them to forget it? If their symptomatic and serologic course under continuous adequate treatment has been totally uneventful, not a ripple; if their five and ten year thoracic fluoroscopy is negative (mine would be repeated, I fear), and if she does not become pregnant—yes. But for every one else there is a perhaps and an individual decision, most especially for the pregnant woman, whether she is seropositive or seronegative.

#### PROBLEM III. LATENCY

Two thirds of my time and space have now gone to the prevention of this and all other categories of the disease. But with the new detection machinery in full movement, an enormous influx of seropositive latency is to be expected and must be evaluated and treated. Hospital, and outpatient and practitioner "pick ups" require (1) adequate complete physical examination,

not mere listening through the shirt and tapping the knees; (2) with a negative physical examination the beginning of treatment, not by the first arsenical "shot" one can reach, but with bismuth subsalicylate weekly, while one gains the patient's confidence and a spinal fluid examination. By the end of a ten injection bismuth course, patient and doctor will know where they are, conditions will not be materially obscured and may even be brought out, and the patient will have had a safe heavy metal preparation rather than the needless chance taking with arsphenamine in a subthreshold lesion, followed by therapeutic shock or paradox. If the spinal fluid is entirely negative, the Cooperative Clinical Group system for early latency (Moore as spokesman) calls for the standard treatment accorded to early syphilis so far as continuity and technic are concerned; but in latency after four years, twenty-four arsphenamine injections are enough, with sixty injections of bismuth preparations interspersed, and a repetition of the bismuth course once a year for a period ranging from three years to a decade. Many will oscillate between positive and negative, especially if enough tests are taken, for a long time. Only about 50 per cent of the patients will become lastingly seronegative. Pregnancy risks are reduced fourfold for the child; 16 per cent of babies apparently healthy at birth without treatment, 65 per cent with treatment, regardless of the amount given. The best results for the pregnancy come from the arsphenamine; for the individual adult with latent syphilis, from the heavy metal given over a period of years.

#### PROBLEM IV. THE SYPHILITIC WOMAN

For two reasons I would place the syphilitic woman first rather than fourth among the modern problems of syphilis. Infectious early syphilis of a woman's genital tract is the *terra incognita* of the public health aspect of the disease. The relatively more benign and inconspicuous course of the whole infection, which Warthin rated as in her almost a disease in a different animal species, fills the terrain with the unexpected and unpredictable and makes epidemiologic and therapeutic certainties rare indeed.

Perhaps it is a lingering trace of chivalry that makes my medical students have such difficulty in realizing that marriage has nothing to do with the transmission of syphilis—at least not marriage *de jure*. It is marriage *de facto* that counts—and not even that, in these days of petting and necking (if those terms are not already antiquated). Every woman therefore is suspect as a carrier of syphilis, even though she is a virgin with an unruptured hymen. I refrain from citation at this point of the evidence for an impression that the vagina is being more often sidetracked in favor of pederasty and sodomy, under the combined influence of fear of pregnancy and fear of venereal disease. Nor is it possible as yet to evaluate the observations and suggestions of Coutts and of Benech and Spillman on the human vagina as a passive carrier of *Spirochaeta pallida* in the asymptomatic syphilitic prostitute. There can be no doubt of the importance of experimental study to determine the fate of passively carried organisms; of technics of local prophylaxis as part of contraceptive measures; of the effect of bismuth "plugging" and of the arsphenamines administered to passive carriers; and, above all, of routine speculum examination of all female contacts of persons with syphilis, to the whole problem of the control of woman's share in the dissemination of the disease. Every clinic should be

In campaigns such as this there is great danger that more attention will be given conditions at the top than at the bottom. Unless we give first thought to the building up of an interested, satisfied personnel among those who come into direct contact with the infected patient our efforts will meet with limited success. Under other conditions the percentage of lapsed and indifferent patients constantly will resow the soil that we so earnestly have tried to clear and we shall look in vain for an improvement in future incidence figures commensurate with the time, thought and financial expenditures given to the present campaign. I therefore urge you who are public health officials that before you hand down too many orders from your points of greater vantage you take some heed to the development of an army that can and will carry them out.

#### SUGGESTIONS

In the building up of this first line of defense, certain clinical procedures are of the utmost importance aside from the reporting and following up delinquent cases and those aspects that so fitly are considered as coming under the social service aspects of disease control. Thus, confining myself to the purely medical side of the question, I would make the following suggestions:

1. A uniform history blank should be used throughout the country. There could be no better time to foster uniformity than the present, and the advantages of it are outstanding. With such uniformity it would be a rather simple matter to decide on the comparative values of the different types of treatment now in use. Also, the study of such histories would do much to teach those using them far more about the disease and the things that are or are not good for it, a gain that would reflect itself in many good ways.

2. The one in charge of a treatment center should be really interested in the disease. Lack of such interest makes for poor work and for poor personnel cooperation. It does little toward disease reduction.

3. Younger men in such dispensaries should be compensated for the services rendered. In dispensaries of size, this probably should fall on the hospital but, if proper thought were given to possibilities for just revenue from the dispensary itself, this rarely need be a matter of direct cost to the hospital. Hospitals that have been in the habit of charging small fees for patients able to pay them merely would have to apply the receipts from this one dispensary to the dispensary rather than to their general funds. In smaller dispensaries and in rural communities, other means would have to be devised.

4. There should be a close alliance between the chiefs of dispensaries, their assistants, their local and state boards of health and the United States Public Health Service as a means of making each one who treats the disease feel that he is a part of a campaign of disease reduction and that some one cares.

5. So far as such a thing is possible, efforts should be made to carry out an educational campaign among those who treat the disease. In this way interest will be stimulated and better work will result. Also, there would be built up a degree of sanity regarding the disease and its treatment that would reduce to a minimum the dangers of the exploitation of treatment methods that have little or nothing to offer. Such things retard advancement and often work to the harm of thousands of patients.

## THE VENEREAL DISEASE CONTROL PROGRAM IN KANSAS

EARLE G. BROWN, M.D.

TOPEKA, KAN.

In accordance with state laws, syphilis and gonorrhea were made notifiable diseases at the quarterly meeting of the Kansas State Board of Health in January 1914. Of especial interest, therefore, is that portion of the report of the secretary and executive officer relating to these two diseases at the annual meeting on June 6, 1914, as follows:

Our statistics are so few as to be of little consequence, but I cannot forbear a few words on this subject. Under the new Morbidity Report Regulation venereal diseases are made notifiable with the provision that all reports of cases by attending physicians shall be made on special report card directly to the State Board of Health, and providing also that the name of the patient need not be given, but only a serial number. Many reports have already come in from physicians. It was not expected that any quarantine or any publicity be attached to this procedure, and as you know, the results can only be statistical. . . . Many physicians, and indeed this is the average, have neither means, time nor equipment to provide their own laboratory diagnosis in these cases, and even if they were able to do so, many of this class of patients are either not able to or will not afford the fees demanded for this work. Obviously, the welfare of the public, of both patients and innocent persons who may suffer, demands that the state should provide free Wassermann and complement fixation tests. Progress in venereal disease control depends upon the education of the individual, and primarily upon the education of the infected individual, whom we can only hope to reach through being able to offer such free scientific and bacteriological information which will instruct him, through his physician, when he may relax vigilance in those measures which are necessary to prevent transmission of his infection.

In the following three years no comment was offered by the secretary regarding the problem. Morbidity records show occasional reports of cases of gonorrhea and syphilis. It is of interest to note, however, that from May 1916 to April 1917 inclusive, a period of twelve months, physicians reported only sixteen cases of syphilis and fifty-five cases of gonorrhea.

With the active participation of the United States in the World War, a new interest developed. At the quarterly meeting of the board on Nov. 2, 1917, the secretary reported that much of the session of the American Public Health Association at Washington, the previous month, had been given over to "a discussion of ways and means for control of venereal diseases, particularly as they relate to the civilian population in or near the various military reservations of the United States." Consequently, a resolution and proposed regulations for the control and suppression of gonorrhea and syphilis within extracantonment zones were introduced and adopted by unanimous vote.

At the third quarterly meeting on March 29, 1918, the venereal disease regulations in force were amended and city and county health officers were authorized to "make examinations of all persons reasonably suspected of having syphilis in the infectious stage or gonococcus infection," and to isolate such persons if such isolation was necessary to protect the public health.

On May 4, 1918, the War Department assigned an officer of the Medical Reserve Corps "for duty as epidemiologist and to have charge of the control of venereal diseases." At the annual meeting in June the

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that simultaneity as well as the alternating continuity of the Cooperative Clinical Group system bring this to pass. The preventive road therefore lies straight before you and with apologies to Kipling "let a good spring sweat come o'er you," as you follow it.

Late neurosyphilis, soon to be almost the only island of private practice, albeit a lush green one, in a swelling sea of public health, needs only this comment. The relative values of mechanized, electrified, proteinized and malarialized fever therapy are in the balance. I place malaria first, believe the best opinion, experience and time-accumulated evidence supports it. "Mene, mene!" is written on the wall for the electrical stuff, or perhaps it is "tekel, upharsin." Every little physical therapist and every little quackster now has his diathermy unit. Riding two summers ago along the streets of a large Western city, I found them rivaling the fecalophiles and colon irrigationists in the gleaming virtuosity of their advertising displays. I plead with science and the public health to step in here and by the controlled particularity of their practice and research effort to clean up the confusion as rapidly as possible. Even the simpler modes of fever therapy are not affairs for the inexperienced. They endanger life, inspire false confidence and can be touted by the rash and foolish to the actual hindrance of progress, as in the present unrestrained advocacy of their use in the treatment of infectious syphilis. Let me close the topic by saying that tests for fields and visual acuity should be made before tryparsamide as well as after it, for the first eight weeks, even in rich patients who get the poorest care. Tryparsamide following fever therapy is a real help, just as fever, especially malaria, will, as Solomon recently pointed out, suddenly clear up a fluid that has for months and years completely resisted tryparsamide. Otherwise the two still run pretty much neck and neck as regards ultimate efficiency. All of us await with great interest the complex interpretations involved in O'Leary's study of Cooperative Clinical Group results, which seem to revive the ghost of intraspinal therapy as genuinely effective in comparison with malaria, and so on, even in the haze of uncertainty as to what mere prolongation of treatment, time and biologic defense can do for neurosyphilis.

#### PROBLEM VII. REACTION CONTROL

I have rather unwisely left this vital topic to the cursory treatment of a hurried close. Let us make it a matter of do's, rather than don'ts.

*Some Do's.*—1. Take minor reactions and discomforts seriously. They spoil attendance, wreck follow up and results. Try to circumvent pain, keep tools in shape, insist on skilled personnel, hold down the pace.

2. Instruct the patient about fore and after care, in writing if possible; light meals before treatment, low carbohydrate, low roughage, high fat, high protein diet; after the arsenical a rest and cathartic; after intramusculars, massage, hot applications, exercise. Have him report gastro-intestinal upsets, dark urine, light or black stools, itching, rash, fever, pain, without delay.

3. Take every precaution against blunders; retain and read ampule labels before injection, watch the drug dissolve; make aspiration, not injection, the first movement with the needle and syringe. Shoot slower than you think you should, stick to and in the upper outer quadrant of the buttock, large or small, and then massage long and firmly, yet longer and more firmly.

4. Establish the inspection of the patient's face, mouth, wrists and elbow bends, ankles if possible, as

preliminary to every arsenical treatment in clinic and practice. Work with the patient's neck exposed. Feel the butt and acknowledge your handiwork before each intramuscular injection.

5. Put every patient through certain routine questions, oral or written, before each intravenous treatment: thirteen of them covering intercurrent infection, warnings of purpura, dermatitis, nitritoids, jaundice, symptomatic progress.

6. Halve the average therapeutic for the first dose; pick the drug with thought, to avoid shock and paradox; with arsenicals, when in doubt *don't* until you can get advice; use much calcium orally and intramuscularly and dextrose intravenously when in a tight place; don't rely on patch tests.

#### CONCLUSION

Gentlemen, as we step into the pressure reducing chamber, let me say that I had an eighth problem to present to you. While the door closes may I remark that all that has gone before is reduced to nothing unless you bring your patient to an unswerving allegiance to yourself and all you represent and advocate, by such a humanity of approach, such an anticipation of his needs and problems as a being like yourself, as only the heart can compass. Injections of chemotherapeutic agents are merely mediated by the hand and head. Effective treatment for syphilis may indeed be mechanized to a certain perfection by knowledge. But the uprooting of the disease from its hold on humanity is done by the eye, the voice, the understanding and sympathetic spirit, without which all our much gathering of knowledge is but the unliving dust.

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## THE SERODIAGNOSIS OF SYPHILIS

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In August 1934, at the request of the American Society of Clinical Pathologists, the United States Public Health Service sponsored a study for the evaluation of serodiagnostic tests for syphilis in the United States. A committee consisting of two syphilologists, two clinical pathologists and one representative from the Public Health Service was appointed by the surgeon general of the service. The first report was read in June 1935 and was published in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* and in *Venerel Disease Information*.<sup>1</sup> This study consisted in an evaluation of tests performed by the following serologists: Walter V. Brem, Los Angeles; Harry Eagle, Baltimore; William A. Hinton, Boston; F. M. Johns, New Orleans; Reuben L. Kahn (performing the Kahn standard diagnostic test), Ann Arbor, Mich.; B. S. Kline (performing the Kline diagnostic test), Cleveland; John A. Kolmer, Philadelphia; M. B. Kurtz (performing the Kahn presumptive test), Lansing, Mich.; N. H. Lufkin and F. Rytz, Minneapolis; Charles R. Rein (performing the Kline exclusion test), New York; E. Henry Ruediger, San Diego; Emil Weiss, Chicago, and Capt. W. C. Williams (U. S. Army), Washington, D. C.

Read before the Conference on Venereal Disease Control Work, Washington, D. C., Dec. 28, 1936.

1. Cumming, H. S.; Hazen, H. H.; Sanford, A. H.; Sencar, F. E.; Simpson, W. M., and Vonderlehr, R. A.: The Evaluation of Serodiagnostic Tests for Syphilis in the United States, *J. A. M. A.* 103: 1705 (Dec. 8) 1934; 104: 2083 (June 8) 1935; *Ven. Dis. Inform.* 16: 189 (June) 1935, reprint 52.



Wassermann test to sign a blank stating that they were unable to pay for the service and also that they were residents of the state of Kansas. However, no further limitations were placed on the work of the laboratory.

The foregoing summary of venereal disease control work from 1914 to 1935 has been presented in order that comparison may be made with the proposed program of the future. As a result of funds allotted to the Kansas State Board of Health by the United States Public Health Service under the provisions of the Social Security Act, a program is in process of development with a full-time director in charge.

The director is a doctor of medicine who graduated nine years ago and, following completion of his internship, was in private practice several years. He attended the short course in public health at Vanderbilt University in the spring of 1936 and for his field work was assigned to one of the Tennessee counties, where an unusually efficient venereal disease program had been an important part of the unit's activities for many years.

The director assumed his new duties on July 1, 1936, and during that month under the guidance of Surgeon O. C. Wenger made a study of the problem from existing records and also appraised the work of the three clinics. In the following month, on the recommendation of Dr. Wenger and with the approval of the surgeon general, the director was given a ten day training course in the diagnosis and treatment and administrative work in venereal disease control at the United States Public Health Service Venereal Disease Clinic at Hot Springs, Ark.

Dr. Wenger, following his trip to Kansas, made the following recommendations:

1. Free serologic service to all physicians by increasing the laboratory staff.
2. The addition of medical and social personnel at the three clinics; also additional equipment if needed.
3. Free neoarsphenamine and heavy metals to physicians for indigent patients.
4. Standard medical record for use in all three clinics.
5. The use of the U. S. Public Health Service classification for syphilis in all clinics to assure better material for study.
6. That an educational program for physicians be started so that they will report their venereal disease cases.
7. When more full-time health units are established throughout the state, that the venereal disease program be included.

The surgeon general for the fiscal year 1937 has approved a budget for the Division of Venereal Diseases of approximately \$10,000, which includes, of course, the salary and travel allowance for the director. Some equipment has been purchased for the laboratory and an additional technician employed. The restriction on Wassermann tests for pregnant women has been lifted.

Assistance has been given to the Kansas City clinic through the payment of small salaries to the part-time clinic director and part-time clerk. One nurse has been employed and assigned to the Kansas City clinic, and the director of health reports the discovery of an average of one new case a day since her employment. A second nurse has been employed and assigned to the Wichita clinic. Request has been made of the surgeon general for the use of lapsed funds for the employment of an investigator for the Topeka clinic for the six months beginning Jan. 1, 1937. Neoarsphenamine is supplied to the Kansas City and Wichita clinics and also will be supplied to physicians for the treatment of indigent cases, in addition to heavy metals.

Request has also been made of the surgeon general for the use of lapsed funds to provide each practicing physician in the state a one year subscription to *Venereal Disease Information*. We have been informed that the request will be approved. It is believed that the physician's interest in the venereal disease problem will be materially stimulated by reading this valuable publication.

During the month of November a resurvey of venereal disease prevalence was completed in the twenty-two counties originally surveyed in 1927. The statistical information, of course, has not yet been compiled. It is interesting, however, that an almost complete return of questionnaires has been received from the physicians.

Under date of Aug. 25, 1936, a request was made of the president of the Kansas Medical Society that a committee be appointed to cooperate with the state board of health in the venereal disease program. The request was granted and a committee of nine appointed, under the chairmanship of a Topeka urologist, and the director of the Topeka clinic. The committee has held two meetings and in addition the chairman has conferred on numerous occasions with the director.

The reaction of Kansas physicians to the proposed program, I believe, is shown by the letter of the president of the Kansas Medical Society to the members, which appeared in the December 1936 journal of the society. It was in part as follows:

It is clear that the next few years will bring about one of the most extensive programs on the subject of venereal disease that has ever been attempted. Dr. Thomas Parran, surgeon general of the United States Public Health Service, has chosen this as the foremost activity of this organization and has requested and received the support of organized medicine in this regard. With a merger of public health and medical forces, there is every possibility for gonorrhea and syphilis to be placed in the category of controlled diseases.

Extensive activity in this direction has already begun in Kansas. At a recent conference . . . arrangements were completed for appointment of a Society Committee on Venereal Disease, and for coordination of Kansas venereal disease programs under its direction.

This committee has been appointed and has already held one meeting. Its present program consists of preparation of a scientific brochure on treatment of gonorrhea and syphilis, which it is hoped will provide a practical desk reference for physicians; arrangements for a scientific symposium on this subject, to be held within the near future in each of the councilor districts; presentation of a venereal disease section in the *Journal*; sponsorship of a scientific information bureau; wide lay educational activities through the medium of the county medical societies, and economic plans for the treatment of indigent syphilis.

Kansas is fortunate in having a state board of health which is practical and efficient in its viewpoint on all matters within its jurisdiction. . . . We urge, therefore, that all county medical organizations discuss fully all bulletins issued on this subject; that they cooperate extensively with the Kansas State Board of Health and this committee in all of their programs, and that they adopt syphilis and gonorrhea as one of their major responsibilities and a basis for future activity.

Thus the new venereal disease program is under way. Already certain recommendations made by Dr. Wenger in his report to the surgeon general have been complied with. Additional serologic service in the diagnosis of syphilis has been provided; certain personnel has been made available to the Kansas City and Wichita clinics, and free neoarsphenamine and heavy metals are available to the clinics and to private physicians for the treatment of indigent persons with syphilis.

Comparable samples of blood sent to a control laboratory, where the test was performed by the originator of the method, did not produce the same reports in many instances. A number of laboratories reported a sensitivity in the thirties, whereas a control laboratory reported from fifty-nine to eighty-nine per cent. Not enough laboratories reported on the Eagle, Hinton, Kahn presumptive and Kline exclusion tests to enable the committee to draw any conclusions, although in all instances there was marked similarity. The laboratories using the Kline diagnostic test varied much less from the control than did the laboratories performing the Kahn diagnostic test and the Kolmer test.

In the evaluation study of the state, municipal and private laboratories the specificity varied from a low of 91 per cent up to 100 per cent. In general it may be remarked that the specificity figures of the laboratories were better than their sensitivity figures, although twenty-five performances recorded a specificity of 99 per cent or lower. Here one performance gave a new low record of 34.1 per cent, although other methods employed on comparable samples gave as high as 91.4 per cent. A total of eleven performances showed a sensitivity of less than 50 per cent, which is excellent proof that the methods of these laboratories sadly need correction.

In this study there were two objects, one to evaluate state, municipal and private laboratories, and next to evaluate the applicability of tests for use in other laboratories.

The value of serodiagnostic tests in certain stages of syphilis needs special consideration. In the primary stage the committee found the greatest difficulty in determining how long the initial lesion had been present and so could give no results as to how early the serodiagnostic tests became positive. The general average was 72 per cent. This study is being extended and the committee hopes that ere long it can reach definite conclusions. The use of "follow up" serologic tests is strongly urged in all instances in which there is a darkfield and serologic negative sore that is suspected of being a chancre.

In the eruptive stage of secondary syphilis the test was positive in practically all instances.

In late syphilis, tests evaluated in the first study were positive in 74 per cent of the patients; these patients had had varying amounts of treatment, and it is probable that some were really cured and that others were rendered serologically negative as the result of therapy.

It is obvious that a negative finding does not exclude either primary or late syphilis, although a negative sensitive test does nearly exclude early secondary syphilis. In the absence of leprosy, yaws or malaria, the occurrence of two or more reliable positive serodiagnostic tests means syphilis. Unfortunately the reliability of the work done is not uniform in all laboratories. The percentage of false positive reactions, especially with certain very sensitive tests, is too high, and the sensitivity figures of some tests are often too low. With the object of improving these conditions the committee recommends that a permanent opportunity be afforded the state laboratories to have their tests evaluated by the Public Health Service. The committee further recommends that the state laboratories extend the same privileges to other laboratories within their jurisdiction. It is of the utmost importance that the serodiagnostic tests for syphilis be above criticism, which is certainly not true at the present time. In most cities entirely too

many laboratories are bidding for the work. When relatively few tests are performed in a laboratory there are certain results: an increased expense, an infrequent performance of the tests and, too often, neglect of standardization. It is probable that hospital and private laboratories should be afforded the opportunity to have their results checked by the state laboratories, and that if they do not do this voluntarily they cease performing such tests. In other words, it may be necessary to license them. Undoubtedly the question can be raised as to the propriety of the government, state or municipality performing serologic work in syphilis without charge. It is my firm conviction that, if physicians are to engage in a successful campaign against syphilis, free serologic work must be done even though occasionally advantage is taken of it by a designing patient or physician. There are millions of syphilitic persons who simply cannot afford to pay the charges for serologic tests. At the same time the performance of hundreds of free tests is a serious financial drain on a laboratory and, as free tests must be reliable, it would seem only just to subsidize laboratories that perform free tests in a competent manner. It is possible that this can be done under the provisions of title VI of the Social Security Act. It is the further object of the committee to study certain special problems of serology, both of the technic of the tests and of the value of the tests in syphilitic and nonsyphilitic conditions.

Certain special problems deserve, or are receiving, special study:

The cost of the tests varies markedly. Naturally the cost of a test should be the last consideration, but it may make a considerable difference in a health officer's budget. The cost is determined by (1) the overhead of the laboratory, (2) the cost of equipment; (3) the salary of technicians and (4) the cost of supplies for the tests. It is obvious that, if a test takes but a short time to perform, the cost of the technician's time will be less. The cost of materials for performing 500 complement fixation tests a week is variously estimated at from \$7.50 to \$15, while for flocculation tests it ranges from \$0.25 to \$1. In addition, for this number of complement fixation tests from two to three technicians are employed, while for the flocculation tests only one is necessary. In a busy state laboratory the exclusive use of flocculation tests might save some \$350 a month. These figures are based on the estimates of the serologists who were engaged in the first evaluation study.

As regards time, the complement fixation tests require from seven to twenty-four hours, while the flocculation tests can usually be done in from one to one and one-half hours. However, Hinton states that his test requires eighteen hours.

The future of serology for the diagnosis of syphilis is an interesting subject for speculation. Judging from the present trend the flocculation tests will probably displace the complement fixation tests for the diagnosis of syphilis. Where but little blood is available, as in infants, slide microscopic tests requiring but a few drops will be available. Similar tests of great delicacy may also be used on a small quantity of chancre fluid. It is possible that chancre serum will show a positive test while the blood serum is still negative. For controlling treatment, quantitative tests on both the blood and the spinal fluid will be employed. Apparently these will be complement fixation tests. In addition the majority of laboratories will perform tests with a speci-

467,146 doses were distributed during the first ten months of the present year at an estimated cost of approximately \$20,000.

Consultation service is provided through clinics to which patients may be sent for review of their syphilitic diagnosis, and through the appointment of seven part-time consultants. Each of the latter has had special clinical experience in syphilis and, besides supervising clinic activities, is available on request for private consultation.

Under the State Sanitary Code the physician must report by name each syphilis patient who lapses treatment while still in the infectious stage of the disease. This regulation implies an obligation on the part of health officials to find delinquent patients and to see that they are returned to treatment. Except in large cities, facilities for rendering such service are not as yet fully adequate and remain to be developed when trained personnel can be found for the district staffs.

Keeping the medical profession informed as to modern and generally accepted methods for the diagnosis and treatment of syphilis is a proper and necessary health department function. This phase of the New York State program has lagged behind other activities, but informative material for physicians is now in preparation. This material includes a short reference pamphlet describing briefly the continuous method of treatment and giving criteria for the release of patients as arrested or cured. It is also planned to offer without charge to each physician in the state a subscription to the United States Public Health Service *Venereal Disease Information*. In cooperation with the public health committee of the state medical society, county medical societies are to be asked to hold special meetings on syphilis for which speakers and motion pictures will be supplied if desired.

#### AID TO CITIES WITH APPROVED CONTROL PROGRAMS

A special morbidity survey made in April 1935 revealed the fact that of 18,960 syphilis cases under treatment in New York State outside of New York City 8,859, or 46.7 per cent, were being cared for at clinics. This proportion was an increase of 16.8 per cent since a similar survey in 1930. These figures show the importance of the public clinic and the necessity of insuring their effective operation from the standpoints of diagnosis, treatment, follow up and investigation of sources and contacts.

The New York State Department of Health has established a system of granting aid to cities in which health officials agree to carry on approved syphilis control programs. The standards to be maintained if approval is granted cover other features of the program such as record keeping and case investigation in addition to clinic service. Standards for approved clinics, however, contain specific reference to such matters as room space and lighting, equipment, waiting room, and clinic hours. They also provide that a physician shall be in attendance throughout each clinic session, that the plan of treatment shall be continuous, and that each new patient shall have a complete examination. Whenever practicable, a spinal fluid examination is to be performed before the patient is discharged as arrested or cured. Facilities for the follow up of delinquent patients and for the examination of contacts must be provided.

Financial aid from Social Security funds is now being given to fourteen cities in which health officials

have agreed to carry on approved syphilis control programs, and similar assistance is being given to a village and the surrounding territory of a densely populated area. Negotiations are under way for offering aid to at least five other cities which, if successfully completed, will bring about a situation whereby every city in the state of more than 40,000 population is receiving assistance from Social Security funds.

Because of the failure of enabling legislation, we are not in a position to make grants in aid to cities directly. Assistance is rendered by employing full-time state or part-time medical or nursing personnel and assigning persons so employed to work under the direction of city health officers; also equipment and supplies are purchased by the state for municipal use. Although matching by new appropriations has not been strictly required, such appropriations have been encouraged and the maintenance of city appropriations for venereal disease work at their present level has been insisted on.

Municipal syphilis control programs are supervised by the department's central office, by district state health officers and by part-time medical consultants. There are two physicians on the central office staff both trained in syphilis clinically and both graduates of a school of public health. These physicians have visited all cities where aid has been granted or contemplated and, with the assistance of a consultant nurse, have taken steps toward the organization of local programs. Each medical consultant visits regularly the clinics in the territory he serves and advises clinic physicians to general methods of therapy as well as the treatment of individuals. District state health officers have supervision of public health activities, including syphilis control in the areas in which they serve.

#### CASE INVESTIGATION AND FOLLOW UP

Original plans for the New York State syphilis control program called for the investigation of each early and potentially infectious case. The term "potentially infectious" was defined as including the following types of cases regardless of the presence or absence of visible lesions:

1. All patients with acquired syphilis who have received less than twenty injections each of an arsphenamine and a heavy metal, or equivalent treatment, until five years has elapsed since onset.
2. All female patients with acquired syphilis who have received less than twenty injections each of an arsphenamine and a heavy metal, or equivalent treatment, until the menopause has been reached.
3. All patients with early congenital syphilis or showing open lesions.

So many syphilis cases, in large cities literally thousands, fell into this classification that it was not practical to require the examination of all contacts or to attempt to find all sources of infection. Efforts have been made to determine the source of infection of each early case in certain cities and to locate and to have examined contacts both prior and subsequent to infection.

Case investigations of this kind have been found to be time consuming, laborious and often disappointing, particularly in large cities. We have not been able to duplicate in cities the success of Brumfield<sup>2</sup> and others in finding sources in rural or semirural areas. Special efforts have been made to find the source of infection

2. Brumfield, W. A., Jr., and Smith, D. C.: Transmission Sequence of Syphilis, *Am. J. Pub. Health* 24: 576 (June) 1934.

the patient's willingness to take it. Predominantly the reduction of disease spread from infected individuals depends on control by force or persuasion. As the former is seldom possible, the field narrows to just what a medical mind can do with the mind of the infected patient.

Faced with such a clinical problem, we would do well to analyze our front-line trenches to see what the outlook is and what can be done to better it. For, in the final analysis, we are embarked on a campaign of selling good conduct to the patient and keeping it sold, until he no longer has the disease. No industrial concern would pour money into a nation-wide selling campaign without a most careful study of the need for the product, the men who were to sell it and the incentive that could be given them for the selling. We would do well to profit by their experiences.

What is the character of our market, as the industrialist would say? Well, it largely is a cross-cut of pleasure-loving American youth and it rather sharply divides itself into three groups.

Group 1 comprises those conscientious individuals who deplore the plight in which they find themselves and carry out every medical instruction to the letter.

Group 2 is composed of those who are by nature so shiftless that they do as they please.

Group 3 is by far the largest one and is composed of many individuals with group 2 tendencies and an overwhelming proportion of human beings who can be encouraged to follow the light if some one takes pains to show them the light.

About group 1 physicians need have little anxiety so far as disease cure and transference are concerned. We cannot view group 2 with so much complacency; they are active disease spreaders and, if they cannot be persuaded to join group 3, they should be denied human contacts until cured. Group 3 is our real campaign challenge and on just what happens to it hangs the success or failure of all our efforts.

For certain reasons inherent in human beings, the management of gonorrhea in dispensary practice differs widely from that of the usual private medical office. We may talk as we wish about "all men being created free and equal," but no one knows better than the physician who treats patients afflicted with gonorrhea that they are not all similarly endowed with those qualities which make them good patients. It is just this difference that makes the mass treatment of gonorrhea, as such treatment usually is carried out, one of the most discouraging of clinical efforts. It is the combination of this difference and the existing social attitude toward gonorrhea that make its dispensary treatment one of the most thankless and least inspiring of all medical experiences.

In our consideration of the therapeutic attack on this disease we largely have developed the habit of thinking most of the things we lack. Because a few treatments of one type or another do not render the patient incapable of transferring the disease to others, as is the case with syphilis, we have developed somewhat of a defeatist attitude toward the problem of its incidence reduction. Often we have expended much of our effort in phases of the subject which, though interesting and valuable, do not encompass the fields wherein success or failure lies.

We have done much in fact finding and have compiled an array of figures that show, in a measure, to what an appalling extent the disease infects our population. We have indulged in less general propaganda

of an educational sort, but, even here, we have been by no means idle, despite public lethargy. We have studied the disease from many angles until today our knowledge of it and its vagaries is far greater than is the case with many other diseases. But in the domain of treatment we almost ceaselessly have argued about little things; often we have been in error, at times ridiculously so. Usually we have been so because we did not make use of our knowledge of the disease itself but followed the lure of the easy and the immediate for a disease that refused to lend itself to either.

I have spent many years in close contact with the gonorrheal patient and his mentality in both private and dispensary practice and I am not so doubtful about what usually can be done with him from the standpoints of disease cure and conduct control as I am about finding those who conscientiously will try to do it. In this view I am not giving criticism to the medical profession or to those high-minded individuals who aid it in one way or another. I criticize a social attitude that could be so blind in the face of so great a menace as to offer less than no incentive for either. For, other than the personal knowledge that one is of service to mankind, there is no incentive. Aside from the general social attitude there usually is an unhealthy hospital attitude toward the work, the quarters are inadequate and poorly equipped and, no matter how carefully and conscientiously the work is carried out, no one seems to care. It is gloriously to the credit of the workers that they worked at all.

With but a pathetically small number of dispensaries where gonorrhea is treated, there is no waiting list of doctor applicants. It is not a question of whom they will let treat gonorrhea but whom can they get to do it. Usually they limp along with from one half to one third of the physicians that would be needed if any real effort were to be made toward patient cooperation. One of the most outstanding facts in gonorrhea control and cure is that it depends greatly on the nature of the doctor and patient contact. And, unless a way is found to arouse medical interest and add incentive for the doing of tedious, tiresome things there is little hope of a full measure of success.

With proper interest and incentive there is little need for much of the present skepticism regarding the possibility of making great strides toward disease reduction even among the class of patients that is encountered in dispensary practice. Nor is there such great reason to feel that dispensary treatment results cannot be made more nearly to approach those obtainable in private practice. One only has to study the results of Purcell and his co-workers<sup>1</sup> in the Salford Municipal Clinic to see that there is no real need for such a wide variation. As an exhibition of efficient dispensary teamwork I recommend the perusal of their report.

At no time has there been a greater general medical interest in gonorrhea than exists today. To a large extent the treatment atrocities that often did so much to promote the occurrence of complications have been eliminated from general usage. We need not here concern ourselves about just what particular plan of treatment should be used. Our chief concern is to find a way in which our dispensaries can be manned and properly equipped. We should realize that the day of long dispensary apprenticeships has passed and, deplore it as we may, men cannot and usually will not give the needed clinical service without some compensation.

1. Reported in the *British Journal of Venereal Diseases* 7: 151, 1931.

efforts. Every opportunity should be taken to convey to the people the facts as to plans and progress of the fight against syphilis. Conferences, lectures, motion pictures, press, the radio, exhibits, pamphlets and posters are useful and can be employed with satisfactory results provided reasonable skill and discrimination guide our efforts. Special attention should be given to the instruction of persons already infected; no educational work is more productive of good results. Instruction of doctors, nurses and social workers is of great importance. The department of health should take the initiative in providing postgraduate instruction for these groups in order that they may serve more satisfactorily in their respective spheres. Information regarding prophylaxis, chemical and mechanical, undoubtedly has a place in the educational program, but beyond that I am not prepared to go further than to suggest that physicians should be encouraged to administer prophylaxis and to advise regarding it. The fact that prophylaxis was an important element in the successful efforts of the United States Army and Navy to combat syphilis and gonorrhea leads me to believe that this subject should be investigated further with an open mind as to its place in a city program.

#### CASE FINDING

Case finding activities are of two general kinds: those associated with diagnosis and those associated with epidemiology. The health department should not only discover cases of syphilis and gonococcal infections through its own official services but should give every possible aid to physicians and institutions in case finding activities. These aids should include free, prompt and easily usable laboratory services, diagnostic consultation services and epidemiologic services. The service of the serologic laboratory of the city should be available free of charge to any doctor, hospital or clinic that cares to send a specimen of blood. The supply of containers and the collection of specimens should be convenient and the reporting of tests prompt. Furthermore, the health department should conduct diagnostic centers conveniently distributed throughout the city to which patients may be sent by physicians for darkfield, spinal fluid or other examination and for expert advice regarding diagnosis. Such centers should also receive for diagnosis all who come for advice or examination regardless of economic status, and these services should be advertised to the general public. In such diagnostic centers should be kept the names of physicians willing to accept patients who can pay a fee and such patients should be referred impartially to these private physicians. The department of health should promote and encourage diagnostic case finding procedures, such, for example, as routine blood tests in all hospitals, in all clinics, in private practice and in all sorts of groups where such procedures can be properly carried out. It goes without saying that every pregnant woman should be examined and tested for syphilis.

Epidemiologic case finding procedures, although the special duty of the health authority, should not be limited to health department services. Private physicians, hospitals and clinics should be encouraged to search out sources of infection and other contacts and bring them under appropriate control. But when a private physician, hospital or clinic requires the assistance of the health department in controlling sources of infection or contacts, the health authority must be ready in every such case to act promptly. In addition, the health authorities should be prepared to take the initia-

tive in certain cases. Thus where the health department operates clinics, the health authority must bear full responsibility for epidemiology. Also cases of early syphilis reported to the health department should at once raise the question as to the source of infection, and appropriate investigations should be made. In epidemiologic work, special attention should be given to early syphilis because the infection is recent, syphilis in pregnancy because the source of infection is often the husband, and congenital syphilis because the source of infection is the mother. With trained personnel, about 25 per cent of the source of infection of cases of early syphilis coming under clinic care can be found and brought under control.

#### TREATMENT

The solution of the problem of providing treatment for the many neglected cases of syphilis is not to be found in the establishment by the department of health of more and more and larger and larger health department clinics but rather in cooperation with private practitioners and voluntary hospitals and clinics. The department of health in its efforts to see that ample facilities for treatment exist should go as far as possible in aiding private physicians to care for patients having this disease. This aid should include (a) free drugs, regardless of the economic status of the patient, (b) free consultation regarding therapy and (c) the services of public health nurses in the follow up of lapsed cases and restoring them to treatment. Such aids result in many cases remaining under private medical care rather than adding to the burden of the taxpayers.

Clinics and the department of health itself should have lists of physicians who are willing to receive cases referred to them for treatment from the clinics to which they have come for advice. Local medical societies will provide such lists of physicians. Many physicians will accept cases of syphilis for very small fees if the drugs are supplied. But no infectious case of syphilis regardless of economic status should be refused treatment by the department of health.

The department of health should also aid approved voluntary hospital clinics in giving free care to patients. This may be done by providing drugs and follow up service for such clinics.

By aiding private physicians and voluntary hospital clinics to care for a larger number of patients, the department of health lightens its load, but, what is more important, it multiplies many times the facilities for treatment and makes these facilities available in every part of the city. Furthermore, such practical aids gain the cooperation of physicians and clinics in case finding and control activities.

When the facilities for treatment provided by private physicians and hospital clinics are not sufficient to meet the needs of a city (and that is the situation practically everywhere in this country at this time), the department of health must operate clinics. These clinics should maintain high medical standards and should be the centers for educational, advisory, diagnostic and epidemiologic work as well as for treatment. They should be carefully planned to meet the known needs for evening as well as day sessions, be conveniently located, and, of course, be absolutely free. The medical profession of the city should be consulted regarding the need for, the location of and services of health department clinics.

The city should provide ample hospital facilities for the care of all cases of syphilis and gonorrhea requiring



board, by resolution, created the Division of Venereal Diseases, and this medical officer was elected to the position of chief of the division, subject to approval of the surgeon general of the army.

The venereal disease control regulations were subsequently amended, and syphilis and gonorrhea were declared to be infectious, contagious or communicable in nature, and written report was required within forty-eight hours after diagnosis. Through a cooperative agreement with the state board of administration, camps for both men and women were developed at Lansing, where quarantine of infectious cases was not only instituted but also treatment given.

Thus the venereal disease control program developed in our state. In the summer of 1918 there was a general educational program conducted by the State Council of National Defense and the State Board of Health. Visits were made to all cities of more than five thousand population and governing bodies were requested to enact venereal disease control ordinances. As a result, with the exception of two cities, ordinances were adopted by the remaining cities of over ten thousand population.

The first venereal disease clinic was established at Rosedale on July 1, 1918, and the second four days later at Leavenworth. The state laboratory was established at Rosedale in November 1918, in cooperation with the University of Kansas School of Medicine, and serologic and bacteriologic examinations were made for syphilis and gonorrhea, without charge to the physicians.

The Kansas Medical Society at the annual meeting in May 1919 unanimously adopted a resolution endorsing the venereal disease control program, which at that time included (1) free laboratory examinations for syphilis and gonorrhea, (2) distribution of neoarsphenamine for the treatment of indigent cases of syphilis, and (3) distribution to physicians of a manual on the treatment of venereal disease.

In the meantime the validity of the venereal disease control program had been attacked. The Topeka police in a raid had apprehended a number of men and, on examination by the city health officer, several were found to be infected with gonorrhea. Orders were issued to the chief of police by the city health officer to transfer three of the men to "the state penitentiary at Lansing, Kansas, as the place and limit of the area" in which they were to be isolated. However, the infected men employed an attorney and original proceedings in habeas corpus were filed in district court. The writ was denied and then the case was carried to the supreme court of the state, which upheld the validity of the state regulations and city ordinance. The court did state that the term "state penitentiary" should be amended by employing the official designation, "The State Quarantine Camp for Men, at Lansing."

It is desired to refer briefly to one section of the supreme court decision, as follows: "The rules of the state board of health and the city ordinance are assailed as unreasonable. In this instance only those provisions of the rules of the state board of health and of the city ordinance are involved which relate to isolation of persons who have been examined and have been found to be diseased. Reasonableness of provisions relating to discovery and to examination of suspects need not be determined. It may be observed, however, that while provisions of the latter class cut deeply into private personal right, the subject is one respecting which a

mincing policy is not to be tolerated. It affects the public health so intimately and so insidiously that considerations of delicacy and privacy may not be permitted to thwart measures necessary to avert the public peril. Only those invasions of personal privacy are unlawful which are unreasonable, and reasonableness is always relative to gravity of the occasion. Opportunity for abuse of power is no greater than in other fields of governmental activity, and misconduct in the execution of official authority is not to be presumed."

During the life of the Chamberlain-Kahn act, it is believed that Kansas had a venereal disease control program comparable with those in other states, at least of corresponding population. Adequate treatment facilities were available to the indigent population through the services of practicing physicians and the operation of eleven clinics located in the larger cities. Not only was the program coordinated with medical services for the indigent but there was an excellent educational and enforcement program. There was unusual cooperation by the physicians in the reporting of cases.

In 1920, in addition to the director, a social investigator and educational director were employed. In the following year, owing to a reduction in the budget, all aid to clinics was discontinued except supplying free neoarsphenamine. Because of lack of funds to pay his salary, the director resigned effective July 1, 1923, and direction of the work was assumed by the secretary. One year later, and with a further reduction in the budget, it was necessary to dispense with the services of the educational director and the work was then limited to the work of the social investigator and the distribution of pamphlets and posters, slides, moving pictures and free neoarsphenamine. The investigator resigned in 1925.

In the course of time the moving picture films became worn and it was necessary to discard them. Distribution of pamphlets has been continued as the result of the cooperation of the United States Public Health Service in permitting the reprinting of these publications by the Kansas state printer. Distribution of free neoarsphenamine was also continued until 1933, through funds appropriated to the Public Health Laboratory.

Owing to a lack of funds and also the opposition to free treatment, the number of clinics gradually decreased. Since 1930, clinics have operated in only the three large cities; namely, Kansas City, Wichita and Topeka.

In 1927, in cooperation with the United States Public Health Service, a study of venereal disease prevalence was made in twenty-two Kansas counties. Information was requested only as to the total number of cases under treatment or observation on June 1 of that year. The population in the twenty-two counties totaled 617,972 persons. In all, 742 physicians were requested to cooperate. When the data were tabulated it was learned that only 42 per cent of physicians had cases under treatment and that 10 per cent did not treat syphilis or gonorrhea. In all, the 742 physicians reported 1,860 cases of gonorrhea and 1,275 cases of syphilis under observation or treatment on the specified day.

Further reductions were made in the state health department appropriations by the 1933 legislature. It was then necessary to limit the activities of the public health laboratory and at the annual meeting that year a regulation was adopted requiring applicants for a

progresses dangerously. Recently White<sup>5</sup> reported that, among 1,249 hypertensive cases, auricular fibrillation occurred in 171 (13.7 per cent), being paroxysmal in fifty-five.

The material in this study is based on the analysis of 158 cases of hypertensive heart disease with established

heart disease, since it occurred with equal frequency in all groups of living and deceased patients.

The time of onset of the fibrillation was obtained from the patients by careful questioning, as the arrhythmia was present in the majority of patients when each was first examined. It was not difficult to determine from the stories of these patients whether the auricular fibrillation preceded the onset of the symptoms and signs of congestive heart failure or whether it occurred after the congestive failure had been present for some time. The arrhythmia preceded the onset of the symptoms of cardiac failure in forty-four (27.8 per cent) of the 158 cases.

The patients in whom the arrhythmia appeared previous to the onset of cardiac symptoms came for treatment early, as none were seen later than four months after the appearance of the arrhythmia (table 3). In the remainder of the patients the auricular fibrillation occurred within one month to many years after the symptoms of cardiac failure were first noted. The course of the disease was not greatly influenced by the

auricular fibrillation. This was 25.3 per cent of 623 cases of hypertensive heart disease previously studied.<sup>6</sup> Forty-four (23 per cent) of the 191 patients with hypertensive heart disease who died had auricular fibrillation. The incidence of this arrhythmia was approxi-

TABLE 2.—Percentage of Age Groups at Death

Ages	White				Colored			
	Male	Female	Total	%	Male	Female	Total	%
31-40	0	1	1	2.7	0	1	1	12.5
41-50	4	1	5	13.9	2	0	2	25.0
51-60	20	5	25	69.5	4	1	5	62.5
61-70	4	1	5	13.9	0	0	0	0.0
Totals	28	8	36	100.0	6	2	8	100.0

TABLE 3.—Relation of Auricular Fibrillation to Congestive Heart Failure

Duration	Duration of Congestive Failure Before Occurrence of Auricular Fibrillation								Duration of Auricular Fibrillation Before Occurrence of Congestive Failure							
	White				Colored				White				Colored			
	Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%
1 week.....	..	..	..	....	..	..	..	....	10	1	11	27.5	..	..	..	....
2 weeks.....	..	..	..	....	..	..	..	....	7	1	8	20.0	1	1	2	100
3 weeks.....	..	..	..	....	..	..	..	....	5	1	6	15.0	..	..	..	....
1 month.....	4	0	4	4.1	..	..	..	....	6	3	9	22.5	1	0	1	25.0
2 months.....	8	1	9	9.1	..	..	..	....	1	1	2	5.0	1	0	1	25.0
3 months.....	0	0	0	0.0	..	..	..	....	3	0	3	7.5	..	..	..	....
4 months.....	3	4	7	7.1	0	1	1	7.1	1	0	1	2.5	..	..	..	....
6 months.....	5	4	9	9.1	..	..	..	....	..	..	..	....	..	..	..	....
9 months.....	2	1	3	3.0	..	..	..	....	..	..	..	....	..	..	..	....
1 year.....	18	4	22	22.2	5	0	5	35.8	..	..	..	....	..	..	..	....
2 years.....	14	7	21	21.2	2	0	2	14.3	..	..	..	....	..	..	..	....
3 years.....	7	1	8	8.1	..	..	..	....	..	..	..	....	..	..	..	....
4 years.....	7	1	8	8.1	..	..	..	....	..	..	..	....	..	..	..	....
5 years.....	3	0	3	3.0	2	0	2	14.3	..	..	..	....	..	..	..	....
6 years.....	0	0	0	0.0	2	0	2	14.3	..	..	..	....	..	..	..	....
7 years.....	1	2	3	3.0	0	1	1	7.1	..	..	..	....	..	..	..	....
8 years.....	1	0	1	1.0	0	1	1	7.1	..	..	..	....	..	..	..	....
10 years.....	1	0	1	1.0	..	..	..	....	..	..	..	....	..	..	..	....
Totals.....	74	25	99	100.0	11	3	14	100.0	33	7	40	100.0	3	1	4	100.0

mately the same in the deceased and in the living patients. There were 336 white males, of whom 106 (31.5 per cent) had auricular fibrillation, and of the ninety-nine who died twenty-eight (28.2 per cent) had the arrhythmia. There were ninety-four white females, of whom thirty-three (35.1 per cent) had auricular fibrillation, and of twenty-two who died, eight (36.1 per cent) had the irregularity. Of the total number of white patients with hypertensive heart disease 32.3 per cent had auricular fibrillation and of the total deceased white patients 32.2 per cent had the arrhythmia. In the colored patients the percentage of cases in each sex, although much less, indicated the same relationship. There were 144 colored males, of whom fifteen (10.4 per cent) had auricular fibrillation, and of fifty-three who died, six (11.3 per cent) had the arrhythmia. Of forty-nine colored females four (8.1 per cent) had auricular fibrillation and of seventeen who died two (11.8 per cent) had the irregularity. The incidence of auricular fibrillation in the total colored patients was 9.8 per cent and in the total deceased colored patients 11.4 per cent. These details indicate that auricular fibrillation was not a late manifestation of hypertensive

arrhythmia when it followed the appearance of the congestive failure. It supervened in 75.8 per cent of the cases within two years after the onset of cardiac manifestations, and in the remaining 24.2 per cent it appeared from three to ten years after the onset of symptoms.

TABLE 4.—Duration of Life After Onset of Auricular Fibrillation

Duration	White				Colored			
	Male	Female	Total	%	Male	Female	Total	%
1 week	2	0	2	5.7	..	..	..	....
2 weeks	2	0	2	5.7	..	..	..	....
3 weeks	0	1	1	2.8	..	..	..	....
1 month	3	0	3	8.6	1	0	1	12.5
2 months	2	0	2	5.7	1	0	1	12.5
3 months	0	1	1	2.8	..	..	..	....
4 months	2	1	3	8.6	0	1	1	12.5
6 months	1	0	1	2.8	..	..	..	....
9 months	1	0	1	2.8	..	..	..	....
1 year	5	1	6	17.3	4	0	4	50.0
2 years	4	3	7	20.1	..	..	..	....
3 years	4	0	4	11.4	..	..	..	....
6 years	0	1	1	2.8	..	..	..	....
7 years	..	..	..	...	0	1	1	12.5
Totals	27	8	35	100.0	6	2	8	100.0

Its relationship to congestive heart failure was clearly demonstrated in the patients in whom the fibrillation preceded the onset of cardiac symptoms. Eight of the nine deaths that occurred within one month after the onset of the fibrillation were in patients in whom the

5. White, P. D.: A Note on the Common Occurrence of Serious Involvement of the Heart in Hyperpiesia, *New England J. Med.* 214: 719 (April 9) 1936.  
6. Flaxman, Nathan: The Course of Hypertensive Heart Disease: I. Age of Onset, Development of Cardiac Insufficiency, Duration of Life, and Cause of Death, *Ann. Int. Med.* 10: 748 (Dec.) 1936.

There is a renewed interest in the problem of syphilis and gonorrhea, not only among professional groups but among lay groups.

Within the past month each of the two newspapers in Topeka printed articles in regard to venereal disease, as compared with the previous custom of referring to them as "social diseases."

It is hoped that additional treatment facilities may be provided through the development of full-time county or district health departments. There are certain areas in the state where it is considered that this would be especially advantageous.

There is nothing spectacular in the Kansas program. Allotment of funds by the Public Health Service has made the program possible. The Kansas State Board of Health and the physicians of Kansas wish to show their appreciation of this service by conducting an efficient, intelligent program to the end that syphilis and gonorrhea may be brought under control.

State House.

## THE NEW YORK STATE PROGRAM FOR SYPHILIS CONTROL

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The essential features of the New York State syphilis control program were described by Parran<sup>1</sup> in a paper published in *Venereal Disease Information* over a year ago. This paper called attention to an increased appropriation by the 1935 legislature for syphilis control and certain other services and outlined New York's district plan of health organization of which venereal disease activities were to be a part. The 1936 legislature further increased the department's appropriation and, in addition to state funds, federal grants under the Social Security Act became available. It is my privilege to review the development of the syphilis program made possible by these funds and to report on progress made since Parran's paper.

### CASE REPORTING

It was announced on Jan. 1, 1936, that reports of laboratory examinations for syphilis would no longer be accepted as case reports. Reasons for making this change included recognition of the fact that a positive laboratory report is not of itself a diagnosis in any disease, and a desire to build up accurate morbidity registers reasonably free from duplicates. It was found impossible to enforce the new card reporting requirement throughout the state strictly until the first of September. Since that date a card report has been obtained for each syphilis case whether coming to the knowledge of the health department as the result of a laboratory examination or from some other source.<sup>2</sup> During September, October and November, reports for 3,925 cases were received as compared with 5,760 so-called reports during the preceding three months, when laboratory reports were still accepted from certain localities.

Following the passage of appropriate legislation, syphilis cases in places of less than 50,000 population not served by full-time health officers and in state

institutions were made reportable directly to the district state health officer rather than to the local health officer. This change was made because of the lack of proper facilities for handling records and dealing with other aspects of syphilis control in most communities served by part-time local health officers, and to safeguard the confidential nature of such records.

The new method of transmitting reports has been in effect since June and has been well received by the medical profession. A syphilis register has been established in each of the seventeen district offices. These offices now receive copies of positive reports from laboratories serving their respective jurisdictions. Such reports are checked against the register for duplicates, and card reports are obtained for all new cases. Similar procedures are in force in areas served by full-time officers, so that the state is covered by the morbidity reporting system.

The report card used is simple and calls for a very limited amount of information needed to identify and locate the case. Reporting by initials and date of birth is allowed if the physician does not wish to reveal the patient's name. The physician is asked to distinguish between congenital and acquired syphilis and to state whether the case is early or late. Similar distinctions between congenital and acquired and early and late cases have been made in Massachusetts for several years, but in spite of their obvious public health importance most states, including New York, have not required that they be made in morbidity reports. From January through October, reports were received of 15,104 syphilis cases, of which 1,852, or 12 per cent, were early acquired cases.

### SERVICES TO PHYSICIANS

Efforts to control syphilis are perhaps more closely related to diagnosis and treatment than is true of any other communicable disease. It is also true that, unlike most sufferers from tuberculosis, the syphilis patient is not sent to an institution but remains under the care of his physician or is treated at a clinic. For these reasons, assisting the physician as much as possible in the diagnosis and treatment of his syphilis cases is of outstanding importance.

New York is fortunate in having an excellent laboratory system, developed over a long period of years and with laboratories fairly accessible to physicians throughout the state. Besides the state laboratory in Albany and its branch in New York City, there are seventy laboratories in the state approved by the state department of health for serologic and other examinations of specimens for syphilis. These laboratories are all supported wholly or partially from public funds and render service without charge. During 1935 they examined more than 700,000 specimens for the diagnosis of syphilis or control of its treatment.

Further assistance is given the physician by supplying him with drugs for the treatment of syphilis cases. Since Jan. 1, 1936, arsenic and bismuth preparations have been distributed free to physicians and clinics through already established laboratory supply stations. As has long been true of biologic products, the physician may obtain drugs for the treatment of syphilis from his nearest supply station without charge, without reference to the financial condition of the patient, and without being asked questions of any sort. Sufficient quantities of arsenic and bismuth preparations for

Read before the Conference on Venereal Disease Control Work, Washington, D. C., Dec. 28, 1936.

1. Parran, Thomas, Jr.: Syphilis Control in New York State, *Ven. Dis. Inform.* 16: 303 (Sept.) 1935.

2. For experimental purposes the system of accepting laboratory reports is being continued in Rochester, N. Y.

mur was heard throughout the precordium. The thyroid was slightly palpable and the lower extremities showed pitting edema. The clinical impression at this time was obesity, cardiac hypertrophy, early congestive heart failure and hypertension.

A telerontgenogram showed the left cardiac border enlarged to within 1 inch (2.5 cm.) of the lateral chest wall. The aorta showed moderate dilatation. An electrocardiogram (fig. 1) taken January 25 revealed an intraventricular block and alternation in form and amplitude of the QRS complex in derivations 1 and 3. Unfortunately an arteriogram was not recorded at this time to rule out pulsus alternans. An electrocardiogram taken two weeks later showed complete absence of electrical alternans, and the arteriogram at that time showed no pulsus alternans. The existence of isolated electrical alternans is not at all impossible in this case. The red blood count was 3,800,000, the white count 7,200, with 60 per cent polymorphonuclears, 38 per cent lymphocytes and 2 per cent monocytes. A voided urine specimen showed a specific gravity of 1.012, acid reaction, many granular casts and red corpuscles. Drugs given were digitalis and nitrites. Blood pressure February 17 was 185 systolic, 85 diastolic. The patient was advised to rest and follow a light diet. She was discharged the next day and has not been located since.

CASE 2.—Miss M. D., a white woman, aged 39, who was seen for the first time Jan. 12, 1931, had had rheumatic fever at the age of 12 years, which left her with a mitral stenosis and insufficiency and an aortic stenosis and insufficiency. Since that time she has had repeated attacks of heart failure. The family and personal histories were irrelevant. On auscultation the first heart sound was faint and was followed by a loud murmur heard at the base and apex. The aortic second sound was replaced by a blowing murmur, which was transmitted down the left sternal border. Fluoroscopic examination showed extension of the cardiac borders to the right and left. An electrocardiogram (fig. 2) taken January 13 showed myocardial damage and a left axis deviation. An arteriogram showed pulsus alternans. At that time the presence of a transient alternans of  $S_2$  was

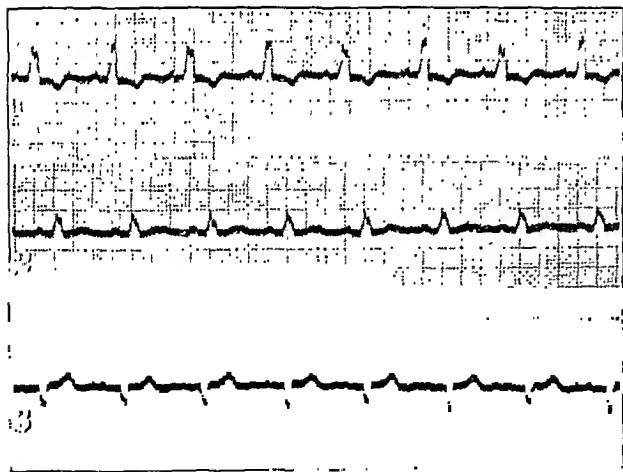


Fig. 1 (case 1).—Record taken Jan. 25, 1935, shows electrical alternation involving  $R_1$  and  $S_2$ . The depressed  $ST_1$ , elevated  $ST_2$ , and the abnormally wide QRS, which is notched in all derivations, indicate the presence of intraventricular block.

not noticed but was later discovered when we were "alternans conscious." Treatment consisted of limited activity and digitalis.

The patient carried on for three years doing light work as a stenographer, but she was finally forced to give this up and go to bed, because of a decompensated heart. She was then in bed for two years, taking  $1\frac{1}{2}$  grains (0.1 Gm.) of digitalis daily. Sept. 1, 1936, the patient was visited at her home for further study. There was no change in her physical condition. A composite record (fig. 3) taken at this time showed no pulsus alternans. The electrocardiogram showed auricular fibrillation and slurring of  $R_2$  and  $S_2$ . In three separate portions of derivation 2 there was transient alternation of the R wave related to

inhalation.  $S_2$  showed alternation in amplitude for several successive cycles. A phonocardiogram showed no alternating phenomena. When last seen, September 1, the patient was bedridden and taking  $1\frac{1}{2}$  grains of digitalis daily.

#### LITERATURE

Green<sup>5</sup> produced ventricular alternation in the dog by periodically reducing the flow of blood to the region of the left ventricle supplied by the ramus descendens anterior. He found that "the region of impaired blood

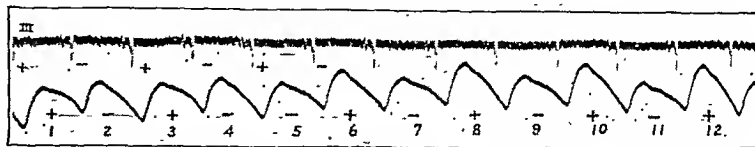


Fig. 2 (case 2).—Record taken Jan. 13, 1931, shows transient alternation of  $S_2$  in conjunction with persistent pulsus alternans (brachial). The fourth and fifth waves of the arteriogram are about equal in amplitude, thus breaking at that point the exact alternation of the rhythm and ending the electrical alternans. The plus and minus signs denote the large and small waves respectively.

supply may merely contract less efficiently during the smaller beat or it may fail to contract at all; whereas in the larger beat it may contract normally or it may be depressed, but not to as great an extent as in the small beat." No electrical phenomena were reported in these experiments. Chini and Stefanutti,<sup>6</sup> Chini,<sup>7</sup> Condorelli<sup>8</sup> and Formenti<sup>9</sup> have also described the relationship between reduced myocardial nutrition and cardiac alternation. Carter and Faulkner<sup>10</sup> suspended terrapin hearts and by means of regularly spaced induction shocks showed distinct evidence of alternation in the transmission intervals of the ventricles which, according to them, depended on the degree of mechanical alternation.

Fischer,<sup>11</sup> describing a case of pulsus alternans in partial branch block, says that in the transition from a form of bundle branch block to a normal electrocardiogram the patient passed through a period of bundle branch block with a conduction relation of two to one (2:1); i. e., a regular alternation of a normal wave of left axis deviation with one of a following contraction of the type of right sided bundle branch block. A case similar to our first is reported by Castex and Ramirez.<sup>12</sup> There are several other foreign reports on electrical alternation.<sup>13</sup> There are few American publications on this subject.

5. Green, H. D.: Nature of Ventricular Alternation Resulting from Reduced Coronary Blood Flow, *Am. J. Physiol.* 114: 407-413 (Jan.) 1936.

6. Chini, V., and Stefanutti, P.: Clinical and Experimental Studies on Alternation of the Heart, Relation to Azotemia, *Cuore e circolazione* 18: 443-470 (Aug.) 1934.

7. Chini, V.: Relations Between Alternation of Cardiac Action and Changes in Coronary Circulation, *Klin. Wchnschr.* 14: 1208-1209 (Aug. 24) 1935.

8. Condorelli, Luigi: Die Erhaltung des Herzens, Leipzig, Theodor Steinkopff, 1932.

9. Formenti, A. M.: Various Relations Between Mechanical and Electrical Phenomena in Alternation of Heart, *Cuore e circolazione* 16: 509-518 (Oct.) 1932.

10. Carter, E. P., and Faulkner, J. M.: Changes in Conduction in the Presence of Alternation in the Heart, *Bull. Johns Hopkins Hosp.* 42: 245 (May) 1928.

11. Fischer, R.: Pulsus Alternans in Partial Branch Block, *Klin. Wchnschr.* 12: 1901-1903 (Dec. 9) 1933.

12. Castex, M. R., and Ramirez, R. L.: Ventricular Electrical Alternation by Bundle Branch Block; Case, *Rev. argent. de cardiol.* 1: 55-62 (March-April) 1934.

13. Condorelli, L.: Clinical and Experimental Research on Electrical Alternation, *Arch. di. pat. e clin. med.* 8: 428-452 (April) 1929. Laury, C., and Poumailloux, M.: Electrical Alternation, *Arch. d. mal. du coeur.* 23: 456-472 (July) 1930. Padilla, T., and Cossio, P. Jr.: Ventricular Electrical Alternation: Two Cases, *Rev. Soc. de med. int. y Soc. de Electrocardiol.* 7: 129-144 (March-May) 1931. Pescador, L.: Electrical Alternation of Heart, *Arch. de med. cir. y especialid.* 35: 81-87 (Jan. 30) 1932. Lian, C.; Odinet, G., and Odinet, J.: In Relation to Electrocardiographic Alternation and Electrical Ventricular Balancing, *Arch. d. cardiographie Alternation and Electrical Ventricular Balancing, Arch. d. mal. du coeur* 25: 137-147 (March) 1932. Svab, V.: Regular Alternation of Ventricular Complexes in Normal Rhythm, *Roc. Ceskoslov Kardiol. Spol.* 1924, pp. 126-131.

of each early syphilis case in Buffalo, but only 17.5 per cent of such sources have actually been located and placed under treatment.

These Buffalo results have been cited not for the purpose of discouraging the investigation of early cases but to call attention to the magnitude of the problem and the necessity for a larger and better trained personnel before such investigations can be thoroughly carried out. Even though not complete in many instances, however, such investigations have been found to be a productive case finding procedure. Of the 237 contacts of early cases in Buffalo who were located and examined, 109, or 46 per cent, were found to have syphilis, and seventy-nine, or 33 per cent, of these individuals were suffering from the disease in an early infectious stage.

#### PUBLIC HEALTH EDUCATION

The theme of the department's lay educational activities during the past year and a half has been teaching the public that syphilis is a communicable disease, leaving the teaching of sex education to other agencies better equipped to handle it. Pamphlet distribution, exhibit material, lectures and methods similar to those employed in the past have been used. An increasing willingness on the part of the press to use the word "syphilis" and to discuss the disease frankly has been gratifying.

A series of institutes on syphilis control for laymen has been of special interest. Seven such meetings have been held during 1936 in large cities. Each institute has been sponsored by the local county medical society and by various lay organizations, such as the chamber of commerce and women's clubs. Invaluable service in organizing and carrying on institutes has been given by the State Committee on Tuberculosis and Public Health of the State Charities Aid Association. Luncheon, afternoon and evening sessions have been held at which the clinical and public health aspects of syphilis have been discussed together with the cost of the disease to the community. Out-of-state speakers have given addresses at several of the meetings. The response of the public to syphilis institutes has been surprising and entirely favorable. Audiences have been representative, large and interested. The institute method is believed to have been of great value as means for informing intelligent laymen as to what is being done, and particularly for stimulating interest in more adequate local appropriations for syphilis control.

#### CONCLUSION

In this progress report on the New York State syphilis control program, emphasis has been placed on notification and the provisions of adequate diagnostic and treatment facilities. Experience leads us to believe that these two phases of the program must be developed first, together with facilities for returning delinquent infectious cases to treatment. By assisting the localities where syphilis is most prevalent, namely, large cities, and by augmenting district staffs, it is hoped to raise the quality of treatment and to provide really adequate follow-up service. As time goes on it is believed that the problem will become less complex and that case and contact investigation can be more generally and effectively carried on. As has been said on other occasions, syphilis control presents a real challenge to physicians. It is for us to meet it.

State Department of Health.

## A TYPICAL CITY PROGRAM FOR COMBATING SYPHILIS AND GONORRHEA

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While the details of a modern program for combating syphilis and gonorrhea will differ from city to city in accordance with the size and character of the population of each, the principles involved in the program of each should be identical, since these principles are based on accepted scientific facts. Let us briefly examine these facts and the principles based on them:

1. It is possible to prevent infection with syphilis or gonorrhea by the avoidance of exposure to infection. Exposure being usually the result of voluntary action, it is believed that education which influences conduct has a place in the program.
2. It is possible by mechanical and chemical means to prevent syphilis and gonorrhea in spite of sexual intercourse with an infectious person. Therefore mechanical and chemical prophylaxis have a place in the program.
3. It is possible to break the chain of infection by rendering infectious individuals noninfectious by means of modern treatment. Therefore modern treatment has a place in the program of prevention.

Neither educational activities nor chemical or mechanical prophylaxis have so far succeeded in reducing radically the prevalence of syphilis or gonorrhea in civilian groups, and unfortunately gonorrhea cannot be rendered noninfectious quickly and permanently by the means of treatment now generally available. This is not to say, however, that education, prophylaxis and therapy may not under favorable future conditions be effective in reducing the prevalence of gonorrhea. Syphilis, on the other hand, can be rendered temporarily noninfectious usually with a few doses of arsphenamine, and by persistent treatment almost every patient becomes and remains noninfectious. Unlike gonorrhea, second infections with syphilis are so extremely rare as not to constitute a public health problem. If every patient with early syphilis received twenty doses of arsphenamine and forty doses of a bismuth or mercury compound properly administered, and if every syphilitic woman were treated adequately in every pregnancy, acquired and congenital syphilis would soon cease to exist. While greatest emphasis should be placed on early syphilis and on syphilis as a complication of pregnancy, almost every case of syphilis that has not been adequately treated should still be regarded as being potentially infectious.

With these principles in mind, the modern city program should be built up in three main divisions: (1) education, (2) case finding and (3) treatment.

#### EDUCATION

Educational activities are concerned, first, with the general public. They have for their objectives the rallying of public support for the city's fight against syphilis and the dissemination of knowledge of the nature, means of spread, necessity of treatment and methods of prevention of these diseases. When the people of the city understand the principal facts regarding syphilis and gonorrhea and the purpose and methods of the health department in combating these diseases, they will support the health officer in his

Read before the Conference on Venereal Disease Control Work, Washington, D. C., Dec. 28, 1936.



The presence of two successive pulse waves in figure 2 (case 2), each of low amplitude, may be due to the fact that the myocardial fibers did not recover sufficiently after one cycle to produce a wave of high amplitude. It is interesting to speculate whether this lack of recovery had anything to do with the cessation of the electrical alternans. Hamburger and his associates<sup>1</sup> explain that "the transitory nature of electrical alternans might be attributed to improvement of the heart, but it is just as likely, if not more likely, that its disappearance has exactly the opposite significance; namely, that the condition of the heart has become worse." That is, if the heart becomes better, all the waves are of the high amplitude type, whereas if it becomes worse all the waves are of the low amplitude type. One would expect to find, rarely indeed, a period of transition in which the large and small waves had a varying ratio to each other.

Lewis<sup>2</sup> says: "Curiously enough, the alternation in electrocardiogram and pulse is not always parallel; while a small R summit may correspond to the small pulse beat, yet quite frequently the large R corresponds to the small pulse beat." In figure 2 it is seen that a large S wave corresponds to a large pulse beat. According to Hamburger and his associates<sup>1</sup> "it is very easy to conceive of a distribution of alternating fractions in the heart such that the mechanical summation makes the alternans practically nonapparent with the methods available for recording mechanical events, while the electrical balance is favorable for a marked electrical alternans." These factors, they say, may be reversed, and one of our cases shows that they may exist together. These investigators also point out that the examiner should look not only for the presence or absence of pulsus alternans but also for alternation in the venous pulse, apex beat, heart sounds and electrocardiogram. We have been able to confirm their finding of the transitory nature of electrical alternans, which indicates the need for repeated tracings.

The records of Hamburger and his associates<sup>1</sup> show that some but not all inhalations cause transient electrical alternans of from one to three cycles. They attribute this to a probable pulmonocardiac reflex which impairs conduction of the impulse within the ventricles. Missal and Crain<sup>24</sup> state: "We could demonstrate no relationship between the appearance of electrical alternation and the respiratory cycle." Their patient had occasional convulsions and syncope. His electrocardiogram revealed alternation in the amplitude of T waves with changes in intraventricular conduction. The extremely active sinus carotid reflex in their case had no influence in the production of alternation. Case 2 (figure 3) of our report shows transient alternation in the height of R<sub>2</sub> related to inhalation.

#### SUMMARY

1. Electrical alternans consists of a regular alternation at equal intervals, in contour or amplitude, or both, of successive phases of the electrocardiographic record.
2. This phenomenon must be differentiated from pulsus bigeminus (coupling), pseudo-alternation due to respiration, and bidirectional complexes.
3. Electrical and pulsus alternans may occur separately or simultaneously.
4. The transitory nature of this phenomenon and its relation to inhalation as observed by previous investigators has been confirmed.

5. Cardiac alternation in whatever form it may appear, electrical or mechanical, has grave prognostic significance.

6. The ease with which electrical alternans may be overlooked and the transient nature of the finding indicate the need for repeated tracings and careful study of records, especially of patients suffering from myocardial damage.

604-605 Central Tower.

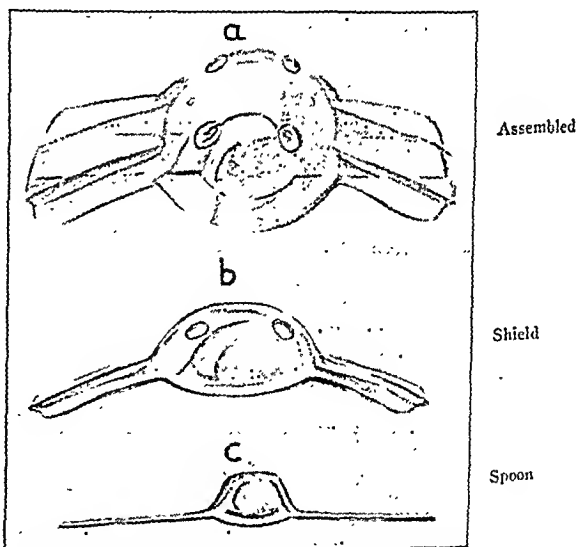
## Clinical Notes, Suggestions and New Instruments

### VISIBLE CONTACT TESTER

AARON BROWN, M.D., NEW YORK

With the separation of contact dermatitis from specific eczema (neurodermite), it has become increasingly more important to test properly substances that produce lesions on contact with the skin. In making contact tests, the substance is left in contact with the skin for a period of twenty-four hours or longer.

The simplest device used is a square of adhesive plaster holding the substance against the skin. Cellophane has also been used, held down to the skin by adhesive plaster or collodion.



Celluloid apparatus, consisting of a spoon and a shield. The curve conforms to the curve of the arm. There are four holes for aeration.

The device described here offers these advantages:

1. Visibility. The reaction, if any, is seen at all times. This is important, as it is desirable to limit the amount of reaction. The patient is instructed to remove the substance from the skin as soon as any reaction is seen.
2. Protection against irritation from clothes and against injury.
3. Aeration. It prevents maceration of skin from accumulated perspiration.
4. Utility. It is equally useful for liquids and for solid substances.
5. Added value for protection in Dick, Schick and tuberculin tests.

The apparatus, made of celluloid, consists of a spoon and a shield. It has a curve conforming with the curve of the arm and has four small holes for aeration. The spoon may be

<sup>24</sup> Missal, M. E., and Crain, R. J.: Alternation Phenomena in the Electrocardiogram, *Am. Heart J.* 11: 615 (May) 1936.

hospitalization in the interest of the patient or of the public health. These bed facilities should be of three kinds: (1) for the quarantine of recalcitrant infectious cases, (2) for infectious patients willing to enter hospitals as voluntary patients (and most patients are quite willing if the facilities are decent) and (3) for non-infectious patients requiring bed care purely on medical indications. Whenever an infectious patient cannot or will not protect his or her family and other near contacts from the risk of infection, that patient should be hospitalized. All patients with syphilis having infectious lesions should be hospitalized until temporarily noninfectious, after which ambulatory treatment suffices, if suitable follow up is provided to see that the patient does not lapse.

The laws of almost every state require physicians to report all cases of syphilis or gonorrhea coming under their care. Aside from purely statistical uses indicating especially the degree of cooperation given by the profession, reports of cases of syphilis and gonorrhea as of other communicable diseases should be used as a means of control and epidemiology. Thus, to illustrate, when a case of early syphilis is reported by a private physician, the department of health should cooperate with the physician in finding the source of infection. Again, evidence of a special outbreak of gonorrhea, as, for example, in a school, should lead to investigation. With skill and tact, much more can be done with these morbidity reports than merely to count and file them, a procedure that has led many doctors to remark "What's the use of reporting? Nothing ever happens." Reporting of syphilis and gonorrhea should be made convenient for physicians and free even of the expense of postage. It would be desirable to pay a small fee for each case reported. Obviously the confidential character of the reports must be absolutely protected.

#### COMMENT

The foregoing principles and program include the full duty of the health authorities with regard to prostitutes, unless the state law or the sanitary code specifically lays additional responsibility on the health department, as is the case in New York. If a prostitute has infectious syphilis or gonorrhea, she is of concern to the health department. The fact that she is promiscuous makes her a more serious menace than the person who is not promiscuous. It helps in keeping our policies clear if we think of these individuals not as "prostitutes" but as infectious persons who are promiscuous and consequently highly dangerous. Such individuals should be kept safely under medical control as long as they are infectious, and this usually means quarantine in a hospital. Such a procedure is satisfactory in cases of syphilis, for infectious persons can be rendered permanently noninfectious. It is very unsatisfactory in cases of gonorrhea, because cure is uncertain and reinfections are common.

The necessary staff for carrying out the program for combating syphilis and gonorrhea in a city consists of an experienced and a well trained medical director assisted by physicians, nurses and clerical staff, and in larger cities by social workers, technicians, orderlies and statisticians. All members of the staff should be reasonably compensated. This, of course, includes the physicians working in the health department clinics. Voluntary service is usually unsatisfactory in one respect or another. The physicians and nurses should be specially trained or should at least be directed by specially trained supervisors.

The sources of funds for a city program are, first, the city budget; second, security act funds obtained through the state department of health, and, third, WPA funds obtained through special projects. The American Public Health Association once estimated that the program for combating syphilis and gonorrhea requires at least 11 cents per capita. This, I believe, is not sufficient if hospitalization is included, and hospitalization, I would repeat, is vital to a successful program. A nearer estimate to the cost of an adequate program, including hospital facilities, would be 25 cents yearly per capita of population.

The fact should not be overlooked that local voluntary agencies such as social hygiene societies can be of great practical assistance to us in many aspects of this program, especially with regard to popular education, professional training and the creation of favorable public opinion.

May I remark in closing that the program outlined is the one now in effect in New York City, and, while it is still in its developmental stages, we have gone far enough with each item to believe that the program is sound and practical.

## AURICULAR FIBRILLATION

### ITS INFLUENCE ON THE COURSE OF HYPERTENSIVE HEART DISEASE

NATHAN FLAXMAN, M.D.  
CHICAGO

Various opinions exist regarding the incidence, the time of onset and the relation of auricular fibrillation to the course of hypertensive heart disease. Janeway<sup>1</sup> stated that of 212 deceased patients with hypertensive cardiovascular disease (nephritis included) only eight had auricular fibrillation, and of 246 living patients only two had this arrhythmia. White<sup>2</sup> reported that, in a group of 708 cases of hypertensive heart disease, auricular fibrillation was present in ninety-two (13 per cent), in fourteen of which it was paroxysmal in type. Under a discussion of the cardiac manifestations of essential

TABLE 1.—Percentage of the Age Groups at Onset

Ages	White				Colored			
	Male	Female	Total	%	Male	Female	Total	%
31-40	2	4	6	4.3	1	1	2	10.5
41-50	36	8	44	31.7	7	1	8	42.1
51-60	50	14	64	46.0	7	1	8	42.1
61-70	18	7	25	18.0	0	1	1	5.3
Totals	106	33	139	100.0	15	4	19	100.0

hypertension, Lewis<sup>3</sup> stated that established auricular fibrillation occurs in a number of cases but is observed particularly late in the disease. Fahr<sup>4</sup> differed with this opinion and stated that in some cases the onset of auricular fibrillation brings forth clinical evidence of heart failure. He added that it is the most common form of arrhythmia found associated with hypertension and that when it appears the heart fails rapidly and unless competent treatment is received congestive failure

From the Department of Medicine, Loyola University Medical School.  
1. Janeway, T. C.: A Clinical Study of Hypertensive Cardiovascular Disease, *Arch. Int. Med.* 12:755 (Dec.) 1913.

2. White, P. D.: Heart Disease, New York, Macmillan Company, 1934, p. 396.

3. Lewis, Thomas: Diseases of the Heart, New York, Macmillan Company, 1934, p. 232.

4. Fahr, G. E.: The Heart in Hypertension, *J. A. M. A.* 105:1396 (Nov. 2) 1935.

That this applies with equal cogency in the present instance is obvious enough when it is observed that:

1. No case histories are recorded.
2. No records of dosage or duration of treatment of individual patients are included.
3. No control series using other iodine compounds in equimolecular concentration are noted.
4. Only the number of patients, the total period of time that the physician himself has been using the preparation, and the physician's own personal opinion are given.

The ten letters of testimony were worded essentially and almost identically according to a form submitted by the manufacturer, which was worded as follows:

"I have prescribed Amend's Solution for approximately . . . patients over a period of . . . months.

"During this period I have not seen a case of so-called iodism or gastro-intestinal upset caused from the use of this product.

"I understand this statement is for submission to the Council on Pharmacy and Chemistry of the American Medical Association and permit its use for that purpose only.

"Signed....."

Aside from the uncritical and fundamentally valueless nature of the evidence of therapeutic efficiency, the Council found the additional objection that it is a mixture of well known substances for which there appears to be no warrant.

The Council declared Amend's Solution not acceptable for New and Nonofficial Remedies because it is an unwarranted mixture marketed under false and misleading claims and intended to replace the use of well known, official preparations in similar disorders. The information as to the nature and amount of the "paranucleic acid" is inadequate, constituting a conflict with rule 1.

In reply to these criticisms of the Council, the firm stated that it was endeavoring to secure control tests but was unsuccessful in inducing physicians to prescribe their solution in doses equivalent to those which generally produce iodism when the official iodine solutions are used. In the absence of such comparative observations, however, any statements as to special freedom from iodism are meaningless or misleading.

Subsequently the firm did submit a report of a series of cases showing phenomena of iodism from the administration of Lugol's Solution which disappeared on substituting the Amend Solution; but the dosage of iodine in the latter was only a fraction of that in the Lugol's Solution. This series therefore does not demonstrate that the iodine in Amend's Solution is less liable to produce iodism than are the larger doses. As the administration of the Amend's Solution was preceded by larger doses of Lugol's Solution, this series gave no evidence as to the therapeutic efficiency, if any, of these doses of Amend's Solution. The Council therefore sees no reason to alter its conclusions and reaffirms its action declaring Amend's Solution not acceptable for New and Nonofficial Remedies.

#### TRICHOPHYTON EXTRACT POLYVALENT (DERMATOMYCOL)

and

#### TRICHOPHYTIN FILTRATE POLYVALENT (DERMATRICOFITIN)

#### NOT ACCEPTABLE FOR N. N. R.

Trichophyton Extract Polyvalent (Dermatomycol) and Trichophytin Filtrate Polyvalent (Dermatricosfitin) were submitted for consideration of the Council by the Laboratório Brasileiro de Quimioterapia, Ltda., Rio de Janeiro, Brazil. Although early information indicated that The Fellows Medical Mfg. Co., Inc., New York City, were exclusive distributors of these products in the United States, the present distributor, according to the Council's latest information, is Ernst Bischoff Co., Inc., of New York City.

Trichophyton Extract Polyvalent (Dermatomycol) is stated to be a vaccine of lysed germs prepared from mycelial growth of over 300 strains of pathogenic fungi—Achorion, Microsporum, Trichophyton, Epidermophyton and Endodermophyton—destroyed by acids, 0.4 per cent carbolic acid being added as a preservative to the resulting liquid, which is filtered, neutralized, and sterilized at 100 C. It is not stated what these strains of pathogenic fungi are. It is well known that

there is more than one form of Achorion; that there are many types of Microsporum; many strains of Trichophyton; different strains of Epidermophyton—yet the expression is used: ". . . from the mycelial growth of over 300 strains of pathogenic fungi." This might be simply 300 strains of one particular organism of each of the five or of different cultures of the same organisms, i. e., taken from different sources. Trichophytin Filtrate Polyvalent (Dermatricosfitin) is stated to be a filtrate of the culture of over 300 strains of Achorion, Trichophyton, Microsporum, Endodermophyton and Epidermophyton, to which 0.25 per cent phenol has been added and the product sterilized at 100 C. It is intended exclusively for skin sensitivity tests in the diagnosis of dermatomycosis. The manufacturer states that these products are prepared under the license of O. da Fonseca, professor of parasitology of the Faculty of Medicine of Rio de Janeiro University, in charge of the Mycological and Parasitological Division of the Instituto Oswaldo Cruz of Rio de Janeiro, and E. A. Area Leao, chief of the Mycological Laboratory of the Instituto Oswaldo Cruz. A section of the material submitted by the firm is devoted to the treatment of dermatomycosis, quoting da Fonseca and Area Leao. Mention is made of vaccinotherapy of mycosis as carried out by former workers, and also of the work carried on at the Instituto Oswaldo Cruz at Rio de Janeiro. It is stated in the advertising that "the authors had the opportunity of treating or of being asked for advice or for the supply of the vaccine to several thousands of patients." A section is devoted to the prophylactic use of Dermatomycol. It is stated that da Fonseca and Area Leao have employed prophylactic vaccine treatment in a group of children in whom ringworm of the scalp occurs frequently, and that they were able to get rid of endemic cases by this means.

The Laboratório Brasileiro de Quimioterapia, Ltda., states that it is impossible to give detailed statistical figures of the results obtained by vaccinotherapy of different types of dermatomycosis and keratomycosis, though this procedure has been used over a period of five years. The firm states, however, that a large number of complete records could be published. The preparation is claimed to have been of value in cases of uncertain or obscure etiology, and a few cases of psoriasis are stated to have been cured with Dermatomycol. A few pictures are submitted as proof. It is stated that Dermatomycol is indicated in the treatment of skin lesions produced by fungi, conferring on the organism gradual and specific immunity; favus, tinea favosa, tinea tonsurans of the scalp, microsporia, trichophytia, parasitic sycosis, kerion Celsi, onychomycosis, parasitic dyshidrosis, herpes circinatus, epidermophytia and Hebra's eczema marginatum are mentioned. A mixed treatment with the desensitizing agent and the vaccine is advised in "cases of long standing ringworm lesions with strong Dermatricosfitin reaction." Along with this some local treatment is advised, the use of Whitfield's ointment being recommended.

As to the clinical evidence presented, the referee of the Council noted a few case reports in the Portuguese literature submitted. These are all short, apparently not of a scientific type. The manufacturer states that comparatively little clinical evidence has been written concerning experiences with these products but assures the Council that the unwritten clinical history of Dermatomycol is impressive. The firm states that its use has been propagated among physicians by word of mouth, so that over 300,000 injections have been used; that the possibilities opened up through its use for treatment of many cases of psoriasis are extremely interesting.

Intradermal diagnostic tests with preparations of various mycelial growths have been used and recognized in dermatology for many years. The only difference between this new product and ones formerly used appears to be in its claim for multiplicity of organisms. The Council doubts whether this would make much difference either in the diagnostic value of the preparation or in the therapeutic value. It is well known that the therapeutic value of these products already on the market is quite limited; in fact it is seldom that with such a preparation alone a cure can be achieved, certainly not unless local agents are used as well. It is recalled that the Council has published a preliminary report on trichophyton extract, postponing further action to await the development of further clinical evidence from American dermatologists (THE JOURNAL, Nov. 19, 1932, p. 1779). The material offered as

arrhythmia precipitated the congestive heart failure, and this was the cause of death in all eight cases (table 4). The duration of the hypertensive heart disease in the known deceased, regardless as to whether the auricular fibrillation precipitated or followed the cardiac symptoms, was less than one year in 63.7 per cent of the white and in 87.5 per cent of the colored patients. Of the deceased white patients, 83.8 per cent succumbed within two years after the onset of the auricular fibrillation.

The occurrence of the arrhythmia during the course of hypertensive heart disease was unpredictable. It appeared previous to, during and after the onset of congestive heart failure. Only in the patients in whom the fibrillation preceded and precipitated the heart failure was the course of the disease shortened considerably.

There was a notable difference in the causes of death of those with auricular fibrillation as compared with all causes of death in hypertensive heart disease. Of the deceased white 83.3 per cent and of the deceased colored patients 87.5 per cent with this irregularity died of congestive heart failure (table 5). Twenty per cent more deaths occurred from this cause in the patients with auricular fibrillation than in those with regular cardiac rhythm.<sup>6</sup> Death due to the other common causes in hypertensive heart disease, such as coronary thrombosis, uremia and cerebral hemorrhage, was very infrequent in the patients with auricular fibrillation. The lack of additional occurrences also suggested an influence of the arrhythmia on the course of the disease. Coronary thrombosis occurred in only three (1.9 per cent) of the 158 patients with auricular fibrillation as compared with its occurrence in thirty-six (6 per cent) of the entire 623 patients with hypertensive heart disease.

TABLE 5.—Causes of Death

Causes	White				Colored			
	Male	Female	Total	Per Cent	Male	Female	Total	Per Cent
Congestive heart failure...	23	7	30	83.3	6	2	7	87.5
Uremia	1	1	2	5.5	..	..	..	...
"	1	0	1	2.8	1	0	1	12.5
Acute dissecting aortic	..	..	..	..	..	..	..	...
"	1	0	1	2.8	..	..	..	...
"	1	0	1	2.8	..	..	..	...
na.....	1	0	1	2.8	..	..	..	...
Totals.....	28	8	36	100.0	6	2	8	100.0

The occurrence of auricular fibrillation in patients with hypertensive heart disease influenced the course of the disease. The arrhythmia occurred with equal frequency in the same age groups in which the disease itself was most common. The ages at death were similar for those patients with regular rhythm and those with the arrhythmia. The frequency of the fibrillation was approximately the same in the patients who lived and in those who died. It precipitated congestive heart failure in 27.8 per cent of the patients in whom it appeared. The main cause of death in hypertensive heart disease, congestive heart failure, was more frequent in the patients with auricular fibrillation than in the entire group.

## SUMMARY

Auricular fibrillation, the most common form of arrhythmia in hypertensive heart disease, occurred in 158 (25.3 per cent) of 623 patients with this disease. It definitely influenced the course of the disease in

forty-four patients (27.8 per cent) in whom the rapid irregularity preceded and precipitated the congestive heart failure and led to an early death from this cause within one month after the onset in eight (18.1 per cent) of the forty-four patients. When the auricular fibrillation occurred after congestive heart failure had been present from one month to several years, it had no apparent influence on the course of the disease except in relation to the cause of death and the comparative absence of additional occurrences common to appear in hypertensive patients.

3507 Lawrence Avenue.

## ELECTRICAL ALTERNANS

## REPORT OF TWO ADDITIONAL CASES

JACOB G. BRODY, M.D.

AND

PHILLIP L. ROSSMAN, A.B.

YOUNGSTOWN, OHIO

Recently Hamburger, Katz and Saphir<sup>1</sup> described two cases of electrical alternans without pulsus alternans—the first reported in this country. This electrocardiographic phenomenon (fig. 1) has been exceedingly rare, but now that the Chicago investigators have made cardiologists "alternans conscious," to use their expression, we believe that relatively many more cases will be reported.

The two cases that are the subject of this report include one case of electrical alternans with demonstrable pulsus alternans and one case in which pulsus alternans was not demonstrated. Our first case was discovered Jan. 22, 1935. Careful search through our files then brought the additional case to light.

Electrical alternans consists of a regular alternation at equal intervals, in contour or amplitude, or both, of successive phases of the electrocardiographic record. White<sup>2</sup> says that electrical alternans accompanying pulsus alternans is rare; the QRS or T waves may rarely alternate in amplitude although not always in the same direction as in the arteriogram. Electrical alternans, like pulsus alternans (fig. 4A), is a sign of reduced myocardial reserve. It is of greater significance at slow or moderately increased heart rates than in extreme tachycardia.<sup>3</sup> It may vary in degree, it may be continuous or transient. Electrical alternans, like pulsus alternans, is also found following premature contractions in some cases.<sup>4</sup>

## REPORT OF CASES

CASE 1.—Mrs. M. B., a white woman, aged 65, a housewife, admitted to the hospital Jan. 22, 1935, complained of shortness of breath, swelling of the feet and palpitation. The past, personal and family histories were negative. The patient was in good health and quite active until December 1934, when an infection of the upper respiratory tract developed. Two weeks before entry the patient noticed shortness of breath on slight exertion. She coughed considerably, and one week later her legs began to swell. The patient was obese. On physical examination she was lying quietly in bed and was quite dyspneic. The temperature was 98.6 F., the pulse 70, the respiration rate 30 and the blood pressure 240 systolic, 130 diastolic. There was no dullness, and râles were absent. A loud systolic mur-

1. Hamburger, W. W.; Katz, L. N., and Saphir, Otto: *Electrical Alternans*, J. A. M. A. 106: 902 (March 14) 1936.

2. White, P. D.: *Heart Disease*, New York, Macmillan Company, 1932, pp. 246 and 596.

3. Lewis, Thomas: *Diseases of the Heart*, New York, Macmillan Company, 1933, p. 249.

4. Lewis, Thomas: *Clinical Electrocardiography*, ed. 5, Chicago, Chicago Medical Book Company, 1931, p. 105.

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SATURDAY, MARCH 6, 1937

## SYPHILIS AND THE CENTRAL NERVOUS SYSTEM

The first suggestion that syphilis was etiologically related to dementia paralytica seems to have been based on the observation by Esmarch and Jessen of three cases of dementia paralytica in which there were lesions of tertiary syphilis. The fundamental contributions of Fournier and Erb forged the chain of evidence of the syphilitic origin of dementia paralytica and tabes. Other mile posts were the observations on congenital tabes and dementia paralytica, on conjugal association of these diseases with syphilitic lesions such as meningitis, similar conditions in the cerebrospinal fluid in cases of syphilis and of dementia paralytica or tabes, increased albumin and globulin reactions in both, the Wassermann reaction in the blood and in the spinal fluid, and lastly the finding of spirochetes in the central nervous system of patients suffering from dementia paralytica and tabes.

Neurosyphilis was considered late syphilis by the older authors. Strümpell believed it to be the result of the action of the syphilitic toxin on the central nervous system. The incubation period of dementia paralytica is from seven to ten years. Occasionally this period may be much shorter—two years or less. Nonne<sup>1</sup> states that syphilitic arteritis was present in one third of the early cases in his material and that cerebrospinal syphilis developed in about one half of them within the first three years. Acute syphilitic meningitis may be seen a few months after the infection. The contributions by the French school to the knowledge of the cerebrospinal fluid made possible the recognition of these acute early forms. The cerebrospinal fluid may show increase of cells and of globulin as early as the appearance of the initial exanthem or still earlier, at the time of the appearance of the primary lesion.

The question whether dementia paralytica and tabes are caused by the syphilitic toxin or by the direct action of spirochetes cannot be answered in the present state

of our knowledge. There is no constant or definite relationship between these neurosyphilitic manifestations and the presence, number and distribution of the spirochetes in the tissues of the central nervous system. Nonne emphatically rejects the idea of specifically neurotropic spirochetes. Patients who develop syphilis from the same source commonly develop different types of the disease. It is not unusual in conjugal syphilis to see one partner develop dementia paralytica and the other tabes, or one partner develop visceral syphilis and the other tabes. The question has been raised whether the antisyphilitic treatment itself was not a factor in the causation of these late complications. A number of investigators state that in countries in which syphilis was treated poorly or not at all, and in which secondary and tertiary manifestations were common, the occurrence of tabes and dementia paralytica was rare. These observations gave rise to the notion that mild syphilis predisposes to tabes and dementia paralytica. In an analysis of 1,270 cases of dementia paralytica and 1,372 cases of tabes seen in the course of fifty years, Nonne finds that in 80 per cent there were no secondary symptoms.

Attention has been called to the changing picture of syphilis in the last two decades, on the one hand a rapid diminution in the incidence of lesions of the skin and mucous membranes and in the frequency of ulcerative or gummatous lesions, and, on the other, an increase in the involvement of the blood vascular and the central nervous systems. Without in the least condemning the modern treatment of syphilis, the fact that it does not guarantee against dementia paralytica and tabes must be admitted on statistical evidence. Bruusgaard<sup>2</sup> reports the unique experience of the dermatologic clinic of the University of Oslo. Between 1891 and 1910, 2,181 patients suffering from primary or secondary syphilitic lesions were treated there on a hygienic constitutional regimen from which all available antisyphilitic remedies were excluded. Boeck, chief of the clinic, believed that the antisyphilitic remedies interfered with the regulating forces of the invaded organism and served to alter the course of the disease, thus leading to visceral and neurosyphilitic complications. The analysis of this material shows that neurosyphilis developed in only 3.4 per cent of the cases.

Early meningitic symptoms are not necessarily an indication of later dementia paralytica or tabes. Bruusgaard states that normal cerebrospinal fluid in the early stage of the disease does not guarantee against later dementia paralytica or tabes. Nonne found that patients who exhibited signs of meningitis did not, as a rule, develop either tabes or dementia paralytica.

Social status, alcoholism, trauma, cultural status and the constitutional type do not seem to play any part as predisposing etiologic factors. Nonne ventures the

1. Nonne, Max: *Erinnerungen und Bekenntnisse auf dem Gebiet der Neurochies*, Deutsche Ztschr. f. Chir. 248: 177, 1936.

2. Bruusgaard, E.: *Ueber das Schicksal der nicht spezifisch-behandelten Luetiker*, Arch. f. Dermat. u. Syph. 157: 309 (No. 2) 1929.



## DIFFERENTIAL DIAGNOSIS

Electrical alternans might be confused with pulsus bigeminus (coupling)—seen often in overdigitalization<sup>14</sup>—in which a premature contraction occurs every second beat. In the latter condition, however, the interval between the normal beat and the premature beat is, of course, shorter than between the premature beat and the subsequent normal beat. In true electrical alternans the beats are equally spaced. Figure 4C shows a case of coupling in which the premature beats show alternation in amplitude. This is the only record of this type that we know of. The patient died of hypertensive heart disease one week after this record was taken.

The influence of respiration on the electrocardiogram must not be forgotten.<sup>15</sup> A rapid respiratory rate which equals one half the heart rate would produce a wave of high amplitude on exhalation and one of low amplitude on inhalation, which will at times simulate electrical alternans. Géraudel<sup>16</sup> shows such a record. The influence of respiration must also be considered in other types of alternans. Figure 4B is a composite record showing pseudo-alternation of the heart sounds. Every other beat occurs just at the beginning of inhalation.

Differentiation should also be made between electrical alternans and bidirectional complexes. Smith<sup>17</sup> presents a case of paroxysmal ventricular tachycardia displaying the latter phenomenon. White<sup>18</sup> shows a record of ventricular paroxysmal tachycardia with ventricular complexes alternating in direction and contour. He explains this alternation of direction of complexes on the basis of either two foci of origin or of two directions of spread of impulses from one site. The same explanation as is discussed later might be offered for electrical alternans.

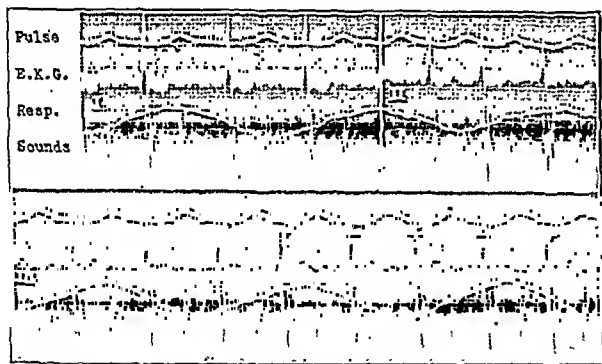


Fig. 3 (case 2).—Record taken Sept. 1, 1936. The arteriogram, upper tracing, shows no pulsus alternans. The electrocardiogram, next lower, shows auricular fibrillation, slurring of  $R_2$  and  $S_2$  and left axis deviation. There was no alternation noted in derivation 1. Derivation 2 shows transient alternation of one to two cycles related, apparently, to inhalation. Deviation 3 shows transient alternation of the S wave. On the respiratory curve the descending portion corresponds to exhalation and the ascending portion to inhalation. The phonocardiogram, lower tracing, shows no alternating phenomena.

## COURSE AND PROGNOSIS

The serious prognosis of pulsus alternans at slow or normal heart rates is well known. Katz<sup>19</sup> says: "We feel that electrical alternans has the same significance, at a slow rate particularly, as pulsus alternans."

Thus according to Thomson and Levine,<sup>20</sup> in a series of seventy-one patients the average duration of life after the detection of pulsus alternans was fourteen and one-half months. Patients under 40 years of age average six months (five in this series) while those of 70 years or more average nineteen months of life. These authors

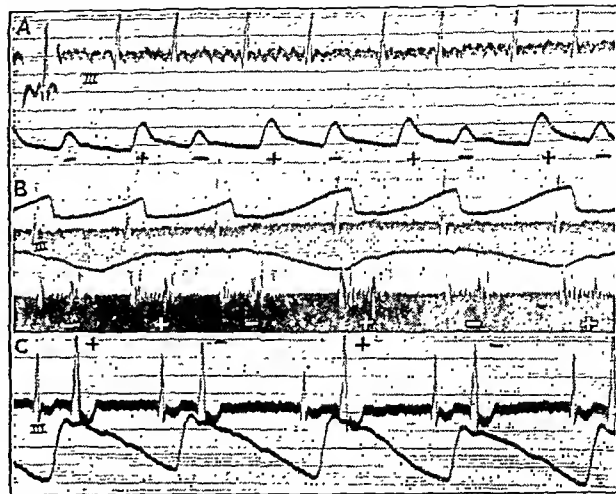


Fig. 4.—A, pulsus alternans in a case of rheumatic heart disease showing auricular fibrillation (derivation 3). Record taken Dec. 7, 1935. The plus and minus signs denote the large and small waves respectively. B, same case Aug. 18, 1936, under digitalis therapy. Derivation 3 of the electrocardiogram shows persistence of the auricular fibrillation. The arteriogram, upper tracing (inverted), shows no pulsus alternans. The phonocardiogram, lower tracing, reveals an alternation in the heart sounds which show systolic and diastolic murmurs. Sounds of smaller amplitude occur with each inhalation. The heart rate is double the respiratory rate. C, derivation 3 of a record of pulsus bigeminus in which the premature beats show alternation. The arteriogram, lower tracing, shows only one pulse wave to two heart beats because the premature beat occurs before there is any appreciable ventricular filling.

also showed that males with pulsus alternans lived twice as long as females and that the prognosis is worse when either systolic or diastolic blood pressure is elevated, when congestive failure is present, or when pulsus alternans occurs in the early hours or days following an acute myocardial infarction. In cases of intraventricular heart block the patients lived longer by more than 50 per cent than did those without it. However, there are exceptional cases of pulsus alternans in which the patients carry on quite satisfactorily for more than five years.<sup>21</sup>

## COMMENT

All types of alternans ("herzalternans" of Kish<sup>22</sup>), mechanical and electrical, are probably due to a state of the myocardium in which some fibers fail to contract with every heart beat, these fibers being refractory every other beat because of fatigue or insufficient nourishment. It may be, however, that electrical alternans is not due to fatigue or the exhaustion of energy-yielding material during the stronger beat but is due to either two alternating foci of impulse initiation or of two alternating paths of conduction from one focus. The latter two explanations would seem to be the case in phases which alternate in form especially, the former in phases which alternate in height. The refractory theory is supported by observations of Scherf and Zdansky<sup>23</sup> of a regular alternation in the size of the left cardiac border in a case of pulsus alternans (without electrical alternans).

14. Gold, Harry, and Otto, H. L.: Clinical Study of Digitalis Bigeminy, *Am. Heart J.* 1: 471-484 (April) 1926.

15. Pardee, H. E. B.: Clinical Aspects of the Electrocardiogram, New York, Paul B. Hoeber, Inc., 1928, p. 44.

16. Géraudel, Emile: The Mechanism of the Heart and Its Anomalies, Baltimore, Williams & Wilkins Company, 1930, p. 106, fig. 57.

17. Smith, W. C.: Ventricular Tachycardia Showing Bidirectional Electrocardiograms Associated with Digitalis Therapy, *Am. Heart J.* 2: 723 (Aug.) 1928.

18. White, P. D.: Heart Disease, p. 250, fig. 73 C.

19. Katz, L. N.: Personal communication to the authors.

20. Thomson, W. P., and Levine, S. A.: Pulsus Alternans, *Am. Heart J.* 11: 135 (Feb.) 1936.

21. Levine, S. A.: Clinical Heart Disease, Philadelphia, W. B. Saunders Company, 1936, p. 430.

22. Kisch, Bruno: Der Herzalternans, *Ergebnisse der Kreislauf-forschung*, Leipzig, Theodor Steinkopff, vol. 2, 1932.

23. Scherf, D., and Zdansky, E.: Roentgen Kymographs of True Alternating Heart Beat, *Fortschr. a. d. Geb. d. Röntgenstrahlen* 40: 60-63 (July) 1929.

A possible explanation for enamel disturbances in deciduous teeth from a clinical standpoint was suggested by Stein<sup>2</sup> as being incident to the shock of birth.

The work of Schour and his collaborators, carried on in the College of Dentistry of the University of Illinois, has shown repeatedly that the teeth are delicate and accurate recorders of metabolic disturbances. Indeed, in 1911 Erdheim<sup>3</sup> likened the dentin of the rat incisor to the drum of a kynograph, in which are recorded the disturbances in calcium metabolism in an accurate and easily readable manner. Schour<sup>4</sup> and his collaborators found deep-seated changes in the teeth following hypophysectomy, after single and multiple doses of parathyroid extract and following bilateral adrenalectomy. The work of Schour and his collaborators is interesting in recording group cooperation of investigators in medical schools with dental investigators. Some of this work was shown in the Scientific Exhibit at the Atlantic City session of the American Medical Association in 1935 and was awarded the certificate of merit in class I.

More recently, Schour<sup>5</sup> noted from a study of a number of decalcified and ground sections of human deciduous teeth selected at random the constant presence of a distinctive incremental line in the enamel and dentin at a position which corresponds to the surface of enamel and dentin that obtains at the time of birth. The incremental lines, commonly referred to as lines of Retzius in the enamel, to the uninitiated obviously appeared to be laid down with no defined pattern. Schour and his students<sup>6</sup> have found that these lines are laid down according to a well defined rate and in a well defined pattern. The fact that this distinctive line is of neonatal origin was established through an experimental study of the rate of growth of human enamel and dentin by means of small injections of sodium fluoride. Each injection of sodium fluoride produces a sharply accentuated incremental line in the enamel and dentin, forming at the time of injection.<sup>7</sup> The deciduous teeth in the experimental study showed a distinct line in the dentin that was formed some time before the injections were given. By measuring the distance between the last injection line and a hitherto unidenti-

fied line, it was ascertained that the unknown line must have appeared at the time of birth of the child. A corresponding line was found in the enamel and subsequently in other deciduous teeth studied. Of possible interest to clinical dentistry is the circumstance that prenatal calcification appeared to be better than the postnatal calcification.

The fact that these lines appear in the deciduous teeth and in some first permanent molars in which a cuspal portion is formed before birth and do not appear in the other permanent teeth or in the teeth of human full-term fetuses is of great significance in marking a definite division between prenatal and postnatal metabolism. It serves as a definite base line for speaking of prenatal and postnatal events, particularly those related to calcium metabolism.

The neonatal lines constitute a permanent biologic landmark which can be used to determine the amount and also the quality of the enamel and dentin laid down before and after birth. Their establishment paves the way for a number of investigations in the biology of the human teeth and of the new-born child. The further investigations that will flow from the appearance of such a fundamental phenomenon will be awaited with interest.

## Current Comment

### TETANUS

In a recent report Abel and his associates<sup>1</sup> record the latest results of their studies on the pathology of tetanus. They mention again the error that has been so influential in the development of a false pathogenesis of tetanus, and "scarcely less harmful as regards diphtheria and botulism." This was the belief that tetanus toxin was conveyed to the reactive cells of the central nervous system only by way of the motor fibers of peripheral nerves. The correction of this misconception and others related or subsequent to it has occupied the energies of these workers for a number of years.<sup>2</sup> Abel is particularly fitted by his long devotion and important contributions to the field of pharmacology to study the effects of poisons, whether chemical or biologic, and his experiments with tetanus toxin are a model for similar investigations in the future. This latest report deals with the quantitative aspects of tetanus toxin in blood and lymph of different animal species, and with their ability to bind and dispose of this toxin in such a manner that it is no longer recoverable from their organs. These workers find that the entire excess of toxin over and above one lethal dose accumulates in the blood and lymph, and a negligible quantity in the tissue spaces. Of this toxin about 90 per cent is recoverable from the blood-lymph system. However, the part of the toxin fixed by the cellular or other elements of the body cannot be recovered. This is par-

2. Stein, Georg: Schmelzschaden am Milchgebiss und ihre klinische Bedeutung, *Ztschr. f. Stomatol.* 34: 843 (July-Aug.) 1936.

3. Erdheim, J.: Ueber die Dentinverkalkung im Nagezahn bei der Epithelkörperchen-transplantation, *Frankfurt. Ztschr. f. Path.* 7: 295 (No. 2) 1911.

4. Schour, Isaac, and van Dyke, H. B.: Changes in Teeth Following Hypophysectomy: I. Changes in Incisor of White Rat, *Am. J. Anat.* 50: 397 (July) 1932. Schour, Isaac; Tweedy, W. R., and McJunkin, F. A.: Effect of Single and Multiple Doses of Parathyroid Hormone on Calcification of Dentin of Rat Incisor, *Am. J. Path.* 10: 321 (May) 1934. Schour, Isaac, and Rogoff, J. M.: Changes in Rat Incisor Following Bilateral Adrenalectomy, *Am. J. Physiol.* 115: 334 (April) 1936.

5. Schour, Isaac: The Neonatal Line in the Enamel and Dentin of the Human Deciduous Teeth and First Permanent Molar, *J. A. D. A.* 23: 1946 (Oct.) 1936.

6. Schour, Isaac, and Hoffman, M. M.: Demonstration of 16-Micra Rhythm in Normal Stratification of Enamel and Dentin in Man and Other Mammals, *J. Dent. Res.* 15, June-August 1935; Experimental Demonstration of Daily Apposition of 16-Micra of Enamel and Dentin in Growing Mammalian Teeth, *ibid.* 15, June-August 1935.

7. Schour, Isaac, and Smith, Margaret C.: Mottled Teeth: Experimental and Histologic Analysis, *J. A. D. A.* 22: 796 (May) 1935. Schour, Isaac, and Poncher, H. G.: The Rate of Apposition of Human Enamel and Dentin as Measured by the Effects of Acute Fluorosis, *Am. J. Dis. Child.*, to be published.

1. Abel, J. J.; Evans, E. A., Jr., and Hampil, Bettylee: *Bull. Johns Hopkins Hosp.* 59: 307 (Nov.) 1936.

2. Abel, J. J.: *Science* 79: 63 (Jan. 26), 121 (Feb. 9) 1934. Abel, J. J.; Evans, E. A., Jr.; Hampil, Bettylee, and Lee, F. C.: *Bull. Johns Hopkins Hosp.* 56: 84 (Feb.) 1935. Abel, J. J.; Hampil, Bettylee, and Jonas, A. F., Jr., *ibid.* 56: 317 (June) 1935. Abel, J. J., and Hampil, Bettylee, *ibid.* 57: 343 (Dec.) 1935.

applied on its convex or concave surface: the convex surface for liquids and varnishes, painted on and applied to the skin, and the concave surface for powders.

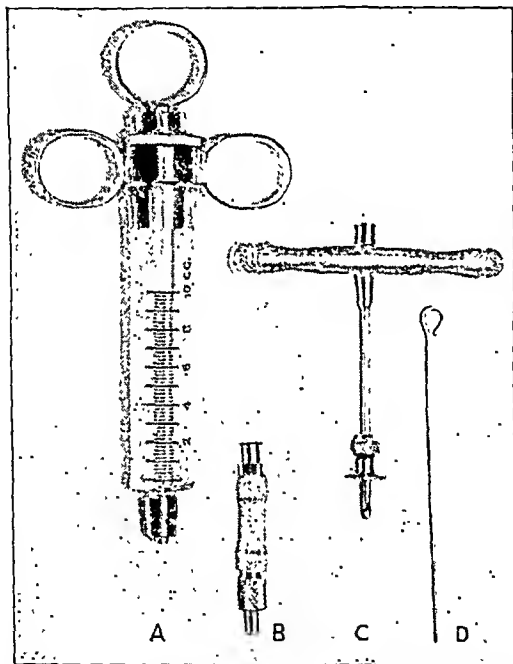
The spoon fits into the grooves in the shield, which hold it firmly, the whole apparatus being held to the skin by adhesive plaster.

39 West Fifty-Fifth Street.

#### A NEW APPARATUS FOR PROCURING STERNAL BONE MARROW MATERIAL

R. B. H. GRADWOHL, M.D., St. Louis  
Director of Laboratories St. Louis County Hospital.

The first intravital examination of bone marrow was made by Wolff<sup>1</sup> in 1903. This was performed by trepanation of the diaphyses of the tibias of small animals. Human bone marrow of a living subject was first examined by Ghedini<sup>2</sup> in 1908. This method was used by Schilling and a number of other writers, including myself. I found it quite difficult to use this method on many patients for the reason that it entailed a surgical operation, and it was obviously impossible to repeat the puncture more than once or twice on the same patient. The difficulties incident to an operation of this type were removed by Arinkin<sup>3</sup> in 1929. He used a large needle and trocar and punctured the body of the sternum under aseptic conditions, using a local anesthetic.



The entire set-up for the procedure of procuring sternal bone marrow material: A, syringe; B, cannula and connector; C, bone marrow puncturing instrument; D, obturator.

Attention is called to the instrument<sup>4</sup> that I have devised and successfully used for this purpose. The accompanying illustration shows an entire set-up for the procedure. It consists of a 10 cc. Luer Lok syringe, a cannula and connector with a rubber tubing joint, a bone marrow puncturing instrument with a guard which can be adjusted to fit the depth of the sternal puncture and an obturator for the latter.

The skin over the sternomanubrial junction is surgically prepared, the usual sterile dressings are applied and local anesthesia with procaine hydrochloride solution is injected intradermally, subcutaneously and into the periosteum. The instrument for puncture has a handle which permits a firm grasp and allows one to bore through the external lamina of the sternum

and enter rapidly the marrow cavity of this bone. The instrument is thrust through the skin at the sternomanubrial junction at right angles to the surface of the sternum. The guard on the shaft of the needle is so adjusted that the instrument cannot possibly be pushed through the sternum into the mediastinal space. After the instrument has well penetrated the sternum, the direction is changed with the point directed upward. At this time, when the marrow has been entered, the obturator is removed, the connector and syringe are attached above the handle of the boring instrument and suction is applied. One obtains in this way a very definite specimen of the bone marrow. It goes without saying, of course, that the entire instrumentarium must be adequately sterilized before use. One may place a small amount of dilute sterile sodium citrate solution in the barrel of the syringe, which slightly dilutes the bone marrow material.

The large caliber of the instrument permits one easily to obtain sufficient bone marrow. Once the marrow is obtained, the instrument is rapidly removed and the opening closed with a surgical dressing. Repeated punctures on the same patient can be made with this instrument without any difficulty.

It is not necessary to remove a large quantity of bone marrow. Only a small amount is obtained, usually about from 0.2 to 0.3 cc.

Touch preparations are made on the surfaces of clean, fat-free glass slides. A few smears also are made.

The Giemsa is the best staining method. The specimens are dried in the air and fixed with methyl alcohol. The specimens are stained for thirty minutes with a dilute Giemsa stain made by taking a drop of stock Giemsa stain to each cubic centimeter of neutral distilled water.

After the staining process is completed the slide is washed with neutral distilled water, dried in the air and examined.

3514 Lucas Avenue.

## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.  
PAUL NICHOLAS LEECH, Secretary.

#### AMEND'S SOLUTION NOT ACCEPTABLE FOR N. N. R.

Amend's Solution was submitted for the Council's consideration by Amend Laboratories, Inc., as possessing "the therapeutic properties of any iodide or iodine preparation, with the added advantage of being non-toxic and non-irritating, and causing no disturbance whatever in the stomach or intestines, and producing not a single symptom of Iodism in any form."

At the same time the firm presented a solution for external use, Amend's External Iodine Solution, which, after extended consideration of the Council, was stated by the firm to be no longer marketed. The Council was referred to U. S. patent No. 1,841,694 for data concerning the formulas of these two products.

Amend's External Iodine Solution is stated to contain (as set forth in letters patent U. S. 1,841,694):

Iodine (crystalline) .....	12.7 Gm.
Irish moss .....	10.0 Gm.
Water, q. s. ....	ad 1,000.0 cc.

Amend's Solution is identical, with the exception that an unspecified portion of "paranucleic" acid is added. In the patent it is stated that, for intramuscular or hypodermic medication, 0.3 per cent of sodium bicarbonate is added.

According to information in the Council's files, Amend's Solution is now being marketed by Thos. Leeming & Co., Inc., New York, as sole distributor.

As evidence for the usefulness of Amend's Solution, the firm presented ten testimonials from physicians, only one of which reports encountering any gastric irritation; none report iodism. As has been frequently pointed out by the Council, letters of testimony comprise the most uncritical of all methods by which to ascertain the therapeutic value of any drug or preparation.

1. Wolff, A.: Deutsche med. Wchnschr. 29: 165, 1903.

2. Ghedini: Wien. klin. Wchnschr. 23: 1840, 1910.

3. Arinkin: Folia haemat. 38: 233 (June) 1929.

4. Made by the A. S. Aloe Company, St. Louis.

**Changes in Hartford Health Staff.**—Dr. Benjamin G. Horning has been appointed health officer of Hartford, according to the *New England Journal of Medicine*. Dr. Paul S. Phelps, Hartford, has been placed in charge of the bureau of tuberculosis. He is a graduate of McGill University Faculty of Medicine, Montreal, class of 1930. Dr. Horning graduated from Harvard University Medical School, Boston, in 1928.

**Bills Introduced.**—S. 423 and H. 637, to amend the chiropody practice act, propose to define "chiropody, or podiatry" as "the diagnosis of foot ailments and the practice of minor surgery upon the feet, limited to those structures of the foot superficial to the inner layer of the fascia of the foot; the dressing, padding and strapping of the feet; the making of . . . models of the feet and external medication limited to the feet." H. 1274 proposes to authorize the establishment and maintenance of a hospital for the care and treatment of persons suffering from infantile paralysis.

## DISTRICT OF COLUMBIA

**Society News.**—Dr. Thomas E. Mattingly addressed the Medical Society of the District of Columbia January 27 on contraception and Dr. Prentiss Willson, the rhythm of human fertility. At a meeting of the Washington Ophthalmological Society, January 4, ocular tuberculosis was discussed by Drs. Jonas S. Friedenwald, Baltimore, and Major James E. Ash, Army Medical Museum, among others.

**Medical Bills in Congress.**—*Changes in Status:* S. 989 has been reported to the House, proposing to issue a license to practice the healing art in the District of Columbia to Dr. Clarence Quinton Pair. H. R. 4536 has been reported to the House, directing the Board of Optometry of the District of Columbia to examine Welton B. Hutton for a license to practice optometry. *Bills Introduced:* H. R. 5142, introduced by Representative Barden, North Carolina, proposes to provide for the issuance of a license to practice the healing art in the District of Columbia to Dr. William Hollister.

**The Davidson Lecture.**—The Medical Society of the District of Columbia announces that the competition to select the winning candidate to deliver the Davidson Lecture, October 13, will close July 1. Physicians or other scientists working in the District are eligible to submit essays provided they have never been published. The essays must bear no indication of the author's identity, being signed by a nom de plume, with the identification in a sealed envelop bearing on its surface the same nom de plume. Dr. Coursen B. Conklin, 1718 M Street N.W., Washington, is the secretary of the Medical Society of the District of Columbia.

## GEORGIA

**Bills Introduced.**—H. Res. 105-470b proposes a resolution to request the board of regents and the chancellor of the medical college at Augusta, Ga., to establish a school of dentistry. H. 430 proposes to reduce to \$10, from \$15, the annual occupational tax collected from physicians, osteopaths, chiropractors, chiropodists, dentists and optometrists.

## IDAHO

**Bill Passed.**—S. 157 has passed the senate, proposing to repeal the present laws regulating the possession and distribution of narcotic drugs and to enact what apparently is presented as the uniform state narcotic drug act. The bill, however, departs from the uniform narcotic drug act in at least one important particular. It omits the provisions of the uniform narcotic drug act intended to limit the gross quantity of a habit forming drug a person can buy in exempt preparations within a forty-eight hour period.

**Bills Introduced.**—S. 109, to supplement the workmen's compensation act, proposes to make compensable "silicosis, monoxide gas poisoning, chronic lead poisoning, and such skin diseases which [sic] are traceable to the industry." S. 169 proposes to authorize boards of county commissioners to establish and maintain public general hospitals and "to fix reasonable charges for hospitalization, nursing, care, treatment, medicine, food and attendance, other than medical and surgical attendance . . . as the Board of Trustees shall deem reasonable," provided that the indigent sick or the otherwise dependent poor of the county shall be fully provided for without charge. In the management of such hospitals, no discrimination is to be made between licensed physicians and surgeons and "all such regular practitioners shall have equal privileges in treating patients in said hospitals." S. 172, to amend the laws relating to the practice of chiropractic, proposes (1) to authorize the commissioner of law enforcement to appoint a board of chiropractic examiners

to assist the department of law enforcement in examining and licensing applicants, in establishing rules and regulations with respect to acceptable preliminary education and accredited schools, and in conducting hearings on revocation or suspension procedures; (2) to provide that any licensed chiropractor may "adjust any displaced segment of the vertebral column or any displaced tissue of any kind or nature, for the purpose of removing occlusion of nerve stimulus in the bodies of human beings, and practice physiotherapy, electrotherapy, hydrotherapy, as taught in Chiropractic Schools and Colleges, but nothing herein contained shall allow any licensee to prescribe medicine, perform surgical operations or practice obstetrics"; and (3) to make it a misdemeanor for a chiropractic licensee to fail "to put after his name one of the following designations: Chiropractor, Doctor of Chiropractic, Philosopher of Chiropractic or Chiropractic Physician, on any sign, printed material, or other advertising."

## ILLINOIS

**Bill Introduced.**—H. 194 proposes to insert in the medical practice act the powers and duties of the department of registration and education with respect to the examining and licensing of applicants, the conduct of proceedings to suspend or revoke licenses, the formulation of necessary rules and regulations, and the appointment of committees to aid it in exercising these functions. These powers and duties are set forth at length at present in the civil administrative code but do not appear in the medical practice act proper.

**Society News.**—The Pike County Medical Society was addressed in Pittsfield, January 28, by Drs. Hermann Friedrich Engelbach, on "Pneumothorax in the Treatment of Tuberculosis"; George L. Drennan, "Otitis Media in Children," and Carl E. Black, "Preventive Surgery." All are from Jacksonville.—Dr. Lindon Seed, Chicago, will discuss "The Diagnosis and Determination of Operability of Toxic Goiter" before the Peoria City Medical Society, March 8. Dr. Howard A. Rusk, St. Louis, spoke on "The Irritable Colon" at the February 8 meeting, and Dr. Irving S. Cutter, dean, Northwestern University Medical School, Chicago, "The Future of Medicine," February 15.

**Free Drugs for Treatment of Rabies and Syphilis.**—A regulation adopted by the Illinois State Department of Health requires that dog bites and other injuries inflicted by animals on human beings be reported immediately. The regulation further requires that the circumstances surrounding each instance be investigated by the health officer or a physician designated by him to determine whether the animal concerned is rabid and whether the injured person needs antirabic treatment. Last year 5,336 persons were given antirabic treatment with vaccine supplied by the state department of public health. The heads of 877 dogs were examined in the laboratories of the department, and nine persons died of rabies in the state. The department also announces that drugs for the treatment of syphilis will be distributed free of charge in the future. Heretofore these drugs were available for indigent persons only. The change in policy was made to encourage early, adequate and efficient treatment by reducing the cost to the patient, regardless of his financial ability.

## Chicago

**Dr. Cutler Visiting Professor at Peiping.**—Dr. Max Cutler, director of the tumor clinic at Michael Reese Hospital, is spending two months at Peiping Union Medical College, Peiping, China, as visiting professor of surgery. Dr. Cutler will return May 10.

**Dr. Joslin Lectures on Protamine Insulin.**—Dr. Elliott P. Joslin, clinical professor of medicine, Harvard University Medical School, Boston, delivered the ninth annual Stephen Walter Ranson Lecture in Thorne Hall, Northwestern University, February 3, on protamine insulin.

**The Gehrman Lectures.**—Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., will deliver the Gehrman Lectures at the University of Illinois College of Medicine, March 22-24. His subjects will be "Health as a Factor in Social Security," "Industrial Hygiene," and "Syphilis." These lectures were scheduled for January 25-27 but were canceled on account of the flood emergency.

**Approval of Hospital Plan Withheld.**—The Chicago Medical Society is withholding approval of the group hospitalization branch of the Chicago Hospital Service Corporation until at least 51 per cent of the directors of the project are restricted to members of the society, according to the *Illinois Medical Journal*. The set-up of the plan now offers to physi-

evidence for the preparation under present consideration cannot be considered as adequate or convincing.

The Council declared Trichophyton Extract (Dermatomycol) and Trichophytin Filtrate (Dermotricofitin) unacceptable for inclusion in New and Nonofficial Remedies because they are preparations of indefinitely declared composition (Rule 1) and of unproved originality marketed under proprietary names (Rule 8) with unwarranted therapeutic claims (Rule 6).

When the foregoing report of the Council's consideration was sent the Laboratório Brasileiro de Chimioterapia, Ltda., the firm asked that the Council hold publication in abeyance while further investigation was being made. The firm indicated its willingness meanwhile to withhold active promotion of the product. Subsequently the firm of Ernst Bischoff & Co. took over the distribution of these products. That firm has recently informed the Council that it desires to proceed with the active marketing of Dermatomycol and Dermotricofitin at once. In view of this the Council was obliged to authorize publication of the report of its consideration of these products.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

### ACRIFLAVINE NEUTRAL-CALCO (See New and Nonofficial Remedies, 1936, p. 189).

The following dosage form has been accepted:

*Acriflavine Neutral-Calco, Vaginal Capsules, 1/4 grain:* Acriflavine neutral-Calco 1/2 grain (0.033 Gm.) in a one-half ounce soluble gelatin capsule containing an excipient the composition of which is sugar of milk, starch and talc.

**RINGER'S SOLUTION.**—Aqueous solution containing, in 1,000 cc., sodium chloride 7.0 Gm., potassium chloride 0.30 Gm., and calcium chloride 0.25 Gm.

**Actions and Uses.**—Ringer's Solution is used when chlorides and sodium, potassium and calcium have been diminished. It is indicated in all forms of dehydration but particularly in cases in which loss of gastro-intestinal secretions has resulted from vomiting, diarrheas or fistulas. It is also used in acidosis or alkalosis for improvement of circulation and stimulation of renal activity.

**Dosage.**—Ringer's Solution is given by all parenteral routes, chiefly subcutaneously and intraperitoneally.

*Ringer's Solution in Filtrate Container:* Each 100 cc. contains sodium chloride-U. S. P. 0.7 Gm., potassium chloride-U. S. P. 0.03 Gm., and calcium chloride (anhydrous) 0.025 Gm. Marketed in bottles (Filtrate containers) of 500 and 1,000 cc.

Prepared by Hospital Liquids, Inc., Chicago.

Ringer's solution occurs as a clear, colorless solution, possessing a slightly saline taste. The specific gravity is from 1.005 to 1.006 at 25 C. Twenty-five cc. of the solution concentrated to 10 cc. conforms to the U. S. P. XI test for heavy metals; 10 cc. of the solution conforms to the U. S. P. XI test for arsenic.

Concentrate 20 cc. of Ringer's solution to a volume of 5 cc., transfer to a test tube, add 1 cc. of freshly prepared sodium cobaltic nitrite solution, dilute to 10 cc., and mix thoroughly; prepare a standard solution of potassium chloride as follows: dissolve 1.5 Gm. of potassium chloride (dried at 200 C.) to make 1,000 cc. of solution. Transfer 4 cc. and 5 cc. portions of the standard potassium chloride solution to test tubes and add 1 cc. of freshly prepared sodium cobaltic nitrite solution. Dilute each portion of the standard to 10 cc., and mix thoroughly; the turbidity produced by the Ringer's solution at the end of ten minutes is less than that produced by 5 cc. and more than that produced by 4 cc. of the standard solution (limit of potassium [K<sup>+</sup>]).

Transfer 5 cc. of Ringer's solution to a Nessler tube, add 0.5 cc. of diluted acetic acid, 40 cc. of water, and 5 cc. of ammonium oxalate solution; dilute to 50 cc., and mix thoroughly; prepare a standard calcium acetate solution by dissolving 0.287 Gm. of precipitated calcium carbonate (dried at 200 C.) in 15 cc. of water containing 3 cc. of acetic acid and diluting to 250 cc. Transfer 1 cc. and 1.25 cc. portions of this standard solution to Nessler tubes, add 40 cc. of water and 5 cc. of ammonium oxalate solution and dilute to 50 cc.; the turbidity produced by 5 cc. of the Ringer's solution is less than that produced by 1.25 cc. and more than that produced by 1 cc. of the standard solution at the expiration of fifteen minutes (limit of calcium [Ca<sup>++</sup>]).

Transfer 25 cc. of Ringer's solution to a weighing dish, evaporate to dryness on the steam bath, place in oven at 150 C. for two hours, cool in a desiccator, and weigh; the weight of residue obtained is not less than 0.18 Gm. and not more than 0.19 Gm. Treat 25 cc. of Ringer's solution with an excess of sulfuric acid, evaporate to dryness, and ignite to constant weight at 750 C.; the weight of ash obtained is not less than 0.22 Gm. nor more than 0.23 Gm.

Transfer 10 cc. of Ringer's solution to a 400 cc. beaker, add 50 cc. of water and 4 cc. of diluted nitric acid; dilute to 200 cc., add 15 cc. of silver nitrate solution, heat to boiling and allow to stand until the precipitate is granular. Filter onto a weighed gooch crucible previously heated to 150 C.; wash the precipitate well with hot water; dry to constant weight at 140 to 150 C.; the chloride (Cl<sup>-</sup>) calculated from the silver chloride weight is not less than 0.0435 Gm. nor more than 0.0465 Gm.

## Council on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

### HI-LO BRAND DOUBLE ACTING BAKING POWDER

**Manufacturer.**—Hi-Lo Baking Powder Company, Muskogee, Okla.

**Description.**—Baking powder consisting of cornstarch, sodium bicarbonate, sodium aluminum sulfate and calcium acid phosphate.

**Manufacture.**—The ingredients comply with definite specifications of purity, composition and granulation as analytically tested for conformity with specifications and food law requirements. They are weighed and thoroughly mixed in formula proportions. Each batch is tested for total carbon dioxide and proper mixture, then automatically packed in tins.

**Analysis** (submitted by manufacturer).—Total carbon dioxide (CO<sub>2</sub>) 15.7%, available carbon dioxide (CO<sub>2</sub>) 15.3%, residual (CO<sub>2</sub>) 0.4%, sodium oxide (Na<sub>2</sub>O) 14.1%, sodium as Na 5.6%, phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>) 6.7%, phosphorus as P 3.0%, aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) 5.0%, aluminum as Al 2.7%, sulfur trioxide (SO<sub>3</sub>) 15.1%, sulfur as S 6.0%, starch 35.0%, combined water (by difference) 8.3%.

**Calories.**—1.4 per gram; 40 per ounce.

### SEXTON BRAND SWEET WRINKLED PEAS, WATER PACKED

**Manufacturer.**—John Sexton & Company, Chicago.

**Description.**—Canned peas, packed in water.

**Manufacture.**—Peas are harvested at the desired degree of maturity, vined, milled, washed, graded, inspected, blanched, again washed, and automatically filled into cans. The cans are filled with water, sealed and processed.

**Analysis** (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 87.6%, total solids 12.4%, ash 0.38%, fat (ether extract) 0.4%, protein (N × 6.25) 3.7%, crude fiber 1.18%, carbohydrates other than crude fiber (by difference) 6.7%.

**Calories.**—0.45 per gram; 13 per ounce.

**Claims of Manufacturer.**—Choice quality peas packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

### RED & WHITE BRAND FLOUR

**Distributor.**—Red & White Corporation, Chicago.

**Manufacturer.**—Blair Milling Company, Atchison, Kan.

**Description.**—A hard winter wheat "long patent" flour; bleached. The same as Blair's Certified Northern Type Flour (Bleached) (THE JOURNAL, Aug. 26, 1933, p. 675).

### MILTON QUALITY PINEAPPLE JUICE

**Distributor.**—M. I. Kimball Company, Lawrence, Mass.

**Packer.**—Hawaiian Pineapple Company, San Francisco.

**Description.**—Canned unsweetened pineapple juice, the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p. 1769).

### ADVERTISING BOOKLET "BREAD WINNERS"

**Sponsor.**—General Mills, Inc., Minneapolis.

This is a leaflet prepared for distribution to the public. It is made up mainly of recipes and menus involving the use of bread.



necessary construction and alterations of the first and second floors of the northwestern wing of the hospital will be ready for installation of the machine June 1. Four patients can be treated at a time with the new machine, which will be used primarily for the treatment of deep-seated tumors. Drs. Edward Schons and John P. Medelman will be directors of the radiologic department of the hospital, which has a bed capacity of 199.

**Society News.**—The Cass County Medical Association was organized at a meeting in December in Walker. Dr. Otto F. Ringle, Walker, was chosen president, and Dr. Robert W. Campbell, Cass Lake, secretary.—Dr. Walter Schiller, Vienna, lectured at the Mayo Clinic, Rochester, January 22, on "New Findings in Ovarian Tumors." Dr. Cyril N. H. Long, professor of biochemistry, Yale University School of Medicine, gave a Mayo Foundation Lecture, January 28, on "The Physiology of the Adrenal Glands."—Dr. Evarts A. Graham, St. Louis, was the guest speaker at the fifteenth annual meeting of the Minneapolis Surgical Society, February 4; his subject was "Some Aspects of Disease of the Biliary Tract."—The Hennepin County Medical Society was addressed, January 27, by Drs. Charles W. Rucker and Kenneth A. Phelps on recent advances in ophthalmology and otolaryngology respectively.

### MISSOURI

**Bill Introduced.**—H. 276 proposes to repeal the present laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act.

**Spring Medico-Military Symposium.**—The spring medico-military symposium will be held in the auditorium of the Jackson County Medical Society, Kansas City, March 15-16. An address by Dr. Paul B. Magnuson, associate professor of surgery, Northwestern University Medical School, Chicago, will follow a symposium on the heart the morning of the first day; his subject will be "Differential Diagnosis of Pain in the Joints." The remainder of the two day program will be devoted to gastro-intestinal and respiratory symposiums and a session given over to the specialties. Luncheon addresses will be delivered by Major Gen. Stanley Ford, commander of the seventh corps area, Omaha, and Brig. Gen. Charles M. Bundel, commander, Fort Leavenworth, Kan. Evening sessions will be addressed by Drs. Magnuson on "The Immediate Diagnosis and Treatment of the So-Called Industrial Backache"; Peter T. Bohan, "Somatic Complaints in the Psychoses, Neuroses and Conflicts," and Claude S. Beck, associate professor of surgery, Western Reserve University School of Medicine, Cleveland, "Recent Advances in Cardiac Surgery."

### NEBRASKA

**Bill Introduced.**—Bill 270 proposes to require the state board of examiners in the basic sciences to keep a record of all their acts and proceedings, such record to include all questions, answers and grades in examinations given by the board. These records are to be public records available for public inspection. The examination papers, however, are to be kept for a period of only two years and are to be available for inspection only by the applicant or by the superintendent of his training school or other proper representative under regulations by the department of health.

### NEVADA

**Bill Introduced.**—A. 120, to amend the chiropody practice act, proposes, among other things, to make the terms "chiropody" and "podiatry" synonymous and to define chiropody or podiatry as "the diagnosis of foot ailments; the dressing, padding and strapping of the feet; the making of plaster models of the feet and the palliative, medical, surgical, manipulative, electrical and mechanical treatment of the functional disturbances of the feet, except amputation of the foot or toes, or the use of anesthetics other than local, or the use of drugs or medicine other than local antiseptics as taught and practiced in the schools of chiropody recognized by the board of examiners."

### NEW JERSEY

**Personal.**—Dr. Henry O. Carhart, Blairstown, has been appointed medical examiner for the state highway department, a newly created position.—Dr. George T. Tracy, Beverly, resigned the office of secretary of the Burlington County Medical Society after serving thirty-two years.

**Bills Introduced.**—S. 140 proposes to authorize courts to enjoin violations of the state sanitary code. A. 233 proposes to create a board of naturopathic physicians and to regulate the practice of naturopathy. The bill proposes to define the practice of naturopathy as "that system of the healing art which uses and prescribes the following practices and usages: diagnosis and the practice of the combined physiological, mechanical and material sciences of healing as taught in schools, institutes and colleges of naturopathy, which shall include physiotherapy, hydrotherapy, mechanotherapy, psychotherapy, phytotherapy, electrotherapeutics, corrective and orthopedic gymnastics, external applications, manipulation, and nutritional control." A. 235 proposes to enact a separate chiropractic practice act which would authorize the governor to appoint a board to examine and license persons to practice chiropractic. The bill proposes to define "chiropractic" as "the adjusting of the articulation of the vertebral column, and of the tissues adjacent thereto for the removal of nerve interference." A license to practice chiropractic, the bill proposes, "shall confer upon the licensee the right to diagnose and/or locate and remove interference to the transmission of nerve energy, according to the theory and practice of chiropractic, including the regulation of patient's diet, sanitary and hygienic habits; the use of the title, 'doctor' or 'Dr.' in connection with his name when accompanied by the name 'chiropractor' or 'philosopher of chiropractic' or 'Ph.C.' or 'master of chiropractic' or 'M.C.' or any such title tending to imply that he is a licensed chiropractor." A. 242 proposes to make it the duty of every physician, nurse, parent or guardian having charge of any child under 6 years of age who is totally deaf or whose hearing is impaired to report the facts in writing to the state department of health. The department is to investigate each case and if it finds that the minor is not receiving adequate care and treatment it must report the facts to the appropriate welfare, or other official agency, which must provide for necessary care and treatment. A. 247 proposes to authorize the sexual sterilization of idiots, imbeciles, feeble-minded and epileptics. A. 255, to amend the uniform narcotic drug act, proposes to include the word "marihuana" in the definition of the word "cannabis," as used in the act. A. 260 proposes to make it mandatory for a person arrested for driving a motor vehicle allegedly under the influence of alcohol to submit to a physical examination by a physician as soon as possible after the arrest.

### NEW YORK

**Bills Introduced.**—A. 1167 proposes that "every city, town and village . . . shall be liable for, and shall assume the liability to the extent that it shall save harmless any physician rendering medical services of any kind gratuitously to a public institution, from damages for personal injuries alleged to have been sustained by reason of the malpractice of such physician while engaged in the rendition of such services." A. 1179 and S. 672, to amend the workmen's compensation law, propose to define "an occupational disease" as "a disease which is the natural and unavoidable result arising from conditions that are characteristic of and peculiar to, a particular trade, process, occupation or employment in which the employee was employed or engaged."

**Society Campaigns for Legible House Numbers.**—The Erie County Medical Society recently sponsored a campaign to have legible house numbers on all the houses in Buffalo in order that physicians might save time formerly lost hunting strange addresses. The society's committee on legislation placed the society on record as requesting that something be done about the thousands of houses without numbers and thousands of others with numbers that could not be read. With the aid of the newspapers, publicity was given to the plan and the city council passed an ordinance requiring owners of buildings to put on them in conspicuous places numbers 4 inches high and of a color in sharp contrast to the background. The penalty for violation of the ordinance is \$25. It is said that about 140,000 new house numbers were sold in Buffalo just before the ordinance went into effect. The Rensselaer County Medical Society has adopted a resolution asking a similar reform in the city of Troy, it is reported.

### New York City

**Art Exhibit Plans.**—The tenth annual exhibition of the New York Physicians' Art Club will be held at the New York Academy of Medicine, April 3-17. Original work in painting, etching, sculpture or arts and crafts by physicians is invited and must be delivered before March 13. For application blanks and full details apply to Dr. Louis C. Schroeder, secretary, 50 East Seventy-Second Street, New York.

theory that spirochetes may remain dormant in the organism of patients, both untreated and treated, and that these spirochetes may later become activated, invade the blood and cause lesions of the central nervous system.

### MIXED VACCINATION

Mixed or combined vaccination involves the simultaneous use of two or more vaccines or toxoids for protection of the organism against more than one disease. The first vaccines of this type consisted of typhoid and cholera bacilli, used experimentally in 1887 by Widal and Sicard and in 1902 by Castellani, who vaccinated human beings with typhoid and paratyphoid organisms. Since then combinations have been employed in the therapy of intestinal and wound infections, whooping cough, grip and other diseases. During the recent war the French used typhoid-paratyphoid A and B mixture and the Russians the tetravaccine typhoid-paratyphoid and *Vibrio cholerae*. The results of Friedberger, Imai, Mer, Weinberg, Davesne and Sanchez failed to confirm the value of the typhoid-cholera vaccine, although Widal and Sicard, Castellani, Bjeloussow, Prcdtetschenski and Wosskressenski, Weber, Zlatogoroff, Glusman and Kandyba<sup>1</sup> and Tanaka found an increase in antibodies against the individual microbes in the mixed vaccine. In 1926 Ramon and Zoeller<sup>2</sup> learned that when horses which were employed for diphtheria and tetanus antitoxin production developed abscesses at the point of inoculation the antitoxic titer of the blood serum became augmented. The injection of nonspecific substances such as tapioca powder, calcium chloride or dead microbes produced a similar stimulus. After inoculating one set of guinea-pigs with diphtheria anatoxin, a second with tetanus anatoxin and a third with a mixture of diphtheria anatoxin and tetanus anatoxin, they found that the third group possessed a higher antitoxic titer for diphtheria and tetanus than the other two inoculated with the single antigen vaccine. In similar manner Isabolinsky and Judenitsch injected animals with vaccine containing the typhoid bacillus and diphtheria anatoxin and found the agglutinin titer against the former as high as in the animals injected with the bacillus alone, and the resistance to diphtheria toxin as high as in the animals injected with the toxoid.

Hektoen and his students<sup>3</sup> have also shown that multiple antigens contained in a mixture do not impair or diminish antibody formation. Immunization of the rabbit with a mixture containing as many as thirty-two distinct and separate antigens resulted in precipitin

formation for each of the individual antigens, and the precipitins were removed from the immune serum successively by selective action of the individual antigen. Agglutinins and lysins as well for different species of blood corpuscles developed simultaneously in the blood of animals immunized with mixtures of ten kinds of laked blood.<sup>4</sup>

In man, Ramon and Zoeller, Zoeller, Martin, Loiseau and Laffaille, and Crouzou, Loiseau and Lafaille noted that the Schick test became negative in subjects inoculated with mixed vaccines one of the constituents of which was diphtheria toxoid. After having inoculated a French regiment with such a vaccine, Dopter<sup>5</sup> failed to observe superior results with diphtheria toxoid alone. Up to April 1933, of 18,126 French soldiers given the vaccine twenty developed diphtheria, while of 42,000 not so vaccinated 434 cases occurred. At present the military health service of France recommends the adoption of mixed vaccine prophylaxis. The combinations of vaccines employed are typhoid-paratyphoid-diphtheria toxoid, diphtheria toxoid-tetanus toxoid, diphtheria toxoid-scarlet fever toxoid, and typhoid-paratyphoid A and B—diphtheria toxoid-tetanus toxoid.

In view of the favorable regard toward the mixed vaccine abroad, confirmatory investigations would seem to be in order here. Certainly if a sound, durable immunity can be developed in this way (and this can be discerned by the Schick and Dick tests) the method will become important in prophylaxis for its convenience and economy.

### THE NEONATAL LINE IN HUMAN GROWTH

Certain periods in human growth and metabolism, such as the prenatal period, the neonatal period, the period of infancy, the period of puberty and the adult stage, bring with them deep-seated metabolic changes. Unfortunately there are few permanent biologic landmarks to separate these periods. Under ordinary conditions the new-born infant does not regain its birth weight until the end of the first ten days of extra-uterine life. It is not surprising that the severe metabolic disturbances which the new-born infant experiences during the time when it ceases its intra-uterine existence and has to adjust itself to the changes of extra-uterine life should leave their mark on the body. In 1933 Harris<sup>1</sup> found neonatal changes in bone; he points out that "in neonatal life, as a result of the catastrophic changes involved at birth, an arrest of growth concomitant with the loss of weight in the first week of life is of such frequency as to be almost a normal feature."

1. Zlatogoroff, S. J.; Glusmann, M. P. and Kandyba, L. L.: Experimentelle Untersuchungen über gleichzeitige Immunisierung gegen verschiedene Infektionen, *Ztschr. f. Hyg. und Infektionskr.* **110**: 706, 1929.

2. Ramon, G., and Zoeller, C.: Les "vaccins associés" par union d'une anatoxine et d'un vaccin microbien (TAB) ou par mélanges d'anatoxines, *Compt. rend. Soc. de biol.* **93**: 506, 1925; **94**: 106 (Jan. 22) 1926.

3. Hektoen, Ludvig, and Boor, A. K.: Simultaneous Multiple Immunization, *J. Infect. Dis.* **48**: 588 (June), **49**: 29 (July) 1931. Hektoen, Ludvig, and Delves, Edna, *ibid.* **50**: 237 (March) 1932. Welker, W. H., and Hektoen, Ludvig, *ibid.* **53**: 165 (Sept.-Oct.) 1933.

4. Delves, Edna: Simultaneous Immunization with Mixture of Ten Kinds of Laked Blood, *J. Infect. Dis.* **57**: 61 (July-Aug.) 1935.

5. Dopter, M.: La vaccination associée dans l'armée, *Ann. Inst. Pasteur* **50**: 446 (April) 1933.

1. Harris, H. A.: *Bone Growth in Health and Disease*, London, Oxford University Press, 1933.

## PENNSYLVANIA

**State Tuberculosis Meeting.**—The annual meeting of the Pennsylvania Tuberculosis Society was held in Philadelphia, January 19-20. The speakers included Drs. Jay Arthur Myers, Minneapolis; Esmond R. Long, Philadelphia; Robert E. Plunkett, superintendent of tuberculosis hospitals, New York State Department of Health, Albany, and Kendall Emerson, New York, managing director of the National Tuberculosis Association. Dr. William Devitt, Allenwood, was reelected president.

**Bills Introduced.**—H. 859, to amend the medical practice act, proposes, in effect, to require applicants for licenses to practice medicine to be graduates of medical schools which require, as a condition precedent to admission, not less than two years or sixty semester hours of college credits, including one year in biology, one year in physics, one and one-half years in chemistry, including one-half year in organic chemistry, and six semester hours in English composition and literature. H. 907 proposes that no state-aided hospital shall be entitled to receive state appropriations if it requires any nurse or student nurse to work longer than eight hours in any twenty-four hour period, except as may be required to shift the hours of labor. H. 914 proposes to require the department of public instruction in issuing a renewal license to a practitioner of the healing art, or other person engaged in a trade or profession whose right to continue to so engage depends on the annual renewal of his license to practice, to collect from the licensee, in addition to the fee for the current year, the full amount of all fees and penalties for preceding years which the applicant for renewal has theretofore failed to pay. H. 915 proposes to authorize the department of public instruction "to fix the day in each year when the licenses or registration certificates for each profession or work at any trade or occupation for which annual renewals are required shall expire and on or before which renewals shall be secured."

## Philadelphia

**Medical College News.**—Mr. Joseph S. Conwell, Philadelphia attorney, has been elected president of Hahnemann Medical College and Hospital, succeeding the late Col. John Gribbel. —Mr. Robert P. Hooper was elected president of Jefferson Medical College recently.

**Personal.**—Dr. Harry A. Duncan was elected president of the Medical Alumni Association of the Medico-Chirurgical College of Philadelphia at its recent annual meeting. —Dr. Edward A. Schumann was elected president of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital at its fiftieth annual dinner in December. —Dr. Seth A. Brumm was honored by a stag dinner given by the Schuylkill County Medical Society December 8 in Pottsville, his former home.

**Professors Appointed.**—Dr. Francis Heed Adler has been appointed professor of ophthalmology at the University of Pennsylvania School of Medicine to succeed the late Dr. Thomas B. Holloway. Dr. Adler, 41 years old, has been visiting ophthalmologist to the Wills Eye Hospital. Dr. Francis C. Grant, assistant professor of neurologic surgery, has been appointed to a newly created professorship of neurosurgery in the school of medicine. Dr. Grant also holds a professorship of clinical neurosurgery in the Graduate School of Medicine of the university. Both physicians graduated from the school of medicine in 1919.

## SOUTH DAKOTA

**Bill Enacted.**—H. 75 has been approved by the governor, making it the duty of the governing agencies of the several public and parochial schools in the state to enforce the regulations of the state board of health requiring all teachers to obtain each year a certificate from a licensed physician showing the absence of active tuberculosis before they will be allowed to teach.

## TENNESSEE

**Bill Enacted.**—S. 174 has been enacted as Laws, 1936, c. 57, making it unlawful for any person, other than a registered pharmacist, wholesale druggist, producer or compounder, to sell, barter or possess cannabis or any compound, derivative or preparation thereof, except in accordance with the prescription of a licensed physician, dentist or veterinarian.

**Bills Introduced.**—H. 641 and S. 440 propose to require persons, associations or corporations manufacturing or selling products for which any vitamin claim is made to register the product quarterly with the commissioner of agriculture and at that time to pay a fee of \$50. It is to be unlawful to sell such products unless there is conspicuously printed on the container of the product the vitamin potency and U. S. P. XI units.

## TEXAS

**Bills Introduced.**—H. 555 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions. H. 851 proposes to prohibit the retail sale or other distribution of articles, drugs or medicinal preparations primarily manufactured, produced or intended for use as, or which may be used as contraceptives or prophylactics except by registered pharmacists or licensed physicians.

**Dallas Clinical Conference.**—The Ninth Annual Spring Clinical Conference of the Dallas Southern Clinical Society will be held at the Adolphus Hotel, March 15-18. Each morning there will be a general assembly, with lectures by guest speakers, followed by lecture courses given by local physicians. Luncheon periods will be devoted to round table conferences and afternoons to clinics in Dallas hospitals and at the hotel. The guest speakers and their subjects for the general assemblies are:

Chauncey D. Leake, Ph.D., San Francisco, Patent Medicine and Cosmetics.  
Dr. Charles F. McKhann, Boston, Poliomyelitis.  
Dr. Thomas G. Orr, Kansas City, Use and Abuse of Intravenous Therapy.  
Dr. Charles M. McKenna, Chicago, Treatment of Surgical Kidney with Special Reference to Kidney Stones.  
Dr. Elmer L. Sevinghaus, Madison, Wis., Irregular Menstruation and Fertility.  
Dr. William J. Dieckmann, Chicago, The Blood in Pregnancy.  
Dr. Walter J. Lillie, Philadelphia, The Inflamed Eye.  
Dr. William F. Rienhoff, Baltimore, Thyroid Disease.  
Dr. Joe V. Meigs, Boston, Ovarian Tumors.  
Dr. Francis E. Seneac, Chicago, Pruritus in Medicine.  
Dr. George E. Fahr, Minneapolis, Uremia and Pseudo-Uremia.  
Dr. William Mithoefer, Cincinnati, Nasal Catarrh.

Monday evening there will be a smoker with Dr. John Frederick Lubben Jr., Dallas, as master of ceremonies; Tuesday night a clinical pathological conference conducted by Dr. Henry M. Winans, Dallas. Wednesday night two symposiums will be presented: one on appendicitis by Drs. McKhann, Orr and Rienhoff; the other on kidney disease by Drs. Fahr, Lillie and Dieckmann. The annual clinic dinner will be on Thursday evening in the grand ballroom of the Adolphus. Dr. Winans is president and Dr. Everett C. Fox is secretary of the society.

## UTAH

**Bills Introduced.**—H. 183 proposes, as a condition precedent to the issuance of licenses to marry, that both parties to a proposed marriage present physicians' certificates that they are not infected with syphilis or gonorrhea. H. 192, to amend the law authorizing the sexual sterilization of certain socially inadequate inmates of state institutions, proposes that the control of sexual sterilization be vested in a board of five persons, one of whom must be a physician specializing in biology, one a physician in general practice, one a socially minded attorney, one psychologist and one psychiatrist. The bill further proposes that no sterilization operation shall be performed "unless the generative organs are found to be afflicted with incurable disease or diseases."

## VERMONT

**Bill Introduced.**—S. 38, to amend the workmen's compensation act, proposes that during the first fourteen days of disability the employer shall furnish to a workman injured in the course of his employment reasonable surgical and medical services and supplies not exceeding the amount of \$25 if the injured employee is not incapacitated for work for more than seven days, and, if the injured employee is incapacitated for work for more than seven days, then the employer shall furnish reasonable surgical and medical services and supplies during the first twenty-one days of disability but not to exceed \$50.

## VIRGINIA

**Medical College News.**—The cornerstone was recently laid for a new clinic and laboratory building at the Medical College of Virginia, Richmond. A new heating plant and a laundry have been completed at the college and a dormitory for the hospital house staff and the senior medical class is to be put in construction shortly. The building program of the college, amounting to more than \$1,000,000, has been financed by federal grants of about \$400,000, a gift to the school of \$300,000 and the sale of self-liquidating bonds of about \$300,000.

**Changes in State Health Staff.**—Dr. Charles Howe Eller, recently health officer of Charlottesville and secretary of the Albemarle County Board of Health, has been appointed director of the bureau of rural health in the state health department. He succeeds Dr. Edwin L. McQuade, who

ticularly true of the central nervous system and its branches, on which the toxin acts in a highly specific manner. The contention is that when toxin is recovered from various organs of the experimental animal it is only because of the "toxiferous" blood contained in these organs, and that carefully washed material is devoid of toxin, at least in a form recoverable by the methods used. This constitutes a departure from the currently accepted belief, but the departure seems well founded by the thoroughness with which the work has been done. The nature of this fixation of toxin presents a most important problem not only in tetanus but in kindred diseases. With it is bound up the entire question of antitoxin formation. It is to be hoped that continued investigation may shed some light on this problem also.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ALABAMA

**Society News.**—The Northwestern Division of the Medical Association of Alabama was addressed in Jasper, January 8, by Drs. Daniel C. Elkin, Atlanta, on "Diagnosis and Treatment of Wounds of the Heart"; Audiss M. Walker, Tuscaloosa, "Sinuses from Today's Aspect"; William W. Alexander, Florence, "The Postparalytic Management of Anterior Poliomyelitis"; Ollie P. Board, Birmingham, "Diagnosis and Treatment of Peripheral Vascular Disease," and Lewis C. Davis, Gordo, "Treatment of Lobar Pneumonia."

### ARIZONA

**Personal.**—Dr. Charles S. Smith, Nogales, has been appointed a member of the Arizona State Board of Medical Examiners, succeeding Dr. John E. Bacon, Miami, resigned. —Dr. Benjamin M. Berger, formerly city health officer of Phoenix, has been appointed superintendent of the state hospital for the insane at Phoenix, succeeding Dr. James R. Moore.

**Society News.**—Dr. Leon Unger, Chicago, addressed the Maricopa County Medical Society in Phoenix, December 21, on allergy. Dr. Bransford Lewis, St. Louis, addressed the society December 7 on "Nephropexy," and Dr. Ralph F. Palmer, Phoenix, on "Injection Treatment of Hernia." —Dr. Jesse D. Hamer, Phoenix, president of the Arizona State Medical Association, addressed the Santa Cruz County Medical Society at its annual meeting December 5.

**Bills Introduced.**—H. 150, to amend those provisions of the medical practice act relating to the practice of osteopathy, proposes (1) in effect to permit licensed osteopaths to practice medicine and surgery without restriction, (2) to require applicants for licenses to practice osteopathy, among other things, to file a diploma from a legally chartered school of osteopathy, the requirements of which shall have been at the time of granting such diploma not less than those prescribed by the American Association of Osteopathic Colleges for that year, and (3) to permit the licensing of osteopaths by reciprocity. H. 163 proposes to authorize the compulsory treatment of inmates of state institutions afflicted with contagious or infectious venereal disease and to permit the detention of such inmates beyond the periods of their sentences until such time as their discharge will not endanger public health.

### ARKANSAS

**Changes in Health Staff.**—Dr. Walter Myers Smith, Morrilton, has resigned as director of the field experience center to accept a similar position with the division of maternal and child welfare of the state board of health. Dr. William P. Scarlett, Morrilton, director of the Conway County health unit, will succeed Dr. Smith, and Dr. Scarlett will be succeeded by Dr. John M. Smith, formerly of Russellville.

**Bills Introduced.**—S. 297, to amend the chiropractic practice act, proposes (1) to require chiropractors to pay annual renewal fees of \$7.50 and (2) to make the annual renewal of a license to practice chiropractic contingent on the licensee's presenting evidence that he has "in the year preceding the application for renewal attended the annual educational program as conducted by the Arkansas State Association of Doctors of Chiropractic." H. 423 proposes to prohibit the retail sale and other distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of conception and/or venereal diseases except by licensed physicians and by licensees of the state board of health. H. 452, to amend the chiropractic practice act, proposes to permit licensed chiropractors "to practice chiropractic in all its branches as taught and practiced in legally incorporated colleges of chiropractic." The bill defines legally incorporated colleges of chiropractic as "those that teach not less than a total of five thousand class hours in the following subjects: anatomy, physiology, chemistry, bacteriology, pathology, symptomatology, hygiene, chiropractic principles, diagnosis, minor surgery, obstetrics, gynecology, chiropractic adjusting and X-Ray operation." Under the present law chiropractors may adjust by hand the displaced segments of the vertebral column and any displaced tissue in any manner related thereto for the purpose of removing any injury, deformity or abnormality of human beings.

### CALIFORNIA

**Dr. Abbott Lectures.**—Dr. Maude E. S. Abbott, Montreal, Canada, lectured in Pasadena, December 3, at the Stanley Black Memorial Hall, on "The Influence of Sir William Osler, A Personal Reminiscence." Under the auspices of the Los Angeles Heart Association, Dr. Abbott also conducted clinics on congenital heart diseases at the Los Angeles Hospital, December 2, and at the Children's Hospital, December 3.

**Secretaries' Conference.**—The annual conference of county secretaries of the California Medical Association was held at the Sir Francis Drake Hotel, San Francisco, February 6. Drs. Edward M. Pallette, Los Angeles, and Howard Morrow, San Francisco, president and president-elect, respectively, and Morton R. Gibbons, San Francisco, chairman of the council of the state association, spoke. Other speakers included:

Dr. Thomas Henshaw Kelly, San Francisco, Hospital and Health Insurance.  
Dr. Roscoe G. Leland, Director, Bureau of Medical Economics, American Medical Association, Chicago, Medical Economics.  
Dr. Charles A. Dukes, Oakland, Public Health Institutes.  
Dr. William W. Roblee, Riverside, Disciplinary Procedure.  
Hastley F. Peart, San Francisco, legal counsel for the state association, Malpractice Suits.  
Dr. Junius B. Harris, Sacramento, Legislation.  
Dr. Arthur E. Varden, San Bernardino, County Society Programs.  
Dr. Clarence G. Toland, Los Angeles, Postgraduate Programs.

### COLORADO

**Bills Introduced.**—S. 553 proposes to deprive the board of medical examiners, the board of chiropractic examiners, and all other healing arts licensing boards that may be created in the future, of the right to revoke or suspend licenses they have issued and to vest in appropriate district courts the right to revoke and suspend licenses. A district court may act in the matter, however, only on the complaint of a licensing board. Each member of a licensing board must file a surety bond in the sum of \$5,000 and failure to furnish such a bond is to terminate automatically the tenure of office of any member who is in default. Members of the board filing the complaint with the district court are to be personally liable to the licensee on their bonds for any damage to his reputation or business if he is acquitted of the charge against him and it appears that such charge was preferred falsely and maliciously. S. 613 proposes so to amend the law regulating the sale of hypnotic drugs as to include within its provisions "bromides or any compounds or mixtures thereof possessing hypnotic properties or effects."

### CONNECTICUT

**Society News.**—Dr. William T. Salter, assistant professor of medicine, Harvard University Medical School, Boston, addressed the Yale Medical Society, New Haven, January 13, on thyroid hormone. At a meeting of the society, February 10, Dr. Edwin F. Gildea, Evelyn B. Man, Ph.D., and Dr. John P. Peters, among others, discussed "Serum Lipoids in Hyperthyroidism."

**Physician Honored.**—Dr. Max Mailhouse, clinical professor of neurology, emeritus, Yale University Medical School, New Haven, was guest of honor at a dinner, February 5, in celebration of his eightieth birthday. Dr. George Blumer acted as toastmaster. Dr. Mailhouse graduated from Yale in 1878 and resigned from its faculty in 1920, after twenty years' service.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb. 6, 1937.

#### Protamine Insulin

At the Royal Society of Medicine, Dr. H. C. Hagedorn of Copenhagen described protamine insulin, which he has introduced. Oscillations of the blood sugar in severe cases of diabetes could be modified by appropriate distribution of the diet or by better timing of the insulin effect through modification of the insulin preparations. The latter method had been thought of as early as 1923 and his institute had taken much interest in it ever since. Three ways of retarding the effect of insulin had been tried: (1) emulsification of insulin solution or suspension of dry insulin in oil; (2) injection of a vasoconstrictor with insulin; (3) injection of insulin as a more or less insoluble compound. Theoretically, injection of a suspension of an insoluble compound gave a constant rate of absorption. He had restricted his experiments to substances which were destroyed or excreted rapidly, fearing that others would sooner or later cause some unpleasant surprises. Many protamines had been tried, and salmadin (obtained from the rainbow trout) had been chosen.

The clinical results were most encouraging. Both children and adults who used to have several periods in the hospital each year, being brought in in a hypoglycemic or semicomatose state, came no longer. There was one admission due to hypoglycemia from taking a big overdose of protamine insulin while in a condition of alcoholic intoxication. The prolonged administration of protamine insulin had prevented severe hypoglycemic attacks and also the rise of the blood sugar in the early morning. It enabled him to give only two doses a day to patients who, in spite of much juggling with food, required three or four doses of insulin hydrochloride a day. Single doses of protamine insulin given on waking had kept the blood sugar level to between 0.08 and 0.15 per cent for twenty-four hours. Naturally the distribution of carbohydrate had to be adjusted: 35 per cent at breakfast, two hours after injection, and 50, 10 and 5 per cent at lunch, tea and the evening meal. The total carbohydrate was often well over 200 Gm. But in some cases hypoglycemia developed about 11 a. m. and in others insulin was ineffective. The variable action probably depended partly on the site of the injection.

#### The Wellcome Trust

The late Sir Henry Wellcome, the sole proprietor of the firm of Burroughs, Wellcome & Co., made munificent gifts to medical science during his life. His will provides that his whole estate, after providing for certain charges, will be devoted to this purpose. His instructions are as follows: 1. For the maintenance of the Research Undertaking Charity, which is a fund for the advancement of medical and scientific research work in any part of the world conducive to the improvement of the physical conditions of mankind, and in particular for the discovery, invention and improvement of medicinal agents and methods for the prevention and cure of disorders, and the control or extermination of insects and other pests that afflict human beings and animal and plant life, and also for the organization, equipment and expense of special research expeditions and commissions. 2. For the maintenance of the Museum and Library Charity, which is a fund for the establishment or endowment of research museums or libraries in any part of the world for the collection of information of every kind connected with the history of medicine, surgery, chemistry, bacteriology, pharmacy and allied sciences which in the opinion of the trustees may be desirable. Three of the trustees must

be business men and two men of medical eminence. Sir Henry Dale, F.R.S., director of the National Institute of Medical Research, and Prof. T. R. Elliott, F.R.S., director of the Medical Unit, University College Hospital, are appointed. In a letter to the press the trustees state that they believe that this is the first example, in this country at least, of a testamentary decision by which the whole of the profits of a great manufacturing and trading organization, after certain personal and memorial bequests have been fulfilled, are permanently dedicated to the advancement of knowledge for the general benefit of mankind.

#### The Migration of Women in the British Empire

In a debate in the House of Commons on the empire settlement bill, more than one member drew attention to the need to encourage British women to migrate to the dominions. It was pointed out that, while in Great Britain the women outnumber the men by 1,000,000, in every dominion the men outnumber the women. Owing to industrial depression in the dominions and to antagonism to immigration of the labor parties there, this process has been almost at a standstill for some years. Nevertheless the Society for the Overseas Settlement of British Women has been able to show gratifying results. The total last year was 476 against 365 in the previous year. The number of professional women settled was 333, against 228, 187, 140, 152, 204, 262 and 254 in the preceding years backward. Of the emigrants last year 294 went to the Union of South Africa, eighty-five to Rhodesia, forty-six to Australia, twenty-two to Kenya, sixteen to Canada and four to New Zealand. The society reports an increased interest in migration to the dominions on the part of well qualified women with an urge for adventure. It prefers women between 25 and 35, and single for choice. The posts which the society fills include those of schoolmistresses, nursery governesses and children's and hospital nurses. During 1936, 116 hospital nurses were settled in South Africa and Australia, compared with fifty-eight in 1935. The society gives advice to women desiring to join friends or relations overseas as well as those who desire to obtain employment. It suggests that some form of assisted emigration would greatly help to people the British Empire with the right sort of British women. Not every young woman, however enthusiastic she may be, can find the \$200 to take her to Australia or the \$125 to reach South Africa.

#### High Voltage Roentgen Therapy

At St. Bartholomew's Hospital a new high voltage roentgen therapy department, the gift of Mrs. Meyer Sason, designed to give a beam of greater penetrative power, higher intensity and shorter wavelength than any heretofore used in the treatment of cancer, has been inaugurated. The x-ray tube is 30 feet long and weighs 10 tons. The treatment room is flanked by two generator rooms, and the tube runs from one generator room to the other across the treatment room. The portion within the treatment room is surrounded by a protective sheath, consisting of a 6 inch layer of lead shot between steel cylinders. The beam is transmitted through an aperture in this sheath. As the tube is fixed, the floor of the treatment room is movable, so that the position of the patient with regard to the tube can be adjusted. Two generators, each of 600,000 volts, one of positive, the other of negative, potential are provided. The current for each generator is fed from the 400 volt alternating current mains into a transformer. By means of a special circuit embodying columns of continuously evacuated thermionic valves and oil immersed conductors, a rectified current at a constant potential of 600,000 volts may be obtained, and thus by using both generators a constant potential of more than a million volts can be applied to the tube. A protective wall of barium concrete has been built between the source of radiation and the operators.



cians the representation of seven directors out of fifteen, of which three may be nominated by the affiliated hospitals and two to represent the administration. Two may be nominated by the Chicago Medical Society.

### INDIANA

**Bill Passed.**—S. 203 has passed the House, proposing to amend the workmen's compensation act, by extending the period following an industrial injury during which an employer will be required to furnish medical and hospital aid to an injured workman, to ninety days. The present law imposes this liability only during the first thirty days after an injury.

**Society News.**—Drs. David L. Smith and Carl Habich discussed "Episiotomy and Perineal Repair, Indications and Technique" and "Trichomonas Vaginalis Vaginitis" before the Indianapolis Medical Society, January 19. At the meeting, January 26, Drs. Murray N. Hadley and Charles A. Weller lectured on "Indications for Gastric Decompression" and "Peptic Ulcers and Their Relation to Trauma" respectively. Dr. Kenneth G. Kollstaedt addressed the society January 12 on "The Hippuric Acid Excretion and Urea Clearance as a Test of Hepatic Function," and Dr. Frederic W. Taylor, "Early Operation in Acute Gallbladder Disease."

**State Projects Plan for Crippled Children.**—A survey is now under way in Indiana to complete a register of all crippled children in the state, according to the *Journal of the Indiana State Medical Association*. With the approval of the Indiana plan for services to crippled children by the Children's Bureau, U. S. Department of Labor, January 12, the state is now participating in all phases of the Social Security Act. The James Whitcomb Riley Hospital, Indianapolis, has been selected for the admission of nonindigent cases of spastic paralysis. South Bend and Evansville have also been designated as hospital centers in the program, but the names of cooperating hospitals have not yet been announced. A general advisory committee has been appointed by the Indiana State Board of Public Welfare to correlate the activities of various public and private agencies interested in the project.

### IOWA

**Refresher Courses.**—The speakers' bureau of the Iowa State Medical Society is presenting six "refresher" courses in two circuits of three centers each. There will be eight two hour lectures, four on pediatrics and four on obstetrics. The fee will be \$1 to cover the cost of mimeographing the lectures. The east circuit comprises Osceola, Centerville and Keokuk, where the lectures are being given Tuesdays, Wednesdays and Thursdays respectively. The course for the west circuit, comprising Panora, Denison and Red Oak, will begin March 9, with the lectures on Tuesdays, Wednesdays and Thursdays, respectively. The courses are under the auspices of the University of Iowa College of Medicine, the Iowa Pediatric Club, the Central Association of Obstetricians and Gynecologists and the state department of health. The bureau will also conduct three of its regular extension courses in general therapeutics in Ames, Fort Dodge and Mason City.

**Bills Introduced.**—S. 188, to amend the chiropractic practice act, proposes to authorize the board of chiropractic examiners to license such chiropractors to practice physical therapy as have pursued a course of training of at least 200 school hours in physical therapy in some recognized institution and have passed an examination in physical therapy to be given by the board. The bill proposes also to permit chiropractors to practice in all state and public institutions and hospitals supported by public taxation, to treat the indigent sick at public expense, and to recommend admissions and releases and make reports in connection with the admission of patients to all state and other public institutions. S. 178 proposes, as a condition precedent to the issuance of a marriage license, the presentation of a physician's certificate that each party to the proposed marriage is "free from venereal diseases as nearly as can be determined by a thorough examination and by application of the recognized clinical laboratory tests of scientific search, when in the discretion of the examining physician such clinical and laboratory tests are necessary."

### MAINE

**Bills Introduced.**—S. 282 proposes to grant to hospitals, treating injured persons, liens on all claims and causes of action of such injured persons or their estates because of the injuries. S. 364 proposes to repeal present laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act. S. 396 proposes to require physicians or hospitals treating persons

suffering from gunshot wounds to report the facts at once to the state department of health and to designated local police officials.

### MASSACHUSETTS

**Society News.**—The Boston Orthopedic Club was addressed, January 4, by Dr. Phillips F. Greene, dean, Hunan Yalc Medical College (Yale-in-China), on "Experiences in China."—Dr. Siegfried J. Thannhauser, Boston, addressed the William Harvey Society at Beth Israel Hospital, January 15, on "Development of Our Knowledge of Metabolism."—At a meeting of the Greater Boston Medical Society, January 12, Dr. Charles R. Austrian, Baltimore, spoke on bronchiectasis.—Dr. Samuel A. Levine, Boston, discussed "Some Interesting Experiences of a Heart Specialist" before the Pentucket Association of Physicians in Haverhill, January 14.

**Dr. Washburn Appointed Superintendent of Hospital.**—Dr. Frederic A. Washburn, who recently resigned as commissioner of institutions of Boston, has been appointed superintendent of the Cambridge Hospital, effective March 1. He was born in New Bedford in 1869, graduated from the Harvard University Medical School in 1896. He served as assistant director of the Massachusetts General Hospital in 1899 and from 1903 to 1908, when he became director. When he retired in 1934 he received the title director emeritus. Dr. Washburn was also director of the Massachusetts Eye and Ear Infirmary from 1915 to 1934. In the latter year he was appointed commissioner of institutions. He has been a member of the Council on Medical Education and Hospitals of the American Medical Association since 1931. He served in the World War and was awarded the Distinguished Service Medal.

### MICHIGAN

**University News.**—Mrs. Emma Fox, parliamentarian for the Wayne County Medical Society, Detroit, conducted a class in parliamentary law for eight consecutive Fridays under the University of Michigan Extension Course. The course began January 15.

**Personal.**—Dr. Daniel W. Fenton, Reading, was honored at a meeting of the Jackson County Medical Society, January 19, when a resolution was adopted recommending him for honorary membership. The resolution was drafted by the Jackson and Hillsdale county medical societies; Dr. Fenton, who was secretary of the latter at various times, was unable on account of illness to attend the meeting at which he was to be guest of honor. Although 89 years of age, Dr. Fenton is still in practice.

**Bills Introduced.**—S. 106, to amend the workmen's compensation act, proposes to make compensable occupational diseases arising out of and in the course of an employment. The bill proposes to define an "occupational disease" as a "disease which is due to causes and conditions which are characteristic of and peculiar to a particular trade, occupation, process or employment." H. 192, to amend the workmen's compensation act, proposes to make compensable some fourteen stated occupational diseases and poisoning from some thirteen stated substances.

**First Hickey Lecture.**—Dr. Augustus W. Crane, Kalamazoo, delivered the first annual Hickey Memorial Lecture, February 1, on "Some Memorable Antecedents to the Discovery of the X-Ray." The lectureship was established by the Detroit Roentgen Ray and Radium Society in honor of the late Dr. Preston M. Hickey, professor of roentgenology, University of Michigan Medical School, Ann Arbor. Dr. Crane was president of the American Roentgen Ray Society in 1916 and in 1921 was awarded the gold medal of the Radiological Society of North America. Dr. Crane died suddenly February 20.

### MINNESOTA

**Bills Introduced.**—S. 666 and H. 866 propose a procedure by which hospitals treating indigent persons injured through motor vehicle accidents will be reimbursed by the state. S. 699 and H. 884 propose to authorize the governor to impose on "service trades engaged in rendering and performing personal services upon a person or persons and licensed and regulated as such by the state" codes of fair competition to establish standards of maximum hours of labor, minimum rates of pay and working conditions. This bill might possibly be construed as empowering the governor to impose such a code on physicians.

**Million Volt X-Ray Machine.**—Plans have been completed to install a 1,200,000 volt, constant potential x-ray therapy machine in the Charles T. Miller Hospital, St. Paul, according to *Minnesota Medicine*. It is expected that the

in age from 9 months to 10 years. With the exception of one child contaminated since birth, who died of tuberculous meningitis, all the rest are clinically cured over a period varying from three to fifteen years. The cure in all depended on immediate suppression of the infecting contact and possibility of exogenous infections, and hygienic treatment carried out since the primary infection and followed up until its complete cure.

Debré and Lelong of Paris insisted on the necessity of following all cases of apparently benign tuberculosis in infancy throughout their adult life, because severe forms may develop during the latter period although the attack in infancy was a mild one.

All those who took part in the second part of the symposium were of the opinion that immediate separation from any source of contagion, a strict and prolonged cure and continuous surveillance of all tuberculous subjects should be carried out.

#### Minister of Public Health Opposed to State Medicine

At the annual banquet, December 20, of the National Federation of Medical Syndicates, which looks after the public relations of the profession, the principal speaker was Mr. Henri Sellier, minister of public health. He is a socialist and an ardent advocate, like other members of the present cabinet, of universal state ownership or control; hence it was gratifying to the representatives of the medical profession present at the banquet to hear Mr. Sellier declare that he was strongly opposed to any attempt that would make every physician a state official, as proposed by some of the more radical members of the majority of the present government. Mr. Sellier said that his department wished to cooperate to the fullest extent with the medical profession. No steps would be taken in public health matters without ample consultations. Every attempt to interfere with the material and moral prerogatives of the profession will be opposed by him, because no one is more aware of the tragic situation of physicians in France than he is. This was, however, equally true of all middle class citizens, who are less well organized than are those who earn their living by manual labor. Sellier stated that individual voluntary insurance has so successfully taken the place of obligatory state insurance in the United States that he believes the voluntary form could be regarded as superior to the compulsory form as carried out in France and a number of other European countries.

It is essential that every effort should be made to preserve the individual character of the medical profession in the form of organization as opposed to state medicine. It would, however, be a mistake for the profession to guard its individuality so jealously as to oppose the plans of the present government to organize preventive medicine with the cooperation of the profession. It is not the aim of the government to substitute free treatment, except in cases that require it, but rather to reduce the danger of disease to a minimum by establishing health centers throughout the country in which diagnosis and prophylaxis shall play the principal part. Public hospitals should receive only those absolutely unable to pay for medical services. This is especially applicable to large cities like Paris; but in smaller communities, some provision must be made to take care of those who are able to pay. Hence the tendency in France to allow public hospitals in rural centers to admit pay patients, whose fees for medical services will be distributed pro rata among members of the staff.

Sellier said he was fighting quackery with all the means at the disposal of his department. It is astounding to note the extent to which all forms of charlatanism have flourished in France with the aid, especially, of the press. In closing, the speaker made a plea for continued close cooperation of the organized profession and the public health authorities. The relation between the patient and the physician should never be disturbed by an attempt to make every member of the profession a government official.

#### BERLIN

(From Our Regular Correspondent)

Jan. 23, 1937.

#### The Economic Condition of Physicians in Germany

Especial interest attaches to a discussion of the economic condition of physicians by Dr. Kluge which recently appeared in the *Deutsches Aerzteblatt*, the official organ of the German medical profession. The author says that it is a mistake to think of German physicians as enjoying favorable economic circumstances. The exercise of a so-called more independent calling always entails a greater economic risk. A doctor's practice may fall off during economic depression, or he himself may be incapacitated by illness. Nearly every physician carries a burden of debt, the legacy of his years of professional training and becoming established in practice. The average age of physicians who died within the last three years was only 61. Saving to create a reserve for old age or illness is a necessity.

Therefore a minimal net annual income of 9,000 marks should not be considered too high. But even that would not permit putting by a sufficient reserve for old age or for the support of dependents. The question now arises: how much of a gross income is necessary to assure a satisfactory net income? A doctor's professional expenses will take on the average 40 per cent of his gross turnover. For example, in 1927 the gross income of the average German physician was 15,519 marks; professional expenses, estimated as consuming 40 per cent of the gross income, averaged 6,000 marks. Three fourths of these expenditures were for payment of taxes and for maintaining an automobile; the other fourth went for rental and maintenance of an office, for graduate studies and so on. This average 40 per cent of gross income expended is exceeded, however, by many doctors. Even a medium-sized practice necessitates the employment of assistants, owing to the vast amount of clerical work involved. This compulsory expenditure of 40 per cent of gross income is, however, readily overlooked by officials who attempt to estimate the average income of physicians because a civil servant is accustomed to think in terms of a net income and may in addition look forward to a pension. An insurance policy that would guarantee to the physician old age and disability benefits commensurate with those enjoyed by the civil servant through his pension would cost about 3,000 marks in annual premiums. This means that in order to provide for the necessities of life a doctor must have a total annual gross income of 18,000 marks.

But what is the actual situation? By far the most important single income of 90 per cent of all German physicians is from the sick insurance society practice. Income thus derived accounts for 75 per cent of the doctor's total income. This means that he must earn 13,500 marks at his insurance practice. What services must he perform to accomplish this end? If his activities are restricted to advice given at his office and to visiting patients in their homes, and if four fifths of these so-called basic activities consist in office examinations and the other fifth in visiting, four fifths of this 13,500 marks, namely, 10,800 marks, must be earned at the office and one fifth, or 2,700 marks, from the visits. The remuneration of an insurance physician per office examination averages 0.65 marks, that for a house visit 1.30 marks. Thus, to take in 10,800 marks, 16,600 office examinations are necessary and the earning of 2,700 marks in house visit fees would necessitate 2,070 such visits annually. This means a daily average of some fifty-five office examinations and seven visits. According to these estimates the physicians would be called on to treat 2,250 cases of illness annually. But actually there were in 1935 around 20,000,000 insured persons with a total morbidity (including relatives of the insured) of 2.7; the total number of illnesses was 54,000,000, the number of insurance physicians around 30,000. More precise calculations

**Card to Identify Diabetic Patients.**—The New York Diabetes Association has issued an identification card for diabetic persons who may suddenly become faint or unconscious. One side bears the name, address and telephone number of the person and the other the following legend:

The bearer of this card has diabetes and is using insulin. In case of sudden faintness or unconsciousness give 2 tablespoons of sugar dissolved in a glass of water and call a doctor.

**Lectures on Syphilis.**—A series of weekly lectures on modern methods of diagnosis and treatment of syphilis was begun at the New York Academy of Medicine February 3 and will continue Wednesday afternoons to March 17. The lecturers are Drs. Howard Fox, Louis Chargin, William Bayard Long, Isadore Rosen, Abernethy Benson Cannon, Charles Walter Clarke and Leo Spiegel. Practical demonstrations are being held in various hospitals in the boroughs of Manhattan, Brooklyn, Queens and Bronx.

**Beauty Shops Forbidden to Use Electrolysis.**—Removal of superfluous hair by any one other than a physician is now forbidden as a result of a recent decision against a beauty shop operator who was accused of practicing medicine without a license. Investigators from the state board of medical examiners had gone to the establishment and taken two treatments. Sol Ullman, assistant attorney general, who conducted the prosecution, said that the electrolysis operators take brief courses of instruction in so-called electrolysis schools, over which the state regents have no jurisdiction or supervision. Complaints have been made that in some cases the appearance of persons treated for superfluous hair by these operators has been permanently marred and facial disfigurement for life has resulted. On the basis of this court decision the board of medical examiners and the state attorney general plan a campaign to stop this use of electrolysis, according to the *New York Times*.

**Another Million Volt X-Ray Machine.**—A new x-ray apparatus capable of generating voltages up to 1,200,000 was dedicated January 13 at the Institute for Cancer Research of Columbia University. The new machine was developed from a similar apparatus built at the University of California for experiments in the bombardment of atoms. At California it was found that by a simple change of one essential part it was possible to make a compact and efficient x-ray machine of high voltage, according to *Science*. Such a machine was then built for the University of California School of Medicine and the Columbia apparatus is the second of the type. The improvement over previous machines of high voltage lies, it is said, in the fact that this one is completely enclosed in a steel tank which is continuously evacuated. The new machine uses 15,000 volts of alternating current electricity, which is stepped up by means of resonance transformers supplied with power generated by radio oscillator tubes. Five outlets for the x-rays are provided, four to be used for treatment of patients and one for research. A special building for the new x-ray unit was erected by Presbyterian Hospital at Broadway and One Hundred and Sixty-Eighth Street. The machine cost \$25,000; stainless steel was presented by the Allegheny Steel Corporation of Pittsburgh and free use of patents by the Chemical Foundation and the Research Corporation of New York. It was built by Frank M. Exner, physicist of the Institute of Cancer Research.

#### NORTH CAROLINA

**Bill Introduced.**—S. 174 proposes to make it the duty of parents or guardians to cause all children between the ages of one and six in their care to be injected with a preventive dose of diphtheria toxoid or toxin-antitoxin or such other immunizing agent as shall be approved by the state board of health.

**Sanatorium Heads Appointed.**—Dr. Hillis L. Seay of the staff of the North Carolina Sanatorium for the Treatment of Tuberculosis, Sanatorium, has been appointed superintendent of the Mecklenburg Sanatorium, Huntersville, to succeed Dr. John Donnelly. Dr. Seay was graduated from Vanderbilt University School of Medicine, Nashville, Tenn., in 1930. —Dr. Samuel M. Bittinger, assistant superintendent of the North Carolina Sanatorium for Treatment of Tuberculosis, Sanatorium, will be director of the new Western North Carolina Sanatorium now under construction on the Black Mountain highway, near Asheville, it was recently announced. Dr. Bittinger was graduated from George Washington University School of Medicine, Washington, D. C., in 1918. Dr. Paul P. McCain, superintendent of the present state sanatorium, will have general supervision over the new institution (*THE JOURNAL*, Nov. 21, 1936, p. 1726).

#### OHIO

**Society News.**—Drs. William S. Keller and Harold F. Downing, Cincinnati, addressed the Clermont County Medical Society, Bethel, January 20, on "Trends in the Socialization of Medicine" and "Significance of Cyanosis and Convulsions in the New-Born" respectively. —Dr. Frank A. Kelly, Detroit, addressed the Clark County Medical Society, Springfield, January 13, on "Hernia, with Special Reference to Injection Treatment." —Dr. John P. Tucker, Cleveland, discussed "Deficiency Diseases in Clinical Practice" at a meeting of the Seneca County Medical Society, Tiffin, January 21.

**Annual Public Health Lectures.**—The seventh annual series of free public health lectures sponsored by the Academy of Medicine of Cleveland, the Albert Fairchild Holden Foundation of Western Reserve University and the Cleveland Medical Library Association began, February 21, with a symposium on syphilis. The symposium was presented by Drs. Clyde L. Cummer, Roy W. Scott and Louis J. Karnosh, all of the faculty of Western Reserve University School of Medicine. A symposium on cancer will be presented March 7 by Drs. Harry Goldblatt and Harry Hauser of the faculty of Western Reserve and Abraham Strauss of Mount Sinai Hospital. Dr. Stanley P. Reimann, director of the Research Institute of Lankenau Hospital, Philadelphia, will deliver the final lecture of the series March 21, on "Cancer: A Problem for Every One?"

**Bills Introduced.**—S. 329, to amend the medical practice act, proposes that its provisions shall not be construed "to apply to persons treating human ailments by prayer or spiritual means and who only practice religious tenets of their church as an exercise or enjoyment of religious freedom; provided that the laws, rules and regulations relating to communicable and contagious diseases and sanitary matters are not violated, and that quarantine regulations are not infringed upon; and further provided that the person or persons administering or making use of or assisting or prescribing such, rely on faith and prayer alone, and do not prescribe or administer drugs or medicines nor use manipulation or material means nor perform surgical or physical operations, nor assume the title of, nor hold themselves out to be, physicians or surgeons." H. 545 proposes to authorize the director of welfare to establish clinics for the treatment of residents of Ohio whose mental condition demands immediate care and treatment.

#### OREGON

**Bill Passed.**—S. 301 has passed the senate, proposing that "in all actions for damages for personal injuries resulting from the use of x-ray, radium, violet ray, artificial heat, permanent wave machines, and from all other electrical and mechanical devices and apparatus, in the treatment of persons, and which are under the exclusive control of the person administering such treatment, proof of injury shall constitute prima facie evidence of negligence."

**New Health Officer for Portland.**—Dr. Adolph Weinziel, epidemiologist of the health department of Baltimore, has been appointed health officer of Portland. He will succeed Dr. John G. Abele, who will become city epidemiologist. Dr. Weinziel was born in New Mexico and received his degree in medicine at the University of Oregon Medical School, Portland, in 1925. From 1926 to 1931 he was assistant health commissioner of Seattle and during the next two years took graduate work at the Johns Hopkins University School of Public Health and Hygiene. In addition to his work with the Baltimore health department, Dr. Weinziel has lectured at the University of Maryland on control of communicable disease.

**Bills Introduced.**—S. 323, to amend the law requiring applicants for licenses to practice any form of the healing art to pass examinations in the fundamental sciences, proposes that it "shall not be necessary for an applicant to obtain a passing grade in all of the required subjects in the first session of examination but that any applicant who shall obtain a passing grade of 75 per cent in each of three or more required subjects at the first session of examination shall be examined thereafter only in the subjects in which he failed." S. 324, to amend the naturopathic practice act, proposes that from each annual renewal license fee of \$15 collected from naturopathic licentiates, \$10 shall be made available to the board of naturopathic examiners, to be used exclusively for educational purposes and the general welfare of the public in such manner and at such times as the board may deem proper and from time to time direct.

became unfit later on during the term of service, a total of 40 per cent. Of the the men in active service and classed as fit, 50 per cent were hospitalized; that is to say, one soldier of every two was forced to spend some time in a military hospital during his period of service. The number of men exempted on the grounds of constitutional disability was in 1931 twice the corresponding figure for 1911. Of the men accepted as fit, one finds that nearly 20 per cent, a fifth of the personnel, presented bodily weight and chest measurements below the average.

### Surgery of the Sympathetic Nervous System

Before the Medicosurgical Society of Brabant, Dr. Govaerts discussed the surgery of the stellate ganglion, the center formed by the junction of the inferior cervical ganglion with the first dorsal ganglion. After an anatomophysiologic outline of the sympathetic nervous system of the cardiac region, Govaerts described the technic of intervention in angina pectoris recommended by Danielopolu: this treatment concerns the stellate ganglion. Leriche proposes in the same disease the ablation of the stellate ganglion; Govaerts feels that the effect of a stellectomy must be interpreted rather on the basis of an obliteration of the sensitive afferent visceral path. He has performed four operations on patients with angina pectoris, in two of whom cure was effected, in the other two amelioration. In three cases the intervention took the form of a stellectomy; in the remaining case he restricted himself to a "central disconnection of the stellate ganglion." Stellectomy as such does not modify the causal disorder but by providing the myocardium with a regular regimen it may lead to a diminution in the cardiac volume. This intervention is indicated after the failure of medicinal therapy in cardio-aortic and cardiac angina cases in which the condition of the myocardium is such that a satisfactory survival may be anticipated. Anesthesia of the stellate ganglion may furnish real alleviation of suffering in febrile coronary angina. Alcoholization of the ganglion furnishes only partial results and renders subsequent stellectomy difficult. In Raynaud's disease and in causalgia, ganglionectomies are at present the most effective surgical interventions.

### Sanitary Airports

Regulation of aerial traffic in the Belgian Congo has undergone complete reorganization with reference to the prophylaxis of the principal contagious diseases; that is, cholera, typhus, yellow fever and variola. Sanitary airports have been created. A sanitary airport is one that has been officially designated as such by the governor general and is organized and equipped as follows: The airport must have at its disposal at all times an organized medical unit to which at least one physician and several sanitary inspectors are assigned; this personnel need not be permanently present at the airport. There must be a place for medical examinations and facilities for the storage of suspected goods pending laboratory examination and for the transport of such goods if laboratory examination cannot be carried out at the airport. Further facilities make possible the isolation, transport and general care of the sick, the separate isolation of persons who have been exposed to contagion and the performance of appropriate prophylactic measures, either at the airport itself or in the vicinity. The airport must also be provided with the equipment indispensable for disinfection, disinsection, deratization and certain other measures prescribed by the present law, should a need for such measures arise. The airport must possess an ample supply of pure drinking water and the maximal sanitary drainage system for the removal of all refuse, ordures and used water; adequate protection against rats must also be provided.

In addition to the foregoing, an anti-yellow fever or sanitary airport should be located at a certain distance from the nearest inhabited center and be provided with a water supply system completely protected from mosquitoes, and attempts should be

made to rid the place of the insects by systematic suppression of the breeding places and destruction of mosquitoes at all stages of their development. The quarters of the aircraft crews and ground personnel and the buildings in which air passengers may be lodged or hospitalized must be protected against mosquitoes.

### ITALY

(From Our Regular Correspondent)

Jan. 15, 1937.

### Hospital Ships Used in Ethiopian War

During the Ethiopian war there were eight hospital ships, which made several round trips between Naples and Massawa. Some of the hospital ships were anchored at the port of Massawa and functioned as floating hospitals. The ship *Helouan* made twelve trips, during which it carried 1,961 patients and provided 30,934 days of medical treatment. The daily expense for each patient was 151.08 lire (about \$7.55), which corresponded to the items given in the accompanying table.

#### Daily Expense for Each Patient on Hospital Ship

	Lire
Freighting of the ship.....	71.81
Passage of ship through Suez Canal.....	6.46
Cost for each person crossing the canal.....	32.26
Cost of water, naphtha and benzene.....	19.12
Minor expenses and cost of extra work.....	00.41
Cost of medicine and professional services to patients	1.83
Cost of food and personnel.....	19.13

The ship has an air conditioning system, which moderates the tropical environment. Proposals to use the *Helouan* as a stationary hospital in the port of Massawa at the end of the war were not carried out because anchored ship hospitals in time of peace have various disadvantages: It is not possible to have the necessary stability of the boat to take care of certain patients and to perform certain operations. The ship has to be anchored very close to the pier so that the patients will not have to be carried in small boats a long distance from the pier to the ship. The disinfection of the ship in time of epidemics is difficult and the daily cost of ship upkeep is high. In normal conditions of colonization it is better to build an air conditioned hospital on land.

### Diagnosis of Extramedullary Spinal Tumors

Professor Pontano, in a lecture before the Accademia Medica of Rome, spoke on the causes of errors in the diagnosis of location of extramedullary spinal tumors. Myelography is of diagnostic value but its results may be erroneously interpreted. The most frequent causes of errors are the following: The tumor, as a rule, is seated several vertebrae above the point of location shown by the clinical examination. Lipoid myelography can be made only after more than four days after the time of lumbar puncture. The clinical, neurologic and roentgen examinations are of equal importance in the diagnosis of location of the tumor.

Professor Pilotti called attention to the importance of a comparison of the cerebrospinal fluid obtained by occipital and by lumbar puncture. The former may be normal, whereas the latter may show important changes, especially hyperalbuminosis without hyperostosis, presence of xanthochromic cells and rapid coagulation.

Professor Alessandri, surgeon of Rome, called attention to the fact that tumors are located higher than the spot indicated by neurologic examination. He verified the fact in several operations which he performed before iodized oil was brought into use in clinical practice. In some cases the tumor is located three or four vertebral laminae above the point indicated by

resigned because of ill health. Dr. Peyton M. Chichester, Clarendon, secretary of the Arlington County Board of Health, has been made assistant director of the bureau. Dr. Lonsdale J. Roper, Portsmouth, has been appointed director of the division of venereal diseases.

### WASHINGTON

**Bill Passed.**—H. 388 has passed the house, proposing to grant to physicians, nurses and hospitals, treating persons injured through the fault of others, liens on any claims, rights of action, judgments or compromises accruing to the injured persons because of their injuries.

**Bills Introduced.**—S. 333 proposes to create a commission to investigate the organization, operation and control of hospital associations, medical service bureaus and other organizations supplying medical, hospital or surgical care and to report its findings to the 1939 session of the legislature. H. 528 proposes to make it a crime, punishable by a fine of from \$200 to \$500, for any tax-supported, charitably supported or tax-exempt hospital or institution "to deny to any duly licensed doctor, physician, or surgeon of sanipractic, osteopathy, chiropractic, food science, psycho-therapy, mechano-therapy, optometry, physcul-topathy, medicine or surgery, the right to practice his profession in the hospital when called for by a patient." The bill states that its purpose is to "maintain an open door to all licensed physicians, surgeons, doctors, and practitioners on an equality with all licensed systems of treatment." H. 529 proposes to create a sanipractic physicians' examining board and to regulate the practice of sanipractic. The bill proposes to define sanipractic as "the science and art of applied prophylactic and therapeutic sanitation, which enables the physician to direct, advise, prescribe or apply food, water, roots, herbs, light, heat, exercises, active and passive, manipulation, adjusting tissue, vital organs and anatomical structure by manual, mechanical or electrical instruments or appliances; or other natural agency, to assist nature restore a psychological and physiological inter-function for the purpose of maintaining a normal state of health in mind and body." H. 548 proposes to repeal present laws regulating the possession and distribution of narcotic drugs and to enact what appears to be the uniform narcotic drug act. H. 571, to amend the state narcotic drug act, proposes to authorize the imposition of the death penalty on convicted drug peddlers.

### WEST VIRGINIA

**Bill Introduced.**—H. 277 proposes to make it a condition precedent to the admission of children to school that they be or have been successfully immunized against smallpox and diphtheria.

**The Jacob Schwinn Lecture.**—The Ohio County Medical Society has established the Jacob Schwinn Scientific Lecture as a mark of respect to one of its members. The first lecture was delivered by Dr. Russell C. Bond, Wheeling, February 19, on "The Thymus Gland." Dr. Schwinn, a native of Switzerland, has practiced more than fifty years in Wheeling. He has been president of the county society and of the West Virginia State Medical Association.

**Society News.**—At a meeting of the Lewis County Medical Society at the Weston State Hospital, January 12, the speakers included the following members of the hospital staff: Drs. Everett Walker, on "The Problem of Psychiatry in General Practice"; Percy P. Pharr, "Physical Aspects in Mental Cases," and Emanuel J. Cohn, "Treatment of Psychotics in Mental Hospitals."—Dr. John H. J. Upham, Columbus, Ohio, President-Elect of the American Medical Association, addressed the Ohio County Medical Society, Wheeling, January 22, on "The Increase in Heart Disease in Middle Life."

### WISCONSIN

**Committee on Syphilis.**—A special committee for a study of syphilis control has been appointed by Dr. Stephen E. Gavin, Fond du Lac, president of the State Medical Society of Wisconsin. Members are Drs. James C. Sargent, Milwaukee; Charles W. Giesen, Superior; Edward L. Tharinger, Milwaukee; William J. McKillip, Milwaukee, and Gunnar Gundersen, La Crosse.

### WYOMING

**Bill Passed.**—H. 265 has passed the house, proposing to prohibit the retail sale and distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of venereal diseases, except by persons licensed to do so by the state board of health, or by licensed physicians, chiropractors or osteopaths.

### GENERAL

**Board Examinations in Neurology and Psychiatry.**—The next examinations of the American Board of Neurology and Psychiatry will be held in Philadelphia June 2. Applications must be in the hands of the secretary before April 2. The secretary is Dr. Walter Freeman, 1028 Connecticut Avenue, Washington, D. C.

**Northwest Regional Conference.**—Dr. Roscoe L. Sen-senich, South Bend, Ind., was chosen president of the North-west Medical Conference at its annual meeting in Chicago, February 14, and Dr. Carl F. Vohs, St. Louis, was elected secretary. Indiana will act as host at the next annual meeting in Chicago. The program was devoted to three symposiums, and speakers included Drs. Eben J. Carey, dean, Marquette University School of Medicine, Milwaukee; Maurice H. Rees, dean, University of Colorado School of Medicine, Denver; Harold S. Diehl, dean, University of Minnesota Medical School, Minneapolis, and Olin West, Chicago, Secretary and General Manager, American Medical Association.

**Reward for Information About Kidnapers.**—The Department of Justice is offering a reward of \$10,000 for information that may lead to the identification and apprehension of the person or persons responsible for the kidnaping Dec. 27, 1936, of Charles Fletcher Mattson, 10 year old son of Dr. William W. Mattson, Tacoma, Wash. The following description of the kidnaper is given: 5 feet 7 or 8 inches tall, swarthy complexion, about 30 years old, had a slightly foreign accent. He did not stand erect, had a dimple in his chin, high cheek bones and hairy hands; his nose appeared to have been broken. Information concerning the identity or whereabouts of the perpetrators of this offense should be sent immediately by telephone or telegraph collect to the Federal Bureau of Investigation in Washington, D. C., or any of its local divisions.

**Pacific Coast Surgical Association.**—The twelfth annual meeting of the Pacific Coast Surgical Association was held in Seattle, Wash., and Victoria, B. C., February 24-27, under the presidency of Dr. Otis F. Lamson, Seattle. The speakers included:

Drs. Harold Brunn and Leon Goldman, San Francisco, The Problem of Bleeding Peptic Ulcer: Clinical Aspects and Surgical Indications.  
Drs. Harry Glenn Bell and Frederick S. Foote, San Francisco, Obstructive Jaundice: Further Studies on the Differential Diagnosis by X-Ray.  
Dr. William P. Kroger, Los Angeles, Surgical Mortality in Thyroid Disease.  
Dr. John M. Schmoeler, Los Angeles, Surgery of the Right Colon with Relation to Arthritis.

At the dinner in Victoria, February 25, Dr. George W. Swift, Seattle, and K. Kawaiishi, Nagoya, Japan, discussed "The Method of Taking Roentgen Cinematography of Human Organs and Blood Circulation."

**Medical Bills in Congress.**—*Change in Status:* H. R. 5030 has been reported to the House with a recommendation that it pass, proposing to grant pensions and increases of pensions to certain soldiers, sailors and nurses of the war with Spain, the Philippine Insurrection or the China Relief Expedition. The bill proposes no pensions for contract surgeons who served during the Spanish-American War. *Bills Introduced:* S. 1634, introduced by Senator Pepper, Florida, proposes an annual appropriation of \$11,580,000 to enable states to establish, extend and improve services for educating physically handicapped children. H. R. 4797, introduced by Representative Thomas, Texas, proposes to amend the Social Security Act to provide a federal subsidy to assist states to care for needy individuals who are 18 years or more of age and who are permanently incapable of self support by reason of a physical disability or defect. H. R. 5013, introduced by Representative Rankin, Mississippi, proposes to restore certain benefits to World War veterans suffering with paralysis, paresis or blindness, or who are helpless or bedridden—benefits to which such veterans were entitled prior to the enactment of the Economy Act of March 20, 1933. H. R. 5046, introduced by Representative Boren, Oklahoma, proposes to make the Civilian Conservation Corps a permanent agency of the government and to extend to enrollees of the corps the benefits of the United States Employees' Compensation Act. H. R. 5121, introduced by Representative Barry, New York, proposes to authorize an appropriation of \$1,500,000 to erect a new veterans' hospital and diagnostic center in the county of Queens, city and state of New York. H. R. 5125, introduced by Representative Rankin, Mississippi, proposes to provide pensions for certain blind veterans of the World War. H. R. 5135, introduced by Representative Barden, North Carolina, proposes to authorize an appropriation of \$2,000,000 to erect in the county of Wayne, North Carolina, a fireproof veterans' hospital and facilities for regional office.



## Deaths

**Ward Andrews Holden**, New York; Medical College of Ohio, Cincinnati, 1887; practiced in New York City since 1890; formerly professor of clinical ophthalmology at the Columbia University College of Physicians and Surgeons; member of the American Ophthalmological Society; honorary surgeon at the Herman Knapp Memorial Eye Hospital; had served as consulting ophthalmologist at the Bellevue, Roosevelt and Manhattan State hospitals; connected with the pathologic institute of New York state hospitals; for some years previous to 1929 was joint editor of the *Archives of Ophthalmology*; for many years served as attending ophthalmologist at the Neurological Institute; wrote a section on "The Pathology of the Eye" in the American Textbook of Pathology in 1901; was awarded the Cartwright prize in 1893 for his essay on "An Outline of the Embryology of the Eye"; aged 70; died, January 24, of cerebral hemorrhage.

**Francis Rhodes Fry** ♂ St. Louis; St. Louis Medical College, 1879; professor emeritus of neurology at the Washington University School of Medicine, 1921-1937, clinical professor of neurology, 1911-1920, professor of neurology, 1910-1911, and professor of diseases of the nervous system, 1900-1910; professor of diseases of the nervous system, 1890-1899, professor of anatomy, 1888-1890, clinical lecturer on diseases of the nervous system, 1887-1890, and assistant demonstrator and demonstrator of anatomy, 1881-1888; St. Louis Medical College; member and past president of the American Neurological Association; member of the advisory board during the World War; aged 83; on the staffs of the Barnard Free Skin and Cancer Hospital and St. Luke's Hospital, where he died, January 25, of heart disease.

**Lamartine Griffin Hardman**, Commerce, Ga.; University of Georgia Medical Department, Augusta, 1876; Bellevue Hospital Medical College, New York, 1877; member of the Medical Association of Georgia; formerly governor of Georgia; member of the Georgia house of representatives, 1902-1907; Georgia senate, 1908-1910; member of the state fuel administration during the World War; formerly chairman of the board of education of Commerce; trustee of the Georgia State College of Agriculture and Mechanic Arts, Athens, the Southern Baptist Seminary of Louisville, Ky., and Shorter College, Rome; aged 80; died, February 18, in the Emory (Ga.) University Hospital, of arteriosclerosis.

**George Loughead Eyster**, Coral Gables, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1874; member of the Illinois State Medical Society; during the World War served as chairman of the draft board and chairman of the Red Cross Chapter in Rock Island, Ill.; one of the founders and fellow of the American College of Surgeons; formerly on the staff of St. Anthony's Hospital, Rock Island; aged 83; died, January 11, of uremia, obstruction of the right ureter and pyonephrosis.

**John Loring Johnson** ♂ Bangor, Maine; Columbia University College of Physicians and Surgeons, New York, 1914; president of the Maine Medical Association in 1935; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; formerly member of the city council; aged 48; consultant, Presque Isle (Maine) General Hospital and on the staff of the Eastern Maine General Hospital, where he died, January 14.

**Robert Cunningham Myles**, New York; University of Louisiana Medical Department, New Orleans, 1874; member of the Medical Society of the State of New York, the American Laryngological, Rhinological and Otological Society and the American Otological Society; emeritus professor of rhinology and laryngology, one of the founders and was a member of the board of trustees at the New York Polyclinic Medical School and Hospital; aged 83; died, January 1.

**George Willard Green** ♂ Chicago; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; fellow of the American College of Surgeons; member of the Institute of Medicine of Chicago and the American Association of Railway Surgeons; aged 74; one of the founders and on the staff of the Ravenswood Hospital, where he died, January 24, of coronary occlusion and arteriosclerosis.

**Harold Hixon Brittingham** ♂ Cleveland; Harvard University Medical School, Boston, 1920; since 1936 assistant clinical professor of medicine, Western Reserve University School of Medicine, senior instructor, 1934-1936, demonstrator of medicine, 1923-1934, and demonstrator of physiology, 1922-1923; on the staff of the City Hospital; aged 42; died, January 6, in St. Luke's Hospital, of brain tumor.

**William Henry Kohler**, Milroy, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; past president of the Mifflin County Medical Society; formerly medical inspector of Mifflin County; served during the World War; aged 73; died, Dec. 11, 1936, of cerebral embolism due to valvular heart disease and arteriosclerosis.

**David Allen Garrison** ♂ Gastonia, N. C.; Louisville (Ky.) Medical College, 1896; fellow of the American College of Surgeons; past president of the North Carolina Hospital Association and the Gaston County Medical Society; at one time member of the state legislature; medical director of the Garrison General Hospital; aged 71; died, January 14, of coronary occlusion.

**Charles Dilworth Kelly**, Blair, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; connected with the health department in Chicago as a dairy inspector, 1905-1908; aged 64; died, February 21, in the Woodlawn Hospital, Chicago, of hypertrophy of the prostate, myocarditis and acute urinary retention.

**Ethel Barnetta Cosby Adler** ♂ Woodmere, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1919; on the staffs of St. Joseph Hospital, Far Rockaway, Meadowbrook Hospital, Hempstead, and the South Nassau Communities Hospital, Rockville Center; aged 41; died, January 12, of carcinoma of the descending colon.

**Wright Butler Bean**, Stafford Springs, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; member of the Connecticut State Medical Society; president of the Tolland County Medical Society; aged 71; on the staff of the Cyril and Julia C. Johnson Memorial Hospital, where he died, January 18.

**Elmer K. Avery**, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; formerly medical examiner for the John Hancock Life Insurance Company; aged 62; for many years a member of the staff of the Norwegian-American Hospital, where he died, February 21, of coronary thrombosis.

**Otto Theodore Gunther** ♂ Sheboygan, Wis.; Rush Medical College, Chicago, 1911; fellow of the American College of Surgeons; served during the World War; surgeon and chief of staff, Sheboygan Memorial Hospital, and surgeon to the Sheboygan Clinic; aged 51; died, January 26, of coronary thrombosis and cerebral embolism.

**Harrison Arthur Coleman** ♂ New Philadelphia, Ohio; Western Reserve University Medical Department, Cleveland, 1910; served during the World War; past president of the Tuscarawas County Medical Society; past president of the city council; on the staff of the Union Hospital, Dover; aged 50; died, January 9, of heart disease.

**Daniel H. Meeks**, Nicholls, Ga.; University of Georgia Medical Department, Augusta, 1900; member of the Medical Association of Georgia; past president of the Coffee County Medical Society; formerly member of the state legislature, county board of education and mayor of Nicholls; aged 61; died, January 5.

**Charles Dorrance Busby** ♂ Brooklyn, Iowa; Marion-Sims College of Medicine, St. Louis, 1897; past president of the Poweshiek County Medical Society; served during the World War; aged 66; president of the staff of the Community Hospital, Grinnell, where he died, January 8, of streptococcal wound infection.

**George Arnold Boyd** ♂ Colorado Springs, Colo.; Bellevue Hospital Medical College, New York, 1890; president of the Colorado State Medical Society, 1925-1926; aged 72; on the staffs of St. Francis and Beth-El General Hospital, where he died, January 15, following operation for malignancy of the ileum.

**Charles Vincent Niemeyer**, Union City, N. J.; University of Vermont College of Medicine, Burlington, 1912; member of the Medical Society of New Jersey; fellow of the American College of Physicians; on the staff of St. Mary's Hospital, Hoboken; aged 48; died, January 11, of myocarditis.

**Henry Lewis Wagner**, San Francisco; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1884; member of the American Laryngological Association and American Laryngological, Rhinological and Otological Society; aged 77; died, Dec. 27, 1936.

**Charles Edwin Briggs**, Cleveland; Harvard University Medical School, Boston, 1897; formerly associate professor of surgery, Western Reserve University School of Medicine; fellow of the American College of Surgeons; aged 65; died, January 30, in the Lakeside Hospital.

At the opening ceremony Lord Rutherford, the physicist, congratulated the hospital on the installation. He referred to the slow but steady development of x-ray tubes, which had made possible the high powered apparatus now on view. Working at a million volts, rays could be produced which would equal in wavelength the gamma rays of radium. He emphasized the fact that the gamma rays of radium were identical in nature with the x-rays. He was certain that beams of gamma rays and of x-rays of the same wavelength would produce identical effects. The energy of the shortest wavelengths of the gamma rays of radium would correspond to a maximum of 2,000,000 volts, but the average corresponding voltage for the complete spectrum of these rays would be only about 600,000 volts. A beam could be produced from the new high voltage installation which would approximately be the same in quality as a beam of gamma rays, but of much higher intensity. He therefore looked forward to a comparison of the results that would be obtained with those of the radium beam research at the Radium Institute, with which he had been associated.

## PARIS

(From Our Regular Correspondent)

Feb. 6, 1937.

### The Annual Hygiene Congress

The twenty-third Annual Hygiene Congress was held at the Pasteur Institute Oct. 19-22, 1936. The symposium on associated vaccinations was of special interest.

The first paper, by Dopter and Sacquépée, medical inspectors of the army, and by Professor Pilod of the Val-de-Grace Military Hospital, was on associated vaccinations in the army. Vaccinations, they said, although indispensable in the army, should be as few as possible. The Ramon-Zoeller anatoxin method has enabled army surgeons to solve this difficult problem. Since 1930, triple vaccination (typhoid-paratyphoid A and B-diphtheria) was at first used in three, more recently in two, injections, the latter as soon as a sufficiently efficient diphtheria anatoxin was discovered. The reactions which have been observed do not differ from those following the use of the typhoid-paratyphoid A and B vaccine alone. The results have been highly satisfactory. The number of cases of diphtheria among vaccinated soldiers is extremely small and they are mild. Often the cases are only a simple pharyngitis occurring in diphtheria bacillus carriers. Although antidiphtheria vaccination has not been carried out as yet throughout the army, the number of reported cases has already appreciably diminished. Triple vaccinations in three injections are followed by about the same reactions as the two injection method. At present the results can be evaluated only from the serologic standpoint, because the application of the associated vaccination method has been too limited and too recent to permit conclusive epidemiologic deductions to be made. The serum of nearly all (99.58 per cent) of those who have been vaccinated against diphtheria shows the presence of sufficient antitoxic power to insure, in all probability, an immunity. In about 10 per cent of those given the diphtheria anatoxin, the antitoxic power seems to be lowered. As to tetanus, as far as one can judge by comparison with horses it appears as though the degree of antitoxic immunity obtained following the use of the Ramon tetanus anatoxin is sufficient to assure immunity in nearly all the injected soldiers for at least a year.

The second paper was by Loiseau and Laffaille of the Pasteur Institute and reviewed ten years' experience in adults with associated vaccination against typhoid infections and diphtheria. After having shown the absence of any danger of this method, they found that the association of different antigens (diphtheria anatoxin, typhoid-paratyphoid vaccine) seems to have a reciprocal reinforcing action. The number of those who have been immunized with the associated vaccines is much larger than

was the case when the typhoid-paratyphoid vaccine and the diphtheria anatoxin were employed separately. This method of polyvalent immunization, the efficacy of which has been proved over a sufficiently long period, ought to be followed, at least so far as the antidiphtheria immunization is concerned, under Schick reaction control. It ought to be adopted as a prophylactic measure for physicians, medical students and hospital personnel, especially in the case of nurses exposed to diphtheria and typhoid infections.

The final paper was on associated vaccinations in veterinary medicine, by Descazeaux of the Government Veterinary College.

In the discussion, Debré and Bonnet, in speaking of accidents during antityphoid vaccinations, stated that they were infrequent but at times severe in the form of prolonged syncope, marked fall of blood pressure, almost imperceptible pulse and heart beats. Rapid improvement follows the injection of epinephrine, but the signs of prostration may continue for a week. Although such reactions are well known, it is advisable to employ epinephrine by mouth as a prophylactic measure against such accidents. Following injection of the vaccine, the patient should be watched for the symptoms and epinephrine immediately given subcutaneously when the first signs appear.

### Joint Meeting of Pediatric Societies

A joint meeting of the Pediatric Society of Eastern France with the Swiss, Belgian and Paris pediatric societies was held at Strasbourg Nov. 8, 1936. The subject was "Primosecondary Tuberculosis of Infancy." Professor Rohmer of Strasbourg, in opening the meeting, insisted on a distinction being made between an allergy consecutive to a primary infection and an antituberculosis immunity in speaking of the prognosis and treatment.

Ribadeau-Dumas of Paris placed the factors which have an influence on the evolution of tuberculosis in its recent forms in two groups: 1. The primary conditions, which influence contagion and its modalities, taking also into consideration the allergic possibilities of the infected child. 2. The secondary conditions, such as environment and health of the child, the rôle of which is important but difficult to define. The first of these two groups of factors is the more important one because it emphasizes the fundamental part played by contagion and governs the rules of prophylaxis. Statistics covering the last thirty years show a decrease of infantile tuberculosis morbidity as well as mortality from tuberculous meningitis, whereas primary gangliopulmonary lesions in adolescents and adults have become more frequent.

Nobécourt of Paris finds that the prognosis is unfavorable during the first year of life but less so in the two following years. After the age of 6 years, tuberculosis is usually curable.

Armand-Delille of Paris has succeeded experimentally by direct intrapulmonary inoculation in obtaining lesions comparable to those in primary infections of very young children. All stages from generalized to distinctly localized forms can be observed, depending on the dosage employed.

Lesné, Dreyfus-Sée and Lemaire of Paris pointed out the thermal instability of infected children in whom sudden lowering of temperature occurs with slow rise. Ordinary infections are poorly supported. Such children ought to be kept in a preventorium during the entire period of organic instability.

Woringer of Strasbourg called attention to the frequency of phlyctenular keratoconjunctivitis in the early stages of infantile tuberculosis. Positive skin reactions were found in 90 per cent of such children, and this eye disease is often one of the earliest signs of tuberculosis.

The second question to be discussed at this meeting concerned the future of children presenting primosecondary evidences of tuberculosis.

Rohmer and Vallette of Strasbourg reported that they had been able to follow up, since 1919, twenty-six patients varying

## Correspondence

### "CLINICAL SIGNIFICANCE OF AURICULAR FIBRILLATION"

*To the Editor:*—In THE JOURNAL, Dec. 26, 1936, page 2099, appears an article entitled "The Clinical Significance of Auricular Fibrillation," by Drs. Luten and Jeffrey. Their main conclusion, "In non-heart failure cases of the arrhythmia (auricular fibrillation) the administration of therapeutic doses of digitalis produces no slowing of ventricular rate," is rather a large bolus to swallow in spite of their statistics, since just that effect does occur, and so uniformly, that their conclusion is a bit startling.

I have no statistics to present in refuting the authors' conclusion, but it is contrary to what I see in daily practice in the hospitals and cardiac clinics, and I feel that a few lines in favor of good digitalis effect in these cases are indicated.

Digitalis has a fairly well known pharmacologic effect on the heart. Theoretically this effect should take place whether or not congestive failure is present, provided there is enough myocardium to respond and provided there are no neutralizing factors present. These factors in the main are thyrotoxicosis and toxemia or infection, cardiac or extracardiac. The more severe these neutralizing factors are, the less probability is there for typical digitalis effect on the pulse.

Since the authors compiled their statistics from the records (p. 2102: "In none of these cases without heart failure did the record give evidence of any slowing effect on the ventricular rate"), I assume that the pulse rate was taken and charted by the nurse. This obviously would introduce a grave error, since the experienced cardiologist always notes the ventricular rate at the apex, as well as the pulse rate in fibrillation. Even if I am assuming too much, and the electrocardiogram was the source of this information, there is another possibility of error. On page 2100 is the statement "In 280 cases there was evidence of toxemia or fever or both," rather a high incidence of neutralizing factors in a total of 431 cases, and probably a large proportion of them are included in the non-heart failure group.

The plea of the authors to treat the underlying etiologic condition rather than the arrhythmia itself is well taken, except that the great majority of instances of fibrillation occur in patients with chronic heart disease in the rheumatic, arteriosclerotic and hypertensive groups, in which adequate treatment is questionable in the light of our present knowledge. Certainly treatment of the arrhythmia may give good subjective and objective relief, even though not permanent. In the other cases, thyrotoxic and extracardiac groups, clearing up the original focus produces excellent results.

I feel that when the pulse (ventricular) rate does not come down with therapeutic doses of digitalis in cases of auricular fibrillation, with or without heart failure, one should look for thyroid disease or a toxic or infectious process somewhere in the body. When these are ruled out, the remaining cases are invariably in terminal heart failure with a bad myocardium.

LAWRENCE S. WARD, M.D., Niantic, Conn.

[Dr. Ward's communication was submitted to Dr. Luten, who replies:]

*To the Editor:*—Thank you for your note of January 11, enclosing the letter from Dr. L. S. Ward.

Dr. Ward disagrees with our observation that in cases of fibrillation with no evidence of congestive heart failure digitalis in therapeutic doses causes no reduction in ventricular rate. He does agree that in some such instances, i. e., in "thyroid disease or a toxic or infectious process," digitalis may not cause slowing. He did not note his observations of the rate

effect of the drug if administered in cases of the arrhythmia resulting wholly from nervous influences. In these cases also I believe he will agree that digitalis is unavailing.

After considering cases of fibrillation due to toxic and nervous influences, there remain few instances of the arrhythmia except the group in which the initiation of the disorder relates to the auricular muscle (as noted on page 2101 of the article to which reference was made). Cases due to muscular effects constitute by far the greater group, and it is in this group that congestive failure commonly is the precipitating cause. Since in these congestive heart failure cases of fibrillation digitalis produces slowing, it is agreed that in most cases of the arrhythmia slowing results from the administration of digitalis—unless, as Dr. Ward points out, toxic or other factors which increase muscular irritability counteract that effect of the drug which in congestive failure causes slowing.

This (slowing) effect appears to result mainly from the lessening of ventricular irritability, an effect which occurs only in cases of congestive heart failure. In other cases digitalis increases irritability (p. 2102). Although, as Dr. Ward states, "digitalis has a fairly well known pharmacologic effect on the heart," this is not the only instance of opposite effects resulting from its action under different conditions of the myocardium. This slowing effect of digitalis in heart failure cases of auricular fibrillation and its failure to cause slowing in other cases is discussed more at length in "The Relationship of Tachycardia to Cardiac Insufficiency" (*Ann. Heart J.* 12:435 [Oct.] 1936). (Note the correction of line 14 of page 441, appearing in the November issue of the *American Heart Journal*.) In this article the objection raised by Dr. Ward regarding pulse rates rather than apex rates receives comment.

It appears to Dr. Jeffreys and me that the common failure to differentiate those cases of fibrillation in which slowing occurs, from the smaller group in which slowing does not take place, is due to two facts: 1. In most cases (i. e., cases of congestive heart failure) slowing occurs, and it has widely been taught that it is to be expected in all cases, no matter how produced. This notion still persists even though certain exceptions, as noted by Dr. Ward, are being recognized. 2. There is failure to differentiate cases from the standpoint of etiology. In many cases of early congestive heart failure the fact of the failure itself often is overlooked, and the cause of the fibrillation therefore is not recognized. Under such circumstances it is obvious that slowing from digitalis might be interpreted as generally applicable to all cases. If these considerations are kept in mind, we believe that there will be observed few cases of auricular fibrillation unquestionably free from congestive heart failure in which therapeutic doses of digitalis produce ventricular slowing.

DREW LUTEN, M.D., St. Louis.

### PATHOGENIC FUNGI

*To the Editor:*—In THE JOURNAL Dec. 19, 1936, an editorial on pathogenic fungi gives the impression that the cultural or physical demonstration of yeasts and other types of fungi from various lesions is all that is necessary to prove a causal relationship. The editorial was inspired because Whalen found in his private practice in twelve months seventeen patients with diseases in the oral and auditory tracts which were considered as verified fungal lesions.

In the last eight years I have made many cultures for yeasts and other types of fungi from oral cavities with and without lesions. It is unusual to find any type of lesion in the oral cavity from which yeasts cannot be cultured on the first attempt as well as on subsequent attempts.

Not only has the saliva been cultured but the gastric contents, and stools of large groups of patients with all types of

show that 1,700 cases fall to the share of each insurance physician. This means 500 cases fewer per physician; namely, a failure by 3,000 marks to meet the required minimal satisfactory income from the insurance practice estimated.

The following points have also to be considered. An office examination requires on the average about ten minutes; this means that fifty-five consultations would take up 550 minutes, or nine hours. A visit is estimated to require twenty minutes; seven such would thus consume some two and a half hours. The minimal working day for the insurance physician with an average load would be around eleven hours. But at this rate he earns, according to the foregoing computations, only three fourths of his necessary livelihood.

Now on the basis of actual figures the income from insurance practice activities amounted in 1935 to from 8,500 to 10,000 marks per physician. The actual income thus remains about 3,500 marks below the necessary minimum. Even if the total gross incomes of all physicians are taken into account, one arrives at a figure around 15,000 marks per physician, so here too there is a disparity of some 3,000 marks between actual and theoretically necessary income. If from this sum of 15,000 marks the 6,000 marks for average professional expenses is deducted, together with a further 3,000 marks for old age insurance, the physician is left with an average income of 6,000 marks. This amount will just suffice for the existence of a doctor and his family whose requirements are modest. If the incomes of some doctors are in excess of this figure, the incomes of others fall short of it and that means economic distress. The economic circumstances of a physician may be represented by a curve the vertex of which corresponds to the forty-eighth year of life, after which a decline sets in. Yet it is precisely at this time of life that the doctor is confronted with the task of providing for his children's education. It may be impossible for him during his remaining active years to save for his old age, as a part of his reserve must be used for educational purposes and for the expense of illness in the family and so on. Under these conditions a doctor probably will not be able to carry an adequate amount of life insurance, and by "adequate" is meant insurance with a value at maturity of from 70,000 to 80,000 marks. According to data supplied by 1,400 physicians, the average amount of life insurance carried by members of this group was only 35,000 marks and many among them carried less. Such a small amount of life insurance is absolutely inadequate. These various factors combine to prevent the physician from enjoying repose in his old age; he cannot even afford to retire from his insurance practice. Moreover, the widows and orphans of physicians nearly always experience economic distress even when every possible relief is accorded them by physicians' benevolent organizations.

The number of insurance physicians has decreased by more than 2,000 since 1933, owing in part to the expulsion of non-Aryans from the insurance practice and in part to the migration of doctors from independent practice into positions which pay a fixed salary, since the small income from a permanent salaried post and a decent pension in old age appear more alluring than the precarious livelihood of an insurance physician. Danger exists, however, that a diminution in the number of insurance physicians, although it may serve to increase the incomes of a few doctors, will make it impossible for the majority remaining in the practice to carry on the increased load of work.

An increase in the scale of the insurance physicians' honorariums has just been effected. At present there are 617 insured persons to each insurance physician; this number can perhaps be stretched to a maximal 750, which would signify a decline of about 25,000 in the number of insurance physicians. One may assume that this decline in itself is due to many influences: the low birth rates of the war years, the exclusion

of non-Aryans from the medical profession, the increased demands of the public health service and the army, the possibility of attaining officer's rank created by the initiation of two year compulsory military service and the increased opportunities for admission into technical professions.

The effort is now being made to establish a form of compulsory insurance through the medical organizations which should at least mitigate the most extreme economic want. But as long as the prospect of an adequate old age provision is lacking for most physicians, one should not speak of the good economic condition of the German physicians.

## BELGIUM

(From Our Regular Correspondent)

Jan. 8, 1937.

### The Need for Physical Education

The Société médicale belge d'éducation physique et de sports, founded in 1934, has as its objective, in addition to academic medical investigations, a furtherance of the study of those medical questions which relate to physical education and sports. The society is represented in the International Association for Medico-Athletic affairs. Members of the society took an important part in the proceedings of the association's convention held at Chamonix in 1934. Besides the laboratory plan presented by the Italian school (of Viola, Cassini and Benedetti) the society supported a practical simplified plan (Govaerts, Ledent). The Belgian society organized in 1935 with the cooperation of the Journées médicales of Brussels an international meeting of specialists from France, Italy, Rumania, Switzerland and Belgium. In the national sphere the society has been in collaboration with the Fédération médicale belge, the initiator of lecture courses given before professional organizations. A vade mecum of medico-athletic supervision for use of the practitioner has been placed in the hands of 5,000 physicians and adopted by numerous clubs and federations. The Société médicale belge d'éducation physique et de sports has been promoted to the status of medical advisory body to the National Physical Committee and the Belgian Olympic Committee. The committee entrusted to the society the function of a jury for the award of the grand prize for the best medical supervision, conferred for the first time in 1935.

The malnutrition of the Belgian population in occupied territory from 1914 to 1918 has had grave consequences. At the time of the armistice the resistance of the adult population had been encroached on; the weight of an average man had decreased 10 Kg. The growth of the children was likewise imperiled: children from 7 to 14 years of age in the schools of Brussels exhibited an average bodily weight equivalent to the loss of a year for boys and a loss of six months for girls. The average deficiency in height corresponded to six months for the boys and one-seventh year for the girls. Childhood morbidity reflected the profound deterioration of organic resistance that took place both during and after the war. Official examinations of militiamen show that height continues to increase, whereas weight and chest measurements are on the decrease and general robustness is lacking. The young men of today tend to grow taller and leaner. In the course of recruiting for the army it has been observed that robust young fellows whose fitness is unquestioned have appeared in decreasing numbers, whereas the numbers of the unfit have increased at an alarming rate. Between the two categories a new type of recruit must be considered: the young man of delicate appearance but seemingly sound, who "cracks up" after his first taste of the hardships incident to army life. In the year 1931, 32 per cent, approximately a third, of the men called up for military service were excused as unfit; 6 per cent turned out to be unfit at the beginning of their actual service and 2 per cent

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### THEORIES OF FORMATION OF RENAL CALCULI

To the Editor:—What is the present-day accepted theory as to the relation of diet and water ingestion in the formation of renal calculi? Please omit name.

M.D., Texas.

ANSWER.—The relation of ingestion of diet and water to the formation of renal calculi is not completely understood. It would seem probable that in the normal individual they have little or no influence. In the presence of abnormal metabolism, chronic infection or abnormality in the urinary tract, the diet may have a profound effect on the formation of renal calculus. It has long been suspected that a deficiency of vitamin A in the diet may be a factor in the formation of stone. But this has not been definitely proved and it appears not to play a significant part clinically (Vitamin A and Urinary Lithiasis, Report of Council on Pharmacy and Chemistry, THE JOURNAL, Dec. 14, 1935, p. 1983).

There is also clinical evidence to support the theory that stones may form as the result of ingestion of abnormal amounts of certain chemical elements with oversaturation of the urine. It would seem probable that an abnormally low threshold favors precipitation of such crystals in the urine of these individuals. Among other factors which may affect such precipitation in these patients is a tendency on the part of the urine to be either hyperacid or alkaline. Acidification of the urine so that the level of the *pH* is kept at 6.0 or less by means of diet, with or without medication, will often prevent precipitation of crystals of calcium phosphate in the urine of patients who have a tendency to repeated formation of phosphatic stones or phosphaturia.

There is much clinical evidence to suggest that a patient with recurring lithiasis may have some disturbance in metabolism. In patients who are suffering from the so-called uric acid diathesis and who repeatedly pass uric acid crystals and calculi in the urine, the metabolic equilibrium will frequently be restored by avoidance of foods with a purine content, and the formation of stones will cease. It is also well known that the formation of cystine stones can frequently be prevented by alkalization of the urine by means of a high alkaline ash diet, together with oral administration of sodium bicarbonate.

The influence of bacteria on the formation of stone is not definitely understood. It is recognized that certain bacteria have a tendency to split the urea and liberate ammonia, with consequent alkalization of the urine, which in turn permits precipitation of calcareous elements. In the presence of bacteria that have such tendencies, acidification of the urine with a high acid-ash diet, with or without acidifying drugs, will often overcome the infection, prevent alkalization, and stop the formation of stone.

The influence of ingested water on the formation of lithiasis in the urinary tract is apparently of little importance. It is possible, however, that a very high calcium content may be a factor in stone formation in patients with a low threshold. The theory that ingestion of distilled water would prevent the formation of stone or that it would dissolve stones has no definite basis.

### ARTIFICIAL PNEUMOTHORAX

To the Editor:—Please send me information on the proper manometric readings approved at the present time in giving artificial pneumothorax.

W. R. BEARDSLEY, M.D., Vandalia, Mich.

ANSWER.—There is no uniform opinion regarding the "proper" manometric reading in pneumothorax, but there are, roughly, two main groups with regard to the intrapleural pressure to be instituted. One group, believing in a more complete collapse of the lung, including cavities, have advocated and used pressures up to 10 + cm. of water or more, with a mean value of 5 +. This range would correspond roughly to from 600 to 1,200 cc. of gas. Sometimes these pressures have been used also to "force" the closure of cavities held open by string or band adhesions, and even to separate adherent pleural layers. Such maneuvers, however, are dangerous, particularly the latter, because of the risk of air emboli. Even without adhesions,

the higher pressures are subject to greater risks than are encountered in the moderate or low pressures. Effusions, for example, are more frequent when high pressures are used.

Because of these risks, there is a gradual tendency to use less pressure, especially on first instillation. This allows for a gradual adjustment to take place so that no abrupt strictures will be imposed on the return flow of blood and lymph. At the present time, therefore, a great number of operators keep the pressure on the negative side. An average (of inspiration and expiration) normal negative of from —10 cm. of water to —2 cm. is found to give satisfactory results, and even an average of —5 on first instillation. Such pressures correspond roughly to 300-500 cc. and 100-200 cc. of gas, respectively. These manometric readings represent the average distance of one column in the manometer above the other. Naturally, such instillations must be given more frequently. They must be repeated every other day to once a week. The object is to give just enough to collapse the lesion without affecting the surrounding lung. It has been designated a "hypotensive collapse" and is meant to select out the diseased tissue and produce a "selective collapse" of the involved portion. Such a procedure may be used successfully in unilateral disease but is paramount in bilateral involvement.

The theory for the "hypotensive" method is that there is more intrabronchial pressure required to inflate partly diseased lung, because of muscular spasm, weight of tissue and constricted bronchioles. If enough intrapleural pressure can be given, therefore, to balance the extra pressure required to inflate the diseased lung, it will remain collapsed while the normal lung around will still be inflated by the slightly reduced negative pressure.

In summary, it may be said that every case is a law unto itself but that in general low pressures, often repeated, are to be preferred. Occasionally, when a cavity is held open by adhesions, higher pressures may be used. Even here a pneumolysis will usually take care of the situation.

### DIFFERENTIAL DIAGNOSIS OF PAIN IN CHEST

To the Editor:—A man, aged 27, well nourished and of excellent physical development, for the past two and a half months has noticed that if he lies on his back at night, or if he falls asleep and turns over on his back, a sharp pain occurs over his heart. This pain is severe enough to awaken him. By turning to either side he can cause the pain to diminish gradually in intensity, and in fifteen or twenty minutes it disappears entirely. I have examined him on different occasions and have not been able to find anything that might be responsible for this condition. I removed his tonsils and for about ten days the pain was absent but it has now recurred with the same degree of intensity and frequency. X-ray examination of the chest was negative. I have given him glyceryl trinitrate to take at the time of an attack but it fails to give relief. Examination of the heart is negative. There are no heart murmurs or irregularities. The pulse rate is 72 per minute. He has never noticed the pain during the day, and vigorous exercise does not distress him in the least. He smokes moderately and does not use alcohol. At present he states that by using two pillows at night he has been able to sleep in any position without experiencing any pain. I should appreciate it if you would give me some information as to what the probable cause of this condition might be and some idea as to what may be employed in treatment.

M.D., Iowa.

ANSWER.—The history is too limited to rule out many of the possible causes of chest pains. It is doubtful that the attacks are cardiac in origin. The patient's age, the absence of pain on effort, the character of the pain, the failure to obtain relief with glyceryl trinitrate and the absence of signs of heart disease all point to some other cause. A Wassermann test, however, is indicated to rule out the remote possibility of syphilitic aortitis. Although roentgenograms of the chest are stated to be negative, it is not clear from the question whether the aorta was examined for early syphilitic involvement.

The occurrence of pain only when the patient lies on his back suggests involvement of the vertebral column or the intercostal nerves. Pain in lesions of the spine not uncommonly radiate to distant points, and the anterior part of the chest is frequently so affected. Pain such as this may be the earliest manifestation of tuberculous osteitis of the vertebrae. During the day, pain may be prevented by muscular rigidity supporting the spine, but during the relaxation of sleep it may occur with such severity as to awaken the patient. Similar pain may occur in osteo-arthritis and fracture of the dorsal column. These conditions may be difficult to diagnose in some instances. Roentgenograms in the lateral positions may prove helpful. The value of using two pillows at night in relieving the pain more readily fits with the idea of some such involvement. Every effort should be made to rule out the conditions mentioned. Frequently a diagnosis of pectoral myalgia or pleurodynia is made to explain pains in the chest of unknown origin in patients of apparent good health. These muscle pains are usually



the diagnosis. The lipoid test is of value in locating the seat of the tumor. It has, however, some inconveniences and the results may be interpreted erroneously.

### The National Congress of Urology

The fifteenth National Congress of the Societa di Urologia was recently held at Trieste. Drs. Mario Bonino of Turin and Marino Novak of Trieste were official speakers on the topic "Early Diagnosis of Renal Tuberculosis." According to Dr. Bonino, the first symptoms of renal tuberculosis are the appearance of cystic disturbances in 45 per cent of the cases and of hematuria in 5 per cent. The diagnosis of the nature and seat of the renal lesion can be made by cystoscopy in many cases. A positive diagnosis is made by obtaining the urine by catheterization and testing separately the two samples bacteriologically. The researches for tubercle bacilli in the sediment give a variable percentage of positive results. Positive results are obtained in 80 per cent of the cases by adding alcohol to the urine. According to the speaker, the acid-fast bacilli of smegma are not a cause of error as frequently as has been stated in the literature. Direct roentgen examination, especially by intravenous pyelography, is of importance. Pyuria is a constant symptom, erythrocytes are almost always present in the sediment and frequently there is albuminuria.

Dr. Novak discussed the predisposing factor to renal tuberculosis. The infection reaches the kidney through the blood, except in certain cases of ascending infection through a vesico-renal reflux of urine or of lymphatic propagation from the ureters or the regional lymph nodes. The speaker reported results of microcultures in seventy-five cases in which he obtained positive results in 93.4 per cent of the cases, whereas by the method of direct examination he obtained positive results in 72 per cent. Microculture is a method for rapid identification of tubercle bacilli, of more value than the direct examination and the biologic test. In the seventy-five patients seen by the speaker there was a history of previous pulmonary tuberculosis in 21 per cent and of tuberculosis of the genital organs in 13 per cent. Discussions followed and many articles on the same subject were read.

Professor Bonanome of Rome presented statistics of 236 cases of renal tuberculosis compiled from 1925 to the present. Nephrectomy was performed in ninety-one cases, with three fatalities. The disease was unilateral in 191 cases and bilateral in forty-five. An early diagnosis is made only in exceptional cases.

Drs. Gironcoli and Bortolozzi of Venice made cultures in 102 cases of different diseases of the urinary tract. The speakers conclude that a diagnosis of exclusion of renal tuberculosis cannot be made by the negative results of the cultures.

According to Wildbolz of Berne, a diagnosis of renal tuberculosis has to be based on the presence of a triad consisting of bacilluria, pyuria and renal dysfunction. The sign of most important diagnostic value is the presence of tuberculous changes in the bladder.

### Deaths

Prof. Edoardo Perroncito, bacteriologist and parasitologist, professor emeritus of the Turin University and Doctor honoris causa in several foreign universities, died recently in Pavia. He made studies on bovine tuberculosis, lesions of which, as he found, are histologically analogous to those of tuberculosis in human beings. Dr. Perroncito identified the pathogenic bacteria of chicken cholera. He determined the cycles of evolution of *Ancylostoma duodenale* and of *Lamblia intestinalis*.

Prof. Giovanni Pascale, a senator and professor emeritus of the surgical clinic of Naples, died suddenly while he was performing an operation. He wrote articles on clinical medicine and surgery and devoted great activity to establishing centers for the treatment of tuberculosis and of cancer.

## RIO DE JANEIRO

(From Our Regular Correspondent)

Jan. 2, 1937.

### Lecture on Allergy and Immunity in Tuberculosis

Dr. Abelardo Saenz of the Institut Pasteur of Paris, in a recent lecture before the Academia Nacional de Medicina of Rio de Janeiro, spoke on allergy and immunity in tuberculosis. He discussed general and local allergic reactions, Koch's and Shwartzman's phenomena and the organic reactions of animals to tuberculin before and after tuberculinization. He also reported results of work performed at the Institut Pasteur by Roquet, Waldis, Nègre and himself. The allergic reactions are more intense to the inoculation of dead bacteria than to that of living bacteria. Terrain is a factor of importance in immunity because of the natural or acquired conditions of immunity or sensitivity to tuberculosis. He spoke also on the organic changes induced by BCG vaccine and showed photographs of experiments.

### New Hospitals

A new maternity hospital was recently opened to the public in São Paulo. It is a U-shaped, six story building. The laundry, sewing rooms, storerooms, the boilers and the dormitories for the nurses are located in the basement. The rooms for the parturients, each of which has three beds and a bathroom, are on the first floor. In all rooms there are electric contacts for the installation of telephones. On the second floor there are dormitories for the patients, delivery rooms, surgical wards, rooms for cradles and incubators for the new-born, ambulances of the Ness type, identification rooms and a department for the supply of mother's milk. The private rooms are on the third and fourth floors. The kitchen is on the upper floor.

The new Miguel Cuoto Hospital at Bairro da Gavea Street has been opened. The president of Brazil, the mayor of the city and several diplomats attended the ceremony. Medical services heretofore given to the public in the ambulatory dispensary of Copacabana will be given from now on at the Miguel Cuoto Hospital. The family of Prof. Miguel Cuoto presented the hospital with a bronze bust of Cuoto, which will be put in a place of honor in the building.

## Marriages

ELWOOD KING JONES, Nutley, N. J., to Miss Margaret Rita Shuck of Shenandoah, Pa., at Lansdowne, Pa., January 2.

CLARA REGINA GROSS, New York, to Mr. Frederick W. Beeton of Mount Vernon, N. Y., January 14.

CORNELIUS E. KLINE, Assumption, Ill., to Miss Claracille Vodde of East St. Louis, Nov. 26, 1936.

JOHN McKAMIE HARRY, Fayetteville, N. C., to Miss Sarah Katherine Currie of Parkton recently.

HENDERSON L. HOLMAN, Ozark, Ala., to Miss Floride Arwood of Enterprise, Dec. 18, 1936.

JAMES COBB LASLIE, Tuskegee, Ala., to Miss Martha Virginia Johnson of Tuscaloosa, Nov. 8, 1936.

JOHN FREDERICK MOORE to Miss Frances Margaret Rook, both of Bath, N. Y., January 17.

EMMET F. PEARSON to Miss Mary Louise Maxon, both of Springfield, Ill., February 20.

SIGMUND M. JACZACK, Philadelphia, to Miss Mary Penkunas of St. Clair, Pa., in January.

CLAUDE S. FINNEY to Miss Elizabeth Nolan, both of Spartanburg, S. C., January 9.

JAY L. HUTCHISON to Miss Hazel Pifer, both of Logan, W. Va., recently.

LEO H. HOEVER, Chadron, Neb., to Miss Eunice Peterson recently.

decalcification of the skeleton is at all marked, replacement of these mineral salts cannot be anticipated within less than one to three years, and improvement must be so slow that little change can be noted from week to week. It may be advisable to continue with the back brace for from eighteen months to three years.

#### SYPHILIS AND TIC DOULOUREUX

*To the Editor:*—A married man about 48 years of age had a sort of chancre in the penis in 1932. A physician gave him two or three injections of nearsphenamine, and as the chancre dried out he did not report to the physician for further treatment and advice. About the last months of 1933 he developed acute pains in the left side of the face with slight swelling and a diagnosis of trigeminal neuralgia (tic douloureux) was made by a prominent physician. His blood was examined and at first reported erroneously negative for the Wassermann test. The physician treating him naturally did not treat him for syphilis, but after a course of treatment with the symptoms aggravating, the physician requested another Wassermann blood examination, and it was found 4 plus. Not content with this report of a laboratory specialist he sent a sample of blood to another laboratory, but similarly the report was 4 plus. He was then given a course of injections consisting of nearsphenamine, with bismuth, iodide, and mercury preparations alternating. The blood as the injections were being given was also being given Wassermann tests. After a series of injections, the original 4 plus Wassermann was reduced to 2 plus and ultimately negative, and the blood has been negative for more than a year ago until this time. The original acute pains also gradually disappeared, but now what is left is numbness of the left side of the face with paralysis, and at times there are attacks of acute pains in the region supplied by the facial branch of the left trigeminal nerve. He has been treated by various specialists, including syphilologists. He further states that he has undergone treatment with the electrical current to no effect and the roentgenologist reports that electricity could not restore the paralyzed parts. He is now under my care, and I am at a loss what to do. There is no tumor in the left preauricular region nor are there any carious teeth in the jaw in the vicinity of the paralysis. The man never developed secondary manifestations of syphilis. Please advise me and omit my name.

M.D., Philippine Islands.

*ANSWER.*—Syphilis is but rarely a cause of tic douloureux. Occasionally patients are encountered who have trifacial pain and serologic evidence of syphilis, both in the blood and in the spinal fluid, in whom treatment for syphilis dissipates the pain. In these patients a localized syphilitic meningo-encephalitis probably was the cause of the pain. The inquirer did not describe the pain in sufficient detail to permit expression of an opinion as to whether his patient had trifacial neuralgia. The residual facial palsy, probably resulting from involvement of the seventh nerve, might be the result of a neurosyphilis. The spinal fluid should be examined in this case, and if the report is positive the treatment for syphilis should be continued. On the other hand, if the spinal fluid is negative and if the facial pain is becoming increasingly more severe, an alcohol injection might be advisable. The severity of the pain, irrespective of the serologic reaction, should not constitute a reason for continued treatment, as in the cases in which syphilis is the responsible factor the pain is usually relieved or disappears following several injections of arsphenamine. The status of the syphilis is the factor that should determine the need for further treatment.

#### DIFFICULTY WITH MASTICATION

*To the Editor:*—A patient of mine, aged 64 years, is married to a woman twenty years younger than himself. They have two children—a boy 5 and a girl 7 years of age. Both children and both parents are healthy and normal in every respect. The girl, however, has never masticated any food in her life. All nourishment has to be given strained, mashed and/or puréed. Various methods have been used in an attempt to get the child to chew, but without any success. Her dentition is progressing normally and she is several pounds over her ideal weight. Her intelligence quotient is high and her work at school is very satisfactory. Can you suggest any method of getting this child to chew?

A. L. BARROW, M.D., Pittsburgh.

*ANSWER.*—The answer to this query is obviously difficult. If the child, 7 years of age, has no physical defects in her oral cavity or in the muscles of mastication, she should sooner or later normally develop this universal physiologic function. One must also consider that she may have failed to develop the habit of mastication as the result of negativistic characteristics, probably of neurogenic origin.

For the sake of completeness, one should refer to spasm of the motor trigeminal nerve. The spasm may be tonic or clonic. Tonic spasm of the muscles of mastication may be caused by diseases of the pons, also in the beginning stages of acute bulbar paralysis, and in pontile tumors. As a matter of fact, spasm of the muscles of mastication is very rarely an isolated symptom. From the history given in the query there is no reference to muscular hypertonicity.

Devries calls attention to the fact that hypertrophied adenoid tissue tends to prevent nasal breathing and removes some of the forces that stimulate normal palatal development, producing also a subnormal degree of mastication (Abt, I. A.: *Pediatrics*, Philadelphia, W. B. Saunders Company 3:160). He points out further that a child, when nasal breathing is impossible, finds difficulty in masticating his food. He believes that a child cannot bite and masticate his food while he is at the same time attempting to breathe through his mouth. Devries believes that difficulty in mastication may originate from narrowness of the upper dental arch and palate. In cases in which a high, narrow "gothic" palate is observed he advises orthodontic treatment.

#### ETIOLOGY OF DENTAL CARIES

*To the Editor:*—A girl, aged 17 years, well proportioned, weight 140 pounds (63.5 Kg.), height 5 feet 5½ inches (165 cm.), has been informed by a dentist that she may have gland trouble, as her teeth have caries. The dentist states that the dentin is soft. The girl is never sick, her periods are normal, the blood pressure is normal, her appetite is good; in fact, she is the picture of health and is quite active in all things. What could cause the dentin to be so soft? Before her birth the mother had every care and everything that one could desire and she is also in perfect health. Neither parent has trouble with the teeth. She has had cod liver oil during periods of her life but the dentist claims she is still deficient in calcium. What is your opinion?

M.D., Pennsylvania.

*ANSWER.*—It is impossible to make a concise and authoritative answer to this question until the exact etiology of dental caries is understood. There are recorded cases of endocrine disturbance which appear to have been of etiologic significance in the production of dental caries, and similarly there are instances in which a marked deficiency of minerals, particularly calcium, in the diet appear to be of importance in causing the disease. This does not mean, however, that all cases of dental caries are caused either by endocrine disturbances or by lack of calcium. The carious lesions in the teeth appear to be associated with certain local environmental conditions which may be influenced by many secondary factors, of which the endocrine balance, the diet, the character of the oral secretion and the oral bacterial flora all seem to be of significance. It certainly cannot be said that the administration of calcium will produce an immunity to caries in all cases. It will, however, be of assistance in those cases in which a calcium deficiency exists. From the history presented, it would appear that this girl is slightly overweight for her age and height. The most common cause of these moderately overweight cases is an excessive intake of carbohydrate, and it is well known that excessive carbohydrate may predispose to the production of carious lesions. This would appear to be the most suggestive feature of the data presented. It is, however, inadequate, as the weight in proportion to the height and age must be considered with regard to other factors than those supplied.

#### PATHOLOGIC EFFECTS OF ALCOHOLISM AND HYPERTHYROIDISM

*To the Editor:*—What is the present accepted opinion of the pathologic effects of alcohol on the human body? What, exactly, is the opinion of hyperthyroidism as a factor in alcohol tolerance? I have a patient who is slightly hyperthyroid, with an associated diabetes insipidus and whose alcoholic tolerance is amazing. Does the diabetes insipidus exert any influence? Will the relatively large amounts of alcohol this patient consumes affect his tissues to a greater degree because of increased consumption or does his great tolerance also indicate increased resistance to the pathologic effects? May the temporary intoxicating effects of the drug, in a given case, be considered a criterion of the pathologic effect? Please omit name.

M.D., Alaska.

*ANSWER.*—The pathologic effects of chronic alcoholism on the human body include catarrhal gastro-enteritis, fatty infiltration of various organs, cirrhosis of the liver, vascular changes, neuritis and mental degeneration. Some of these results may not be pure alcohol effects but may be due to the form in which the alcohol is taken or the incidental habits of the alcoholic addict. Thus, the liver cirrhosis has been ascribed by some to the fusel oils imbibed by whisky drinkers, while others have blamed the overnutrition and lack of exercise characteristic of beer drinkers. (Sollmann, Torald: *Manual of Pharmacology*, Philadelphia, W. B. Saunders Company, 1932.) Alcoholic neuritis, on the other hand, has been thought by some to be due to inadequate nutrition and specifically to a lack of vitamin B, occurring in the type of alcoholic addict who is accustomed to taking most of his calories as well as his refreshment in liquid form.

According to recent work (Gettler, A. O., and Fircovich, A. W.: *Am. J. Surg.* 27:328 [Feb.] 1935) the temporary intoxicating effects of alcohol depend on the concentration of alcohol

**Jacob Braun** • New York; Columbia University College of Physicians and Surgeons, New York, 1905; aged 54; on the staffs of the Broad Street Hospital, Harlem Hospital and the Park West Hospital, where he died, January 29, of undulant fever and streptococcus endocarditis.

**Albert Leslie Laing** • Escanaba, Mich.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1897; past president of the Delta County Medical Society; aged 68; medical director and owner of hospital bearing his name, where he died, January 4, of cerebral hemorrhage.

**John Aloysius Parker** • Chicago; Loyola University School of Medicine, Chicago, 1922; vice president and on the staff of St. Bernard's Hospital; on the visiting staff of the Evangelical Hospital; aged 42; died, January 16, of acute endocarditis and mesenteric thrombosis.

**Bertha Anne Clouse**, Columbus, Ind.; Northwestern University Woman's Medical School, Chicago, 1900; member of the Indiana State Medical Association; city school physician; aged 68; died, January 21, in the Bartholomew County Hospital, of meningitis.

**Fred Albert Sweet**, Waddington, N. Y.; University of the City of New York Medical Department, 1887; for many years head of the board of education and the board of supervisors; aged 74; died, Dec. 31, 1936, of myocarditis and acute bronchitis.

**Wesley William Hall Sr.**, Shelby, Miss.; University of the South Medical Department, Sewanee, Tenn., 1899; member, 1912-1924, and president of the state board of health, 1920-1924; aged 60; died, January 1, of cerebral hemorrhage and hypertension.

**Robert Lee Hyder**, Maryville, Tenn.; Tennessee Medical College, Knoxville, 1901; member of the Tennessee State Medical Association; on the staff of Carson's Hospital; aged 58; was killed, January 3, near Crossville, in an automobile accident.

**Foster D. Kiser**, Tippesano City, Ohio; Starling-Ohio Medical College, Columbus, 1910; member of the Ohio State Medical Association; past president of the Miami County Medical Society; aged 50; died, Dec. 20, 1936, of angina pectoris.

**Elijah David Boozer**, Greenwood Springs, Miss.; College of Physicians and Surgeons, Memphis, Tenn., 1910; member of the Mississippi State Medical Association; aged 53; died, in January, at the Gilmore Sanitarium, Amory, of pneumonia.

**Edward Luehr**, Chicago; Rush Medical College, Chicago, 1892; an Affiliate Fellow of the American Medical Association; aged 73; on the staff of the South Chicago Community Hospital, where he died, January 31, of coronary thrombosis.

**Millard Dudley Jeffries**, Memphis, Tenn.; University of Virginia Department of Medicine, Charlottesville, 1875; also a minister; aged 81; died, Dec. 24, 1936, in the Baptist Memorial Hospital, of hypostatic pneumonia and arteriosclerosis.

**James C. B. Davis** • Willow Springs, Mo.; Barnes Medical College, St. Louis, 1903; past secretary, Howell-Oregon Medical Society and counselor of the Twenty-Seventh District; aged 66; was found shot and killed near West Plains recently.

**Charles S. Bumgarner** • Davenport, Wash.; Tennessee Medical College, Knoxville, 1901; secretary and past president of the Lincoln County Medical Society; county health officer; aged 63; died, January 4, of pneumonia.

**Joseph Monteleone**, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1916; served during the World War; aged 47; died, Dec. 17, 1936, of cerebral hemorrhage and bronchopneumonia.

**Harry Conard Johnson** • Antlers, Okla.; Maryland Medical College, Baltimore, 1903; past president of the Pushmataha County Medical Society; aged 67; died, Dec. 29, 1936, of carcinoma of the kidney.

**Judson Irwin Doss**, Milton, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1880; member of the Illinois State Medical Society; aged 78; died in December 1936, of uremia and nephritis.

**Sherman H. Champlin**, Chicago; College of Physicians and Surgeons of Chicago, 1895; on the staff of the Garfield Park Hospital; aged 71; died, January 14, of chronic myocarditis and chronic arthritis.

**John William Earel**, Long Beach, Calif.; Rush Medical College, Chicago, 1895; served during the World War; aged 67; died, Dec. 31, 1936, of hypostatic pneumonia following cerebral hemorrhage.

**Samuel Frederick Gandelman**, Bethlehem, Pa.; Tulane University of Louisiana School of Medicine, New Orleans, 1928; aged 35; was found dead in bed, Dec. 1, 1936, of poison, self administered.

**Frank Alexander Gordon**, Los Angeles; Howard University College of Medicine, Washington, D. C., 1914; aged 48; died, Dec. 25, 1936, of heart block, myocarditis and anemia.

**Evelyn C. Hoehne**, Milwaukee; Hahnemann Medical College and Hospital, Chicago, 1887; aged 86; died, Dec. 31, 1936, in the Evangelical Deaconess Hospital, of bronchopneumonia.

**George Marion Hanson**, Salt Lake City, Utah; Yale University School of Medicine, New Haven, Conn., 1936; aged 26; died, January 15, of chronic myocarditis and acute nephritis.

**George Wood Huse**, Seattle; Harvard University Medical School, Boston, 1883; aged 81; died, Dec. 2, 1936, in the Mason Sanitarium, of coronary thrombosis and arteriosclerosis.

**Robert N. Henry**, Lake Village, Ark.; Louisville (Ky.) Medical College, 1893; past president of the county board of health; aged 68; died, January 4, of arteriosclerosis.

**Charles Wesley Riggs**, Cameron, W. Va.; Starling Medical College, Columbus, Ohio, 1900; aged 70; died, Dec. 25, 1936, of arteriosclerosis and coronary thrombosis.

**Ira Thomas Gabbert**, Caldwell, Kan.; Jefferson Medical College of Philadelphia, 1883; bank president; aged 84; died, Dec. 30, 1936, of bronchopneumonia.

**Obed Cooley**, Lexington, Ky.; University of Michigan Homeopathic Medical School, Ann Arbor, 1903; aged 67; died, January 20, of lobar pneumonia.

**George Stephens** • Mesquite, Texas; Barnes Medical College, St. Louis, 1897; aged 62; died, Dec. 19, 1936, in the Baylor Hospital, Dallas, of pneumonia.

**James W. Warring**, Linwood, Kan.; College of Physicians and Surgeons of Kansas City, Mo., 1873; aged 89; died, Dec. 4, 1936, of cerebral hemorrhage.

**Andrew Henry Elliott** • Avalon, Pa.; Jefferson Medical College of Philadelphia, 1896; aged 67; died, Dec. 25, 1936, of influenza and pneumonia.

**D. Edward Morgan**, Ansted, W. Va.; Eclectic Medical Institute, Cincinnati, 1908; aged 51; died, Dec. 31, 1936, of an injury received in a fall.

**Philip F. Hasley**, Flat Rock, Mich.; Detroit College of Medicine, 1891; aged 71; died, Nov. 29, 1936, in the Wyandotte (Mich.) General Hospital.

**John F. Worcester**, Duxbury, Mass.; Boston University School of Medicine, 1888; aged 72; died, Dec. 6, 1936, of cerebral hemorrhage.

**Charles Burwell Benson**, Troy, Ohio; Ohio Medical University, Columbus, 1898; aged 63; died, Dec. 15, 1936, of cerebral hemorrhage.

**James H. Hargrave Jr.**, Petersburg, Va.; University College of Medicine, Richmond, 1899; aged 60; died, Dec. 30, 1936, of pneumonia.

**Philip Victor Graham**, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1915; aged 46; died, Dec. 8, 1936, of pneumonia.

**Theodore H. Baldwin**, San Diego, Calif.; New York Homeopathic Medical College, 1875; aged 82; died, Dec. 9, 1936, of arteriosclerosis.

**Frank L. Harris**, Winona, Miss.; University of Tennessee Medical Department, Nashville, 1903; aged 58; died, Dec. 29, 1936, of nephritis.

**Nellie Norris Tilton**, Jersey City, N. J.; Boston University School of Medicine, 1902; aged 57; died, Dec. 20, 1936, of pulmonary edema.

**Delos De Witt Smith**, San Diego, Calif.; Jefferson Medical College of Philadelphia, 1894; aged 76; died, Dec. 24, 1936, of duodenal ulcers.

**Augustus W. Thompson**, Mineral Wells, Texas; Missouri Medical College, St. Louis, 1879; aged 82; died, Dec. 27, 1936, of carcinoma.

**Samuel Hall Wileox**, Carlyle, Ill.; Missouri Medical College, St. Louis, 1890; aged 70; died, Dec. 21, 1936, of cerebral hemorrhage.

**James T. Simpson**, Holden, Mo.; Memphis (Tenn.) Hospital Medical College, 1882; aged 84; died, Dec. 20, 1936, of pneumonia.

**James O'Gallagher**, St. Louis; St. Louis Medical College, 1878; aged 80; died, Dec. 10, 1936, of myocarditis and hypertension.

or hypertrophied endometrium resulting from endocrine dysfunction. Treatment should be preceded by gross and microscopic examination of the tissue allegedly passed, and a dilation and curettage should be performed just prior to the painful period, not only to obtain curettings for study but also in the hope that simple dilatation of the cervical canal might prove beneficial. The usual medications should be tried, atropine 0.4 mg. or potassium iodide 0.65 Gm. three times a day for three days preceding the menses, acetylsalicylic acid or codeine. Estrogenic, gonadotropic or corpus luteum preparations might be tried if organic disease can be ruled out; such therapy is experimental and the results are not constant.

#### INTERSTITIAL CYSTITIS

*To the Editor:*—A nullipara past middle age was told two years ago by a competent urologist that she had "a severe, localized inflammation of the bladder, which was not an ulcer nor was it tuberculosis or cancer." At that time she received cystoscopic examination on several occasions and a prolonged course of irrigations with silver nitrate without subjective improvement. Since coming under my care three months ago her course has been afebrile but she is bedridden, with constant discomfort in the bladder region, the discomfort often becoming severe pain after urination or attempts to walk. There has never been hematuria; for three months the urine has been macroscopically clear and without sediment. Medical treatment essayed so far has included the use of atropine to the limit of tolerance, the use of various synthetic antispasmodics, rendering the urine alkaline with potassium citrate, rendering the urine acid with ammonium chloride and following with a course of methenamine, the use of boiled milk intramuscularly (the patient is rather debilitated), and the production of ketonuria for twelve days. Not one of these procedures has benefited the pain and the tenesmus. I assume that the patient has a chronic submucous cystitis. Can you suggest any other curative measures? What drugs (other than nonspecific analgesics) or measures might make the condition less painful? Please omit name.

M.D., Maryland.

*ANSWER:*—While it is difficult to make an exact diagnosis without a careful cystoscopic examination and other studies of the urinary tract, it would seem possible that the patient is suffering from a condition which has been variously called interstitial cystitis, submucous cystitis, Hunner ulcer and panmural fibrosis. If this condition is present, it will be found very difficult to alleviate.

Patients with this lesion obtain more relief by overdilatation of the bladder under anesthesia than by any other method of treatment. It is advisable to overdilate the bladder under cystoscopic inspection in order to make sure that the bladder mucosa is not ruptured too deep. Although relief is often limited to only a few months, it sometimes continues longer. In some patients the lesion is found on cystoscopy to be confined to one area and, when localized, suprapubic excision is often followed by relief. When there are several definite areas visible on cystoscopic examination, light fulguration sometimes alleviates the pain, although usually only temporarily. A few patients have had relief following presacral neurectomy, although the end results of this operation have been disappointing in most cases.

Many patients will gradually become tolerant to the submucosal lesion and in the course of time, as its acuteness lessens, they may complain but little of their vesical symptoms. Local treatment and oral medication are usually of no value. If gram stains or cultures of the urine show bacilluria, oral acidification of the urine, together with mandelic acid, may be of value.

#### LOCATION OF CEREBRAL LESION

*To the Editor:*—A man, aged 47, whose physical examination and Wassermann tests are negative, has a left cerebral atrophy with right homonymous hemianopic changes in the visual field, all of uncertain duration. The only reason that he can offer as to the cause is that he was burning away some metallic zinc with an acetylene torch and got the fumes in his lungs. Can this cause the condition mentioned? If not, what is the usual etiology? Please omit name.

M.D., New York.

*ANSWER:*—The information is hardly sufficient on which to base a definite statement. On just what basis the diagnosis of left cerebral atrophy is made is not clear. The only symptom that is given is changes in the visual field, and the type of this is not recorded. Assuming that he has either a quadriceps or hemianopic homonymous defect, one could localize the lesion either in the parietal or occipital lobe, depending somewhat on the exact characteristics of the defect. It does not seem at all reasonable that a cerebral lesion would occur as the result of fumes from an acetylene torch getting into the lungs. The most frequent cause for visual field disturbance, aside from syphilis, is cerebral tumor, abscess or vascular disease. Further tests and examinations should throw more light on the matter.

#### REMOVAL OF TEETH ROOTS AND CYSTS FROM JAW

*To the Editor:*—A woman, aged 72, had marked swelling of the left side of the face, hard, not suppurative, for ten days. Then x-ray examination revealed the presence of the root of a molar in the left side of the jaw (the tooth was extracted thirty years ago). Incision and drainage from the outside afforded relief. In three weeks incision was made in the gum and bone was removed so that the root was identified and loosened but not removed. Iodoform packs daily were used for ten days. Will the body treat this root (the lower tips are on the outer margin of the mandible) as a foreign body and eventually evict the root or will more efforts have to be made to lift it out? What is the danger of fracturing the jaw? Please omit name and address. M.D., Michigan.

*ANSWER:*—Usually the mouth tissues react toward roots as they do toward functionless teeth. That is, they generally "evict" them. This process is spoken of as an eruption process. By far the vast majority of fractured roots move to the surface, frequently in the early stages; this is hastened with an accompanying suppuration. The exceptions are curved root tips, or roots that have become fused to the alveolar process through excementosis. If the observation is correct that the swelling was not due to suppuration, then it can positively be stated that the swelling was the result of a cyst formation about the root. That being true, surgical intervention is definitely indicated. This should consist of the removal of both the root and the cyst wall, provided the cyst is not too large. If the cyst is quite large, a Parnsch operation should be performed. In this type of operation the cyst is opened and the cyst wall folded into the oral cavity and sutured to the mucous membrane. The root should be removed. There is always danger of fracture of the mandible in the case of large cysts, both with or without operation. If no operation is performed, in time fracture of the mandible will result from pressure absorption.

#### BLOCKING NOISES FROM EAR

*To the Editor:*—What can be done to protect the ears of the men working in steam electrical plants where the coal is ground into powder? The rollers that crush the coal weigh two or three hundred pounds and run at terrific speed and they make a tremendous rumbling noise. Most of the men become deaf or partly deaf after working around these rollers for a good while. I want to know the best thing I can do to protect the hearing of these men. The noise here is the same as in cement mills. Please omit name.

M.D., South Carolina.

*ANSWER:*—It is practically impossible to prevent loud, intense noises from reaching the hearing mechanism. A great many types of obturators to close the external auditory canal have been suggested from time to time but none have been completely successful. Experience with hearing tests indicate that the finger moistened with water or glycerin and held snugly in the meatus is a good obturator; but for men who are engaged in work in noisy places, a fairly tight fitting pledget of cotton moistened with glycerin inserted into the external auditory canal would probably serve as well as any other appliance. Possibly the wearing of a rubber air-containing pad over the ear held in place by a head band might be of some service and might be worthy of a trial.

#### DIAGNOSIS OF GONORRHEA FROM SMEARS

*To the Editor:*—I am a laboratory technician who has been taught by a well known pathologist that a positive diagnosis of gonorrhea is based only on gram-negative intracellular diplococci. Recently I have been associated with a gynecologist who claims that intracellular diplococci are found only in cases of acute gonorrhea and that extracellular diplococci are sufficient to give a positive diagnosis, even in the presence of an abundance of contaminating bacterial flora, and sometimes without an abnormal number of leukocytes. What is your opinion? Va.

*ANSWER:*—For the diagnosis of gonorrhea by the stained smear, the Gram stain must be used and the technic of staining carefully followed.

In urethral smears gram-negative diplococci of coffee-bean shape may be considered positive for gonococci whether intracellular or extracellular. In vaginal and cervix smears only the typical intracellular organisms should be considered positive unless confirmed by culture. Other gram-negative cocci are often found in smears from the female genitalia. It is true that in acute gonorrhea the diplococci are mostly intracellular, whereas in the chronic cases they are frequently found outside the cells.

In the presence of many contaminating bacteria and few leukocytes, the finding of extracellular gram-negative diplococci does not necessarily indicate gonorrheal infection. The report should state "gram-negative diplococci resembling gonococci." In some cases, particularly those of a forensic nature, it is necessary to make cultures on special mediums before stating whether the infection is or is not gonorrheal.

pathologic lesions. If mere presence of organisms means anything, the etiology of many lesions is easily demonstrated. This is particularly true in one of the commonest diseases of man. Every patient with a cancer whom I have seen in my private practice in the last eight years has shown a positive culture for fungi, and material cultured from a considerable group of patients in the Brooklyn Cancer Hospital all gave positive results. There is usually one type of organism present. Because these organisms are so common they have until recently received inconclusive consideration. The cause of a disease is as common as the disease. Consideration of more than the physical presence of the organism is necessary. As estrogen has been demonstrated to cause cancer in certain localities, and as yeasts contain considerable quantities of estrogen, progress might result from greater interest in the physical presence of fungi if studied in relationship to their biologic products. The number of known products is a high one.

The editorial is timely and I hope that it will inspire deep interest in this subject. A problem certainly exists as to the true significance of these organisms. There is apparently a group of lesions that are caused by the organisms, and another group of lesions which are similar in their physical manifestations but are not altered by a type of management that will afford complete or partial relief in the comparable group. A study of the physical effects of the biologic products should aid in the solution of the problem. Yeasts have the faculty of autolysis, so that their endogenous and exogenous products should be studied.

J. ARTHUR BUCHANAN, M.D., Brooklyn.

#### THE USE OF ANTISYPHILITIC REMEDIES

*To the Editor:*—Dr. H. N. Cole in his article on "The Use of Antisymphilitic Remedies" (THE JOURNAL, Dec. 26, 1936) says: "As yet I am unwilling to recommend the indiscriminate use of acetarsone by mouth in the treatment of congenital syphilis. It is still too much in the experimental stage." This statement is emphatic and conclusive. It gives the reader the impression that acetarsone is of no value in the treatment of congenital syphilis.

My experience with acetarsone, after using it for the last six years at the Northwestern University clinic, is different. I am of the opinion that acetarsone by mouth is the ideal drug for the treatment of congenital syphilis in the infant. In older children, it is true, neoarsphenamine with a bismuth compound or acetarsone with a bismuth compound is better.

Although it is true that the use of acetarsone in this country has not been extensive, the American reports published within the last four or five years have shown that this drug is efficacious in the treatment of congenital syphilis in infants. The following list of articles is evidence:

- Abt, A. F., and Traisman, A. S.: Stovarsol in the Peroral Treatment of Congenital Syphilis, *J. Pediat.* 1: 172 (Aug.) 1932.  
Traisman, A. S.: Treatment of Congenital Syphilis with Acetarsone (Stovarsol) by Mouth, *Am. J. Dis. Child.* 46: 1027 (Nov.) 1933.  
Rosenbaum, H. A.: Stovarsol in the Treatment of Syphilis in Infants and in Children, *Am. J. Dis. Child.* 44: 25 (July) 1932.  
Maxwell, C. H., Jr., and Glaser, Jerome: Treatment of Congenital Syphilis with Acetarsone (Stovarsol), *Am. J. Dis. Child.* 43: 1461 (June) 1932.  
Rambar, A. C.: Syphilis and Prematurity, *J. Pediat.* 3: 841 (Dec.) 1933.  
Rosenbaum, H. A.: A Survey of One Hundred Cases of Congenital Syphilis Treated with Stovarsol (Acetarsone), *J. Pediat.* 3: 434 (Sept.) 1933.  
Coppolino, J. F.: Acetarsone in the Treatment of Congenital Syphilis, *Am. J. Dis. Child.* 48: 272 (Aug.) 1934.  
Traisman, A. S.: Further Observations on the Use of Acetarsone in the Treatment of Congenital Syphilis, *J. Pediat.* 7: 495 (Oct.) 1935.

Besides, a review of the European literature for the last ten years shows numerous articles, by outstanding syphilologists, in which acetarsone is recommended very highly.

Erich Hoffmann, one of the foremost authorities of the present day on syphilis, in a recently published article (*J. Pediat.* 9: 569

[Nov.] 1936) says that while he has seen good results from combined neoarsphenamine-bismuth (or mercury) therapy with medium dosage (0.01 Gm. of neoarsphenamine per kilogram), recently stovarsol (acetarsone) treatment has been preferred by most pediatricians, gynecologists, and dermatologists and has been regarded as sufficiently efficacious.

Further in the same article he states that "according to most experienced syphilologists, intensive stovarsol therapy with dosage and duration adapted to the severity of the congenital syphilis is very effective and so efficacious that neither recurrences nor nervous involvements ensue." He states further that older infants and small children, as well as adults, should be treated by neoarsphenamine and bismuth. "In cases in which stovarsol is not sufficient, this treatment is to be advised and may be repeated once or twice, according to indications."

These statements by Erich Hoffman speak for themselves. Acetarsone has its place in the oral treatment of congenital syphilis in infants. This drug has passed the experimental stage. Its use should be encouraged, especially in clinics and hospitals, so that its true worth may be firmly established.

Dr. Cole's statement is too final. He does not give his reasons for refusing to recognize the value of this drug or the work and research by many European and American clinicians.

ALFRED S. TRAISMAN, M.D., Chicago.

Associate in Pediatrics, Northwestern  
University Medical School.

[The letter of Dr. Traisman was referred to Dr. Cole, who replies:]

*To the Editor:*—I have never denied that acetarsone is effective in the treatment of congenital syphilis. The difficulty, however, is that the dose that is effective is so near to the dose that causes severe reactions that it is felt that it is unwise to have this remedy employed indiscriminately. For example, among the authorities that Dr. Traisman mentions, the article by Maxwell and Glaser states that in their series of cases from one of the best university pediatric clinics in the United States there was one death and one severe toxemia following acetarsone. The death occurred after 7.68 Gm. of acetarsone over a period of thirty-four days. They quote Martin as having had two cases of flaccid paralysis after use of the drug. They conclude: "Acetarsone probably has a definite place in the treatment of congenital syphilis. That the drug cannot be used indiscriminately is amply demonstrated by the one fatality and the toxic manifestations that occurred in our small series. The exact position of acetarsone remains yet to be determined by those who have at their disposal sufficient clinical material and sufficient interest to follow cases carefully with a minimum of danger." The Council on Pharmacy and Chemistry has not seen fit as yet to endorse acetarsone for the indiscriminate treatment of prenatal syphilis.

Moreover, if Dr. Traisman will take the trouble to consult two recent authoritative books on syphilis (Moore, J. E.: *Modern Treatment of Syphilis*, Springfield, Ill., Charles C. Thomas, 1933), and Stokes, J. H.: *Modern Clinical Syphilology*, ed. 2, Philadelphia, W. B. Saunders Company, 1934), he will note that these authorities take the same attitude.

Acetarsone has undoubted value in the treatment of syphilis. The only question is whether it is worth the chance when one has other remedies that may be employed and that will be even as effective, for either sulfarsphenamine may be injected intramuscularly, a concentrated preparation being used, or either the sulfarsphenamine or neoarsphenamine in a concentrated preparation may be injected under the fascia of the scalp and will be absorbed readily in infants, producing little or no reaction.

I am glad that Dr. Traisman has brought up this point. Perhaps it was not clear enough.

H. N. COLE, M.D., Cleveland.



## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: *Basic Science*. Tucson, March 16. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical*. Phoenix, April 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Medical (Regular)*. Little Rock, May 11-12. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic)*. Little Rock, May 11. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Reciprocity*. San Francisco, May 9. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: Hartford, March 9-10. *Endorsement*. Hartford, March 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science*. Washington, June 28-29 (probable dates). *Medical*. Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

IDAHO: Boise, April 6. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, April 6-8. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: *Basic Science*. Des Moines, April 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular)*. Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic)*. Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, March 9-11. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science*. Minneapolis, April 6-7. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical*. Minneapolis, April 20-22. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Basic Science*. Portland, March 20. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene. *Medical*. Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

RHODE ISLAND: Providence, April 1-2. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Rapid City, July 20-21. Dir., Division of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science*. Madison, April 3. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical*. Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

#### NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, February 27, page 754.

### District of Columbia Reciprocity Report

Dr. George C. Ruhland, secretary, Commission on Licensure, reports 36 physicians licensed by reciprocity during 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine	(1928)		Connecticut
George Washington University School of Medicine	(1929)		New York
Georgetown University School of Medicine	(1930)		Maine
New Jersey, (1932) Louisiana, (1932), (1933, 3) Maryland, (1933, 2) Pennsylvania			
Howard University College of Medicine	(1911)		Missouri
Howard University College of Medicine	(1928)		Louisiana, (1933) Kansas
Emory University School of Medicine	(1922)		Georgia

Indiana University School of Medicine	(1925), (1933)	Indiana
Tulane University of Louisiana School of Medicine	(1930)	Alabama
(1932) Louisiana		
College of Physicians and Surgeons of Baltimore	(1914)	Penna.
Maryland Medical College	(1905)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons	(1925), (1932), (1934)	Maryland
Washington University School of Medicine	(1930)	Missouri
Leonard Medical School, Shaw University, N. C.	(1906)	Penna.
Ohio State University College of Medicine	(1928), (1933)	Ohio
Temple University School of Medicine	(1927)	Penna.
University of Pennsylvania School of Medicine	(1917)	Penna.
Woman's Medical College of Pennsylvania	(1928)	Penna.
University of West Tennessee College of Medicine and Surgery	(1915)	N. Carolina
Medical College of Virginia	(1930)	Virginia
University of Virginia Dept. of Medicine	(1932), (1933)	Virginia

### California October Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held in Sacramento, Oct. 20-22, 1936. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Fifty-eight candidates were examined, 53 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1933)		76.9
College of Medical Evangelists	(1935)		76.1
84.7, (1936) 79, 80.2, 81.9, 83.3, 83.3, 85.1, 86			
Stanford University School of Medicine	(1933)		83.4
(1936) 77.8, 80.9, 83.4			
University of California Medical School	(1936)	83.6, 86.8	
University of Southern California School of Medicine	(1936)		84.6
University of Colorado School of Medicine	(1935)		81.4
Georgetown University School of Medicine	(1929)		76.7
Loyola University School of Medicine	(1936)		77.3
Northwestern University Medical School	(1935)	79.6, (1936)	85.7
Rush Medical College	(1935)	86, (1936)	77.3, 87.1
University of Illinois College of Medicine	(1934)	83.6, (1936)	78.2
Indiana University School of Medicine	(1935)		78.7
State University of Iowa College of Medicine	(1934)		88.2
Johns Hopkins Univ. School of Medicine	(1931)	80, (1936)	84.2
Harvard University Medical School	(1935)		87.2
University of Minnesota Medical School	(1936)		87.8*
St. Louis University School of Medicine	(1936)		83.9
Washington University School of Medicine	(1936)		87
Creighton University School of Medicine	(1935)		80.3
82.3, (1936) 81.7, 83.6, 85.2			
Cornell University Medical College	(1936)		76.4
University of Rochester School of Medicine	(1936)		80.3
University of Oklahoma School of Medicine	(1935)		81.1
University of Oregon Medical School	(1936)	86.1, 86.9	90.8
Jefferson Medical College of Philadelphia	(1936)		87.3
Vanderbilt University School of Medicine	(1933)		83.7
Marquette University School of Medicine	(1936)	75.7	84.9
University of Wisconsin Medical School	(1934)		77.3
McGill University Faculty of Medicine	(1935)	83.4, 84.3	

School	FAILED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1936)		72.8
Tufts College Medical School	(1934)		73.8
Creighton University School of Medicine	(1936)		73.4
Marquette University School of Medicine	(1936)		74
Ludwig-Maximilians-Universität Medizinische Fakultät, München	(1931)		51.4

Twenty-eight physicians were licensed by reciprocity and 5 physicians were licensed by endorsement from August 21 through December 9. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine	(1935)		Colorado
George Washington University School of Medicine	(1934)		New York
Howard University College of Medicine	(1930)		Virginia
Northwestern University Medical School	(1935)		N. Dakota
Rush Medical College	(1929)		Illinois
University of Illinois College of Medicine	(1934), (1935)		Michigan
Indiana University School of Medicine	(1926)		Iowa
State University of Iowa College of Medicine	(1934)		Kansas
University of Kansas School of Medicine	(1935)		Penna.
Tulane University of Louisiana School of Medicine	(1934)		Penna.
Johns Hopkins University School of Medicine	(1932)		Utah
Harvard University Medical School	(1934)		Michigan
University of Michigan Medical School	(1928)		Missouri
St. Louis University School of Medicine	(1934), (1935, 2)		Missouri
Washington University School of Medicine	(1930), (1934)		Nebraska
Creighton University School of Medicine	(1927)		Iowa
University of Nebraska College of Medicine	(1933)		New York
Columbia Univ. College of Physicians and Surgeons	(1934)		New York
University of Oklahoma School of Medicine	(1926)		Washington
University of Oregon Medical School	(1929) Florida, (1930)		Penna.
University of Pittsburgh School of Medicine	(1927)		Delaware
Woman's Medical College of Pennsylvania	(1932)		Tennessee
McHerry Medical College	(1934)		

School	LICENSED BY ENDORSEMENT	Year Endorsement of
Yale University School of Medicine	(1931)	N. B. M. Ex.
Northwestern University Medical School	(1934)	N. B. M. Ex.
Rush Medical College	(1919)	N. B. M. Ex.
University of Minnesota Medical School	(1930)	N. B. M. Ex.
Washington University School of Medicine	(1932)	N. B. M. Ex.

\* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

relieved by rest or pressure and increased by exertion. Inter-costal neuralgia is felt along the course and distribution of one or more of the intercostal nerves, and marked tenderness is elicited occasionally by pressure in the corresponding spaces.

The problem of diagnosis of obscure chest pains is difficult and in many cases impossible. The most that can be done in the latter case is to observe the patient at frequent intervals for evidence of organic disease. This must be done before one can feel satisfied in attributing pain to myalgia, pleurodynia or intercostal neuralgia.

#### HYPERTENSION

To the Editor:—Mrs. J. P., aged 40, white, was told about ten years ago that she had high blood pressure. Her complaints were "hot flushes" and occasional dizziness. The blood pressure since has ranged between 190 and 240 systolic, 100 and 140 diastolic. The patient states that she feels fine except for occasional attacks of tingling and numbness of one whole side of the body, usually the right side. She had one attack in 1935 and has had three attacks within the last two months. These attacks usually last from ten to thirty minutes and resemble a complete hemiparesis. She has received every known medicine used in hypertension, including iodides, nitrites, glyceryl trinitrate and aminophyllin. There is no known focus of infection. Kidney function tests are normal. The blood Wassermann reaction is negative. The blood chemistry is normal. The blood count is normal, as is the differential count. X-ray examination of the sella turcica is normal. The basal metabolism is plus 6. X-ray examination of the chest shows enlargement of the heart and hardening of the aorta. Cystoscopy and pyelography are normal. The patient is well built and well nurtured, weighs 130 pounds (59 Kg.) and is 5 feet 6 inches (168 cm.) in height. Her face is rather florid. The pulse is usually between 80 and 100 a minute. The temperature is normal. The eyes show a slight exophthalmos. The fundi are normal. The ears, nose and throat fail to show any focus of infection. The thyroid gland is not palpable. The chest is normal except for the moderate enlargement of the heart and of the aorta. The abdominal examination reveals nothing abnormal. Vaginal examination reveals a normal marital outlet, cervix normal, uterus slightly retroverted, ovaries and tubes normal. The deep reflexes are slightly exaggerated. The superficial reflexes are equal. There is no involvement of the cranial nerves. There are no pathologic reflexes. The blood pressure varies, as stated before, between 190/100 and 240/140 at various intervals throughout the day. She has never been ill and has never been operated on. The regional history is normal. In the family history there is the following of significance: The mother, who was also a hypertensive patient on a renal basis, recently had a "stroke" and is now completely paralyzed on one side. The older sister, who lives in another city, has exophthalmic goiter. In 1932 the patient was given crisscross irradiation to the thyroid with temporary beneficial effect. Recently, with all the latest contributions toward the etiology and cure of so-called essential hypertension, a surgeon wanted to operate abdominally on the patient. The patient was willing, but the surgeon probably changed his mind, for she has not heard from him in the last two years. She is willing to undergo any treatment that holds a promise of cure or at least of a cessation of the attacks of apparent hypertensive encephalopathy, for with the present condition the patient is necessarily almost completely abstaining from social activities. I do not think that she can be helped medically. She has had almost everything suggested by a multiple of doctors, including endocrine substances and estrogenic material. Is there any operative procedure that will be of benefit? Will a thyroidectomy be indicated? Please omit name.

M.D., New York.

ANSWER.—In this patient the familial tendency to hypertensive disturbances is clearly manifest. Such inherited vulnerability of the circulatory apparatus to exaggerated response to stimuli is beyond relief by medication or surgical intervention. Perhaps thorough and tactful inquiry into a possible source of emotional turmoil and conflicts may reveal some reason for the recurrent acute attacks. These attacks are, apparently, due to cerebral angiospasm, what Riesman (*Am. J. M. Sc.* 185:29 [Jan.] 1933) called "vascular crises." It is often impossible to be certain just what precipitates such episodes, but emotional reaction unquestionably plays a more prominent part than physical effort. Such attacks imply a highly irritable vasomotor mechanism.

There has been little progression of the disease over the last few years. If this is the case the therapeutic problem becomes primarily one of diminishing the intensity of the arteriolar hypertension, raising the threshold to stimuli and permitting the hypertrophied and hyperexcitable arteriolar musculature to rest. The soluble nitrites and alkyl nitrates are too transient in their effects to accomplish these objectives. Vascular sedatives such as bismuth subnitrate or sodium thiocyanate, used over a long period, offer more encouragement. Thiocyanate salts must be administered cautiously and with frequent determinations of the blood and urine thiocyanate content as outlined by Barker (*THE JOURNAL*, March 7, 1936, p. 762) for they are dangerous. The iodides are useless. Calcium medication has likewise proved to be disappointing even to its most enthusiastic advocates. If emotional stimuli are responsible for the vascular crises, prolonged medication with mild sedatives may be of great value in reducing the frequency and severity of the attacks.

Phenobarbital 0.03 Gm. three or four times daily or sodium bromide 0.65 to 1 Gm. three times daily may be continued for weeks with reasonable safety if the patient is observed regularly.

Operative procedures have little, if anything, to offer the patient. Total or nearly total thyroidectomy to reduce the basal metabolic rate to minus 20 or below would probably merely make her stupid and depressed. As there is no hyperthyroidism present it is not logical to associate the vascular crises with thyroid dysfunction. Subtotal adrenalectomy, done in two stages, although energetically advocated by a few, is far too radical and the outcome too precarious to be warranted. Denervation of the adrenal glands fails to accomplish more than a temporary reduction in the arterial tension. Bilateral thoracic and lumbar nerve root resection and also resection of the major and minor splanchnic nerves have been employed to produce loss of vasomotor control over large areas of the vascular tree. The reported therapeutic results, as measured by the actual improvement in the diastolic tension (the best guide to arteriolar tonicity), have been almost useless. Reductions in blood pressure range about 10 or 20 mm. in the diastolic tension. The surgical risk in all these operations is definitely not justified by the results. Furthermore, such operative approach is without logic; there is no convincing evidence that arterial hypertension is due to either an overproduction of epinephrine or excessive activity of the sympathetic nervous system. To depress one normal functional mechanism in an attempt to compensate for some other abnormality is not sound therapeutics. Experimental work reveals that with all the various sympathectomy operations the arterial tension of normal dogs is depressed for but a few weeks.

#### SENILE OSTEOPOROSIS

To the Editor:—I have a patient whose trouble I have diagnosed as senile osteoporosis. She is 65 years of age and has a marked progressive curvature of the spine. Her symptoms of severe pain on motion and inability to get up and around have progressively grown worse until at the present time she is confined to her bed even though she has been carefully fitted to a back brace. The latest roentgenograms showed the condition of the spine to be much worse than a roentgenogram taken by another physician six months ago. Would you be kind enough to write the present-day treatment of senile osteoporosis. Please omit name.

M.D., Massachusetts.

ANSWER.—In an elderly patient, osteoporosis that is severe enough to produce deformity of the spine and severe pain on motion, with decalcification progressing rapidly, should cause serious consideration of the possibility of malignant metastases or osteomalacia secondary to hyperparathyroidism.

The treatment of senile osteoporosis must be predicated on the theory of correcting the conditions that have produced it. Among these etiologic conditions are (1) calcium starvation or inadequate calcium in the diet over a period of many years, (2) faulty absorption of calcium salts from the bowel, (3) atrophy of bone resulting from diminished physical activity, or a combination of these factors.

Immediate relief of pain may be obtained by immobilization and very gradual extension of the spine on a Roger bed or a Bradford frame. It would be illogical to anticipate correction of the anteroposterior deformity, but the anterior edges of the compressed or wedged vertebrae may be separated sufficiently to relieve some of the friction irritation or pressure on spinal nerve roots.

Heat and massage to the entire body is soothing and may help to improve the peripheral circulation and tissue tone sufficiently to minimize the atrophic effect of this additional period of enforced immobilization.

A high calcium diet should include 1 quart of milk daily if the patient will tolerate it. Since calcium can be utilized only in combination with phosphorus, at least two eggs daily and frequent additions of sweetbreads and nuts also are recommended.

Medication should include calcium lactate 0.65 Gm. three times each day, increased to 1.3 Gm. three times daily after four weeks. Some form of vitamin D concentrate is recommended to aid in the absorption and utilization of the calcium salts. This should be taken at mealtime in divided dosage. It is safe to prescribe 10,000 units daily, the dosage being increased so that after six weeks if there is no evidence of hypervitaminosis, as evidenced by anorexia or other gastro-intestinal disturbances, the patient may safely take 50,000 units daily for an indefinite period.

After six weeks of complete rest on an extension frame or bed, the patient may begin to sit up and gradually become ambulatory, wearing a rigid back brace of the Taylor type.

It must be remembered that the optimal retention of calcium that can be anticipated is only 0.5 to 1 Gm. daily. If the

28.5 degrees and of relative humidity from 52 to 78 per cent did not seem to influence the loss. Knowing the total heat production and the loss by evaporation, the author had an opportunity to check with this apparatus the exactness of his formula for loss by radiation, conduction and convection. In one experiment he calculated by this formula a total heat loss of 3.528 calories per second, while the actual heat produced by the bulb was 3.6 calories per second. In another experiment the calculated loss was 2.14, the actual loss 2.1. There was, consequently, very good agreement. In two thirds of the experiments the agreement between heat production as measured by skin temperature and as measured by oxygen consumption was within 10 per cent; in eight experiments the difference was over 15 per cent. The greatest differences were noted when the rectal temperature changed considerably during the experimental period, and the author believes that a calculation of the changes in the heat content of the body is apt to give too high values when based on changes in rectal temperature: in other words, that the rectal temperature has changed more than the total body temperature. The author concludes that his method gives good results in the measurement of heat loss but that the measurements of heat production are apt to be somewhat inaccurate in cases in which the body temperature has changed during the experimental period.

**The Intellectual Functions of the Frontal Lobes: A Study Based upon Observation of a Man After Partial Bilateral Frontal Lobectomy.** By Richard M. Brickner, B.S., M.D., Assistant Professor of Neurology, College of Physicians and Surgeons, New York. Cloth. Price, \$3.50. Pp. 354, with 13 illustrations. New York: Macmillan Company, 1936.

In 1931, a year after both frontal lobes of the brain had been removed for a meningioma, the patient, whose history is recorded in this book, was 42 years of age. For the next year elaborate studies were carried out with the aim of investigating the deficit, if any, in the patient's mental processes. The studies were not only those conducted by highly technical experts in psychology and psychometric examinations but also studies based on ordinary conversations with the individual, under natural surroundings. In this monograph we have more data at hand with regard to what a patient said and did after removal of a part of his brain than have ever been accumulated in the past. This, moreover, is the first time that such data have been gathered following bilateral amputation of the frontal lobes. The material, therefore, is unique not only in scope but also in character. The exact amount of tissue removed is known, as well as the part of the brain from which it came. Although some of the conclusions drawn have been somewhat anticipated by other workers, this minute and painstaking survey adds greatly to our knowledge of the function of the frontal lobes. The deductions, moreover, are of such a nature and so clear cut in character that they give for almost the first time a fundamental concept of this part of the brain.

The deficit caused by the amputation of both frontal lobes in this patient did not alter in any way the fundamental nature of any mental process. There was, however, impairment in the completeness of function, with a quantitative rather than a qualitative loss. Only one function, moreover, was primarily affected—that of the power of association or synthesis of the simple engrammatic products from the other parts of the brain. There was thus a definite limit to the complexity of thought, which made a distinct change in the personality of the individual. There was nothing to indicate that the frontal lobe should be considered as an intellectual center the destruction of which will remove entirely a primary mental process. This interpretation, as given by Dr. Brickner, accounts for nearly all the symptoms shown by the patient. A few symptoms were unexplained on the basis of diminution of association or synthesis from other parts of the brain. These symptoms were a tendency toward rectal and vesical incontinence, slight euphoria, some compulsive acts, and jargon of speech. The explanation of these symptoms is left for future investigators.

Although Dr. Brickner has drawn these conclusions from a study of his patient, he has put the data collected both formally and informally in such form that different interpretations may be made by other investigators. The subject necessarily is one of the most complex in medicine, for the frontal lobe is by common consent the most dominant part of the brain. The data presented here advance our knowledge and we are greatly indebted to the author for his carefully recorded studies over

a long period. The observations, however, go only through the year 1932, the patient having been operated on in 1930. One would like to know the state of the patient's health at the present time and whether the studies have been continued. The effect, if any, of psychoanalysis in such a patient would also be worthy of record.

**Krebs und Krebsbekämpfung in Frankreich.** Von Dr. med. Hellmut Haubold, Reichsgesundheitsamt, Berlin. Herausgegeben in Gemeinschaft mit Unterstützung des Reichsausschusses für Krebsbekämpfung. Paper. Price, 15 marks. Pp. 273, with 19 illustrations. Leipzig: Johann Ambrosius Barth, 1936.

This monograph, the author of which is connected with the German health office, is written in order to spread the knowledge of the French campaign against cancer and to draw practical conclusions for the organization of the German cancer campaign. It is authorized by the official German committee on cancer campaigns. Based on personal studies in the leading French cancer institutes, the author discusses the leading ideas and the principles of the French anticancer organization. In the first part he gives a sketch of the historical development of the conceptions of cancer pathology in France, as far as the understanding of these is necessary for the reasonable organization against this disease. In the second part the statistical data regarding the incidence of cancer in France and its importance as a public health problem are extensively discussed and carefully compared with the international conditions in this regard. The book definitely loses some of its value by the fact that the information contained in it is not absolutely reliable. The author states, for example, on page 189 that the new cancer hospital of the Curie Institute in Paris is equipped with two x-ray machines with 200 kilovolts, one with 300 kilovolts and one with 700 kilovolts; whereas, as a matter of fact, at the present time there are seven 200 kilovolt machines and one 300 kilovolt machine in operation but no higher voltage machine is operating or has been planned for. It is obvious that a reference book of this type is of great value only if it is absolutely reliable in every detail. With this reservation the book gives an interesting cross section of the present situation of the cancer campaign in France, which is considered by many as the model organization in Europe with the exception of the organization in the Scandinavian countries.

**Home Care of the Mental Patient.** By Dr. Arle Querido, Head of the Department of Social Psychiatry, Medical Service, City of Amsterdam. With a foreword by R. D. Gillespie, M.D., F.R.C.P., Physician for Psychological Medicine, Guy's Hospital, London. Cloth. Price, \$1. Pp. 93. New York & London: Oxford University Press, 1936.

This pocket-size handbook gives a good deal of useful and interesting general information about the mental patient. It should give any reader a better and more sympathetic understanding of the sufferer with mental disease, as a patient. It should help to dispel the ignorance, which still persists, causing the insane to be regarded with fear, with aversion, or with a perverted sense of humor. But it will not give the reader much if any practical help in the home care of the patient. Sympathy, tact and understanding are excellent, but they are no substitute for knowledge. As an introduction to mental disease, written for laymen, it is a useful though by no means indispensable little manual. As a guidebook for the perplexed relative, it is virtually useless.

**Annual Review of Biochemistry.** Edited by James Murray Luck. Volume V. Cloth. Price, \$5. Pp. 640. Stanford University, California: Stanford University Press, 1936.

The Annual Review of Biochemistry has been in existence for more than five years. During this time it has become an indispensable guide to developments in biochemistry and to a less but still important extent in physiology as well. A review of these collected reviews is now almost superfluous. The present volume introduces both new subjects and new authors to readers of the previous issues. The subjects include oxidations and reductions; enzymes; x-ray studies of biologic compounds; chemistry of carbohydrates and glucosides, acyclic constituents of natural fats and oils, proteins, amino acids and other nitrogen compounds, sulfur compounds, phosphorus compounds and fungi; metabolism of carbohydrates, fats, amino acids, minerals, organic acids of plants and bacteria; vitamins; hormones; liver and bile; nutrition; animal pigments; special elements in plant nutrition, and soil microbiology. This material

present in the brain. When this concentration reaches 0.25 per cent, symptoms of intoxication appear regardless of the habituation of the individual to the intake of the material. The increased tolerance of habitual drinkers is therefore not due to any real acquired immunity to the effects of alcohol but rather to an increased rate of oxidation of this substance in the tissues, so that it requires a greater intake of alcohol to raise its concentration in the brain above the stated intoxicating level. Thus the degree of temporary intoxication caused by alcohol in a given case cannot be taken as a criterion of its permanent pathologic effects on the individual, and there seems no reason to believe that the patient mentioned by the correspondent has an increased resistance to these effects.

As regards the relationship of the hyperthyroidism in this patient to his great tolerance for alcohol, the obvious conclusion from the discussion would be that the increased tissue metabolism of hyperthyroidism disposes of large quantities of alcohol and retards the rise of alcohol concentration in the brain. Another factor may possibly be the high oxygenation of the blood in hyperthyroidism, since Keilin (*Proc. Roy. Soc. [B]* 98:312, 1925) has shown that high oxygen tensions counteract the impairment of the catalytic efficiency of cytochrome caused by alcohol.

Diabetes insipidus may also be a factor in the patient's resistance to the intoxicating effects of alcohol. Rowntree (*Oxford Medicine*, Vol. 4, part 1, p. 183) states that "idiosyncrasies to drugs may exist, particularly a tolerance for alcohol."

#### EFFECTS OF COITUS IN GONORRHEAL CONDITIONS

*To the Editor:*—Is coitus (with a condom, of course) beneficial, because of the complete evacuation of the prostate and seminal vesicular secretions, or harmful, owing to its irritating effects on the urethra and other glands in the following cases: 1. Subsiding gonorrheal arthritis, when the urethral discharge ceased three months ago, and urine (first and second) is crystal clear, and the joint aches are reduced to a minimum. 2. Postgonorrheal chronic prostatitis, when there is no urethritis, first and second urines are clear, and there are no symptoms except prostatitis confirmed by microscopic tests. 3. Mild chronic nonspecific urethritis and prostatitis of many years' duration, with an occasional urethral purulent discharge, the first urine slightly hazy with many shreds, the second urine clear, and the prostate containing innumerable white blood cells per high power field and feeling boggy grossly. No subjective symptoms are complained of. I should like to know whether intercourse should be advised or not in these types of cases. Kindly omit name.

M.D., New York.

*ANSWER.*—1. In this instance there is not sufficient proof that the gonococcus has entirely disappeared. Under these circumstances intercourse might be harmful.

2. If the statement that prostatitis is present means that the gonococcus has been demonstrated by microscopic tests, then again intercourse might be harmful.

3. Intercourse in all probability would not be harmful, but it is doubtful whether or not it would be beneficial.

#### ALLERGY OR CAPILLARY FRAGILITY

*To the Editor:*—A farmer, aged 35, seems to be in perfect health except when he does any unusual work that rubs the skin and the tissues beneath the skin. Then the tissues swell and become quite painful. As an example, he was putting window screens in and working around the house, standing on a stepladder and leaning against the upper step, so that it rubbed the tissues above both knees. This caused them to swell and cause great discomfort. As another example, in sitting on the seat of the tractor, where the seat rubbed the sides of his buttocks, the tissues swell and become quite painful. His tonsils have been removed, his teeth are in good condition, and no abnormal condition can be found in the rectum; in fact, no other pathologic changes can be found. Is this a form of allergy? If so, can anything be done to prevent the recurrence, other than avoiding such pressure? Please omit name.

M.D., Illinois.

*ANSWER.*—Two possibilities suggest themselves. There is a likelihood that the swellings are of a hemorrhagic nature, probably the result of capillary fragility. This could be on an allergic basis, although other causes should be kept in mind. Of course, the discoloration would be the significant diagnostic finding. The other possibility is that the swellings are of an allergic nature, i. e., urticaria or angioneurotic edema, and that the localization of the swellings is due to the trauma. From the description given, allergy should be considered. The most likely source of the allergy would be a food, which probably can best be handled by elimination diets. Bacterial sensitization and heat allergy (from rubbing) should also be considered. For the hemorrhagic type of swellings a calcium salt and viosterol should be tried. For the urticarial type injections of parathyroid extract may be of help.

#### TREATMENT OF SYPHILIS

*To the Editor:*—I have a patient, aged 68, who although he denies ever having had syphilis has had a one plus or two plus Wassermann reaction over a period of about ten years. His Wassermann reaction was not taken prior to this period. Ten years ago when the test returned positive he went to one of our large hospitals, where he had a spinal puncture done and the attempt was made to give intravenous therapy. He says this was given up because of the difficulty in the procedure because of the small size of his veins. He, however, was given repeated injections of a bismuth compound and during the last ten years these bismuth injections have been repeated fairly frequently. He says he has had negative Wassermann reactions following such treatment, only to have positive tests recur. He has been carefully studied by several good men; some have advised injections of bismuth preparations and the last one just digitalis and potassium iodide. A roentgenogram of his heart shows the apex at the sixth interspace, the left border 8.9 cm. to the left of the median line, the right border 4.5 cm. from the median line, the long diameter 14.5 cm., the diameter at the base 9.3 cm., the diameter of the great vessel 8.8 cm. and the diameter of the chest 23.5 cm. Within the last year he has had a punch operation for prostatic obstruction and he has hardly recovered from the effects of this. He came to me recently because of swelling of the ankles and because he felt so "all in." His pulse rate was 80. His blood pressure was 240/20 at the first visit and since then has been 200/20. There has been no recurrence of the swelling of the ankles. His urine is loaded with pus and has a large trace of albumin with occasional casts. At present I am treating the bladder condition and my question is whether I should also give him bismuth injections. Please omit name.

M.D., Massachusetts.

*ANSWER.*—It would not seem advisable to treat this patient for syphilis, provided further examination of the heart does not reveal evidence of syphilitic aortic disease. A weekly positive Wassermann reaction in a man 68 years old, with hypertension, nephritis and prostatic enlargement, is of no significance in view of the fact that he has no clinical signs of active syphilis. The older teaching offered syphilis as one of the causes of hypertension; however, no concrete relationship between syphilis and hypertension has ever been established. The enlarged heart is probably a manifestation of hypertension. The prostatic disease has no relationship to the syphilis. Accordingly, to add a further load in the form of antisyphilitic treatment to an already damaged kidney and vascular system would not seem advisable. This objection to further treatment in this case is augmented by the fact that the antisyphilitic treatment would not be of any material help to either the nephritis or the vascular disease in this patient. The positive Wassermann reaction is probably the least of the patient's troubles and hence might well be ignored.

#### DYSMENORRHEA AT ALTERNATE MENSTRUAL PERIODS

*To the Editor:*—A woman, aged 22, single, and in good health otherwise, has for five years (approximately) had severe pain in the right lower quadrant of the abdomen with alternate menses. The alternating menses are pain free but these periods (every other one) produce severe pain in the abdomen as stated. The pain begins shortly (a few hours) before the onset of bleeding and lasts through the period and slightly or after it is over (few hours). Accompanying these painful periods there is a loss of typical endometrial tissue by the vagina, which lasts through the period of bleeding. The patient is a nurse and she states that this material looks just like the scrapings she used to see in surgery following curettages. The alternating periods (those that are pain free) have no such discharge of tissue. All the periods last from four to five days with average bleeding. Bimanual examination is negative. The cervix looks excellent. The canal seems very open. General examination otherwise is negative. The pain is getting worse of late, so that the patient cannot work when it is present. I would appreciate any ideas as to diagnosis and as to what can be done here to relieve her. Kindly omit name.

M.D., Chicago.

*ANSWER.*—This history is not typical of any single gynecologic disorder. Endometriosis should cause dysmenorrhea with each menstrual period and would not produce an evacuation of tissue-like material from the uterus. The same is true of adenomyosis uteri. Membranous dysmenorrhea is accompanied by the expulsion of tissue with every period. If ovulation occurs alternately in the ovaries of this patient, one might possibly explain the right-sided pain at intervals of eight weeks, but ovulation pain (mittelschmerz) would appear two weeks before, not during, the menses. The possibility of frequent abortion appears to be ruled out. In ectopic pregnancy a decidual cast is extruded but once. A polyp would hardly be evacuated piecemeal. No history of foreign body in the uterus is suggested. To summarize: The dysmenorrhea could be due to efforts of the uterus to expel something within its cavity (foreign body, polyp, myoma, gestational products, endometrial membrane); it could be due to endometriosis, to pelvic inflammation or to functional disorders. The tissue could be the membrane of membranous dysmenorrhea, gestational products



recover the amounts due for the use and benefit of the creditors. If the defendant owed the drug store, the nurses, the hospital and the other physicians, these creditors had a cause of action against him to recover the amounts due. But in the absence of any special assignment of those claims to the plaintiffs, and without some special authorization to bring this suit on behalf of the creditors, the plaintiffs were without interest and had no cause of action. The court held, therefore, that the plaintiffs' suit for these amounts should have been dismissed.—*Toler & Toler v. Munson (La.)*, 168 So. 93.

**Malpractice: Osteomyelitis Following Tooth Extraction.**—One of the plaintiffs, a child aged 9, was brought to the office of the defendant, a dentist, suffering from a toothache. The gum around the aching tooth was, as described by the mother of the child, "flaming red." The defendant injected an anesthetic into the gum on each side of the tooth and extracted the tooth. The boy's face later became swollen and he suffered great pain. The following day the defendant suggested that a physician be consulted, and the boy's condition was diagnosed as osteomyelitis, which necessitated hospitalization for a period of five months. Attributing the illness to the negligence of the defendant, the boy, by his next friend, and the father sued the defendant. The trial court gave judgment for the plaintiffs and the defendant appealed to the supreme court of New Jersey, contending that the lower court erred in refusing to direct a verdict for him.

The plaintiffs charged that the osteomyelitis was caused by the defendant's using the infiltration method to cause loss of sensation, which by the injection of a needle into the infected area permitted the infection to spread. The defendant should have, according to the plaintiffs' contention, injected the anesthetic outside the infected area. Whether or not the defendant used that standard of care which the law required of him, said the supreme court, was a matter for expert testimony. An expert witness, a dentist, testified that the defendant did not use the "kind of anesthetic" suitable for the condition in question and did not exercise the skill that is ordinarily used by members of his profession in cases of this character. Other dental expert witnesses for the plaintiff corroborated this testimony, stating that it was bad practice and contrary to that of the ordinary skilful dentist to inject anesthetics into an infected area. The defendant himself admitted that an anesthesia by infiltration would not have been proper in the present case but contended that he used the approved "mandibular (conductive) method." Other witnesses testified that the defendant used and exercised the skill that is required and ordinarily possessed by others in his profession in his treatment of the boy, and that even if the infiltration method was used, it would be in keeping with proper practice in a great many instances. Thus, said the court, there was a conflict in the testimony of the witnesses that presented an issue for the determination of the jury. The trial court was therefore justified in denying the defendant's motion for a directed verdict. The judgment of the trial court was affirmed.—*Zulinsky v. Greenblat (N. J.)*, 184 A. 806.

#### **Autopsies: Exhumation of Body Demanded by Insurer.**

—The defendant insurance company issued to the insured an accident policy which provided that the company "shall have the right and opportunity to examine the person of the insured when and so often as it may reasonably require during the pendency of claim hereunder, and also the right and opportunity to make an autopsy in case of death where it is not forbidden by law." The insured died from a gunshot wound under circumstances indicating either accidental or suicidal death. The company's local agent and its adjuster learned of the death the day after it occurred. A coroner's inquest was held but no autopsy was performed because the coroner, a physician, saw, as he subsequently testified, by his external examination all that could be discovered by autopsy. The insurance adjuster was present at the inquest but made no demand for an autopsy. About five weeks later, however, the company demanded an autopsy, which demand was refused by the insured's widow, a beneficiary under the policy. The company thereupon denied liability under the policy. In a suit against the company that followed, the trial court gave judgment for the beneficiaries, and the company appealed to the United States circuit court of appeals, fifth circuit.

The evidence in this case, said the circuit court of appeals, strongly negatived the inference that death was of a suicidal nature and the trial court properly submitted that question to the jury under correct instructions. With respect to the autopsy clause, the policy did not provide that if an autopsy was denied benefits were to be forfeited, nor did it obligate the beneficiary to take the initiative in having a postmortem examination made. A fair interpretation of the clause, the court said, is that the insurer shall be permitted, by the consent of those entitled to give it, to have an autopsy performed, or, if consent is withheld, to appeal to a court to decide on the propriety of it. Incidentally, the court said, the right to examine the person of the insured, as provided in the first part of the excerpt quoted, if applicable after death, did not cover the right to mutilate by dissection such as is involved in an autopsy. Strictly speaking, the court continued, there is no property in a corpse. The right to possess, preserve and bury it, however, belongs, in the absence of testamentary direction, to the surviving spouse, if there is one, and, if not, to the next of kin, who may maintain an action for a deprivation of the right of sepulture or a mutilation of the body. A body once suitably buried ought to remain undisturbed except for necessity or laudable reasons. In the present case the adjuster of the company examined the scene of the tragedy and attended the inquest but, so far as the record shows, did not bring the matter to the attention of the company. Five weeks later he, at the instance of the company, demanded that the body be exhumed to permit an autopsy by the coroner, who testified that nothing more could be learned by an autopsy. Under such facts, it was neither reasonable to exhume the body nor necessary in order to obtain probably important evidence. The judgment against the company was consequently affirmed.—*Travelers Ins. Co. v. Welch*, 82 F. (2d) 799.

## **Society Proceedings**

### **COMING MEETINGS**

- Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association of Anatomists, Toronto, Ont., March 25-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
- American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Pediatric Society, University, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Gelling, 947 East 58th St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Ft. Smith, Secretary.
- Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.
- Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
- South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
- Southeastern Surgical Congress, Charlotte, N. C., March 8-10. Dr. Benjamin T. Beasley, 45 Edgewood Ave., S.E., Atlanta, Ga., Secretary.
- Tennessee State Medical Association, Knoxville, April 13-15. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.
- Western Branch of American Public Health Association, Phoenix, Ariz., April 13-15. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.



# PERSISTENT UTERINE BLEEDING

*To the Editor:*—A woman, aged 22, 5 feet 8 inches (173 cm.) tall, weighing 183 pounds (83 Kg.), well developed, started to menstruate at the age of 10 and continued regularly until three years ago, at which time she began and has continued to menstruate almost continuously ever since. Sometimes it clears up for a few days, then starts again, mostly small amounts but at other times quite free. She is a virgin and seems to be in good health otherwise. The blood pressure, heart and kidneys are normal. The breasts are larger than normal. She has no pain, and no tumors can be made out. I gave her extract of placenta, mammary and thymus gland in combination and for six weeks everything was all right, but since that time the condition has been as bad as ever. Can you give me anything that might help her? I believe it to be merely a glandular case. Please omit name. M.D., Pennsylvania.

**ANSWER.**—Granted that palpation reveals no pelvic abnormality, curettage sometimes relieves persistent bleeding, but usually not for more than two or three months except in cases in which a polypoid tumor is found.

The basal metabolic rate should be determined. Thyroid therapy is almost specific in many cases in which the metabolism is low and is indicated in all cases unless the rate is high.

Calcium lactate, 2 Gm. in a single dose, once daily, should be given even though the blood calcium level is normal.

Deranged metabolism may be helped by one or two vitamin capsules daily.

Blood transfusion is helpful and would be indicated as a routine measure in these cases were it not an expensive therapeutic measure and accomplished with considerable effort.

This is evidently an endocrine case and may resist all efforts at control, other than ray therapy or hysterectomy. If not well beyond 40 years of age, removal of the body of the uterus is preferable to irradiation.

# TECHNIC OF STERILIZATION OF INSTRUMENTS

*To the Editor:*—What is at present considered safe technic for sterilization of non-spore formers and of spore formers on sharp steel instruments with "germicides" and on boilable instruments? Is steam autoclaving of corrodible material, immersed in oil, a safe procedure?

DELL T. LUNDQUIST, M.D., Palo Alto, Calif.

**ANSWER.**—Sterilization of surgical instruments (dull or sharp) can be accomplished by boiling such instruments in a 2 per cent soda (sodium carbonate) solution followed by rinsing in sterile water. The soda will saponify the oily coating of hinged instruments and allow the steam to penetrate. The alkalinity of the soda water will also prevent corrosion. Earth spore-bearers are not killed in a period of two hours' boiling (1 Gm. of soil per liter of water) but when 0.1 Gm. is used the water becomes sterile at the end of one hour and fifteen minutes.

Oiled instruments cannot be autoclaved, since moisture cannot penetrate an oily layer. It is moist heat that kills bacteria and their spores. However, a hot air oven and temperatures of from 170 to 180 C. (338 to 356 F.) for about one hour will sterilize oiled and corrodible material. The use of a liquid petrolatum bath is fraught with danger in an operating room since a temperature of from 170 to 175 C. (338 to 347 F.) for a period of at least fifteen minutes is required to insure sterilization.

Chemical methods of sterilization of sharp instruments vary and the majority, like alcohol, are ineffective. Some of the most modern mercurials in tincture form may be employed, provided the instruments are left in such tinctures for a considerable period. Mercury bichloride will eventually attack metal.

# LEFT-HANDEDNESS

*To the Editor:*—Please discuss the treatment of an 8 year old boy who is a "true sinister"—left handed, left footed, a mirror writer and inclined to stutter and suffer from persistent enuresis. Please omit name.

M.D., Ontario.

**ANSWER.**—Effort should be directed toward established use to the left hand. The tendency to reversal in writing warrants study to determine whether this does not accompany reversal of images that would be confusing in the boy's efforts to learn to read. If this is established, phonetic and kinesthetic methods such as used with children with "word blindness" or reading disabilities should be used in teaching him to read. This will tend to overcome also the mirror writing. Unless the stuttering and enuresis are quite severe, it would probably not be wise to attack these problems directly, since they doubtless are dependent on the muscular incoordinations that attend confusions in handedness. Their subsidence is more likely to result from a general stabilization of the boy's activities, the reduction of tension and strain. Such a problem should be referred for

study to a psychiatrist or child guidance center, since treatment involves general management of the child's program of activities. See "For Stutterers," by Smiley Blanton and M. G. Blanton, New York, D. Appleton-Century Company, 1936.

# KERATOCONUS

*To the Editor:*—Have you any information regarding the relation of vitamins to keratoconus? The relation of thyroid to keratoconus? Any therapeutic means that has any effect on keratoconus?

WENDELL L. HUGHES, M.D., Hempstead, Long Island, N. Y.

**ANSWER.**—As the cause of keratoconus is still unknown, the relationship of the vitamins or of any of the products of the glands of internal secretion to the corneal condition is a mystery. In many of the cases there appears to be a marked hereditary tendency, as van der Hoeve has so aptly pointed out and illustrated with family trees of as high as five generations. In other cases hypothyroidism has been found and the corneal process apparently arrested by proper therapeutic measures (see E. von Hippel, Schnaudigl, Siegrist, Török and Redway); but the empirical use of the glandular extracts is definitely contraindicated. Meyer Wiener advocated the use of 1:1,000 epinephrine, and in a few instances the use of such drops three times daily has arrested the progress of the keratoconus. In the majority of cases the condition is more or less self limited and ceases to advance at about the age of 40 years. For some unexplainable reason, the constant use of contact glasses, when they can be worn constantly, seems to arrest the condition.

# USE OF GULLSTRAND OPHTHALMOSCOPE

*To the Editor:*—Can you inform me whether the Zeiss Gullstrand ophthalmoscope is practical, easy to operate; and the best binocular ophthalmoscope? What is the date of the latest model? Who handles it in this country?

L. J. DESWARTE, M.D., Greensburg, Ind.

**ANSWER.**—The Gullstrand ophthalmoscope is an investigative instrument and not for routine practice. The large models are made by Zeiss of Germany and by Bausch and Lomb of the United States and are both about fifteen years old. Bausch and Lomb has recently brought out a simplified smaller Gullstrand ophthalmoscope that is easier to handle but lacks some of the advantages of the large models. The Zeiss model is handled by Carl Zeiss of 485 Fifth Avenue, New York, and the Bausch and Lomb by the Bausch and Lomb Optical Company, Rochester, N. Y.

# HEMORRHAGE INTO JOINTS IN HEMOPHILIA

*To the Editor:*—A young man with hemophilia has frequent recurring hemorrhages into the various large joints. To control his pains during these attacks requires morphine. He now has the habit. What substitute could be used to take its place? Kindly omit name and address.

M.D., North Dakota.

**ANSWER.**—The use of capsules of acetylsalicylic acid (0.3 Gm.) fortified by combination with phenobarbital (0.05 Gm.) and possibly with extract of hyoscyamus (0.02 Gm.) is likely to relieve the pain. If not, the addition of codeine phosphate (0.05 Gm.) would still further increase the analgesic power of the combination, while being less objectionable than morphine.

# TESTS OF VISION IN CIVIL SERVICE

*To the Editor:*—May I request detailed information regarding the methods of determining certain abilities in vision for applicants of the United States Civil Service Commission examinations? Kindly give me the normals also for these requirements. I am enclosing the physical fitness form 13 and marking the sections concerned. Please omit name.

M.D., New York.

**ANSWER.**—The specifications for normal of distance vision are clear as enumerated in form 13. The normal is 20/20. The near test used in this form (4 point type, in which the size of the letter is 0.6985 mm.) is clearly stated. The longest and shortest distance from the eye at which the question can be read will vary with the accommodation of the applicant. The older the individual, the shorter the range. Refer to Duane's chapter on Accommodation in the eighth edition of the Duane-Fuchs textbook.

# DIPHTHERIA IMMUNIZATION

*To the Editor:*—I am a physician, aged 33, in good health. My Schick test which I took recently is positive (markedly so). Eight years ago it was negative. What procedure as to immunization should I adopt? What material should I use? Kindly state dosage and frequency of administration. Please omit name.

M.D., Illinois.

**ANSWER.**—Immunization may be carried out in the usual manner with diphtheria toxoid solution.

blasts which are laid down in the form of a nodule. About the periphery of these nodules in each case there is a zone of lymphocytes. The elements of the tissue reaction to the tubercle bacillus and to silica are essentially identical and the resultant lesions are similar. The simple inorganic substance silicon dioxide is capable of exciting every tissue response that can be produced by the complex living organism *Mycobacterium tuberculosis*. The reaction to the latter is more uniform because its constitution is more or less constant and it soon establishes a limited equilibrium with the tissues of the host. The reaction to silica is largely determined by the number and the size of the particles that come to rest within a given focus in the body. Both irritants cause varying degrees of proliferation, exudation and necrosis, resulting in a nodular type of reaction. In speculating on the causes of this similarity it would seem that both irritants are relatively insoluble but that perhaps both of them continually liberate minute amounts of irritating substances. Both irritants react on the mononuclear phagocyte to alter its internal structure in a similar manner, injuring mononuclear phagocytes so that multinucleated giant cells are produced. The nodular character of the lesions in both silicosis and tuberculosis is also probably dependent on altered behavior of the mononuclear phagocyte. In each case this cell is responsible for the concentration and the walling off of the irritant in a localized focus. The study confirms the specificity of the tuberculin reaction and again demonstrates that the mere presence of a pseudotubercle composed of epithelioid cells does not create hypersensitiveness to tuberculin. Silica itself is not antigenic, and intracutaneous injections produce the same effects in silicotic and in normal control animals.

### American Journal of Psychiatry, New York

93: 503-756 (Nov.) 1936

- Sociological Implications in Modern Psychiatric Thought. K. J. Tillotson, Waverley, Mass.—p. 503.  
Effect of Artificial Fever on Clinical Manifestations of Syphilis and *Treponema Pallidum*. C. A. Neymann, Chicago.—p. 517.  
Multiple Incidence of Mongolism in the Same Family. W. J. Johnson, Wrentham, Mass.—p. 533.  
Psychic Research and Psychiatry. H. C. McComas, Baltimore.—p. 539.  
Functional Changes in Patellar Reflex as Seen in Psychoses. E. A. Strecker and J. Hughes, Philadelphia.—p. 547.  
A Psychotic Family. W. R. Dunton Jr., Catonsville, Md.—p. 559.  
Neurocirculatory Reactions in Psychoneuroses Studied by the Schneider Method. R. A. McFarland and J. H. Huddleson, New York.—p. 567.  
Analysis of Ideologies as Psychotherapeutic Method, Especially in Group Treatment. P. Schilder, New York.—p. 601.  
\*General Paresis Treated by Mosquito-Inoculated Vivax (Tertian) Malaria. E. Kusch, D. F. Milam, New York, and W. K. Stratman-Thomas, Nicosia, Cyprus.—p. 619.  
Syndrome of Episodic Confusions. J. Kasanin, Chicago.—p. 625.  
Clinical Studies in Postlumbal Puncture Headaches. T. J. Heldt and L. S. Whitehead, Detroit.—p. 639.  
Psychiatric Aspects of Medical Problems: Psychic Component of Disease Process (Including Convalescence) in Cardiac, Diabetic and Fracture Patients. H. F. Dunbar, T. P. Wolfe and Janet M. Rich, New York.—p. 649.  
Emotions and Organic Heart Disease. T. P. Wolfe, New York.—p. 681.  
Psychic Factors in Rheumatoid Arthritis. G. W. Thomas, New York.—p. 693.  
Emotional and Instinctual Factors in Diabetes Mellitus. G. E. Daniels, New York.—p. 711.

**Dementia Paralytica Treated by Mosquito Inoculation.**—Since January 1934 the treatment of dementia paralytica at the Manhattan State Hospital by means of induced malaria has been carried out entirely by mosquito inoculation. Up to March 1936 Kusch and his collaborators treated seventy-two patients. The mosquitoes used were infected with the McCoy strain of *Plasmodium vivax*. After the incubation period of from eight to eighteen days (usually on the eleventh to the fourteenth day) there was an acute rise in temperature to about 104 F. followed by daily paroxysms and remissions. Chills most frequently started from one to four days after the onset of the high temperature. Following the acute rise in temperature there was usually a quotidian fever, the temperature increasing daily to a peak of from 104 to 106 F. about the third to the fifth day. Less frequently the tertian or mixed type of fever was encountered. This peak was reached daily until near the end of the course, when there commonly occurred a gradual decline for a few days, after which the temperature returned to normal and remained there. Quinine, 30 grains (2 Gm.), was administered daily for seven days, after spontaneous cessation of symptoms. It was given during the course

of the fever only if symptoms of extreme severity, such as marked weakness, threatening general collapse or definite jaundice, occurred. As to the duration of the attack, this series averaged twenty-two paroxysms. A comparison of the clinical results obtained in patients inoculated with malaria by mosquito bite and those inoculated with blood shows that the main clinical difference between the two groups was a less severe malaria in the mosquito-inoculated group, permitting a longer course of malaria treatment. Final analysis showed a "remission" rate of 26.4 per cent and "improved" rate of 48.6 per cent in the mosquito-inoculated group, while the comparable rates for the blood-inoculated group were 19.3 and 35.8 per cent, respectively.

### American Journal of Surgery, New York

35: 1-220 (Jan.) 1937

- Intracranial Aneurysms: Report of Thirteen Cases. D. L. Dial and G. B. Maurer, New Haven, Conn.—p. 2.  
\*Ruptures and Tears of Muscles and Tendons. H. E. Conwell, Birmingham, Ala., and R. H. Alldredge, New York.—p. 22.  
\*Organic Calcium in Healing of Fractures. G. Downs, New York.—p. 34.  
Plication of Small Intestine as Prophylaxis Against Adhesions. T. B. Noble Jr., Indianapolis.—p. 41.  
Behavior of Stomach After Operation for Duodenal Ulcer. A. M. Snell, Rochester, Minn.—p. 45.  
Total Gastrectomy for Cancer. H. M. Clute and H. L. Albright, Boston.—p. 56.  
Postoperative Lung Abscess. J. V. Bohrer, New York.—p. 64.  
\*Banti's Disease with Gastrorrhagias and Thrombophlebitis. P. J. Serafin, New Haven, Conn.—p. 76.  
Operations for Cancer of Rectum: Experiences at the University of California Hospital. M. S. Woolf, San Francisco.—p. 79.  
Carcinoma of Bladder. J. S. Eisenstaedt, Chicago.—p. 83.  
Pelvic Plication in Treatment of Hydronephrosis. S. F. Wilhelm and G. Blinick, New York.—p. 90.  
Dangers of Intraspinal (Subarachnoid) Injection of Alcohol: Their Avoidance and Contraindications. E. L. Stern, New York.—p. 99.

**Ruptures of Muscles and Tendons.**—Conwell and Alldredge declare that ruptures and tears of muscles and tendons may be seen in any age group. They may result from direct or indirect trauma, but the certain predisposing factors are senility, pathologic changes (arthritis, myositis, acute infectious disease, arteriosclerosis, syphilis, tuberculosis and neoplasm), physiologic predisposition, occupation, fatigue and trauma. Early diagnosis in these cases prevents unnecessarily prolonged treatment and in many instances a permanent disability. While physical examinations in making a diagnosis of a ruptured or torn muscle or tendon are relied on mainly, the authors have been aided in certain instances by using a roentgen technic which brings out the soft structures. The procedure is limited and can be applied only to the larger tendons and muscles. If all the so-called sprains and bruises and other injuries could be exposed at operation, it is possible that many other muscles than those usually reported would be found to be the site of either partial or complete rupture. Illustrative cases of ruptures of the biceps brachii, quadriceps muscles and tendon, patellar tendon, calf muscles, Achilles tendon and hernia of muscles are presented. Complete ruptures should usually be treated operatively and sutured, while partial ruptures may usually be treated by immobilization. The treatment, however, in any case must be individualized.

**Organic Calcium in Healing of Fractures.**—Downs experimented with organic calcium phosphate (hexacalcium-inositol hexaphosphate) on the healing of fractures. A total of 896 rats were used whose average age was 71 days. The experiment was divided into four separate phases: weight gains of animals, blood chemistry, breaking-strength tests and histologic studies. The evidence drawn from each phase of the present study indicates that an organic form of calcium phosphate is metabolized more readily than is the case for any of the inorganic forms generally used for such work. While a great variance in the results was not obtained by the feeding of two types of organic calcium salt, it was also apparent that that obtained from cereal (Indian corn) was utilized more readily by the organism than that from milk. Satisfactory evidence was obtained to support these conclusions from the weight gains of animals throughout the course of the experiments, from the breaking-strength tests and from histologic studies. Blood chemistry studies were otherwise negative, but the more rapid clotting of the blood of the animals fed with calcephos indicates the value of further work in this direction.

## Book Notices

*An Introduction to Materia Medica and Pharmacology.* By Hugh Allister McGulgan, Ph.D., M.D., Professor of Materia Medica, Pharmacology and Therapeutics, University of Illinois College of Medicine, Chicago, and Edith P. Brodie, A.B., R.N. Cloth. Price, \$3. Pp. 580, with 89 illustrations. St. Louis: C. V. Mosby Company, 1936.

Dr. McGulgan in revising the previous edition of Brodie's *Materia Medica for Nurses* has made considerable change in the subject matter and has brought the book strictly in accord with the new Pharmacopeia and National Formulary. These two standards are used as a basis for the discussion of the preparations. Frequent reference is also made to *Useful Drugs, New and Nonofficial Remedies* and the *Handbook of Therapy*, so that the importance of evaluating both the official and the more recently introduced therapeutic agents is stressed. The general plan of the text is an excellent one; the first part deals with elementary materia medica and the second with advanced materia medica and therapeutics. Each chapter is followed by an extensive list of pertinent questions for reviewing the subject and a rather well selected bibliography for collateral reading. The author stresses the importance of pharmacologic experimentation as a forerunner of clinical administration of drugs and has included the details of pharmacologic studies of many of the drugs. The sections dealing with weights, measures, equivalents, calculations of dosages and strengths of solution are preceded by an arithmetical review which should leave little excuse for failure to master these important subjects. Vitamin F is designated as the American, and B<sub>1</sub> the English, name for the antineuritic factor, whereas common usage has failed to adopt F to indicate this dietary essential and B<sub>1</sub> is the more common term here as well as abroad. The usefulness of yeast seems to have been overstated, since it is described not only as a laxative and a source of vitamin B but also as a curative agent in furunculosis, boils and pimples. On the whole the book should prove satisfactory for the purpose intended, since it is one of the better textbooks especially prepared for nurses and McGulgan's revision has greatly extended its practical value.

*Étude critique des techniques opératoires de la sinusite fronto-ethmoïdale purulente chronique. Nouvelle méthode d'évidement fronto-ethmoïdal.* Par le Docteur Louis Ledoux. No. 28, Monographies otorhino-laryngologiques internationales. Fondées par M. Vernet. Publiées par le Professeur G. Portmann, H. Aloin, L. Ledoux, M. Sourdille et M. Vernet. Analyses en allemand, anglais, espagnol et italien. Paper. Price, 25 francs. Pp. 216, with 42 illustrations. Bordeaux: Editions Delmas, 1936.

This brochure is one of a series of international otorhino-laryngologic monographs. In the introduction, Ledoux calls attention to the various types of fronto-ethmoid operations usually practiced. Then follows a chapter on the anatomy of the frontal sinus and the structures in its vicinity. The author discusses only the chronic purulent conditions involving the frontal sinuses and ethmoid cells. In cases in which there is also a chronic maxillary sinusitis, he advises the use of the Luc-Caldwell operation. In order to facilitate healing, an attempt is made to produce a new mucous membrane lining derived from the underlying layer of connective tissue, together with surface epithelium by the extension of the epithelium of neighboring areas. The author insists that any operative procedure which is supposed to produce a radical cure must show a maximum of efficiency due to perfect curettage and maximum drainage with permanent and accessible approach, together with a minimum of destruction. In connection with the latter, first there should be a preservation of the supra-orbital ridge, the anterior wall of the frontal sinus, and a limitation of the skin incision to the eyebrow. The operative technic is described in detail, and the various stages are beautifully demonstrated by a considerable number of illustrations. The first operation, under local anesthesia, consists in the opening of the cells of the nasal process of the superior maxilla, which facilitates the curettage of the ethmoid cells and gives easy access to the frontal sinuses. The second operative procedure, also under local anesthesia, consists in an incision of the skin through the eyebrow, the incision of the periosteum covering the area of bone to be removed, and lastly the removal of the bone and the formation of a trough from 1 to 1.5 cm. in width, depending on the size of the frontal sinus. The author uses a bone drill

and a Gigli saw for the removal of the frontomaxillary process. He avoids the use of gouges and mallet and uses a punch forceps instead. In the postoperative treatment, irrigation through the supra-orbital region is used for about fifteen days if only the anterior ethmoid cells are involved, but if the posterior ethmoidal cells and sphenoidal cells are also affected, this must continue for several weeks or even months. The patient, after leaving the hospital, irrigates the wound himself but is seen every third day, and irrigations are done by the surgeon with 3 per cent chromic acid solution to control excessive granulations and to permit epithelization. At the end of the little volume are abstracts of the methods employed, written in Italian, Spanish, English and German. This monograph has its subject systematically presented with excellent drawings to illustrate the various stages of the operation.

*Toxicology or the Effects of Poisons.* By the late Frank P. Underhill, Ph.D. Thoroughly revised by Theodore Koppányi, Ph.D., Professor of Pharmacology and Materia Medica, Georgetown University School of Medicine. Third edition. Cloth. Price, \$2.50. Pp. 325. Philadelphia: F. Blakiston's Son & Co., Inc., 1936.

The increasing prominence of chemistry in modern life has made toxicology a matter of everyday concern. Hardly any occupation is devoid of contact with toxic materials; even the air one breathes and the food one eats is suspect. The former is often laden with smoke containing carcinogenic and other toxic agents as well as industrial dusts; the latter may be contaminated with lead and arsenic compounds used as insecticides. Many new compounds known or suspected to be harmful are introduced every day into industry, and new industrial methods increase the contact of workers with known poisons. Toxic gases are being used in industrial disputes as well as in warfare. The recent discovery of the toxic potentialities of certain drugs such as aminopyrine and cinchophen, the introduction of new and potentially dangerous anesthetic agents, the preparation and marketing of an endless series of barbituric acid derivatives, the widespread and immoderate use of tobacco, and the use of tetra-ethyl lead in gasoline with the resultant discharge into the atmosphere in both city and country of lead compounds in the exhaust of internal combustion engines emphasize the growing, in fact urgent, importance of toxicology. Satisfactory works on this subject are rare indeed. It is therefore a significant event that Underhill's well known book has now been brought abreast of the times by Koppányi after a lapse of eight years. This volume contains material on most of the common poisons. Its brevity makes it particularly useful for students; the book is less useful for reference because of the brief treatment accorded most of the subjects and the necessary omission of many toxic compounds employed in industry. Substances added to this edition include avertin (tribrom-ethanol), camphor substitutes, cinchophen, cyclopropane, dinitrophenol, ephedrine, mercurial diuretics, newer barbituric acid derivatives, quinine and its substitutes, triorthocresyl phosphate and thyroid. A number of subjects are treated by the authors on which there has been considerable controversy, as, for instance, the toxicology of aluminum compounds, a subject to which Underhill made notable contributions. In regard to the equally controversial but more urgent question of the widespread use of ethyl gasoline the authors state that "general knowledge of the action of inspired dust particles containing lead compounds would seem to indicate that the spraying of lead compounds by the exhausts of automobiles constitutes a distinct menace."

*Hudtemperaturernes Betydning for Varmerafgiften hos Mennesket og Forsøg paa at beregne Varmerafgiften paa Grundlag af Hudtemperatur.* Af Sven Ulrich. Paper. Pp. 123, with 12 illustrations. Aarhus: Universitetsforlaget; Copenhagen: C. A. Reitzels Forlag, 1934.

The first three chapters of this monograph contain a discussion of the various factors involved in the loss of heat from the body: loss by radiation, conduction, convection and evaporation. The loss by evaporation the author assumes to be one fourth of the total heat loss. The conditions governing the loss of heat by evaporation from the skin the author studied by means of a specially constructed apparatus consisting in the main of a metal box heated by an electric bulb and covered with wet felt. The heat production of the bulb was known, the loss of water by evaporation measured by weighing. It was found that the evaporation was chiefly a function of the heat production. Variations of air temperature from 20.5 to

down along the right jugular bulb and then posteriorly in the neck to connect with diffuse bilateral posterior deep cervical abscesses. This condition, with the anterior cervical spaces free from infection, is unique. The perfectly healed right mastoid wound and dry cavity of the middle ear, with all the pain, nasal obstruction and sinus infection through the earlier stages on the left side, presented a confusing symptom complex. The development of recurrent asthma with the onset of infection of the sphenoid suggests that previous disease of the sphenoid may have escaped notice and that its reactivation due to lowering of the patient's resistance by the mastoid infection caused the unusual symptoms and overwhelming infection which followed. Osteomyelitis of the sphenoid bone will not respond to drainage by steel drills. It requires extensive surgical removal of bone beyond infected thrombosed blood vessels as in other locations. This is not possible by any present day technic.

**Observations on Larynx in Tuberculous.**—Schuster studied the larynx in 452 cases of pulmonary tuberculosis with subjective symptoms referable to the ear, nose or throat. Tuberculous laryngitis was present in 19.2 per cent of the cases. This incidence is somewhat higher than would be expected in the mere routine examination of the larynges of tuberculous patients, without subjective complaints. Diseases of the nose and throat were no more frequent in patients with tuberculous laryngitis than in those in whom the disease was limited to the lungs. The pathologic picture is essentially that of tuberculosis elsewhere and is extremely protean, more than one type of lesion occurring in the same larynx and frequently complicating secondary nontuberculous lesions. Subjective symptoms are of little diagnostic value, and the diagnosis is based on the gross observations in the larynx, with the confirmatory observations in the chest and results of laboratory and roentgen study. Prognosis is good as to healing of the laryngeal lesion in the early stages but guarded as to ultimate recovery. Early treatment is based on cooperation with the specialist in diseases of the lungs in the general care, on absolute rest of the voice, on pulmonary collapse in suitable cases and on avoiding overtreatment locally. Occasionally, reflected sunlight is of value in supervised cases. When the lesion is progressive, the radical and repeated use of the galvanocautery is of great worth, care always being taken not to exhaust the patient at any one sitting. Time and temporary relief may be gained by blocking the superior laryngeal nerve. Early use of the actual cautery is urged, especially when the condition does not promptly respond to conservative treatment. Pulmonary tuberculosis is basically the primary focus of laryngeal tuberculosis. Intelligent cooperation between the "phthisician" and the laryngologist will result in striking results in the prevention, early diagnosis and successful treatment of this serious complication.

cally inoperable at the time the diagnosis is established. Clinical inoperability in these cases may be manifested by ascites, fixation of a large palpable mass, jaundice or definitely palpable metastatic involvement. Carcinoma in its various situations in the stomach differs greatly in its clinical manifestations and in its curability. As there is no clinical syndrome by which early carcinoma of the stomach may be recognized, competent roentgen investigation of the gastro-intestinal tract will reveal early operable carcinoma more frequently than heretofore and will materially enhance the possibility of cure. Once the diagnosis of carcinoma has been established and no clinical evidence of remote or metastatic extension of the disease is discernible, surgical exploration promptly becomes urgent. Progress in the curability of carcinoma of the stomach will not occur through extending the limits of operability and the execution of more radical surgical procedures for extensive disease. However, opportunity does exist for enhancing the curability of this disease through submitting the patient to the highly perfected procedure of semiradical partial gastrectomy, with its alternative methods of establishing gastro-intestinal continuity early after the inception of the disease when it is still closely confined as an intragastric lesion. For improvement in the present outlook in carcinoma of the stomach the patient is not dependent as much on the surgeon as on the physician from whom he first seeks counsel.

**Embolism and Thrombosis of Larger Arteries.**—Graham warns that early diagnosis is of first importance in the treatment of acute arterial occlusion. The symptoms and signs are characteristic. As soon as a diagnosis is made, the patient should receive an intravenous injection of one-half grain (0.032 Gm.) of papaverine hydrochloride and be transferred to a hospital for more complete investigation and further treatment. If arterial thrombosis is present, the patient should be given an intensive course of treatment by alternate suction and pressure. Between treatments the limb should be kept under an electric cradle at a temperature of from 95 to 104 F. Further injections of papaverine should be given every six hours during the first three or four days. If the response to treatment is not satisfactory and amputation becomes necessary, it can usually be done at a lower level and healing of the stump is more prompt as a result of the preliminary treatment. In cases of embolic occlusion affecting the lower extremities, the same plan of treatment should be followed or, if the patient is seen early, embolectomy may be considered. In view of the better development of the collateral circulation in occlusion of the upper as compared with the lower extremity and the natural tendency toward recovery of the peripheral circulation, the injection of papaverine and the local application of heat are probably the only methods of treatment necessary for embolic occlusions of the upper extremity.

### Canadian Medical Association Journal, Montreal

36: 1-110 (Jan.) 1937

- Diverticulitis of Sigmoid Colon. R. R. Graham, Toronto.—p. 1.
- Studies in Mineral Metabolism: III. Calcium and Kidney: Experimental II. B. Chown, Margaret Lee and J. Teal, Winnipeg.—p. 7.
- Fixed Skeletal Traction in Treatment of Certain Fractures at the Wrist. J. A. MacFarlane and R. H. Thomas, Toronto.—p. 10.
- Malignant Exophthalmos: Case. J. Rosenbaum, Montreal.—p. 12.
- Function of Pyloric Sphincter. M. Wilson, Toronto.—p. 15.
- Nephritic Lipemia. E. M. Boyd, Kingston, Ont.—p. 18.
- \*Curability of Carcinoma of Stomach. V. C. Hunt, Los Angeles.—p. 22.
- Biochemical Differences Between Mice of Tumor and Nontumor Strain, and Tumor Bearing and Nontumor Bearing Mice of Tumor Strain. J. E. Davis, Chicago.—p. 27.
- Typing of Malignancy (Clinicopathologic Study). O. C. Gruner, Montreal.—p. 31.
- \*Embolism and Thrombosis of Larger Arteries: Their Diagnosis and Treatment. D. Graham, Toronto.—p. 35.
- Medical Treatment of Ringworm of Scalp. D. E. H. Cleveland, Vancouver, B. C.—p. 38.
- Measles Encephalitis. H. W. Price, Calgary, Alta.—p. 43.
- Fatigue in Children. G. A. Lamont, Vancouver, B. C.—p. 47.
- Interpretation of Some Common Digestive Symptoms. J. W. Scott, Edmonton, Alta.—p. 52.
- Interpretation of Heart Symptoms. H. N. Jennings, Calgary, Alta.—p. 55.
- Treatment of War Wounds in French Hospitals. J. L. Petitclerc, Quebec.—p. 60.

**Curability of Carcinoma of Stomach.**—Hunt believes that the present status of operability of carcinoma of the stomach is that in about 50 per cent of the patients the disease is clini-

### Illinois Medical Journal, Chicago

71: 1-92 (Jan.) 1937

- Clinical Aspects of Amebiasis. S. E. Munson, Springfield.—p. 21.
- Laboratory Methods for Diagnosis of Amebiasis. Bertha Kaplan Spector, Chicago.—p. 28.
- The Medical Management of Amebiasis. A. E. Mahle, Chicago.—p. 33.
- Surgery in Amebiasis. Gatewood, Chicago.—p. 41.
- Allergy of Eye, Ear, Nose and Throat. L. Unger, Chicago.—p. 47.
- Surgery of Gallbladder and Bile Ducts. C. B. Puestow, Chicago.—p. 54.
- Recrudescence of Malaria. T. Kirkwood, Lawrenceville.—p. 58.
- Various Activities of Beating Heart. E. Keating, Chicago.—p. 63.
- Comparative Value of Various Methods in Roentgenologic Examination of the Colon. C. Gianturco, Urbana.—p. 67.
- \*Management of Arthritis. R. T. Farley, Chicago.—p. 74.
- Principles of Radium Therapy in Malignancy. F. E. Simpson, Chicago.—p. 77.
- Some Basic Observations on Treatment of Gonorrhea. L. M. Beilin, Chicago.—p. 85.

**Management of Arthritis.**—The patients (twenty-seven) referred to were entirely unselected, being one group appearing in Farley's private practice and remaining under treatment sufficiently long to make valid data for a report. Some of this group were treated for the first time, while others had received treatment elsewhere over periods as long as five or six years. The entire group was given high vitamin D therapy. The preparation used is a capsule containing 50,000 or 100,000 U. S. P. units (international units) of vitamin D. The initial dosage was usually 200,000 units daily. This dosage was increased in obstinate cases to from 300,000 to 600,000 units

rial is covered by a group of thirty-eight scientists from the United States, England, France, Sweden, Germany, Hawaii, The Netherlands and the Soviet Union. As in previous volumes, an excellent author index is included but no subject index. It is hoped that the publishers will not only issue a collective index for the first five volumes but include subject indexes in future volumes. The latter will greatly enhance the utility of these excellent reviews.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

#### Malpractice: Invasion of Patient's Right of Privacy.

—The appellant, a physician, permitted the district manager of a surgical supply house, a layman, to cauterize a small growth in the cervix of a patient who applied to the physician for relief from a vaginal discharge. The services of the layman were utilized because the physician had not familiarized herself with a new "cauterizing machine" apparently purchased from the surgical supply house. Attributing certain conditions that followed the cauterization to the physician's negligence, the patient brought suit alleging, among other things, that the physician did "negligently, carelessly, and recklessly cut, burn and otherwise injure the plaintiff," and "disregarding her duty to the plaintiff . . . sought, requested and allowed . . . a person untrained in the science of medicine or surgery" to "see and view the body and private person of the plaintiff" and to perform the operation. The trial court gave judgment for the patient, and the physician appealed to the Court of Appeals for the District of Columbia. Before the appeal was heard, the patient committed suicide and the administrators of her estate were substituted as appellees.

A physician in practicing his profession, said the court, must exercise the ordinary care and skill of that profession in a similar locality, giving due consideration to modern advancement and learning. A patient who seeks to recover damages against a physician, alleging lack of skill or negligence, has the burden of proving the averments. "Before the plaintiff can recover, she must show by affirmative evidence—first, that defendant was unskilful or negligent; and, second, that his want of skill or care caused injury to the plaintiff. If either element is lacking in her proof, she has presented no case for the consideration of the jury." *Ewing v. Goode* (C. C.) 78 F. 442. Generally speaking, the failure of an operation creates no presumption of lack of skill and care. It is a circumstance, however, entitled to some consideration in connection with other evidence tending to prove lack of skill or care. The evidence in the present case, continued the court, disclosed that the patient at the time of the cauterization was and had been suffering from a chronic genital condition for which she had previously been treated. The "cauterizing machine" was of an approved type. A physician who treated the patient both before and after the time of the cauterization testified that he found no evidence of injury by reason of the cauterization done by the layman. Another medical witness who had treated the patient subsequent to the cauterization testified "that he found nothing . . . that was unusual from that following the ordinary cauterization." The case of *DeMay v. Roberts*, 46 Mich. 160, 9 N. W. 146, in which damages were awarded against a physician, was, in the opinion of the court, not in point. In that case an action in deceit was brought against a physician who took a layman with him to attend a confinement case when there was no emergency requiring the layman's presence. The present case, said the court, was tried and submitted to the jury on the theory of injury to the patient resulting from the physician's negligence. By reason of the failure of the patient to prove the negligence alleged, the court held that the trial court erred in not directing a verdict for the physician. The judgment was therefore reversed and the cause remanded.

In a specially concurring opinion, Associate Justice Stephens stated that in his judgment the physician was guilty, under the evidence, of an actionable wrong which, if it had been submitted

to the jury, would have warranted a verdict awarding damages for mental anguish. The duty of a physician is to exercise that reasonable degree of learning, skill and experience which is ordinarily possessed by others of his profession in similar communities. This obviously includes a duty to furnish professional, not lay, care. The patient complained and proved that her body was exposed to the view and examination of a layman and to an operation performed by such layman, all without knowledge on the patient's part that he was a layman rather than a physician. While there was no direct statement by the patient in her testimony concerning mental anguish, a jury might reasonably draw inference from the fact that the patient was exposed to view, examination and operation in the manner described that she did suffer mental anguish. The fact that no physical injury came to the patient, observed Justice Stephens, was probably a happy accident rather than the result of any proper exercise of professional care, for while the lay person in question in the case, the district manager of a surgical supply house, might have acquired through practice in a laboratory or otherwise, for the purposes of sales demonstrations, skill in the use of the particular instrument so far as its actually touching and searing tissues is concerned, such person could hardly, for lack of general medical training and experience, be capable of meeting unexpectedly varied conditions or emergency consequences.—*Carr v. Shifflette* (District of Columbia), 82 F. (2d) 874.

**Compensation of Physicians: Oral Promise to Pay for Services Rendered Employee.**—One Fritz Haven, an employee of the defendant, sustained a serious injury and the plaintiffs were summoned, by some person not identified by the record, to care for him. According to the plaintiffs' contention, the defendant requested them to spare no expense to save the employee's life and promised "that if the insurance company did not pay the expenses he would so do." The plaintiffs did care for the injured employee, employed a nurse, procured the necessary drugs and arranged for hospitalization. The defendant, apparently, refused to pay the bill and the plaintiffs sued him for the value of their personal services and also for certain sums allegedly owing to a drug store, to a nurse, to a hospital, and to two other physicians. The trial court gave judgment for the plaintiffs, the court of appeal affirmed that judgment (163 So. 189), and on relation of the defendant the case came before the Supreme Court of Louisiana.

The defendant objected to the introduction of parol evidence to establish his liability, on the ground that according to the petition the defendant promised to pay the debt of a third person and that, to be legally binding, such a promise must be in writing. The ruling of the trial court admitting the testimony was correct, said the Supreme Court. It is true, the court said, that even if the defendant did promise to pay the debt, if his purpose in making the promise was merely to answer for the debt of another, his promise could not be proved by parol testimony. But whether that was his purpose or whether he intended to obligate himself absolutely and become primarily bound to pay the debt was a question of fact which the court had a right to inquire into and to determine from the evidence. The trial court heard the testimony and the court of appeal reviewed it at length. Both courts held that the testimony showed that the defendant's promise to pay the debt was absolute and that it was supported by sufficient consideration. The Supreme Court, therefore, could find no reason for disturbing the judgment as to the item claimed by the plaintiffs for their personal services.

With respect to the other items, the Supreme Court held that the lower courts erred in giving judgment for the plaintiffs. The plaintiffs sued to recover these amounts "for the use and benefit" of the creditors named. According to the petition, it was necessary that the injured man have medicines, nurses, and that he be carried to a hospital and it was necessary to call a physician in consultation and another to administer an anesthetic. The plaintiffs' theory, in seeking to recover the amounts "for the use and benefit" of the other creditors, was that inasmuch as the defendant had told them to spare no expense necessary to save the life of the injured employee, they were his agents and were executing his mandate. If that be true, said the Supreme Court, the defendant is liable for the amounts, but it does not follow that the plaintiffs may



the rise. The authors agree with the hypothesis of Pappenheimer and Wilens that the hyperphosphatemia of renal insufficiency is the initiating factor in the chain of events which leads to parathyroid hyperplasia. It is conceivable that the increase in parathyroid activity constitutes a biologic defense against impending hypocalcemia secondary to phosphate retention.

**Plasma Effective in Accelerating Coagulation of Hemophilic Blood.**—Patek and Taylor think that their studies clarify the subject of blood clotting in hemophilia. If a scheme for blood clotting is accepted that involves only prothrombin, calcium and fibrinogen, both normal and hemophilic prothrombins function similarly. However, the addition of normal prothrombin accelerates the clotting of hemophilic blood, whereas the addition of hemophilic prothrombin does not. Hence, regardless of its behavior in a calcium fibrinogen system, there must be a specific alteration in the hemophilic "prothrombin complex." The clotting substance that is described by the authors is not dialyzable, but it does pass through a Berkefeld filter. Its range of optimal precipitation from plasma lies between  $p_n$  5.9 and 6.4. It is thermolabile, insoluble in water at  $p_n$  6.5, but soluble in isotonic saline solution. On dilution and acidification of filtered normal plasma there is formed a globulin precipitate, which, either fresh or dried in a vacuum, contains a clot-promoting substance for hemophilic blood. This substance is effective both in vitro and in vivo. The substance so obtained either gives reactions of a protein with the characteristics of globulin or is associated with such a material. However, hemophilic plasma yields a similar material, which has only minimal coagulation-accelerating activity. Therefore one may conclude at this juncture only that the clotting substance is precipitated with globulin, but there is no proof that it is globulin itself. The fact that normal globulin substance reduces the clotting time in vivo changes the disease from an abnormality that was immutably fixed to one that is amenable to change. Likewise the preparation of a relatively stable dry substance makes practical the further study of its properties.

### Journal of General Physiology, New York

20: 311-510 (Jan. 20) 1937. Partial Index

- Serologic Reactions of Azoproteins Derived from Aromatic Hydrocarbons and Diaryl Compounds. J. Jacobs, New York.—p. 353.  
Coagulation of Myosin by Dehydration. A. E. Mirsky, New York.—p. 455.  
Coagulation of Myosin in Muscle. A. E. Mirsky, New York.—p. 461.  
Phase Rule Study of Proteins of Blood Serum: Comparison of Proteins of Human, Rat and Horse Serum. Eloise Jameson and Dorothy Brown Roberts, San Francisco.—p. 475.

### Journal of Immunology, Baltimore

31: 421-492 (Dec.) 1936

- Brain Antibodies in Men? M. Weichsel and H. Salfeld, New York.—p. 421.  
Serologic Specificity of Lung Tissue. H. Salfeld and M. Weichsel, New York.—p. 429.  
Precipitin Reactions Between Hemolytic Streptococci of Various Groups and Immune and Rheumatoid Arthritic Serums. H. Chasis and C. McEwen, New York.—p. 439.  
\*In Vitro Action of Synthetic Crystalline Vitamin C (Ascorbic Acid) on Herpes Virus. Margaret Holden and Rose Resnick, New York.—p. 455.  
Further Observations on Adsorption of Sensitized Bacteria. L. Olitzki and K. Guggenheim, Jerusalem, Palestine.—p. 463.  
Complement Fixation Following BCG Vaccination. G. B. Reed and B. G. Gardiner, Kingston, Ont.—p. 471.  
Delayed and Immediate Reactions to Bacterial Nucleoproteins in Asthma, Hay Fever and in a Group of Miscellaneous Diseases. F. A. Stevens and L. Jordani, New York.—p. 477.

### Action of Crystalline Vitamin C on Herpes Virus.

Holden and Resnick studied the rôle of vitamin C in the inactivation of herpes virus outside the body, using the W virus because of its constant production of skin reactions when injected intradermally. While they show that the inactivation of W virus by cevitic acid is due to the fact that the latter produces an environment unfavorable to the viability of the infective agent by its  $p_n$  effect on the virus suspension, other investigators have indicated that the inhibiting action of cevitic acid may be due to the structure of the molecule or to its great reducing power. Because cevitic acid is irreversibly changed above a  $p_n$  of 5 at 37 C. (Borsook and Jeffreys, Barron et al.), the question arises as to whether the vitamin, when added to virus suspensions buffered above a  $p_n$  of 5, remains unaltered. Small amounts of tissue extracts prevent

the aerobic oxidation of cevitic acid. Whether a tissue extract containing a living agent would behave similarly can be determined only by titrating such extracts for cevitic acid after the vitamin has been added. Since in the control series of the authors' experiments the virus was viable at hydrogen ion concentrations that theoretically should not destroy vitamin C and since the vitamin apparently exerted no inhibitory action on the virus within this range, it seems probable that the action of cevitic acid in this case is nonspecific and that its inhibitory effect on W virus in vitro is due to an acid effect.

### Journal of Nervous and Mental Disease, New York

85: 1-124 (Jan.) 1937

- Premotor Syndrome. A. T. Ross, Ann Arbor, Mich.—p. 1.  
Differential Diagnosis of Surgical and Nonsurgical Lesions of Cerebellum, Pons and Medulla (Posterior Fossa). M. A. Glaser and H. M. Beerman, Los Angeles.—p. 8.  
\*Thyrotoxicosis with Psychosis: Cliniconeuropathologic Observations in Case. J. H. Friedman and M. Kanzer, New York.—p. 30.  
Psychiatric Implications of the Neurologic Examination. J. J. Michaels, Boston.—p. 36.  
Cryptorchidism Associated with Behavior Problems. M. Molitch, Jamesburg, N. J.—p. 51.  
Remarks on Psychopathology of Oculogyric Crises in Epidemic Encephalitis. E. Wexberg, New Orleans.—p. 56.

**Thyrotoxicosis with Psychosis.**—In view of the lack of precise knowledge as to the relationship between the clinical symptoms and psychotic manifestations in thyrotoxic states and the accompanying neurohistologic alterations, Friedman and Kanzer review the clinical and anatomic observations in six fatal cases in which thyrotoxicosis played an important part. Only one of these was sufficiently clear cut to merit a detailed report. The clinical picture closely resembles that of other acute toxic exhaustive psychoses of most varying etiology. The unusually rapid recovery that took place after the intravenous administration of a single dose of thyroxine, following three weeks of unsuccessful therapy with sedatives, suggests the fact that the precipitating agent of the psychosis was some toxic condition related to the present disorder. Moreover, the thyrotoxic state existed before the psychosis for at least several years. Therefore the factor to account for the acute psychotic attack was apparently an exacerbation of the already existing condition (the mild thyrotoxic state), and from the history it is apparent that this factor was precipitated by a series of psychic and somatic traumas. The pathologic lesions in the brain of the patient, as shown by thickened meninges and the generalized astrocytosis of the subcortex and cerebellum, correlated with the long clinical history of the thyrotoxic state, indicate that the brain was damaged prior to the onset of the psychosis. However, the proliferation of oligodendroglia, which is usually associated with degenerative lesions, points to the probability that the stimulus was of an acute and intense nature. The gradual pathologic alteration of the nervous tissue during the severe and minor thyrotoxic state of several years' duration most probably altered the brain in its physiochemical reaction, so that an excess of a toxic agent liberated under the influence of psychic traumas was really responsible for the psychosis. In turn the toxic exhaustive state of the individual during the psychosis contributed further to cerebral damage. The neuropathologic changes, however, offer no explanation for the sudden fatal issue.

### Maine Medical Journal, Portland

28: 1-24 (Jan.) 1937

- Certain Postoperative Complications and Their Treatment. E. H. Risley, Waterville.—p. 1.  
\*Treatment of Burns with Compound of Aniline Dyes. R. H. Aldrich, Boston.—p. 5.  
Immunity and Vaccination in Anterior Poliomyelitis. J. A. Kolmer, Philadelphia.—p. 8.  
Diagnosis and Early Treatment of Poliomyelitis. Josephine B. Neal, New York.—p. 10.  
Poliomyelitis. W. L. Aycock, Boston.—p. 12.

**Treatment of Burns with a Compound of Aniline Dyes.**—Aldrich calls attention to the fact that gentian violet in the treatment of burns has the weakness of not being a specific antiseptic against gram-negative organisms. In seeking an antiseptic that would offer all the advantages of gentian violet in addition to a more powerful action against the gram-negative organisms he investigated the aniline and the azo dyes, as well

## Current Medical Literature

### AMERICAN

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#### Alabama Medical Association Journal, Montgomery 6: 221-256 (Jan.) 1937

- Carcinoma of Large Bowel: Review of Literature with Case Reports. J. L. Carmichael, Birmingham, and W. M. Carmichael, Fairfield.—p. 221.  
Errors of Refraction as They Relate to the General Physician. W. B. Clark, New Orleans.—p. 225.  
\*Meningococcal Meningitis: Ten Cases Treated with Meningococcus Antitoxin Without a Fatality. W. A. Clyde and M. G. Neely, Fairfield.—p. 227.  
Appendicitis: Series of Cases. J. P. Collier, Tuscaloosa.—p. 231.

**Meningococcal Meningitis.**—Clyde and Neely state that from January to June 1936 there were twenty-one cases of epidemic cerebrospinal meningitis reported in the city of Birmingham and in Jefferson County. Ten of the patients were given the meningococcus antitoxin developed by Ferry; treatment of the other eleven patients is not known, but eight of the eleven died—a mortality of 72.7 per cent, if the ten who recovered are excluded. The patients were given an average of 50,000 units (240 cc.) of the antitoxin. They spent an average of 13.7 days in the hospital. Only two of the ten had any permanent disability, one being totally deaf with some disturbance of equilibrium, the other partially deaf. There was no single case of anaphylactic shock from the antitoxin. Seven patients had a well marked urticaria and mild serum sickness. Three had no reactions. The last four patients received less antitoxin intraspinally and more intravenously. The last two were given only one dose intraspinally. In the future the authors plan to give all the antitoxin intravenously and to tap the spinal canal for drainage and relief of pressure when indicated. They feel that, if the patient looks clinically well, spinal punctures may be discontinued when the smear is negative even if the cell count is still 500 or more, if there are no signs of increased intracranial pressure.

#### American J. Digest. Dis. & Nutrition, Fort Wayne, Ind. 3: 813-878 (Jan.) 1937

- Value of Group Psychologic Procedures in Treatment of Peptic Ulcer. M. N. Chappell, J. J. Stefano, J. S. Rogerson and F. H. Pike, New York.—p. 813.  
\*Serum Lipase: Its Diagnostic Value. M. W. Comfort, Rochester, Minn.—p. 817.  
Prophylactic Treatment of Peptic Ulcers Produced Experimentally by Cinchophen. L. K. Stalker, J. L. Bollman and F. C. Mann, Rochester, Minn.—p. 822.  
Effect of Vitamin D on Intestinal Atony of Rickets. L. Yoder, Ames, Iowa.—p. 828.  
Effect of Vitamin D on Intestinal Iron Reduction. L. Yoder, Ames, Iowa.—p. 829.  
Importance of Preliminary Films in Routine Examination of Abdomen. I. Klein, New York.—p. 832.  
Carcinoma of Tail and Body of Pancreas: Roentgenologic Technic for Its Demonstration. M. A. Hershenson, Pittsburgh.—p. 835.  
Etiology and Therapy of Ulcerative Colitis. A. Winkelstein, New York.—p. 839.  
Variety and Distribution of Gross Lesions in Lymphopathia Venerica. C. F. Martin, Philadelphia.—p. 844.

**Serum Lipase.**—Comfort determined the degree of lipase activity of the serum by the amount of olive oil hydrolyzed by a given quantity of serum in a given period of time in normal persons and in patients with a variety of diseases. The upper limit of the values for lipase in the serums of persons without pancreatic disease appears to be about 1.5 cc. of twentieth normal sodium hydroxide. Elevated values for serum lipase have been found in 95 per cent of the cases of acute pancreatitis, in 36.5 per cent of those of carcinoma of the pancreas and in 60 per cent of those of carcinoma of the ampulla of Vater. The increased values in these diseases followed inflammation of the gland or obstruction of the pan-

creatic duct by carcinoma. Elevated values appear in cases of acute inflammation of the pancreas immediately after the onset of the attack, and as a rule they decline to normal levels within three weeks or even earlier. It appears that elevated values occur in acute inflammations of the pancreas so long as an adequate amount of lipase-producing tissue is present, and less frequently in malignant disease, depending on the presence or absence of obstruction of the pancreatic ducts or on the presence of inflammation associated with a malignant process in the pancreas. An elevated value for serum lipase does not of itself distinguish between inflammation and a malignant condition of the pancreas. The interpretation of the increase in lipase activity of the serum must depend on the associated clinical observations. If the symptoms suggest inflammation of the biliary tract, the elevated values for serum lipase will usually indicate an associated pancreatitis or obstruction of the pancreatic duct by a stone impacted in the ampulla. If the symptoms are more indicative of inflammation of the pancreas than inflammation of the biliary tract, elevated values for serum lipase should be confirmatory evidence of the clinical suggestion of pancreatitis. In the presence of a painless jaundice, elevated values for serum lipase will usually point to the presence of carcinoma of the head of the pancreas. If values for serum lipase rise rapidly following an acute attack of pain of the upper abdomen and then fall gradually or rapidly to normal levels, such behavior favors the presence of pancreatitis. If the values for serum lipase in the presence of a painless jaundice are increased and sustained at a fairly constant level, carcinoma of the head of the pancreas is probably present. If the values for serum lipase are elevated but fluctuating, carcinoma of the ampulla of Vater must be suspected. An acute pancreatitis associated with malignant disease of the pancreas may alter the type of curve and obscure the diagnosis. Values for serum lipase were elevated in 7 per cent of the cases of duodenal ulcer. Disease of the liver was associated with elevated values for serum lipase in 13 per cent of the cases.

#### American Journal of Pathology, Boston

13: 1-148 (Jan.) 1937

- Identification of Tumor Cells in Sediments of Serous Effusions. N. C. Foot, New York.—p. 1.  
\*Similarity of Lesions Produced by Silica and by Tubercle Bacillus. L. U. Gardner, Saranac Lake, N. Y.—p. 13.  
Studies on Inflammation: XIII. Carbohydrate Metabolism, Local Acidosis and Cytologic Picture in Inflammation. V. Menkin and Charlotte R. Warner, Boston.—p. 25.  
Histologic Observations on Transplantable Rat and Rabbit Tumors Cultivated in Chorio-Allantoic Membrane of Chick Embryos, with Especial Reference to Walker Rat Tumor 256. R. Schrek and R. C. Avery, Nashville, Tenn.—p. 45.  
Malignant Tumors of Small Intestine. D. A. Nickerson and R. H. Williams, Boston.—p. 53.  
Syphilis of Gastro-Intestinal Tract: Report of Case of Gumma of Transverse Colon with Review of Literature. F. H. Foucar, Washington, D. C.—p. 65.  
Adenocystoma Lymphomatous of Salivary Glands: Report of Two Cases. P. N. Harris, Boston.—p. 81.  
Aneurysmal Dilatation of Cardiac Coronary Arteries: Review of Literature and Report of Case. P. N. Harris, Boston.—p. 89.  
Mixed Tumor of Lacrimal Gland: Review of Literature and Report of Case. J. M. Neely, Lincoln, Neb.—p. 99.  
Malignant Lymphogranulomatous (Hodgkin's Disease) Cirrhosis of Liver: Report of Case. P. E. Steiner, Chicago.—p. 109.  
Acute Bacterial Endocarditis Due to Pseudomonas Aeruginosa (Bacillus Pyocyaneus): Report of Case. G. W. Fish, M. M. Hand and W. F. Keim Jr., New York.—p. 121.  
Primary Fibrosarcoma of the Brain: Report of Case. A. B. Baker and J. M. Adams, Minneapolis.—p. 129.  
Blastomycosis of the Heart: Report of Two Cases. R. D. Baker and E. W. Brian, Durham, N. C.—p. 139.

**Silicosis and Tuberculosis.**—Gardner asserts that the lesions of silicosis and tuberculosis are essentially similar. In human beings in whom the two conditions are frequently associated it is often impossible to ascertain the etiology of a particular lesion. Proof of the similarity of the cellular response to silica and to the tubercle bacillus is drawn from a series of experiments on different species of animals, birds and fish. The primary mononuclear cell reacting to both silica and the tubercle bacillus is apparently the same. The two irritants seem to affect it in the same manner, producing the variations known as epithelioid and giant cells. Both agents cause exudation and necrosis of tissue with the liberation of free fat, and in each case this necrotic matter may become calcified. Both cause continued proliferation of mononuclear leukocytes and fibro-

the last patient it is concluded that pellagra and alcoholism were the factors responsible for the electrocardiographic changes, for, with clinical improvement, the alterations disappeared. A study of the weights of fourteen hearts from patients dying from pellagra, in whom there were no important pathologic lesions involving the cardiovascular apparatus, showed that the average heart weight for the men was 307 Gm. and for the women 255 Gm. It is highly significant that pellagra does not affect the heart to a degree sufficient to impair its functional integrity. There are no characteristic electrocardiographic changes in endemic pellagra. The changes that occur are invariably explained by vascular or toxic complications. Beriberi and pellagra have no comparable effect on the heart. The difference is so absolute that the authors venture the opinion that vitamin B<sub>1</sub> is not concerned with the pathogenesis of pellagra.

**Etiology of Pellagra.**—Their observations, together with the results of liver and stomach mucosa therapy, the frequent recovery of mild pellagra on a pellagra producing diet and the frequent failure of yeast therapy, seem to make it possible for Sydenstricker and Thomas to formulate the theory that pellagra is a conditioned deficiency of the same order as pernicious anemia and sprue, but more complex than either. The essential curative substance is produced by the interaction of an intrinsic factor present in normal gastric juice (and perhaps in the gastric juice and stomach of animals) with certain components of the vitamin B<sub>2</sub> complex. This essential substance is probably stored in the liver. Absence of the intrinsic factor and exhaustion of the stored essential substance result in the symptom complex of pellagra. The theory outlined can account for the occurrence of pellagra under varying conditions. Any agent that seriously damages the gastric secretory function over a considerable period may cause pellagra by failure of the intrinsic factor. If liver damage is added, the disease is rendered more severe. The relation of sunlight to the pellagrous eruption may well depend on a defect in the metabolism of hemoglobin or an undetermined disturbance of the hematopoietic system. It seems probable that photosensitization by porphyrins may be an important factor in pellagrous dermatitis. It is remotely possible that certain of the gastro-intestinal and neurologic symptoms may also depend on hematoporphyrinemia. It is possible also that this phase of pellagra is related to the gross hematopoietic disturbances of pernicious anemia and sprue.

#### Western J. Surg., Obst. & Gynecology, Portland, Ore.

45:1-60 (Jan.) 1937

- \*Artificial Menstruation Following Hysterectomy. O. T. Roberg Jr., Vienna, Austria.—p. 1.
- Effect of Temperature on Metabolism. J. B. Collip and L. W. Billingsley, Montreal.—p. 12.
- Nature of Increased Metabolism in Hyperthyroidism. E. C. Andrus and D. McEachern, Baltimore.—p. 16.
- Marital Counseling, with Especial Reference to Frigidity. P. Popenoe, Los Angeles.—p. 27.
- The Physician and Changing Trends in Family Problems. Nadina R. Kavinoky, Los Angeles.—p. 35.
- Primary Tumors of Carotid Body: Review of 159 Histologically Verified Cases: Report of Case. F. W. Phelps, S. W. Case, Seattle, and G. A. C. Snyder, Tucson, Ariz.—p. 42.
- Intratracheal Anesthesia. E. A. Nixon, Seattle.—p. 47.

**Artificial Menstruation Following Hysterectomy.**—Roberg outlines an operation for prolonging menstruation following hysterectomy and the results obtained from its performance in the clinic and private practice of Halban. The procedure consists in transplanting a piece of the mucosa of the removed uterus into either the vaginal wall or the cervical stump and is successful in the majority of cases. This artificial menstruation has a pronounced psychic value and may serve to postpone the physiologic menopause, which seems to occur at an earlier age than usual in cases of simple hysterectomy. The operation provides an experiment in which menstruation is continued by a comparatively minute portion of the uterus. It is thus an objective demonstration of the extent and regularity of menstrual function in the absence of the greater part of the uterus, and it leads to conclusions which may support the theory that the uterus plays an important primary part in the function of menstruation. Endocrine therapy in an attempt to revive transplant bleeding when it has ceased may serve to support the view that the activity of the transplant is dependent on ovarian activity.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Children's Diseases, London

33:251-340 (Oct.-Dec.) 1936

- \*Erythrocyte Sedimentation Rate in Scarlet Fever and Its Complications. J. S. Cookson.—p. 251.
- Streptococcal Peritonitis Complicating Scarlet Fever. D. Erskine.—p. 272.
- Cancrum Oris Following Measles. L. Helen Macfarlane.—p. 275.
- Treatment of Children by Artificial Light. Eva Morton.—p. 280.

**Sedimentation Rate in Scarlet Fever.**—Cookson performed the erythrocyte sedimentation rate test in seventy-six cases of scarlet fever. By comparing the temperature charts with the erythrocyte sedimentation rate curves it was seen that there was a rough similarity between them. Of the two the erythrocyte sedimentation rate test was the more delicate. Thus a few cases showed a raised erythrocyte sedimentation rate before the onset of a complication was heralded clinically by a raised temperature and other signs. A considerably raised erythrocyte sedimentation rate on the fourteenth day of the disease means either that complications have already developed or will do so. The test is useful in differentiating the types of albuminuria occurring in scarlet fever. A high rate means that the patient has acute nephritis which has an accordingly worse prognosis than the benign types of albuminuria. Most complications that occur in scarlet fever cause a raised erythrocyte sedimentation rate before they give symptoms and signs, and also while the complication lasts. The exceptions are benign albuminuria and serum reaction. There is no definite relationship between the other blood changes recorded and the erythrocyte sedimentation rate in scarlet fever. It is a useful index of the efficacy of treatment. It is altered by a change in plasma protein causing increased aggregation of red cells by alteration of the viscosity and indirectly related electrical burdens.

### British Journal of Physical Medicine, London

11:139-156 (Dec.) 1936

- Use of Physical Therapy in Eye Disease. F. W. Law.—p. 141.
- The Healthy Integument. E. H. Strange.—p. 143.
- A Sense of Touch: Technic of Percussion, Palpation and Massage. D. Katz.—p. 146.
- Warming and Ventilation of Our Houses. H. M. Vernon.—p. 149.

### British Medical Journal, London

2:1243-1296 (Dec. 19) 1936

- \*Metabolic Factor in Chronic Rheumatism, with Especial Reference to Fibrositis. R. G. Gordon.—p. 1243.
- Blood Examinations in Prognosis and Treatment of Pulmonary Tuberculosis. L. E. Houghton.—p. 1246.
- Inhalation Therapy. M. F. Lockett.—p. 1251.
- The Physical Welfare of Youth. L. P. Lockhart.—p. 1254.
- Treatment of Intracapsular Tumors by Radon. W. O. Lodge.—p. 1257.

**Metabolic Factor in Chronic Rheumatism.**—Gordon points out that, while fibrositis is sometimes associated with the infective group of arthritis, its presence is of minor importance in virtually all cases, and it is not usual to pay much attention to it in the treatment of these conditions, though, if a little more notice were sometimes taken of this intervening malady, the comfort of the patient might be increased and he might be relieved of a certain degree of unnecessary pain. In the osteo-arthritis group, however, fibrositis is present in every case and is frequently of marked importance. Not only is it widely distributed, but it is often found that a great deal of the pain, stiffness and coincident discomfort is due to the fibrositis rather than to the arthritis. Since treatment of fibrositis is much easier and more rapid than that of the arthritis, it should be instituted. Fibrositis is in the majority of cases metabolic rather than infective in origin and frequently due to the same sort of factors as osteo-arthritis: strain, poor vascularity and inefficient circulation and elimination. Infective foci, if they exist, may be the direct cause of fibrositis but may act by upsetting the metabolic balance and thus cause its onset. Fibrositis may occur in those suffering from subhypothyroidism or autonomic imbalance. The characteristic thickenings of fibrositis are due to a fibrous barrier of resistance laid down round irritative metabolites. These thickenings may exist before

**Banti's Disease with Gastrorrhagias and Thrombophlebitis.**—Serafin divides the causative factors of gastrorrhagias in Banti's disease into mechanical and physiopathologic. The enlargement of the spleen may compress the lienal vein, which may also establish secondary traumatic changes in the wall of blood vessels leading to aseptic thrombophlebitis of the splenoportal veins. That the size of the spleen, of itself, is not a sufficient factor in obstructing the venous flow from the spleen is demonstrated by splenomegalies of other diseases without gastric hemorrhages, such as Gaucher's. The tendency to gastrorrhagias is due to a disturbance of the hemolytopoietic system. The physiopathologic factors that lead to gastrorrhagias have their origin in the functional disturbance of the reticulo-endothelial system and express themselves in the histopathology of the spleen and splenoportal region. The great amount of blood demanded by the enlargement of the spleen is impeded in its course, thus raising the intravenous pressure in splenoportal and gastro-esophageal areas. Whether gastrorrhagias are due primarily to overdistention of the gastro-esophageal plexus or are dependent on some other physiopathologic factors is not determined. It appears that thrombophlebitis is a part of Banti's syndrome, its presence depending on the stage of the disease and the severity of the hemolytopoietic dysfunction as it affects the spleen. Stasis of the splenic vein, the occurrence of thrombocytopenia and the traumatic and toxic injury to the intima will predispose to thrombophlebitis. This occurs in the third stage of Banti's disease, and in about 30 per cent of cases it is associated with ascites and cirrhosis of the liver. Clinically the presence of gastrorrhagia and the absence of ascites virtually excludes Banti's disease. Perisplenitis with multiple adhesions of the spleen to its surrounding viscera and adhesions of the omentum to the anterior abdominal wall indicate the presence of congestion in the splenoportal region and an attempt to establish collateral circulation. The results of splenectomy are satisfactory in that noxious substances causing splenomegaly and anemia are removed; the general condition of a patient is improved and in many cases life is prolonged from two to twenty-five years. Splenectomy, however, does not prevent recurrence of gastrorrhagias in some cases. When cirrhosis of the liver secondary to splenic anemia is advanced beyond the possibility of repair, passive congestion in the gastro-esophageal varices will persist after splenectomy unless efficient collateral circulation is established. To obviate any possibility of gastrorrhagias, an early recognition of splenic anemia and early splenectomy must be performed before the onset of cirrhosis of the liver and passive congestion of the gastro-esophageal veins take place.

#### Anatomical Record, Philadelphia

67: 1-144 (Dec. 25) 1936

- Topographic Positions and Mutual Relations of Visceral Branches of Abdominal Aorta: Study of 100 Consecutive Cadavers. B. J. Anson and C. B. McVay, Chicago.—p. 7.  
Abdominal Viscera in Situ: Study of 125 Consecutive Cadavers. B. J. Anson, R. Y. Lyman and H. H. Lander, Chicago.—p. 17.  
Effects of Anterior Pituitary Extract and Certain Environmental Conditions on Genital System of Horned Lizard (*Phrynosoma Cornutum*, Harlan). C. H. Mellish, Madison, Wis.—p. 23.  
Meningeal Relations of Hypophysis Cerebri. H. G. Schwartz, Boston.—p. 35.  
Cytology of Snake Thyroids Following Hypophysectomy, Activation and Ultracentrifuging. H. W. Hellbaum, Madison, Wis.—p. 83.  
Metamorphosis of Pubic Symphysis: II. The Guinea-Pig. E. B. Ruth, Rochester, N. Y.—p. 69.  
Calcium Deposits in Nerve Cells of White Rat After Injections of Urea and Cholesterol. R. C. MacCardle, Woods Hole, Mass.—p. 81.  
Peritoneal Stomas. L. Allen.—p. 89.  
Neurofibrils in Living Ganglion Cell of Chick, Cultivated in Vitro. P. Weiss and H. Wang, Chicago.—p. 105.  
Sexual Cycle of Chimpanzee. J. H. Elder and R. M. Yerkes, New Haven, Conn.—p. 119.

#### Annals of Medical History, New York

9: 1-100 (Jan.) 1937

- Medical Eponyms. H. Rolleston, Haslemere, Surrey, England.—p. 1.  
Account of the First Medical Student of Cincinnati. D. J. Lyle, Cincinnati.—p. 13.  
Cholera in New York in 1832. J. A. Ross, Liverpool, England.—p. 18.  
The Pioneer History of Milk Sickness. F. Stenn, Chicago.—p. 23.  
What the Ancient Greeks Ate. E. E. Cornwall, Brooklyn.—p. 30.  
Galen's Writings and Influences Inspiring Them. J. Walsh, Philadelphia.—p. 34.  
The Doctor on the Stage: Medicine and Medical Men in Seventeenth Century English Drama. H. Silvette, University, Va.—p. 62.

#### Archives of Neurology and Psychiatry, Chicago

37: 1-222 (Jan.) 1937

- \*Mental Symptoms in Cases of Subtentorial Tumor. M. Keschner, M. B. Bender and I. Strauss, New York.—p. 1.  
Forms of Familial Ataxia Resembling Multiple Sclerosis: Clinical Study. G. W. Hall and R. P. Mackay, Chicago.—p. 19.  
Pneumographic Localization of Tumors of the Brain: I. Tumors of Lobes of Cerebrum. L. H. McConnell, Saskatoon, Sask., and A. E. Childe, Montreal.—p. 33.  
Id.: II. Tumors Involving Basal Ganglions, Lateral Ventricles, Brain Stem and Cerebellum. L. H. McConnell, Saskatoon, Sask., and A. E. Childe, Montreal.—p. 56.  
Experiments with Quinine and Prostigmine in Treatment of Myotonia and Myasthenia. F. Kennedy and A. Wolf, New York.—p. 68.  
Pathogenesis of Cortical Atrophy Observed in Dementia Paralytica. H. H. Merritt and T. J. Putnam, Boston, and A. C. P. Campbell, Edinburgh, Scotland.—p. 75.  
Syndrome of Anterior Spinal Artery of Medulla Oblongata. C. Davison, New York.—p. 91.  
Porencephaly: Diagnosis and Treatment. C. A. Patten, F. C. Grant and J. C. Yaskin, Philadelphia.—p. 108.  
Galvanic Filling in Clinical Use. E. J. Blonder, Chicago.—p. 137.  
Chemical Mediation of Nerve Impulses. H. R. Butt, Rochester, Minn.—p. 142.

**Mental Symptoms in Cases of Subtentorial Tumor.**—In 120 cases of subtentorial tumors observed personally, Keschner and his associates elicited mental symptoms in fifty-six. In sixty-three of the 120 cases the diagnosis of tumor was verified by operation and in fifty-seven by necropsy. The material was analyzed from the point of view of disturbances in sensorium, affect, memory and orientation, intellect and higher psychic functions, changes in personality, sphincteric control and the psychosexual sphere. Many patients presented mental changes so slight that unless one searched for them with great care they could have escaped detection. The mental symptoms were milder and less complex in children than in adults; this may have been due to the greater technical difficulty in eliciting slight disturbances in affect, memory and orientation and intellect in children. Mental symptoms in cases of subtentorial tumor were much milder and less complex than those in cases of supratentorial tumor. Crude visual hallucinations of the type usually observed in cases of supratentorial tumor may occur in cases of infratentorial tumor. They were present in four patients of the series. The early appearance of profound and complex mental changes, especially those involving disturbances of memory and intellect in a patient whose only evidence of tumor of the brain is intracranial hypertension, is in favor of localization of the tumor above the tentorium; in this sense the mental picture in a patient suspected of having tumor of the brain may perhaps be of some localizing value. Too much reliance, however, is not to be placed on the mental picture for this differentiation.

#### Archives of Otolaryngology, Chicago

25: 1-118 (Jan.) 1937

- \*Osteomyelitis of Sphenoid Bone: Report of Two Cases. L. J. Lawson, Evanston, Ill.—p. 1.  
Tuberculosis of Petrous Apex: Report of Case. E. Grabscheid, Vienna, Austria; translated by P. A. Campbell, Chicago.—p. 11.  
Pseudocerebellar Abscess. S. L. Shapiro, Chicago.—p. 17.  
\*Observations on Larynx in Tuberculosis. F. P. Schuster, El Paso, Texas.—p. 23.  
Masked Sinusitis as Cause of Obscure Fever. A. R. Sohval and M. L. Som, New York.—p. 37.  
Otitic Meningitis with Recovery. S. A. Sciarretta, Chicago.—p. 48.  
Cerebrospinal Rhinorrhea. D. H. Ballou and H. C. Ballou, Montreal.—p. 57.  
Neuro-Otologic Studies in Epilepsy. E. J. Blonder, Chicago.—p. 63.  
Recovery from Abscess of Frontal Lobe Secondary to Empyema of Sphenoid Sinus. A. Kaplan, New York.—p. 66.  
Effects on Throat and Conjunctiva of Hygroscopic Agent Used in Cigarettes. H. C. Ballenger and V. H. Johnson, Chicago.—p. 75.

**Osteomyelitis of Sphenoid Bone.**—Lawson reports two cases of osteomyelitis of the sphenoid bone, one of which was produced by extension from petrositis and one by reactivation of an old infection of the sphenoid sinus. In the first case an unusual amount of destruction of the sphenoid body developed before the onset of diffuse fatal basal meningitis. In the second case neither meningitis nor thrombosis of the cavernous sinus, which are the more usual complications, developed, but the process took the unusual outlet of posterior cervical thrombophlebitis, with abscess formation and late septicemia. There was a continuous stream of pus from the abscess beneath the dura under the cavernous sinus and over the sphenoid body,

**Journal of Laryngology and Otology, London**

51: 755-842 (Dec.) 1936

- Pathologic Changes in Ear in Late Congenital Syphilis. O. Mayer and J. S. Fraser.—p. 755.  
Otomicroscopy in the Living. E. Lüscher.—p. 779.

**Journal of Mental Science, London**

82: 701-852 (Nov.) 1936

- Investigation Concerning Mental Disorder in Nyasaland Natives, with Especial Reference to Primary Etiologic and Other Contributory Factors. H. M. Shelley and W. H. Watson.—p. 701.  
Association Motor Investigation in Clinical Psychiatry. F. G. Ebaugh.—p. 731.  
Further Observations on Apraxia. W. Mayer-Gross.—p. 744.  
\*Chronaximetric Studies in Catatonia. S. L. Last and R. Ström-Olsen.—p. 763.  
Endocrinopathies and Psychoses. J. H. Hutton and D. L. Steinberg.—p. 773.  
\*Effect of Acetylcholine on Somatic Symptoms of Anxiety. M. S. Jones.—p. 785.  
Recurrent Sympathetic Excitement: Case: Its Treatment and Some Observations on Parasympathetic Stimulants. E. C. Dax.—p. 791.  
Studies on Lesions of Basal Ganglions in Defectives. A. Meyer and C. J. C. Earl.—p. 798.  
Some Problems of Pathogenesis in Schilder's Disease (with Description of New Familial Case). A. Meyer and F. Pilkington.—p. 812.

**Chronaximetric Studies in Catatonia.**—Last and Ström-Olsen selected seven well marked stuporous catatonic patients and performed chronaxia measurements on muscles of the upper and lower limbs. The method employed was that of Bourguignon. The interpretation of abnormal chronaxia values is extremely difficult. If it is assumed that an organic constant change in some parts of the central nervous system can be regarded as the cause of catatonia, constant changes of chronaxia might be explained; but further corroborating evidence is required in this connection. The explanation, which seems a possible one to the authors, is the assumption that the changes of chronaxia are due to the maintenance of certain muscular contractions (increased tone) over long periods. Previous investigations of chronaxia during voluntary muscular contraction have shown no abnormal features, but such voluntary contractions were necessarily of comparatively short duration, though work and fatigue seemed to change the chronaxia for short periods. When one bears in mind that catatonic patients frequently maintain the same muscles in a state of contraction (increased tone) over long periods, it seems reasonable to suppose that the changes found are secondary to these prolonged contractions or increase of muscular tone. The view is held that the autonomic nervous system is involved in the maintenance of muscular tone. In this connection an increased or changing sympathetic tone can be responsible for changes in chronaxia. It has been shown experimentally that chronaxia can change with alteration of the balance between the cerebrospinal and the sympathetic system, although these changes did not reach the degree recorded in the present cases.

**Effect of Acetylcholine on Symptoms of Anxiety.**—Jones chose six cases of anxiety neurosis, each showing somatic manifestations of anxiety, such as tachycardia, palpitations, tremor, sweating, vasomotor instability, giddiness, weakness and feeling of constriction in the throat or chest, for treatment with fourteen daily injections of carbaminoylcholine chloride, 0.00025 Gm. subcutaneously. This drug has an action similar to that of acetylcholine and is a stimulant of the parasympathetic nervous system. The results obtained from subjective and objective observation in these cases were in accord with the original conception that the symptomatology could be understood almost entirely in terms of autonomic imbalance, and in those cases in which it was possible to reproduce with epinephrine the somatic symptoms of anxiety the psychic manifestations of fear were at the same time reproduced. That in an attack of acute anxiety the symptoms are almost wholly referable to the sympathetic nervous system is evident from the symptoms complained of by these patients during an attack, and the cessation of symptoms following stimulation of the parasympathetic nervous system is in support of this. There would appear to be some justification for this line of treatment in cases showing attacks of acute anxiety, provided this is in no way meant as a substitute for psychotherapy and merely aims at giving the patient more rapid relief from the distressing symptoms accompanying anxiety than could be

attained by purely psychologic methods. Relief from the psychic and somatic symptoms of anxiety resulted in all cases, but they tended to relapse following withdrawal of the drug.

**Journal of State Medicine, London**

44: 683-744 (Dec.) 1936

- Control of Imported Food. D. M. Connan.—p. 683.  
Underground Rooms: Procedure and Difficulties. H. L. Oldershaw.—p. 695.  
Undulant and Allied Fevers. C. P. Beattie.—p. 701.  
Undulant Fever: Clinical Aspect. H. Avery.—p. 710.  
British Dysenteries. F. A. Knott.—p. 728.  
Emotional Factors in Disease. T. M. Ling.—p. 735.

45: 1-62 (Jan.) 1937

- The Eyesight of School Children: Some Present-Day Problems. A. J. Ballantyne.—p. 1.  
Social Problems of the New Housing Estates. W. Deedes.—p. 17.  
After-Care of the Tuberculous. A. J. Morland.—p. 21.  
Pulmonary Tuberculosis in Children. C. D. S. Agassiz.—p. 27.  
The General Practitioner and Tuberculosis. G. H. Day.—p. 37.  
The Care of Children in Winter. A. Moncrieff.—p. 50.

**Journal of Tropical Medicine and Hygiene, London**

39: 285-300 (Dec. 15) 1936

- Report on Effects of Certain Poisons Contained in Food Plants of West Africa on Health of Native Races. A. Clark.—p. 285.  
Diseases of the Skin in Negroes. L. J. A. Loewenthal.—p. 295.

**Lancet, London**

2: 1377-1444 (Dec. 12) 1936

- Thyrotoxic Heart, with Especial Reference to "Masked Hyperthyroidism." J. Hay.—p. 1377.  
\*Clinical and Laboratory Investigation on Volunteers Infected with Pfeiffer's Bacillus. A. A. Smorodintseff, A. I. Drobyshevskaya, S. M. Ostrovskaya and O. I. Shishkina.—p. 1381.  
Etiology of the 1936 Influenza Epidemic in Leningrad. A. A. Smorodintseff, A. I. Drobyshevskaya and O. I. Shishkina.—p. 1383.  
Effect of Benzidine on Intelligence Scores. W. Sargent and J. M. Blackburn.—p. 1385.  
Ventricular Communication and Internal Hydrocephalus as Complications of Brain Abscess: Report on Three Cases of Otogenic Temporal Lobe Abscess Recovering in Presence of Ventricular Communication. F. McGuckin.—p. 1387.  
\*Trichlorethylene as Skin and Wound Cleanser. H. B. Trumper, A. T. Jones and H. Taylor.—p. 1390.

**Investigation of Pfeiffer's Bacillus Infection.**—Smorodintseff and his collaborators inoculated eighty volunteers from 17 to 42 years of age, who had no noticeable disturbance of the heart, the lungs or other viscera and in whom the mucosa of the air passages was in a normal condition, with cultures of Pfeiffer's bacillus. Pfeiffer's bacillus on being introduced into the respiratory tract always thrives there, being present in high concentrations in the mucosa of the nose and the throat within the first five to ten days following inoculation. The pathologic reactions and inflammatory phenomena developing on the mucosa of the respiratory passages had no noticeable effect on the content of these micro-organisms in this region. The experimental infectious process that is caused by inoculating people with Pfeiffer's bacillus is not followed by an activation of the main causal organisms producing the secondary complications that usually accompany influenza. Therefore the symptoms developed by persons who had been subjected to infection can reasonably be attributed to the toxic products of Pfeiffer's bacillus but not to the secondary processes of a streptococcal or pneumococcal nature. Inoculation with Pfeiffer's bacillus by means of inhalation, particularly if it is repeated, always led to a distinct rise in the concentration of specific agglutinins and complement fixing substances in infected individuals. In from four to six hours following inoculation, clinical symptoms developed which indicated that the patient was in a condition of infectious intoxication of a greater or lesser severity, lasting for one or two days. The picture shown by the blood in the experimental infection caused by Pfeiffer's bacillus was the reverse of that observed in epidemic influenza. All the volunteers who were infected showed a marked leukocytosis in the few hours immediately after the inhalation. An increase was also observed in both the relative and the absolute quantity of neutrophils, which showed a definite shift to the left in the direction of younger cells, the neutrophil curve reproducing that of the leukocytes. The absolute quantity of lymphocytes was above the normal level in every case. The reaction of erythrocyte sedimentation was found to be greatly accelerated in the infected volunteers. Thus there is every reason to



and in one case to 1,000,000 units daily. The higher dosages were administered only when the patient was in the hospital, where close observation was possible. In the usual case a daily dose of 200,000 units or more as indicated was maintained throughout the period of treatment. When the higher dosages are being administered, symptoms usually consisting of dizziness, nausea, increased micturition and slight diarrhea appeared, though they seldom appeared on dosages less than 400,000 units a day. When the dose is reduced to 200,000 units a day or less, the symptoms promptly disappear and subsequently the dose may be increased without the reappearance of these symptoms. The diets of the patients have been regulated or advised along the lines of natural foods. In especially severe or stubborn cases, when the economic status of the patient would permit, hyperpyrexia was used. In severe cases of atrophic arthritis, the reduction or disappearance of pain was observed. Roentgenograms have shown remarkable reparative changes in the joints, consisting of filling in of the rarefied regions and reconstruction of cartilage. In severe cases of hypertrophic arthritis, granular resorption of exostoses, particularly on vertebrae, and reconstruction of cartilage takes place. Not a single patient has failed to respond in some degree to the high vitamin D therapy. Not only were the symptoms of pain and reduced movement of joints relieved, but the general nutritive state was greatly improved. This was manifested by gain in weight, appearance and feeling of well being. There is in the mass charge of vitamin D a new therapeutic measure which appears to offer much hope in the treatment of arthritis and kindred conditions.

### Iowa State Medical Society Journal, Des Moines

27:1-48 (Jan.) 1937.

- Present Conception of Radiation in Treatment of Cancer. A. C. Christie, Washington, D. C.—p. 1.  
Diagnosis and Treatment of Simmonds' Disease (Pituitary Cachexia). J. A. Greene, Iowa City.—p. 6.  
Three Steps to Heart Failure. E. E. Kottke, Des Moines.—p. 9.  
Analgesia and Amnesia in Labor. C. L. Wilson, P. M. Santos and Helen O. Dickens, Chicago.—p. 12.  
Bacteriologic Differentiation of the Common Forms of Conjunctivitis, with Particular Reference to Types Prevailing in Iowa. P. Thygeson, Iowa City.—p. 15.

### Journal of Allergy, St. Louis

8:113-220 (Jan.) 1937.

- Different Determinants of Antigenic Specificity on Single Molecules. S. B. Hooker, Boston.—p. 113.  
Mutual Absorption Tests with Related Foods. H. S. Baldwin and Mabel I. Benedict, New York.—p. 120.  
Effect of Treatment on Skin and Mucous Membrane Sensitivity and on Reagins in Hay Fever. L. B. Baldwin, Tucson, Ariz., and J. Glaser, Rochester, N. Y.—p. 129.  
\*Thrombocytopenic Purpura Due to Food Allergy. T. L. Squier and F. W. Madison, Milwaukee.—p. 143.  
Lipids of Blood Plasma in Hay Fever and Asthma. S. S. Bullen and W. R. Bloor, Rochester, N. Y.—p. 155.  
Status Asthmaticus: Report of Sixteen Cases. I. S. Kahn, San Antonio, Texas.—p. 158.  
Intelligence Rating of Allergic Child. G. Pincus, H. Miller and Ellen B. Sullivan, Los Angeles.—p. 168.  
Evaluation of Ragweed Hay Fever Resort Areas of North America. O. C. Durham, North Chicago, Ill.—p. 175.

#### Thrombocytopenic Purpura Due to Food Allergy.—

Squier and Madison have observed three patients with primary thrombocytopenic purpura in whom drug allergy, toxic changes and hematopoietic disease could be excluded; in their search for the etiology, food allergy was considered. Treatment excluding suspected foods was followed by striking clinical improvement and a concurrent gradual but marked rise in the thrombocyte level in each patient. To demonstrate further the relation of specific foods to the thrombocyte level, hematologic studies were made following the ingestion of suspected foods as soon as the clinical condition of the patient justified it. This was followed by recurrence of bleeding and a suggestive lowering of the thrombocyte count. In two of these patients temporary depression of the thrombocytes was observed thirty minutes after ingestion of some but not all foods that caused a leukopenic response and associated eosinophilic rise. This depression of thrombocytes occurred coincidentally with the maximal depression of leukocytes and rise of eosinophils and was not observed after ingestion of foods that caused normal digestive leukocytosis. A similar thrombocyte depression after

ingestion of specific foods was observed also in a group of three patients with unexplained bruising and hemorrhagic tendencies in whom the blood pictures were essentially normal. It is generally accepted that allergic reactions to foods may be responsible for alterations in capillary permeability, and the authors believe their observations indicate that a similar allergic response to foods may depress the thrombocyte level sufficiently in certain cases to produce typical essential thrombocytopenic purpura. Food allergy should be regarded as only one of many possible etiologic agents in thrombocytopenic purpura. An allergic investigation of patients with this disease offers a far more hopeful therapeutic approach than do the empirical and nonspecific methods of treatment so universally employed at the present time.

### Journal of Clinical Investigation, New York

16:1-168 (Jan.) 1937

- Distribution of Respiratory Gases in Closed Breathing Circuit: I. Normal Subjects. H. C. A. Lassen, A. Cournand and D. W. Richards Jr., New York.—p. 1.  
Id: II. Pulmonary Fibrosis and Emphysema. A. Cournand, H. C. A. Lassen and D. W. Richards Jr., New York.—p. 9.  
Complement Fixation Tests in Pertussis. M. Weichsel and H. S. Douglas, New York.—p. 15.  
Respiratory Response During Exercise in Pulmonary Fibrosis and Emphysema. N. L. Kaltreider and W. S. McCann, Rochester, N. Y.—p. 23.  
Study of Carrier Condition Associated with Type II Pneumonia in Camp of Civilian Conservation Corps. A. H. Harris and H. S. Ingraham, Albany, N. Y.—p. 41.  
Effect on Kidney of Bilateral Splanchicectomy in Patients with Hypertension. R. H. Freyberg and M. M. Peet, Ann Arbor, Mich.—p. 49.  
Studies of Gallbladder Function: XV. Cholesterol in Human Liver Bile. Cecilia Riegel, I. S. Ravdin and H. Rose, Philadelphia.—p. 67.  
Nature of Circulatory Collapse Induced by Sodium Nitrite. S. Weiss, R. W. Wilkins and Florence W. Haynes, Boston.—p. 73.  
Role of Venous System in Circulatory Collapse Induced by Sodium Nitrite. R. W. Wilkins, Florence W. Haynes and S. Weiss, Boston.—p. 85.  
Osmotic Pressure of Proteins in Whole Serum. C. H. Wies and J. P. Peters, New Haven, Conn.—p. 93.  
\*Hyperparathyroidism in Kidney Disease. W. J. Highman Jr. and B. Hamilton, Chicago.—p. 103.  
Studies on Hypochromic Anemia in Dogs: II. Evaluation of Pre-digested Beef, Iron and Liver Extract on Formation of Hemoglobin After Gastrectomy. S. R. Mettler, F. Kellogg and Katherine Purviance, San Francisco.—p. 107.  
\*Hemophilia: II. Some Properties of Substance Obtained from Normal Human Plasma Effective in Accelerating Coagulation of Hemophilic Blood. A. J. Patek Jr. and F. H. L. Taylor, Boston.—p. 113.  
Artificial Induction of Subcutaneous Nodules in Patients with Rheumatic Fever. B. F. Massel, J. R. Mote and T. D. Jones, Boston.—p. 125.  
Pathology of Spontaneous and Induced Subcutaneous Nodules in Rheumatic Fever. J. R. Mote, B. F. Massel and T. D. Jones, Boston.—p. 129.  
Development of Antifibrinolytic Properties in Blood of Patients with Rheumatic Fever, Chronic Infective Arthritis and Bacterial Endocarditis. E. Waaler, Oslo, Norway.—p. 145.  
Studies of Hemolytic Streptococcal Infection: III. Characteristics of Hemolytic Streptococci Isolated from Patients with Erysipelas. C. S. Keefe and W. W. Spink, Boston.—p. 155.  
Metabolic Studies on Chronic Ulcerative Colitis. C. S. Welch, Mildred Adams and E. G. Wakefield, Rochester, Minn.—p. 161.

**Hyperparathyroidism in Kidney Disease.**—Highman and Hamilton show that there is no proportion between the increase in parathyroid function and the rise of the inorganic phosphorus of the serum in nephritis; but since the phosphorus was generally elevated in the cases that showed increased parathyroid function, their data are not in discord with the theory proposed by Pappenheimer and Wilens. However, one patient in the series had developed high arterial tension, albuminuria and convulsions during pregnancy one and one-half years before the last admission and had delivered a stillborn child. On the last admission she showed no evidence of parathyroid hyperactivity; the serum phosphorus was extremely high, and the serum calcium was below the tetany level. Two weeks after admission in uremia, she developed convulsions and died a week later, showing signs of pulmonary edema and shock. Here it may be assumed that the lack of compensatory parathyroid hyperfunction allowed a profound imbalance of the calcium metabolism. The failure to elicit an elevation of the rabbit's blood calcium by the injection of the solution containing certain constituents of uremic blood indicated that these substances in uremic blood are not responsible for the reaction. This experiment, however, does not in any way eliminate the possibility that other substances in uremic blood are responsible for

tive lesions commonly found in secondary syphilis. In analyzing the cases with respect to the effect of antecedent treatment on the course of syphilis, in seventy-six individuals no signs of secondary syphilis had been observed. Of this number fifty-eight had received arsenical treatment during the period of the primary chancre, three had taken only oral medication of unknown nature, and fifteen had never been treated. Of ninety-three cases, all showing signs of secondary syphilis before the appearance of meningitis or giving a history of recent infection, eighty-two had been treated with an arsenical drug, four with drugs by mouth and seven had not been treated before the onset of meningitis. A succession of relapses with intervening treatment irregularities occurred in fourteen patients. The spinal fluid was examined in one case of primary and seven cases of secondary syphilis before any antisyphilitic treatment was given. The results revealed the presence of meningeal involvement in six patients, none of whom exhibited signs or symptoms of neurosyphilis at the time of spinal puncture. Each of the eight patients later developed acute symptomatic meningitis after inadequate arsphenamine therapy. The immediate results of treatment are usually satisfactory. With the exception of deafness following involvement of the eighth nerve, paralysis of the cranial nerves disappears with a fair degree of promptness. Deafness may persist and be uninfluenced by treatment. Even in cases in which there is an immediate improvement in hearing, a permanent residual impairment is not infrequent. Brilliant results in the immediate improvement of vision have been observed when treatment has been given within a few days after the onset of visual failure, a convincing demonstration of the efficacy of the arsphenamines.

### Japanese Journal of Obstetrics & Gynecology, Kyoto

19: 507-636 (Nov.) 1936

- \*The Huhner Test in Diagnosis of Sterility Due to Necrospemia. M. Huhner.—p. 508.  
Female Sexual Hormones and Malignant Tumors. Y. Nitta.—p. 512.  
Effect of Hypertension and Hypotension of Maternal Hypophysis on Genital Gland of Female Fetus. T. Tanioka.—p. 531.  
Effect of Functional Abnormality of Maternal Pancreas on the Genital Gland of the Female Fetus. T. Tanioka.—p. 535.  
Effect of Functional Disturbance of Maternal Endocrines on the Genital Gland of the Female Fetus: Summary of All My Reports. T. Tanioka.—p. 541.  
Experimental Study on Effect of Rays of Various Wavelengths on Malignant Tumors. Y. Esaki.—p. 546.  
Experimental Study on Effect of X-Rays on Metastasis of Malignant Tumor, Especially in Bones. T. Yamamoto.—p. 559.  
Malignant Tumors and Acid-Basic Equilibrium. T. Kageyama.—p. 570.  
Quantities of Urine and Total Nitrogen Discharged in Patients with Uterine Cancer. Y. Fujita.—p. 583.  
Study on Chemical Components of Urine in Patients with Carcinoma Uteri. Y. Fujita.—p. 589.  
Study on Metabolism in Rabbit with Sarcoma. Y. Fujita.—p. 597.  
Total Discharge of Nitrogen in Patients with Carcinoma Uteri in Reference to Operation. Y. Fujita.—p. 605.  
Effect of Operative Treatment on Chemical Components of Urine in Patients with Carcinoma Uteri. Y. Fujita.—p. 616.  
Metabolism in Patients with Carcinoma Uteri in Relation to Roentgen Therapy. Y. Fujita.—p. 624.  
Bilirubin Content of Blood During Menstrual Cycle. M. Fukase.—p. 629.

**The Huhner Test in Diagnosis of Sterility.**—Huhner has seen cases in which the most painstaking investigations of the entire male genito-urinary system neither reveals the cause nor is a cure for necrospemia effected by any known method. He has seen cases in which many condom specimens have been examined with all the necessary precautions observed and has always found only dead spermatozoa in the condom, and yet a postcoital examination (Huhner test) revealed many lively normal spermatozoa. In some of these cases the spermatozoa removed from the female genitals after coitus remained alive for several hours under the microscope, while in the condom specimen they were found dead within twenty minutes. The only reason the author can advance for this phenomenon is that the female genital secretions seem to have the power to preserve the vitality of the spermatozoa much more than the ingredients of the semen proper. The foregoing may also explain those cases in which necrospemia, according to condom examinations, was always present but still the female finally became pregnant. Therefore no observation of a condom specimen, no matter by what method examined, can give such a definite diagnosis as can be made by examining the spermatozoa removed from the female genitals after coitus.

### Archives de Médecine des Enfants, Paris

39: 761-904 (Dec.) 1936

- Origin of Infantile Tuberculosis. J. Comby.—p. 761.  
Interest in Research of Tubercle Bacillus in Gastric Contents. R. Debré, A. Saenz, R. Broca and L. Costil.—p. 779.  
Tuberculous Bacillæmia in Children Suffering from Erythema Nodosum. R. Debré, A. Saenz and R. Broca.—p. 787.  
Stricture of Pulmonary Artery and Tuberculosis. H. Grenet and J. François-Joly.—p. 789.  
\*Rôle of Bovine Type of Bacillus in Etiology of Tuberculous Meningitis of Children. E. Lesné, A. Saenz, M. Salembiez and L. Costil.—p. 798.  
Erythema Nodosum and Pulmonary Tuberculosis in Native Algerian. C. Sarrouy, Le Genissel and C. Stora.—p. 804.  
\*Contribution to Study of Erythema Nodosum. Mathilde de Biehler.—p. 817.  
Hemiplegic Forms of Hutinel's Disease. A. Carrou, H. Mourigan and C. M. Barberousse.—p. 826.

**Bovine Bacilli and Tuberculous Meningitis.**—Lesné and his associates found that in the majority of cases of tuberculous meningitis there are persons in the immediate surroundings of the child who are giving off bacilli. Often there is no direct evidence of contagion. The bovine type of bacillus is possessed of a virulence equal to that of the human type. This is especially true of Scandinavian countries and of England, where the consumption of crude dairy products is large. Of 130 cases studied, nine furnished the bovine type, the cultures of which grew slowly and were by far less abundant in colonies than the human type. An intravenous injection of this type into a calf produced a visceral and especially a serous tuberculosis within four months. The liver and spleen were studded with numerous tuberculous nodules. The serosa and the renal parenchyma likewise presented disseminated nodular lesions. The mesenteric ganglions were hypertrophic and the visceral membranes showed copious new formations. Similar formations occurred in both pleurae and in the bronchial and mediastinal lymph nodes. No atypical forms were found, and it could be said that the source of contamination must be contaminated milk. Up to 100,000 virulent bacilli were counted for each cubic centimeter of milk. The manner of treating the udders and keeping the animal clean is mostly responsible, and it has been found that not only the milk but other dairy products, such as butter and cream, carried the contamination. The observation was also made that all these children had stayed in the country and for many months lived mostly on dairy products. In all these cases the cerebrospinal fluid contained the bacilli, and it was demonstrated that the incubation of the liquid on elective mediums gave 100 per cent results. More attention should be paid to the treatment of milk at the place of production.

**Erythema Nodosum.**—In discussing the tuberculous origin of erythema nodosum, de Biehler feels that this theory is increasingly gaining ground. It is confirmed by the following data: (1) presence of Koch's bacillus in the nodules, (2) anatomopathologic signs in the erythema, (3) reaction to tuberculin, (4) presence of Koch's bacillus in gastric contents, (5) roentgenologic examinations, (6) clinical signs and (7) identical action of ultraviolet rays on the nodules of erythema and on tuberculous skin papules (one as well as the other diminished in size after three or four applications). Tuberculin administered after the disappearance of the nodules makes them reappear. Independent of this view are authors who maintain that erythema nodosum originates in different infectious diseases (measles, pertussis, chickenpox, rubella). This disease may, as in measles or whooping cough, serve as an initiating factor for the development of tuberculosis. It has also been proved that the streptococcus taken from an angina and injected in the form of an emulsion gave rise to erythema nodosum in animals. On the other hand, Koch's bacillus injected into these animals produced no such disease. Others again maintain and deny the theory that Koch's bacillus lives in symbiosis with the germs of erythema nodosum as well as of rheumatism. The author regards the cutaneous nodule as an allergic reaction of the skin. She had under observation 107 children ranging in age from 6 months to 15 years. Eighty had positive tuberculous reactions and twenty-five cases were preceded by autonomous diseases, twenty-six by measles, twenty by varicella, seventeen by angina, twelve by grip, four by rubella and two by pneumonia. In two cases there developed

as the chloramides, and found a combination of acriviolet (a mixture of acriflavine and gentian violet) and brilliant green to be the most powerful antiseptic against the gram-positive organisms that will not injure living cells. It also has a high specificity against the gram-negative organisms. In broth cultures and in the test tube it will not let gram-positive organisms grow in dilutions of one to one million, nor gram-negative organisms in one to ten thousand. In concentrations of one to one thousand it has a high phenol coefficient against all the pyogenic organisms. When applied to a burned area, it rapidly forms a tough, flexible eschar which seals off the burn, sterilizing it at the same time. The eschar thus formed prevents fluid loss and brings about analgesia by protecting the nerve endings. An aqueous solution of the dye is sprayed on by means of an atomizer. There is no clean-up done unless gross contamination is present. The burned area is sprayed every hour during the first day, by which time the eschar is formed. When this has taken place, the spraying is discontinued and the eschar is watched carefully every day for any contamination. If any infection occurs under this eschar, it is not masked as it is under the tannic acid crust. The area directly over the infection becomes moist and soft. This contaminated portion should be lifted up with a pair of tissue forceps and excised. The underlying area is then dried with a sterile sponge to remove any gross contamination and the dye is reapplied. Inspection continues until healing under the eschar is complete or until the granulating surface has been built up to the proper height to accept skin grafts. While the new dye is as superior to gentian violet as gentian violet is to tannic acid, it is not the final answer to all the problems presented by a burned patient. The author is certain that the conception of a burn as an infected surgical lesion is correct, and that it is infection rather than absorption of a split protein which causes death in burns; for when there is no infection there is no toxemia.

### Military Surgeon, Washington, D. C.

50:1-90 (Jan.) 1937

- Centenary of the Army Medical Library. H. W. Jones.—p. 1.  
Oration Commemorating the One Hundredth Anniversary of the Founding of the Army Medical Library, Washington. H. D. Rolleston.—p. 5.  
Greetings from Beyond the Seas. H. W. Jones.—p. 21.  
From Drawing to Photography in Color: Exhibition on History of Art of Medical Book Illustration from the Twelfth to Twentieth Century Arranged at the Centennial Celebration of the Army Medical Library, Nov. 16, 1936. C. F. Mayer.—p. 31.  
Buildings for the Army Medical Library. E. E. Hume.—p. 45.  
The U. S. Naval Medical School. H. G. Danilson.—p. 53.  
Tularemia. E. Francis.—p. 60.  
Acute Poisoning by Zinc and Antimony Content of Limeade Prepared in Galvanized Iron Can. G. R. Callender and C. J. Gentzkow.—p. 67.

### Ohio State Medical Journal, Columbus

33:1-120 (Jan.) 1937

- Diagnosis and Treatment of Brain Tumors. W. E. Dandy, Baltimore.—p. 17.  
Neuroses in General Practice. G. T. Harding, Columbus.—p. 19.  
\*Physical Handicaps of the Present Day School Child. C. C. Payne, Dayton.—p. 24.  
Nonspecific Protein Therapy. C. W. Waggoner, Toledo.—p. 27.  
Fracture of Neck of Femur: Treatment by Immediate Fixation. J. A. Caldwell, Cincinnati.—p. 30.  
Results of Treatment of Pneumonia with Specific Therapeutic Serum. J. E. Benjamin, M. Blankenhorn and Fanny A. Senior, Cincinnati.—p. 36.  
Sinusitis in Children. L. Nippe, Toledo.—p. 43.  
Experiences with Protamine Insulin Therapy. T. P. Sharkey, Dayton.—p. 50.  
Auricular Fibrillation: Mechanism, Diagnosis and Treatment. E. E. Campbell, Columbus.—p. 54.  
Postoperative Pulmonary Atelectasis. S. C. Yinger, Sidney.—p. 59.  
Endometriosis: Clinicopathologic Study of Forty-Eight Cases. R. E. Pumphrey, Dayton.—p. 61.

Physical Handicaps of School Children.—Payne gives a summary of the physical defects found in a group of 5,412 children attending the grade schools in Dayton, Ohio. Three fourths of the children show one or more physical handicaps of either major or minor significance. Physically the grade school child of today is rather far from the goal that pediatricians have constantly been striving to attain. Of the children examined, 3,102 showed some degree of dental caries or malalignment with malocclusion. More than half of the children needed dental attention. Underweight of 10 per cent or

more was found in 23 per cent. The graph of malnutrition as expressed by this group of children is particularly interesting because of the fact that the child aged 6 years and the one aged 11 years seem to be the most underweight. In the intervening years and from 11 years on, however, the cases of malnutrition decrease quite noticeably. Hypertrophied or diseased tonsils and adenoids ranked third in frequency among this group of childhood defects. Of the children inspected, 20.7 per cent showed evidence of nasopharyngeal abnormality. A graph designating diseased tonsils and adenoids showed that the child aged 9 years was the most commonly afflicted with disease or hypertrophy of the adenoids and tonsils. In the examination of children from the third to the eighth grades inclusive, 19 per cent, through means of the visual acuity tests, were detected to have defective vision. Since about one child out of every five within the third to the eighth grade does not have proper sight, owing to refractive errors primarily, sight conservation measures within a city or state medical regimen should be constantly instituted to combat this ever menacing entity. Only 4.9 per cent of the children were discovered to have palpable thyroids. These varied from one plus to three plus in size. The graph for goiter shows a gradual but progressive increase in incidence of goiter from lower to higher grades. The highest incidence was found in the eighth grade. Skin diseases ranked sixth in frequency, 2.4 per cent, varying from the chronic eczemas to the contagious skin lesions of either infectious or parasitic origin. Other childhood handicaps, such as those associated with the heart, the speech and the hearing, occurred, but with far less frequency.

### Psychoanalytic Quarterly, Albany, N. Y.

5:465-628 (Oct.) 1936

- Miniature Psychotic Storm Produced by Superego Conflict Over Simple Posthypnotic Suggestion. R. M. Brickner and L. S. Kubie, New York.—p. 467.  
Psychologic Factors in Urologic Disease. K. A. Menninger, Topeka, Kan.—p. 488.  
Analysis of Case of Neurosis with Diabetes Mellitus. G. E. Daniels, New York.—p. 513.  
Addenda to "The Medical Value of Psychoanalysis." F. Alexander, Chicago.—p. 548.  
An Abnormal Child. Editha Sterba, Vienna, Austria.—p. 560.

### Public Health Reports, Washington, D. C.

52:33-66 (Jan. 8) 1937

- Further Study of Duration and Cost of Federal Compensation Cases with Disease as Complicating Factor: Cases Classified into Accidental Injuries, Occupational Diseases and Hernias. W. M. Gafafer.—p. 33.  
Studies in Chemotherapy: II. Chemotherapy of Experimental Pneumococcal Infections. S. M. Rosenthal.—p. 48.

52:67-94 (Jan. 15) 1937

- Distribution of Tuberculosis Mortality in the White Population of the United States. C. C. Dauer.—p. 70.  
Rat Harborage and Ratproofing. B. E. Holsendorf.—p. 75.

### Southern Medical Journal, Birmingham, Ala.

30:1-132 (Jan.) 1937. Partial Index

- \*The Heart in Endemic Pellagra. W. B. Porter and U. Higginbotham, Richmond, Va.—p. 1.  
\*Some Factors in Etiology of Pellagra. V. P. Sydenstricker and J. W. Thomas, Augusta, Ga.—p. 14.  
Treatment of Endemic Pellagra. T. D. Spies, Cincinnati; A. Chinn, Washington, D. C., and J. B. McLester, Birmingham, Ala.—p. 18.  
Prefrontal Lobotomy in Treatment of Mental Disorders. W. Freeman and J. W. Watts, Washington, D. C.—p. 23.  
Treatment of Angiomas with Radium. W. S. Newcomet, Philadelphia.—p. 32.  
Benign Lesions of the Breast Diagnosed and Treated as Carcinoma. D. R. Murphy Jr., Tampa, Fla.—p. 44.  
Curve of Phenolsulfonphthalein Elimination in Unilateral Kidney Disease. E. C. Shaw and J. A. McKenzie, Miami, Fla.—p. 61.  
Normal Physiologic Douches. K. J. Karnaky, Houston, Texas.—p. 69.  
Experiences with Liberal Carbohydrate Diets in Diabetic Children. H. L. Dwyer, Kansas City, Mo.—p. 74.  
Epidemiologic Aspects of Syphilis Control. W. A. Brumfield Jr., Albany, N. Y.—p. 82.  
Chemical Transmission of Nerve Impulses in Autonomic Nervous System. E. L. Jackson, Emory University, Ga.—p. 94.

The Heart in Endemic Pellagra.—Porter and Higginbotham conducted a study of the heart in twenty-five endemic cases of pellagra assigned to their hospital wards for treatment during the last five years. Ten patients showed changes in the electrocardiogram. Of these, five had vascular disease, one purulent otitis media, one pyelitis, one diabetes, one rectal stricture and purulent colitis and one chronic alcoholism. In

normal children. In the latter, the behavior of uric acid eliminated during the concentration and dilution tests parallels the variations of specific gravity, rising in the concentration test and falling in the dilution test in accordance with the specific gravity. With the sodium nucleinate tolerance test the amount of uric acid eliminated varies within 1.6 and 1.8 Gm. per thousand cubic centimeters of urine. The amount of uric acid eliminated during the test rapidly increases for the first two hours and decreases at the same velocity for the next two hours, when it returns to normal. The graph of elimination of uric acid during the test shows a curve of rapidly increased elimination and diminution with a central part in the form of a pyramid. In children convalescing from glomerulonephritis the elimination of uric acid during the concentration and dilution tests parallels the variations of specific gravity. The graph of elimination of uric acid during the sodium nucleinate tests shows two different types of abnormal curves. The curve of the first type rises slowly, reaches figures lower than those of normal elimination (1.2 Gm. per thousand cubic centimeters of urine), forms a plateau of prolonged duration and drops again slowly. The curve of the second type rises to 0.5 Gm. of uric acid per thousand cubic centimeters of urine in the form of a pyramid. According to the author the sodium nucleinate test is more sensitive for functions of the kidney than the tests in common use for this purpose. The author states that uric acid is secreted by the kidney and that it has a threshold of renal elimination.

### Policlinico, Rome

44: 1-64 (Jan. 1) 1937. Medical Section

Action of Insulin on Metabolism of Proteins in Diabetes. V. Gaudio and S. De Blasi.—p. 1.

\*Roentgen Intracranial Images in General Arterial Hypertension. T. Lucherini.—p. 18.

Rôle of Endocrine and Neurosympathetic Disturbances in Pathogenesis of Exophthalmic Goiter. A. Salmon.—p. 47.

**Roentgen Intracranial Images in Arterial Hypertension.**—Lucherini made x-ray studies of the head in 104 patients suffering from various forms of arterial hypertension. He found x-ray signs of intracranial hypertension (especially increased circulation of the diploid canals) in 85 per cent of the cases. The presence of intracranial hypertension was confirmed by the results of determination of the pressure of the cerebrospinal fluid (Claude's manometer), which gave early figures above normal. In all cases of associated intracranial and general arterial hypertension the sella turcica was deformed. The author discusses the relations between intracranial and general arterial hypertension and the genetic mechanism, primary or secondary, of the latter in relation to the former. The two phenomena superimpose each other with reciprocal influences originated in a vicious circle. According to the author, the x-ray image of the head, showing intracranial hypertension in patients suffering from general arterial hypertension, has the value of a new index of craniographic semeiotics. The duration of general arterial hypertension can be evaluated from the intensity of the x-ray signs of intracranial hypertension. The more diffuse and intense the latter, the "older" the former. The author discusses the importance of the hypophyseal-meso-encephalic system as a central factor in regulating circulation. In this connection he calls attention to the pathogenic rôle of disturbances of the hypophyseal-meso-encephalic system in arterial hypertension, which is pointed out by the abnormalities of the sella turcica found in patients suffering from both intracranial and general arterial hypertension.

### Riforma Medica, Naples

53: 1-40 (Jan. 2) 1937

Protamine Insulin in Therapy of Diabetes. S. Caccuri.—p. 3.

\*Dextrose Therapy in Poisoning from Fungi. P. Moretti.—p. 9.

Catatonic Schizophrenia with Degenerative Lesions of Putamen: Case. M. Cahane and T. Cahane.—p. 14.

**Dextrose in Fungus Poisoning.**—Moretti reports satisfactory results from the administration of dextrose in four cases of poisoning from *Amanita phalloides*. On admittance to the hospital the patients were suffering from a gastro-enteric syndrome with intense abdominal pains, vomiting and diarrhea and vertigo. There was marked hypoglycemia in all cases. The treatment consisted of two daily injections of 30 cc. each

of a 20 per cent solution of dextrose, a daily proctoclysis of 1,000 cc. of a 47 per thousand dextrose solution and daily administration of 100 Gm. of saccharose syrup by mouth. The patients were kept on a milk diet all through the treatment, which lasted for five days and induced recovery of the patients. According to the author, dextrose normalizes the sugar metabolism and prevents general intoxication of the organism. Further work on poisoning from other fungi is advisable for verification of the actual value of dextrose treatment in fungus poisoning.

### Prensa Médica Argentina, Buenos Aires

24: 69-122 (Jan. 13) 1937. Partial Index

\*Vitamin C in Blood in Pathologic Conditions. M. R. Castex and M. Scheitegart.—p. 69.

Chronic Appendicitis from Clinical and Surgical Angles. G. Zorraquin.—p. 87.

Phenobarbital and Caffeine in Treatment of Epilepsy. R. Ortega Delgrano.—p. 111.

Congenital Diaphragmatic Hernia: Case. C. M. Pintos and V. O. Visillac.—p. 111.

Foreign Body Spontaneously Eliminated by Vomiting: Case in Infant. A. S. Sein and F. García Rey.—p. 114.

**Vitamin C in Blood.**—Castex and Scheitegart found that the amount of vitamin C in the blood of persons suffering from various pathologic conditions (infections, cardiorenal, gastro-intestinal, hepatic and metabolic disturbances, diseases of the blood and of the endocrine glands and cancer) is diminished in comparison to that of normal persons (average of 1.9 and 4.2 mg. per hundred cubic centimeters of blood, respectively). An insufficient amount of vitamin C in the diet and an increased organic consumption of the vitamin in pathologic conditions are the causal factors. Vitamin C insufficiency plays no part in the development of the given pathologic condition. It is induced by a diminution of the organic resistances in pathologic conditions and, once established, has an unfavorable effect on the evolution of the disease. A proper diet, both in quality and in quantity, prevents the development of vitamin C insufficiency. After its establishment, supplemental administration of vitamin C controls the insufficiency. The author advises further work on the mechanisms of absorption, assimilation and elimination of vitamin C in order to clarify the causal factors involved in the establishment of insufficiency in certain pathologic conditions and its consequences. This clarification is of importance for etiopathogenic interpretation and treatment of diseases associated with vitamin C insufficiency in the blood.

### Revista Médica Cubana, Havana

48: 1-102 (Jan.) 1937. Partial Index

Diastolic Murmurs: Stethographic Study. J. Martínez Cañas.—p. 1.

\*Granular Images After Hemoptysis. P. Gonzalez Battle.—p. 61.

Spontaneous Elimination of Tenia: Case. A. Hernández.—p. 67.

**Granular Images After Hemoptysis.**—Gonzalez Battle says that all mild cases of granulitis of the lung in which the roentgenograms of the lung are similar to those of acute miliary tuberculosis, including posthemoptotic granulitis, have been classified under the general group of cold granulitis, which is erroneous. The characteristic of cold granulitis is the presence in the roentgenograms of the lung of round shadows, from 1 to 3 mm. in diameter, with borders lighter than the center of the shadow, on a dim gray background of reticulated appearance in patients, especially young adults, suffering from tuberculous allergy without fever or fibrocaceous tuberculosis. Granulations in the lung after hemoptysis are similar to cold granulitis from a roentgen point of view. They appear in the evolution of fibrocaceous tuberculosis and in a few weeks become smaller and darker in the roentgenograms and disappear. Disappearance of the granular shadows from the lung roentgenograms coincides with general improvement of the patient. According to the author, posthemoptotic granulitis is a special form of evolution of fibrocaceous tuberculosis which is due to the presence of exudates originated in hemoptysis. Granulations as well as exudates disappear by administration of gold treatment and complete rest of the patient. The author advises limiting the diagnosis of cold granulitis to the cases belonging to the type. He reports a case in which the roentgenogram of the lung was similar to that obtained in cases of

clinical manifestations show themselves. The latter occur when a threshold of irritation is passed. Treatment consisting in removal of septic foci, and administration of vaccines is, as a rule, disappointing. The dietary, endocrine and autonomic balance must be readjusted, and the thicknings removed by short wave diathermy or massage and hot baths.

### Clinical Science, London

2: 301-424 (Dec. 9) 1936

Vasodilatation and Vasoconstriction in Response to Warming and Cooling the Body: Criticism of Methods. V. Uprus, J. B. Gaylor and E. A. Carmichael.—p. 301.

\*Observations on Causes of Edema in Congestive Heart Failure. F. H. Smirk.—p. 317.

Observations on Histamine Yielding Substance in Plasma and Red Cells of Normal Human Subjects and of Patients with Congestive Heart Failure. G. S. Barsonm and F. H. Smirk.—p. 337.

Observations on Increase in Concentration of Histamine-like Substance in Human Venous Blood During Period of Reactive Hyperemia. G. S. Barsonm and F. H. Smirk.—p. 353.

Effect of Cutaneous Burns on Blood Histamine. G. S. Barsonm and J. H. Gaddum.—p. 357.

\*Observations on Mechanism of Arterial Hypertension in Acute Nephritis. G. W. Pickering.—p. 363.

Experiments Relating to Cutaneous Hyperalgesia and Its Spread Through Somatic Nerves. T. Lewis.—p. 373.

**Edema in Congestive Heart Failure.**—Smirk investigated the factors that affect the passage of fluid through the capillary blood vessels in normal subjects and in cases of congestive heart failure, so as to ascertain the conditions that lead to the development of edema in the heart failure cases. He discovered that in congestive heart failure there is a fall in the colloid osmotic pressure of the plasma, and some protein passes through the blood vessels with the edema fluid. The colloid osmotic pressure of the protein of this edema fluid has varied between 1.5 and 7 cm. of water and this acts in opposition to the colloid osmotic pressure of the plasma. Thus the effective colloid osmotic pressure is reduced and as a result the reabsorption of fluid back into the blood vessels is decreased. Active muscular movements of the legs diminish the venous pressure in the legs by from 10 to 100 cm. of water. Thus the incapacity for exercise of patients with heart failure increases the average venous pressure in the legs to much above the normal. This increase is produced mainly by their muscular inactivity and to a much smaller degree by the increase in general venous pressure. The increases in the general venous pressure in cases of congestive heart failure are not by themselves sufficiently great to cause edema. All factors increasing the local venous pressure, however, will increase the effective filtration pressure and thus will increase the rate of transudation of fluid out from blood vessels. Conversely the counterpressure of the edema fluid on the outside of the blood vessels, which is exercised as the edema accumulates, will decrease the rate of transudation of fluid. The permeability of the blood vessels to water and to crystalloids is demonstrably increased in congestive heart failure and this augments the rate of loss of fluid from the blood vessels. The increase in the permeability of the blood vessels to water and to crystalloids may be such that with equal effective filtration pressures the rate of transudation of fluid in congestive heart failure is twice the normal. Despite such an increase in capillary permeability, fluid will leave the blood vessels only in situations in which the effective capillary pressure exceeds the effective colloid osmotic pressure of the plasma. The magnitudes of the various factors that combine to cause edema in congestive heart failure differ from case to case. Two of the important causes of such edema, the increase in the capillary permeability and the fall in the colloid osmotic pressure of the plasma, are also partly responsible for the edema in the nephrotic stage of glomerulonephritis.

**Mechanism of Arterial Hypertension in Acute Nephritis.**—From a study of six cases of acute nephritis, Pickering suggests that in some, and probably most, cases of acute nephritis hypertension is due to vasoconstriction of vasomotor nervous origin. Vasoconstriction of nervous origin might conceivably arise either by the presence in the blood of some centrally acting pressor substance or by a reflex mechanism. The latter possibility is the more probable, and it is natural to look for the origin of such a reflex in the organ which alone shows

constant anatomic abnormalities in acute nephritis, the kidney. Arnott and Kellar have shown that in the rabbit the hypertension which ordinarily accompanies oxalate nephritis does not appear if the kidneys are denervated previously. The conception of hypertension originating reflexly from the kidney in acute nephritis is not new but does not conform with recently expressed opinion. The majority of recent investigators suppose that the rise in blood pressure in acute nephritis is an expression of some primary disturbance in the vascular system, the exact nature of which is uncertain. The method of producing the disease tempts one to suppose that in the rabbit the hypertension results from the renal lesion; but it is to be borne in mind that as yet no adequate lesion of the kidney has been demonstrated at the time of onset of hypertension. In patients with acute nephritis the maximal rates of heat elimination are at or above the upper normal limit, whereas in the patients with chronic nephritis and other forms of persistent hypertension the maximal rates of heat elimination are indiscriminately scattered within the normal limits. When it is recalled that the degree of hypertension exhibited by the patients with acute nephritis was small in comparison with that ruling in the other conditions, the probability of an essentially different mechanism is evident.

### Glasgow Medical Journal

S: 313-360 (Dec.) 1936

Physique of Young Adult Males During Unemployment: Note. P. L. McKinlay and A. B. Walker.—p. 313.

Ammonia Coefficient of Urine in Treated Cases of Diabetes Mellitus: Effect of Diet. J. L. Rennie.—p. 323.

### Indian Medical Gazette, Calcutta

71: 693-756 (Dec.) 1936

\*Amebiasis and Appendicitis. L. M. Banerji, R. N. Chopra and P. N. Ray.—p. 693.

Species Control of Anophelines in India. G. C. Ramsay and G. Macdonald.—p. 699.

Mode of Action of Atabrine on Plasmodium Knowlesi: Preliminary Note. R. N. Chopra, B. M. Das Gupta and A. C. Roy.—p. 710.

Heat Exhaustion and Dehydration in Arabian Desert. H. Stott.—p. 712.

Four Cases of Dust Sensitive Asthma. L. E. Napier and Dharmendra.—p. 714.

Utility of Antiseptics and Coagulants in Composting Habitation Wastes. M. A. Nicholson and S. C. Chakrabarty.—p. 717.

Suicide: Its Causes and Prevention. J. N. J. Pacheco.—p. 720.

**Amebiasis and Appendicitis.**—Banerji and his associates found that the incidence of amebiasis associated with appendicitis in 475 cases was 5 per cent. There was a positive history of dysentery within a period of twelve months in 45 per cent of the cases. In 56 per cent a course of emetine treatment was carried out with apparent benefit, before the patient was admitted to the hospital. In a series of twenty-five private cases, in which no emetine was administered before the operation, cysts of *Endamoeba histolytica* were found in the scrapings of the appendicular mucosa in every instance. Sigmoidoscopy is a valuable diagnostic aid in this type of case. In twenty-eight consecutive cases, stools were positive for cysts in eleven and parasites were present in the scrapings in three. Ulcers were present in twenty-five cases and stricture in six. The therapeutic test with emetine was positive in two cases. There were twelve cases of nonspecific colitis. The pathologic report showed inflammation of the submucosa with some fibrosis. Colonic lesions are readily amenable to preoperative emetine treatment, but patients are liable to subsequent attacks of appendicitis, as a result either of inflammatory changes in the appendix or of the recurrence of amebic lesions in the appendix. Local tenderness, as elicited by palpation over the roentgenologically visualized appendix or the appendicular region, is a reliable diagnostic sign in approximately 90 per cent of cases. Malformation of the base of the cecum after a barium sulfate enema is valuable and dependable. Such changes may vary from simple alteration in the mucosal silhouette to complete lack of filling. Pericecal cellulitis and appendicular abscess undoubtedly occur as a complication of chronic amebiasis. In active cases of amebiasis the parasite can usually be found in the feces; the specific treatment should first be used to cut short the pathologic process. In appendicular dyspepsia or neurasthenia a great deal of care and discrimination is needed in the selection of cases for operative treatment.



2 months and 14 years. The vitamin A preparation was given in addition to the usual diet for a period of two or three weeks. The doses were decided on the basis of the body weight and they always remained within the range of the therapeutic dose. In thirteen of the twenty children the vitamin A produced a noticeable modification of the thrombocyte values, seven showing a considerable increase and six a decrease in the number of thrombocytes. An increase was observed only when the initial value had been considerably below the average, and a decrease when it had been greatly above the average. Control tests on guinea-pigs produced the same results. The author thinks that the thrombocytosis resulting from medication with vitamin A is due to the fact that the vitamin stimulates the thrombocytopoiesis; the decrease in case of high values results from regulatory mechanisms.

**Juxtaleptal Marginal Shadows in Roentgenogram.**—Bennholdt-Thomsen states that he observed juxtaleptal marginal shadows in approximately one third of 882 x-ray films of the lungs of diseased and healthy and of tuberculin-positive and tuberculin-negative children. In many instances these marginal shadows had no connection with the pulmonary process. In a number of cases that came up for necropsy, the pleura was entirely free from changes in spite of the fact that roentgenoscopy revealed marginal shadows. Accordingly, the author believes that the marginal shadows may appear in the presence or absence of pathologic processes. In the latter, "normal" cases, the "internal muscle shadow of the thoracic wall" (Knutsson) is the shadow-producing factor. According to Knutsson, the denser marginal zone that surrounds the lung can be explained in the majority of cases as resulting from Mach's optical illusion. The author thinks that further improvements in the technic will show these "normal" juxtaleptal marginal shadows with increasingly greater clarity.

### Wiener klinische Wochenschrift, Vienna

50: 51-82 (Jan. 15) 1937. Partial Index

Epilepsy and Therapy. O. Marburg.—p. 51.

\*Detoxication of Diphtheria Toxins by Stearins and Increased Formation of Antitoxin by Immunization with Mixtures of Cholesterol and Diphtheria Toxin or Toxoid. M. Eisler and F. Gottdenker.—p. 54.

Treatment of Injuries. A. Wittek.—p. 55.

Diagnosis of Coronary Infarct and Serum Coagulation According to Weltmann. R. Teufel.—p. 58.

Conservative Therapy of Pulmonary Tuberculosis. H. Zondek and J. Weiser.—p. 63.

Pathologic Physiology of Formation of Calculi. O. Fürth.—p. 68.

Urinary Concrements in Case of Skeletal Diseases. E. Gold.—p. 70.

**Stearins and Increased Antitoxin Formation.**—Eisler and Gottdenker made experiments with diphtheria toxin and found that under certain conditions it is detoxicated by wool fat and olive oil. They observed that the quantitative conditions and the time factor play a part in producing detoxication. The fact that wool fat and olive oil exert similar actions in this respect suggested to the authors that the presence of stearins in these substances is the cause. Accordingly, they made experiments with cholesterol and found that the addition to toxoid or toxin of quantities of cholesterol which are adequate to effect detoxication increases the antibody formation.

### Sovetskiy Vrachebnyy Zhurnal, Leningrad

Dec 30, 1936 (No. 24) Pp. 1842-1920. Partial Index

Working Classification of True Rheumatism and Joint Diseases of Rheumatic Origin. S. I. Klyuchare.—p. 1849.

Prostatic Hypertrophy. B. N. Kholstov.—p. 1854.

\*Chlorine Therapy of Infectious Hemorrhagic Colitis. N. A. Kevdin and Shikh-Mametbekov.—p. 1861.

Roentgen Therapy of Gastric Duodenal Ulcer. A. P. Efremov.—p. 1873.

\*Results of Nephrectomy in Renal Tuberculosis. G. I. Gertsenberg.—p. 1876.

Working Capacity After Inguinal Herniotomy. T. G. Larioshchenko.—p. 1880.

**Chlorine Therapy of Infectious Hemorrhagic Colitis.**—Kevdin and Shikh-Mametbekov report sixty-one cases of colitis in which they administered chlorine enemas. With the exception of nine cases of amebic dysentery, they were either acute, of from three to twelve days' duration, or subacute, of from fifteen to twenty days' duration. Nineteen of the patients presented the severe form of hemorrhagic colitis with rise of temperature, intoxication, prostration, insomnia and cardiac weakness. These patients had from thirty to forty bowel move-

ments daily. Eight cases were caused by lambliaiasis, twenty-six by the bacillus of Flexner, six by the bacillus of Shiga, and twelve were of unknown etiology. The enemas consisted of from 600 to 900 cc. of chlorinated water in the concentration of 1:50,000. The chronic amebic cases were not benefited by this therapy. Rapid improvement was observed in thirty-nine of the acute cases. A diminution in the number of bowel movements and disappearance of the blood were noted after the first or second enema. The mucus diminished gradually after an initial increase. From seven to eight daily enemas were sufficient in most of the cases. The authors believe that the effect was probably due to a bactericidal action of the chlorine ions and the liberated oxygen. They consider, however, the question of the mode of action of chlorine unsettled and requiring further study.

**Results of Nephrectomy for Tuberculous Lesion.**—According to Gertsenberg, miliary tuberculosis and tuberculous meningitis are the most frequent causes of death after nephrectomy for a tuberculous lesion of the kidney. Of 100 nephrectomies performed at the clinic of Professor Kholstov for a tuberculous disease, ten patients died within six weeks after the operation. All were old, neglected cases. Of the surviving patients, 22 per cent died at a later date. The causes of subsequent death in the order of their frequency were tuberculosis of the remaining kidney, miliary tuberculosis and tuberculous meningitis. There were sixteen deaths among forty-nine men operated on, and ten deaths among fifty-one women operated on. The higher mortality in men is explained by the tuberculous involvement of their sexual organs. The combined mortality, e. g., the immediate and the remote, is about 30 per cent. In patients surviving the two year period, the remaining tuberculous foci become quiescent or undergo a complete cure. The accompanying tuberculous process in the lungs or in the remaining kidney retards the complete cure. The remaining kidney was involved in 14 per cent of their material. Tuberculous disease always begins in one kidney and only after a lapse of some time involves the other. The early operation therefore offers the best chance of a cure. About 70 per cent of all patients operated on survive and about 50 per cent obtain a permanent cure. These results are influenced by the subsequent treatment of other tuberculous lesions present. Patients nephrectomized for a tuberculous lesion should be given, in the author's opinion, from one to two months of climatic sanatorium treatment and should be kept under dispensary supervision for a long time. Child bearing is permissible if the remaining kidney is normal, not earlier however than two or three years after the operation.

### Hospitalstidende, Copenhagen

79: 1317-1336 (Dec. 15) 1936

\*Content of Vitamin C (Cevitamic Acid) in Spinal Fluid: II. Relation to Capillary Resistance and Diet. E. Vestergaard and G. K. Stürup. p.—1325.

Establishment of Mineral Particles in Sputum of Silicotic Subjects. C. J. Jacobson.—p. 1333.

**Content of Vitamin C in Spinal Fluid.**—Vestergaard and Stürup estimated the cevitic acid content in the cerebrospinal fluid of 101 afebrile psychoneurotic patients by Tillmann's titration method and their capillary resistance by Gothlin's test and obtained as complete a dietary history as possible. No absolute relation was seen between the vitamin C content of the food, its actual content in the cerebrospinal fluid and the capillary resistance. There was some relation between the foods previously ingested and the vitamin C content of the cerebrospinal fluid. In a case of scurvy the cevitic acid content of the cerebrospinal fluid was rather low, but it was lower in many cases without scorbutic or prescorbutic symptoms. When from 100 to 300 mg. of cevitic acid was given by mouth daily, the cevitic acid content of the cerebrospinal fluid always increased and kept the higher level for some time after the medication ended. The capillary resistance remained constant in some cases and decreased in others in spite of the medication. Apparently the addition of fresh vegetable salads to the daily diet raised the vitamin C content of the cerebrospinal fluid. The authors consider it unlikely that vitamin C deficiency is of substantial importance in the development of "spring fever."

assume that the experimental changes resulting from the introduction of Pfeiffer's bacillus into men resemble genuine influenza in only some of their symptoms.

**Trichlorethylene as Skin and Wound Cleanser.**—Trumper and his colleagues state that trichlorethylene has been used as a wound cleanser in twelve chemical factories for three years. In a single year more than 50,000 first aid dressings were carried out in these factories, of which at least one third received preliminary treatment with trichlorethylene. The majority of the wounds have been cuts of the fingers, but trichlorethylene has also been employed for lacerations and burns of other areas. The general principle has been to treat all dirty and greasy wounds with trichlorethylene, irrespective of size or severity. It is applied with a spray, which is held at a distance of from one-half to 2 inches from the wound. The amount used varies according to the size of the wound and the amount of grease. The use of large amounts does not adversely affect the subsequent treatment of the wound. The trichlorethylene dissolves the oil and grease and flows away as a dirty liquid, after which the wound presents a moderately clean appearance. An antiseptic, such as flavine, is then applied and the wound is dressed in a normal manner. Any slight irritation caused by the trichlorethylene is immediately allayed by the application of an antiseptic. The use of trichlorethylene has neither delayed healing nor predisposed to sepsis. The chief precautions to be taken in using the trichlorethylene spray for wounds is to ensure that the ventilation of the room is adequate to prevent any narcotic symptoms arising. It is also advisable to prohibit smoking while the spray is being used, since there is a possibility of injurious decomposition products being inhaled by the smoker.

#### Practitioner, London

138:1-120 (Jan.) 1937

- Diagnosis and Treatment of Fibroids. V. Bonney.—p. 1.  
Diagnosis and Treatment of Early Malignant Disease of Uterus. F. J. Browne.—p. 11.  
Some Gynecologic Sequels of Natural Delivery. W. Shaw.—p. 24.  
Leukorrhea and Vaginal Discharge. Amy M. Fleming.—p. 33.  
Disorders of Menstruation. O. Browne.—p. 44.  
The Menopause. V. B. Green-Armytage.—p. 57.  
The Relief of Pain. W. Harris.—p. 63.  
Abdominal Pain. W. H. Ogilvie.—p. 73.  
Nasal Route of Medication. R. A. Dart.—p. 87.  
\*Methods of Treatment of Obesity. H. Coombs, Dorothy Reader and C. Catlin.—p. 95.  
General Practice: VII. First Six Months. A. H. Douthwaite.—p. 103.

**Treatment of Obesity.**—Coombs and his associates stress the importance of dietetics in the treatment of obesity. Without some control of the diet, all other methods are likely to fail. The few contraindications to treatment by means of dietetic control include extreme old age, acute disease (tonsillitis and rheumatic fever) and severe disease (grave anemia), and when fainting, nervousness, weakness or irritability occurs the treatment should be interrupted for a short period. Medical supervision should be insisted on throughout the entire treatment, and, if possible, for some time afterward so that the patient may be kept at the optimal weight. The scientific principles consist of (1) restriction of carbohydrates, more especially of the concentrated forms such as sugar, bread, potatoes, beer and ginger beer, (2) restriction of fats that do not contain vitamins, (3) very little restriction of proteins, (4) a generous supply of vegetables and fruit to provide bulk and to satisfy hunger, (5) an adequate supply of vitamins by vegetables, fruit, eggs, milk and butter, (6) an adequate supply of minerals by salads and milk and restriction of table salt, (7) no restriction of fluids, (8) bulky meals, to prevent hunger, and (9) three or four meals during the day but nothing between meals. Another fundamental method of attacking obesity is by the inauguration of proper exercise. Patients must be encouraged to increase their activity gradually, and dancing, swimming, walking and golf are particularly to be recommended. Unlike diet and exercise, glandular therapy is not without considerable danger. Thyroid medication often causes addiction and predisposes a patient to thyrotoxicosis and auricular fibrillation. The administration of drugs (nitrophenols) should be used with the greatest caution and only by those fully aware of its dangers. Occasionally surgery is necessary for the removal of fatty tumors, and the surgical removal of adipose tissue in the abdominal region is sometimes undertaken. The adiposity generally does not recur in the same region, but this method of

treatment is illogical and commands no widespread approval. Physical therapy is a useful adjunct to the treatment of many diseases and obesity is no exception, but there is considerable truth in the statement that the only person who loses weight by massage is the masseuse. Baths, diuretics and purging should be employed only under medical supervision. The results of treatment depend a great deal on the education of the patient and the personality of the practitioner. The dangers of obesity should be explained and the rationale of the therapeutic measures given consideration.

#### South African Medical Journal, Cape Town

10:799-822 (Dec. 12) 1936

- Difficulties in Treatment of Diabetics. D. Epstein.—p. 801.  
Radiologic Diagnosis of Cerebral Lesions. R. J. W. Charlton.—p. 803.  
Vaginal Discharge. H. Renton.—p. 808.

#### Chinese Medical Journal, Peiping

50:1555-1706 (Nov.) 1936

- Schistosomiasis in the Foochow Area. R. C. Robertson.—p. 1555.  
\*Splenomegaly in the Foochow Area, with Especial Reference to Schistosomiasis, and Its Relationship to Cryptogenetic Splenomegaly (Banti's Disease): Preliminary Report. H. E. Campbell.—p. 1561.  
Histologic Studies of Splenomegaly, with Especial Reference to Material from the Foochow Area. L. S. Kau.—p. 1577.  
Schistosomiasis Japonica in Fukien, with Especial Reference to Intermediate Host. C. C. Tang.—p. 1585.  
\*Incidence and Nature of Acute Meningitis in Early Syphilis and Its Relation to Arspenamine Therapy: Study of 169 Cases Observed in Peiping. C. N. Frazier and J. W. Mu.—p. 1591.  
Studies on Certain Problems of Clonorchis Sinensis: I. Cysts and Second Intermediate Hosts of Clonorchis Sinensis in the Peiping Area. H. F. Hsu and O. K. Khaw.—p. 1609.

**Schistosomiasis and Splenomegaly.**—Campbell has records of something like 200 cases of splenomegaly, in the majority of which the only diagnosis that could be reached was splenic anemia (Banti's disease). From November 1934 to January 1936 operations were performed in thirteen cases with the diagnosis of splenic anemia. The spleen was removed in twelve; it was firmly fixed and irremovable in the other. Liver biopsy was performed in four cases, and, in two other cases in which biopsy was not done, liver was obtained at necropsy. In three of these six livers, the ova of *Schistosoma japonicum* were discovered. Of the splenectomized patients, two died of hemorrhage from the liver or diaphragm, and one died after two weeks from mesenteric thrombosis. Two of the three fatal cases were those with marked ascites. The nine other splenectomized patients were all improved, some of them strikingly so. The belief is expressed that most of the so-called Banti's disease of the Orient is actually schistosomiasis. It is suggested that prior to operation the spleen be vigorously manipulated and a comparison of the platelet count made before and after manipulation, in an effort to recognize those cases which will be complicated by thromboses in the postoperative period. It is suggested that platelet counts be done at operation, and, if the count rises greatly after delivery of the spleen, that the spleen be not removed but the splenic artery merely ligated.

**Acute Meningitis in Early Syphilis.**—Frazier and Mu selected 169 consecutive cases of acute syphilitic meningitis for analysis. The age of the patients ranged from 18 to 58 years, 50 per cent falling within the third decade of life and 35 per cent within the fourth decade. The most striking clinical characteristic of the meningeal syndrome in the series was paralysis of one or more cranial nerves, an indication of a predominating localization of the disease in the basal meninges of the brain. There were 119 cases of basilar meningitis, twenty of acute hydrocephalus, nineteen of diffuse cerebral meningitis and eleven of spinal meningitis. Cranial nerve palsy was the most frequent single abnormality, occurring in 162 patients. With the exception of the eighth nerve, paralysis of a single nerve occurred but rarely. The eighth nerve was affected in 122 of the patients. There were fifty-five instances of unilateral involvement and sixty-seven of bilateral involvement. In forty-six individuals this was the only nerve paralyzed. As a rule both cochlear and vestibular branches were affected. As loss of function of the vestibular branch is soon compensated, impairment of hearing was the only symptom giving the patient much trouble. In many of the treated patients evidence of relapse was not limited to the central nervous system. There were twenty-four instances of delayed or relapsing secondaries of the skin and mucous membranes, which included most of the crup-

counted as severe cases, were admitted to the hospital, and are included in the present study of fifty selected cases of severe endemic pellagra.

The three patients with pellagra secondary to chronic alcoholic addiction were sent to private physicians, who treated them successfully by the methods described in this paper. Since the disease in these three persons was accompanied by chronic alcoholism, these cases are not included in the present series.

In order that our responsibility might best be fulfilled toward the fifty patients with severe endemic pellagra, forty-seven were admitted to the Hillman

DIET 1.—"Solid" Diet

Food Included in One Day	Weight in Gm.	Approximate Amount	Gm. Protein	Gm. Carbohy-	Gm. Fat
Sweet milk in eggnog, yeast mixture and as beverage	1,900	9½ aver. glasses	63	76	95
Eggs.....	250	5 eggs	33	25	
Lean meat.....	120	4 ounces	28	16	
Butter.....	60	6 squares	1	51	
Fat: lard or pork fat used in cooking vegetables and meat	15	1 tablespoonful	..	15	
Potato.....	150	large serving	3	..	27
Dried beans or peas, dry weight	30	average serving	6	..	18
5 or 10% vegetable, cooked.....	100	average serving	1	..	5
5% vegetable, raw.....	100	large serving	1	..	5
Fruit, stewed or canned.....	100	average serving	1	..	20
Fruit, raw.....	100	average serving	1	..	10
Bread, white.....	180	6 slices	16	2	95
Cornbread.....	60	average serving	6	7	18
Cereal, cooked weight.....	150	large serving	3	..	23
Dessert: rice, cornstarch, tapioca or bread pudding.....	90	average serving	4	5	30
Ice cream.....	200	2 aver. servings	8	12	28
Sugar.....	30	2 tablespoonfuls	..	30	
Harris brewers' yeast.....	90	3 ounces	45	18	27
Total.....			220	227	431

Calories from protein..... 880  
Calories from fat..... 2,043  
Calories from carbohydrates..... 1,724

Total calories..... 4,647

Outline of Meals and Between Meal Feedings

Time	Food	Weight in Gm.	Approximate Amount
7 a. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
Break-fast 8 a. m.	Fruit, raw.....	100	average serving
	Cereal, cooked.....	150	large serving
	Milk.....	100	½ average glass
	Toast, white bread.....	60	2 slices
	Butter.....	20	2 squares
	Eggs, soft cooked.....	100	2 eggs
	Milk.....	200	average glass
	Sugar.....	15	1 tablespoonful
	Coffee.....	..	if desired
10 a. m.	Eggnog.....	250	large glass
	Ice cream.....	100	average serving
11 a. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
Dinner 12 a. m.	Lean meat.....	60	2 ounces
	Potato.....	150	large serving
	5 or 10% vegetable, cooked.....	100	average serving
	Bread, white.....	60	2 slices
	Cornbread.....	60	average serving
	Butter.....	20	2 squares
	Dessert, pudding.....	90	average serving
	Milk.....	200	average glass
2 p. m.	Eggnog.....	250	large glass
	Ice cream.....	100	average serving
4 p. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
Supper 5 p. m.	Lean meat.....	60	2 ounces
	Dried beans or peas, dry wt.....	30	average serving
	5% vegetable, raw.....	100	large serving
	Bread, white.....	60	2 slices
	Butter.....	20	2 squares
	Fruit, stewed or canned.....	100	average serving
	Milk.....	200	average glass
8 p. m.	Eggnog.....	250	large glass

Hospital and the remaining three to the T. C. I. Hospital. Each of these patients was examined from time to time by the regular house officers and by the visiting staff of the institution. Other consultants often examined the patients and concurred in the diagnosis of severe pellagra.

The manner and criteria of selection of the fifty severe cases were reviewed in detail toward the end of the study at a meeting of the physicians of the Hillman Hospital and many of the physicians of

DIET 2.—"Soft-Solid" Diet

Food Included in One Day	Weight in Gm.	Approximate Amount	Gm. Protein	Gm. Carbohy-	Gm. Fat
Sweet milk in eggnog, yeast mixture and as beverage.....	2,100	10½ av. glasses	69	84	105
Eggs.....	450	9 eggs.....	60	47	
Butter.....	10	1 square	..	8	
Potato.....	150	large serving	3	..	27
Cereal, cooked weight.....	300	2 large servings	6	..	46
Cream soup.....	360	2 aver. servings	10	22	26
Bread for milk toast.....	30	1 slice	2	..	15
Dessert: rice, cornstarch, tapioca or bread pudding.....	180	2 aver. servings	8	10	60
Ice cream.....	300	3 aver. servings	12	18	42
Applesauce.....	200	2 aver. servings	..	..	74
Sugar.....	30	2½ tablespoonfuls.....	..	35	
Harris brewers' yeast.....	90	3 ounces	45	18	27
Total.....			215	207	457

Calories from protein..... 860  
Calories from fat..... 1,863  
Calories from carbohydrates..... 1,828

Total calories..... 4,551

Outline of Meals and Between Meal Feedings

Time	Food	Weight in Gm.	Approximate Amount
7 a. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
Break-fast 8 a. m.	Applesauce.....	100	average serving
	Cereal, cooked.....	150	large serving
	Milk.....	100	½ average glass
	Eggs, soft cooked.....	100	2 eggs
	Milk toast		
	Toast, white bread.....	30	1 slice
	Milk.....	100	½ average glass
	Butter.....	10	1 square
	Milk.....	200	average glass
	Sugar.....	15	1 tablespoonful
	Coffee.....	..	if desired
10 a. m.	Eggnog.....	250	large glass
	Ice cream.....	100	average serving
11 a. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
Dinner 12 a. m.	Cream soup.....	180	average serving
	Soft cooked eggs.....	100	2 eggs
	Mashed potato.....	150	large serving
	Dessert, pudding.....	90	average serving
	Milk.....	200	average glass
2 p. m.	Eggnog.....	250	large glass
	Ice cream.....	100	average serving
4 p. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
Supper 5 p. m.	Cream soup.....	180	average serving
	Eggs, soft cooked.....	100	2 eggs
	Cereal, cooked.....	150	large serving
	Milk.....	100	½ average glass
	Dessert, pudding.....	90	average serving
	Milk.....	200	average glass
	Sugar.....	5	1 teaspoonful
8 p. m.	Eggnog.....	250	large glass
	Ice cream.....	100	average serving
10 p. m.	Applesauce.....	100	average serving

Birmingham. A number of the patients were shown at this meeting, discussion and criticism being welcomed. No dissenting opinion concerning the methods of selection or diagnosis of cases was offered.

At all times the authors assumed the full responsibility for the treatment of these patients. The present report deals only with the fifty patients with severe endemic pellagra admitted to the hospital for study and treatment.

*Method of Clinical Study.*—When obtainable, the following data on each of the fifty patients were recorded: race, sex, age, presence or absence of dermatitis, glossitis, stomatitis, peripheral neuritis, loss of weight or strength, elevation in pulse rate, previous attacks of the disease, and the presence of other diseases. Special studies concerning the quantity and

perculous meningitis due to reactivation of a latent tuberculosis. These were the only two cases that ended fatally; long as no specific germ has been discovered, erythema nodosum may be looked on as the response of an allergic constitution. It is the sensitivity of the skin which causes the appearance of the nodule. No specific treatment exists. A number of stimulating remedies are mentioned, also change of mate.

**Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris**  
52: 1685-1735 (Dec. 28) 1936

Skin Gangrene in a Jewish Woman of Morocco: Exanthematous Etiology; Serotherapy by Means of Convalescent Serum; Recovery. P. E. Flye Sainte-Marie and A. Clary.—p. 1685.  
Extracardiac Murmurs in Patients with Pulmonary Tuberculosis. H. Descomps.—p. 1690.

**Extracardiac Murmurs.**—Descomps was impressed by an intense murmur at the level of the pulmonary artery accompanied by a displacement of the heart to the left. Under the fluoroscope this seemed to modify the left hilus. These murmurs appear at the second or third intercostal space and are palpated as a true fremitus. The systolic murmur is pronounced at the pulmonary atrium, soft or at times sharp, becoming weaker from within outward. It varies with the position of the patient and the number of respirations, or from day to day. The functional disorders are palpitations, extrasystoles and some dyspnea. These extracardiac murmurs are found mostly in women, young girls or children, and exceptionally in men. The roentgenograms of all these patients show parenchymatous and lymph node lesions situated against the aortic arch in left-sided murmurs, and in the upper hilus in right-sided murmurs. The opacity of the heart may sometimes obscure the view. The fluoroscope shows it nicely in expiration when viewed in motion laterally. A comparison with true mitrocardiac syndromes suggests itself to the author. He is also impressed with their absence in adult men. The article is accompanied by five roentgenograms containing drawings to demonstrate the lesions.

## Revue Française de Pédiatrie, Paris

12: 589-715 (No. 5) 1936

Infantile Acrodynia: III. Geographic Distribution of Infantile Acrodynia. M. Péhu, J. Boucomont and Mlle. Lepanoff.—p. 589.  
Clinical Aspects of Gastric and Duodenal Ulcer in Children. I. Reydermann.—p. 608.  
Feeding of Infants with Acid Milk. P. Rohmer and Raymonde Chapelo.—p. 621.  
Primary Tuberculous Infection Observed in Paris in Persons Ranging in Age from 2 to 16 Years: One Hundred Cases. M. Coffin.—p. 634.  
Nosologic Significance of Erythroblastoses of Hereditary Type in the New-Born. J. Cathala.—p. 651.  
Rapid Death in Eczema of Infants. P. Wöringer and P. Oudet.—p. 660.  
Acute Curable Syndrome of Cerebellar Ataxia with Albuminocytologic Dissociation of Cerebrospinal Fluid. R. Dubois and L. van Bogaert.—p. 668.

**Acid Milk in Diet of Infants.**—Rohmer and Chapelo state that acidification of milk promotes gastric digestion. By dint of its wealth in buffer substances, cow's milk absorbs three times as much hydrochloric acid as human milk. From this it may be deduced that it is of greater advantage to employ acid milk without overcharging the secretory functions. In cases of undernourishment the functions of the stomach are diminished and it is reasonable to give to the infant the kind of nourishment that will necessitate the least effort. Acidification causes a fine flocculation of the casein, which increases its digestibility. Small quantities of lactic acid increase metabolism. Acidity also controls the development of colon bacilli. Nearly all authors recommend whole milk acidified and prepared with flour and sugar. It is nourishing and well tolerated by children and infants and by premature babies or debilitated children. It has antidyseptic properties and is given, whole or diluted, even in cholera. Objections came from Bessau, Rönninger and others, who contend that whole milk is antipathologic for the infant, gives rise to rickets and diminishes resistance against infections, that its great richness leads to overnourishment and that it may be accepted when prescribed by a physician, but not as a routine feeding. In the face of these contradictions the authors have decided to resume the research on acid milk. It is not their intention to use it as

a substitute for other alimentary methods that have proved their value. As the quantity to be taken by the infant is much smaller than what the infant is in the habit of taking, it should be used only under the strict supervision of the doctor in order to avoid overnourishment. After proving its digestibility and its wealth in calories and in building materials, the authors point out its indications: 1. In mixed feedings and in cases of total weaning of infants less than 2 months of age. Also in premature and debilitated infants. 2. In feeding emaciated infants who are urgently in need of special nourishment. Its constipating properties could be utilized in dyspeptic conditions, notably in chronic dyspepsias, especially when they have been brought about by infections. It will render profitable service as a prophylactic in these conditions in an effort to overcome secondary dyspepsias. It has some similarities with albuminous milk and as such it could be profitably prescribed in abdominal disorders.

## Ann. di Radiologia e Fisica Medica, Bologna

10: 365-460 (Oct.) 1936

Neurography: Experiments. A. Picco.—p. 365.  
Large Parietal Desmoid Cyst of Left Hypochondrium: Case. A. Biasini.—p. 376.  
Idiopathic Osteopsathyrosis: Case. F. Corfini.—p. 399.  
\*Motility of Gallbladder and Visibility of Excretory Bile Ducts. I. Roncoroni.—p. 415.  
Bone and Pulmonary Metastases from Cancer of Breast; Roentgen Therapy: Case. G. De Luca.—p. 446.  
Bone Metastases from Hypernephroma; Roentgen Treatment: Case. G. De Luca.—p. 453.

**Motility of Gallbladder and Visibility of Excretory Bile Ducts.**—Roncoroni studied the functions of the gallbladder by cholecystography. The normal gallbladder can be seen within the first hour of the injection of the opaque substance. The maximal opacification of the gallbladder takes place within eight hours of the injection. It is related to the tonus of the structure and coincides with the final phase of evacuation of bile. Elimination of the opaque substance does not take place spontaneously, but only after administration of a fat meal (two egg yolks in milk). Normal evacuation takes place within sixty minutes after a fat meal. The conception of a passive evacuation of the gallbladder, caused by duodenal suction or by a mechanism of siphonage of the bile from the hepatic duct, is erroneous. Gallbladder evacuation is an active phenomenon due to muscular contraction of the structure. It originates in a nervous reflex which simultaneously opens Oddi's sphincter and increases the tonus of the gallbladder with consequent contraction of the structure. This statement is proved by the passive behavior of the cystic and common bile ducts throughout the contraction and evacuation of the gallbladder and by the reflux of bile, which can be seen in the last segment of the hepatic duct when the excretory ducts are visualized by cholecystography. According to the author, the excretory functions of the gallbladder are controlled by Oddi's sphincter on the one hand and by functional nodes (not sphincters) placed at the openings of the gallbladder into the cystic duct and of the hepatic duct into the common bile duct. Visibility of the excretory ducts depends on the opacity of the gallbladder, is related to the tonus of Oddi's sphincter and is of diagnostic significance. Clear visibility of the cystic and common bile ducts indicates diminished tonus of Oddi's sphincter, whereas that of the hepatic duct indicates increased tonus of Oddi's sphincter. The results of cholecystography agree with those of duodenal soundings, after duodenal injection of magnesium sulfate.

## Clinica Pediatrica, Modena

18: 751-828 (Dec.) 1936

Diseases of Pancreas in Children. B. Benassi.—p. 751.  
\*Capacity of Concentration, Dilution and Elimination of Uric Acid as Test for Renal Functions. S. Stefanini.—p. 784.  
Pathogenesis of Recurrent and Chronic Infection of Rhinopharynx and Desensitization by Vaccines. V. Rossi.—p. 812.

**Uric Acid Elimination Test for Renal Functions.**—Stefanini made determinations of the elimination of uric acid during the concentration and dilution tests (Volhard) and after administration of an intravenous injection of 0.05 Gm. of sodium nucleinate for renal function. The tests were made in children convalescing from renal diseases and, for control, in

but, irrespective of this, the patients were forced to take additional amounts of food to make up for the loss through diarrhea. Some of the patients seemed to be relieved from diarrhea by the administration of tincture of opium in doses of 2 cc. until 10 cc. a day had been given or until signs of toxicity appeared. In the cases of severe dehydration, parenteral injections of saline solution were given.

**Abdominal Pain:** Most of the patients had abdominal pain soon after eating. Tincture of opium, 2 cc., was used to alleviate this pain when an analgesic was required.

**Anemia:** Four patients having dyspnea and a hemoglobin value below 50 per cent were benefited by blood transfusions.

**Fever:** Patients with temperature elevations were bathed with alcohol, and their general condition was thereby improved for a short time.

**Tachycardia:** Patients with tachycardia were kept in bed until the heart rate was normal. When they were first allowed to get up, they were watched carefully for symptoms of vasomotor collapse.

**Mental Symptoms:** Large doses of bromide and barbitol were administered to the maniacal type of

remaining three died, but at the time of death each showed healed or healing pellagrous lesions.

Recovery was rapid in the forty-seven cases in which there was remission of the disease. Within twenty-four hours after treatment was initiated, the oral and dermal lesions began to heal and the patients' sense of well being improved remarkably. The average number of days in the hospital for these forty-seven patients was nine. The fifty patients included twenty-one males, nineteen white and two colored, and twenty-nine females, nineteen white and ten colored. The average age was 43 years. The age, sex, race of the patient or the occurrence of previous attacks of the disease did not affect the rate of recovery, as shown in the table.

Studies in each of the fifty cases showed that all the patients had a loss of strength, forty-one had pellagrous glossitis, thirty-three pellagrous stomatitis, forty-eight pellagrous dermatitis, twenty-eight vomiting, twenty-nine diarrhea, twenty-seven mental symptoms, thirty-one peripheral neuritis, forty-nine loss of weight (in the other patient the loss of weight, if any, could not be determined because of edema) and thirty-one had had previous attacks of pellagra. Thirty-nine out of forty-nine had an elevation in pulse rate on more than two occasions; twenty of the thirty-three patients examined had an anemia, and fifteen of the thirty-eight patients examined had achylia gastrica following histamine injection. Fifteen of the fifty patients had an organic disease other than pellagra. Five had heart disease, three intestinal stricture, two pulmonary tuberculosis, two diabetes, two pulmonary infarction and one nontuberculous respiratory infection.

As has already been stated, three of the patients died. Postmortem studies were made by Dr. Benjamin Morton and Dr. G. S. Graham. Brief summaries of the clinical course and pathologic changes in these three cases are given:

**CASE 1.**—V. O., a colored woman, aged 33, was well until July 1935, when she developed pain in the lower part of the abdomen. In September 1935 she had an operation for ovarian tumor and at the end of two weeks was discharged from the hospital. A month after the operation was performed, a large fistulous opening appeared in the abdominal incision. From that time on the patient passed large amounts of liquid fecal material through the fistula, but she rarely passed any material by rectum. She became weaker steadily and her family noticed that she was losing weight. March 3, 1936, she was admitted in a dying condition to the surgical service of the Hillman Hospital. She was unable to talk coherently and was emaciated to a degree rarely seen. Her pulse was weak, rapid and thready. Bilaterally symmetrical areas of pellagrous dermatitis were observed over her face, arms, legs and body. Severe pellagrous stomatitis, glossitis and vaginitis were also present. Immediate symptomatic and antipellagric therapy was initiated, and within forty-eight hours the pellagrous lesions were healing. They continued to heal until the time of her sudden death on the fourteenth day of hospitalization.

Postmortem examination showed healed and healing pellagrous lesions, a large ball-valve clot in the right anricle, and a large hard and well formed pulmonary embolus occluding one of the main branches of the pulmonary artery. The fistulous opening was about 3.5 cm. in diameter and connected the mid-portion of the ileum with the old abdominal scar.

**CASE 2.**—E. H., a colored woman, aged 26, was in good health until November 1934, when she passed large amounts of blood by rectum. From that time on she found it necessary to take large doses of laxative, and even then her stools were never as large as a lead pencil. Soon afterward she stopped eating solid food because of the abdominal pain that invariably followed. During February 1936 her mouth and tongue became sore, and a dermatitis appeared over the dorsum of her hands

DIET 4.—Diet Recommended After Discharge

Food	Amount
Sweet milk.....	1 quart
Eggs.....	4
Lean meat.....	¼ to ½ pound
Vegetables: potatoes, butter beans, black-eyed peas and navy beans.....	2 servings
Other vegetables: spinach, greens, carrots, beets, tomatoes, cabbage, English peas or any other vegetable.....	2 servings
Fruit, any kind.....	1 or 2 servings
Bread, any kind.....	6 slices; 2 slices of corn bread may be used in place of white or whole wheat bread
Cereal, any kind.....	large serving

patient, but care was taken not to render the patients stuporous over long periods of time.

**Peripheral Neuritis:** Sedatives and analgesics were often required to relieve the pain so that the patients could sleep. Some of the milder cases were aided either by ice bags or 1 per cent phenol and menthol applied over areas of hyperesthesia.

**Decubitus:** Decubitus was prevented by conscientious nursing care.

**Recommended Therapy After Discharge.**—On discharge from the hospital, all patients were instructed to take the prescribed amount of a highly nutritious diet each day at home (diet 4). This diet consists of 1,950 calories and contains 104 Gm. of protein. Each person was allowed to eat additional amounts of any of these foods if he wished and was permitted to eat other foods after he had eaten the full amount of the prescribed diet. Food was purchased until June 10 for many of the patients who could not afford to buy the required amounts. All patients were seen frequently in their homes following discharge from the hospital. Three of the fifty had a definite relapse of their disease within a month, although they claimed that they had followed the prescribed diet carefully. These three patients were readmitted to the hospital for special study, the results of which will be reported at a future date.

#### OBSERVATIONS

Forty-seven of fifty patients admitted to the hospital with severe endemic pellagra improved and were discharged to their homes free from symptoms. The



cold granulitis. The patient was suffering from fibrocasseous tuberculosis and had recently had several small hemoptyses. Administration of gold treatment and complete rest induced disappearance of the granulations from the lung roentgenograms in a few weeks.

### Semana Médica, Buenos Aires

44: 81-160 (Jan. 14) 1937. Partial Index

- Total Left Pneumectomy: Case. J. Arce.—p. 81.  
 \*Salicylic Intoxication in Children: Case. Sara De Alzaga.—p. 87.  
 Papulo-Arciform Syphilids in Child: Case. J. M. Spilzinger.—p. 90.  
 \*Complications of Diathermocoagulation in Treatment of Chronic Cervicitis. R. G. Herrera and A. E. Nogués.—p. 107.  
 \*Dilution and Concentration Test in Normal and Pathologic Pregnancy. J. León and M. Torre.—p. 123.  
 Sexual Activity in Infant: Case. O. J. Marchilli and J. F. Capelli.—p. 140.

**Salicylic Poisoning in Children.**—De Alzaga says that rheumatic fever with its consequent cardiac complications is frequent. Sodium salicylate is the specific remedy. The author administers it by mouth or by rectum in doses corresponding to 1 Gm. of salicylate for each year of age and with it a double amount of sodium bicarbonate. In grave cases, besides the doses given by mouth or rectum, the patient is given one or two daily injections of from 0.5 to 1 Gm. of sodium salicylate in 10 cc. of a 10 per cent solution of dextrose to which 0.01 Gm. of caffeine is added. Sodium salicylate prevents relapses and sometimes, when given to a patient at rest and in combination with certain hygienic habits, it induces attenuation and disappearance of official murmurs. The treatment fails only in grave forms of the disease or in cases of febrile asystole. Salicylic intoxication due to intolerance is rare. Intolerance has nothing to do with the route of administration (oral, rectal or intravenous) of the drug. It is due primarily to hepatic or renal insufficiency. The author reports a case of acute intoxication in which the patient, aged 6 years, reached a state of coma. In two days the patient had received (by mouth and rectum) 14 Gm. of salicylate, which had been administered in association with sodium bicarbonate. The most serious symptoms were renal, nervous and toxic (oliguria, albuminuria, diminished diuresis, delirium, somnolence which reached coma, vomiting, deafness and toxic dyspnea). Repeated epistaxes were observed as an uncommon symptom. The treatment was symptomatic and urgent. It consisted in administration of dextrose solution, insulin and fruits. The patient recovered.

**Diathermic Coagulation in Chronic Cervicitis.**—Herrera and Nogués point out the possible complications of diathermic coagulation in chronic cervicitis. The most serious complications may be immediate or late hemorrhages, pelvic inflammation, obturation of the external orifice of the neck of the uterus by membrane formation, and cicatricial stenosis of the cervical canal. The latter may result in the formation of hematometra, hematosalpinx and hematocele as the result of retention of menstrual blood and, later on, of pyometra, pyosalpinx and pelvi-peritonitis and peritonitis by complications or infections. The authors report several cases of complications and advise, first, limitation of diathermic coagulation to proper indications and, secondly, administration of diathermic coagulation by specialists and not by general practitioners. Specialists should decide on the indications and opportunity of administering diathermic coagulation and should make an early diagnosis and give an early treatment if complications develop.

**Dilution and Concentration Test in Pregnancy.**—León and Torre found that in normal pregnancy as well as in pregnancy complicated by edema or simple albuminuria the polyuria induced by the dilution and concentration test (Volhard) is retarded and diminished in comparison to that in normal women. The concentration power of the kidney is normal, which shows that insufficient elimination of urine originates in extrarenal disturbances of the water metabolism. In pregnant women suffering from pyelonephritis or glomerulonephrosis, induced polyuria is greatly diminished and the concentration capacity of the kidney is defective. In normal puerperium the elimination of urine is abundant, even if the test is made at the time of appearance of milk secretion. As the date of delivery passes, the results of the test approach more those obtained in normal

women. In puerperal women who suffered from glomerulonephritis during pregnancy or from eclampsia, the results of the test show an insufficiency in the dilution and concentration test. The disturbances of elimination of urine in these cases demonstrate insufficiency of the secretory functions of the kidney.

### Beiträge zur Klinik der Tuberkulose, Berlin

88: 689-790 (Dec. 21) 1936. Partial Index

- Partial Thoracoplasty, Pneumolysis, Extrapleural Pneumothorax and Oleothorax as Method of Conserving Surgical Collapse Therapy. W. Schmidt.—p. 689.  
 Functional Tests Before and After Surgical Collapse Therapy. E. Gaubatz.—p. 730.  
 Intrapleural Pneumolysis: Cauterization of Adhesions. G. Sayago.—p. 757.  
 \*Investigations on Subpleural Nodules and Their Relations to Pulmonary Tuberculosis. J. G. Warcalde.—p. 770.  
 Military Tuberculosis and Vascular Focus. P. Huebschmann.—p. 773.

**Subpleural Nodules and Pulmonary Tuberculosis.**—Warcalde cites studies of Anders and Schmoe on the significance of the tuberculous infection of subpleural lymph nodes for the development of pulmonary tuberculosis. These authors assumed that the nodule-like foci under the pleura correspond to the subpleural lymph nodes and concluded that these nodules play an important part in the pathogenesis of tuberculosis. These conclusions induced the author to study the subpleural nodules. His material consisted of thirty-eight cases in which tuberculosis had not been the cause of death. In order to detect the subpleural nodules, he resorted to inspection and bimanual palpation of the lungs. He never was able to detect subpleural nodules in patients who were less than 30 years of age, but in thirty-eight cases of the higher age groups he found such nodules. He used a combined elastica-van Gieson stain and describes his observations on the various types of nodules. He found cascated tuberculous nodules and elastic fibers in four cases, connective tissue or cicatricial nodules with tuberculous changes in the surrounding pulmonary tissue in three, connective tissue nodules with elastic fibers in three, nodules with a connective tissue capsule and cascated contents in one, nodules with lymph tissue in two, nodules consisting entirely of connective tissue or cicatricial tissue in twenty-three and nodules with tumor metastases in two. The author admits that, in view of the fact that the lungs were not examined by means of serial sections, these observations do not justify a definite estimation of the conclusions reached by Anders and Schmoe. However, he thinks that one point is definitely proved by his observations; namely, that some of the subpleural nodules do not correspond to the subpleural lymph nodes. He is convinced that in seven of the foregoing cases the nodules correspond to tuberculous foci in the lung tissue, most likely small primary foci. If this is so it may also be doubted whether the majority of the other nodules are diseased lymph tissue. Moreover, it is noteworthy that tuberculous changes were absent in the two cases in which lymphatic tissues were found in the nodules. The author doubts that the far reaching conclusions of Anders and Schmoe regarding the significance of the pathogenesis of tuberculosis are justified. To be sure, he does not feel qualified to make a definite statement as to the significance of the subpleural nodules, realizing that further studies will be necessary, but he is convinced that their importance for the pathogenesis of pulmonary tuberculosis is slight.

### Zeitschrift für Kinderheilkunde, Berlin

58: 375-580 (Dec. 21) 1936. Partial Index

- Developmental Cycle of Oxyuris Vermicularis. H. Wendt.—p. 375.  
 Behavior of Chloride and Water Exchange During Sodium Chloride Tolerance Test in Three Premature and One Mature Nursing. H. Paffrath and Anneliese Bauer.—p. 411.  
 Clinical Aspects and Pathogenesis of Pancreatic Insufficiency During Childhood. R. Garsche.—p. 434.  
 Clinical and Epidemiologic Significance of Demonstration of Tubercle Bacilli in Gastric Contents of Children. F. Dusch.—p. 479.  
 \*Influence of Vitamin A on Thrombocytes. E. Lorenz.—p. 504.  
 Calcium-Vitamin Therapy. G. Pfeiffer.—p. 515.  
 \*Juxtapleural Marginal Shadows in Roentgenogram. C. Bennholdt-Thomsen.—p. 523.

**Influence of Vitamin A on Thrombocytes.**—Lorenz studied the effect of moderate doses of vitamin A on the thrombocyte count in twenty children varying in age between

## DERMATOLOGIC VERSUS SURGICAL TREATMENT OF CARBUNCLES AND FURUNCLES

SAMUEL AYRES JR., M.D.  
NELSON PAUL ANDERSON, M.D.  
AND  
PAUL D. FOSTER, M.D.  
LOS ANGELES

In view of the fact that carbuncles and furuncles are such relatively common and well understood conditions, it is surprising that diametrically opposed methods of treatment are practiced. The incident which inspired this investigation was the demonstration of a patient by a surgeon at a hospital staff meeting. The case was presented to illustrate a successful and satisfactory outcome of the treatment of a carbuncle of the side of the face. The patient was alive, it is true, but his face was disfigured by an extensive crucial incision scar covering almost the whole side of the face. One of the authors who attended the staff meeting expressed the opinion that if a dermatologist had achieved such a result as the consequence of treating a carbuncle he would have preferred keeping the patient hidden rather than presenting him as an outcome to be proud of.

We have never found it necessary to resort to radical methods in the handling of carbuncles, yet conversation with surgical colleagues has disclosed that crucial incisions or radical cautery excisions are the rule. At the Los Angeles County General Hospital all carbuncle cases are admitted to the surgical service and the great majority of them are treated by radical methods.

In order to ascertain the accepted methods of treating carbuncles and facial furuncles, approximately 500 questionnaires were mailed to an equal number of representative dermatologists and surgeons in all parts of the country. A tabulation of the results of these questionnaires revealed the fact that dermatologists tend toward conservatism in the treatment of carbuncles, whereas surgeons are more inclined to use radical procedures. Both dermatologists and surgeons usually practice conservatism in the treatment of early facial furuncles.

The etiology and histology of the furuncle and carbuncle are so elementary that the barest outline will suffice to bring out the salient points. The furuncle is an external infection by a staphylococcus that has gained entrance to a hair follicle. An inflammatory reaction is set up along the whole length of the hair follicle. A densely packed zone of leukocytes appears at the center of the process. About these a walling off zone of fibroblasts appears, beyond this a loosely packed zone of leukocytes and fibroblasts and beyond this a zone of hyperemia. Usually the central portion of this concentric pattern undergoes necrosis and pus appears. Under ordinary conditions the pus makes its way to the surface along the hair follicle following the line of least resistance and appears at the surface of the skin as the yellow "head" of the boil. Sometimes, however, if the infection is especially virulent or the resistance of the patient is low, the infection extends deeply into the subcutaneous tissue along the columnae adiposae, spreading laterally along the panniculi adiposi and rising toward the surface along adjacent hair follicles, thus producing a large inflammatory area with multiple

"heads" or a carbuncle. A carbuncle may range in size from that of a silver quarter (24 mm.) up to that of an adult hand or larger. Diabetes predisposes to large and extensive lesions.

The surgeon's traditional approach to this problem in the carbuncle stage is radical, usually consisting of an extensive crucial incision over the involved area and undercutting the flaps, or excising the whole area with the knife or the cautery, in either case attempting to remove the entire diseased area. With skilful technic the desired result is usually achieved, although the period of convalescence is likely to be long and the cosmetic end result is usually unsightly and in certain locations may be actually disfiguring.

The dermatologist approaches the treatment of a carbuncle from an entirely different point of view. Three considerations guide his treatment:

1. Arrest of the disease process.
2. A short convalescence.
3. A good cosmetic result.

If arresting the disease process were the only consideration, total excision or cautery destruction would undoubtedly achieve that end most rapidly. The most rapid method of destroying the diseased area, however, is often followed by a much slower period of healing and a bad cosmetic result. Except in most unusual circumstances, a slightly slower method of arresting the infection is not inimical to the welfare of the patient. In fact, the questionnaires show a lower mortality rate among cases treated by dermatologists using conservative methods than among those treated by surgeons using radical methods. One must evaluate this in the definition of carbuncles and in the difference in degree of severity of those treated by surgeons and by dermatologists.

Furuncles and carbuncles of the face, especially within the so-called dangerous circle, are considered much more serious than those occurring elsewhere, although we ourselves have never observed any serious complications in patients with lesions in this area. The reason for occasional fatalities resulting from carbuncles or furuncles within the "dangerous circle" is that a septic thrombophlebitis may develop in the angular vein extending to the cavernous sinus, or if on the lower part of the face the thrombophlebitis may extend downward into the external jugular vein.

For this reason it is generally agreed by surgeons and dermatologists alike that deep incision, squeezing or other manipulations should be avoided in the treatment of early carbuncles or furuncles of this area. If pus appears at the surface, it may be evacuated by lightly pricking the lesion. If the lesions show evidence of extension, and especially if fever and other symptoms suggest the development of thrombophlebitis, surgeons advocate interception of the process by ligating or cauterizing the angular vein near the bridge of the nose or the anterior facial vein near the jaw.

### SUMMARY OF STATISTICS FROM QUESTIONNAIRES

The accompanying table summarizes the statistics contained in the questionnaires. Since answers to some of the questions were in round numbers, and the treatment of carbuncles and furuncles was not clearly differentiated in many cases, the figures are to be regarded as approximate. Unfortunately the question regarding cosmetic results was not answered in a sufficient number of cases to afford any basis for comparison. Without exception, dermatologists who answered this question reported good cosmetic results in cases treated conserva-

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## SEVERE ENDEMIC PELLAGRA

A CLINICAL STUDY OF FIFTY CASES WITH SPECIAL  
EMPHASIS ON THERAPY

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The pellagra of the northern part of the United States is for the most part associated with chronic alcoholism, whereas that found in the Southern states usually is not. Even though observations<sup>1</sup> on large numbers of pellagrins have shown that both the endemic and so-called alcoholic types usually have a predisposing dietary insufficiency, the same seasonal occurrence, the same symptomatology and similar lesions, there is still controversy as to whether the two are the same disease. Previous studies showed that the mortality rate among patients with severe pellagra, the majority of whom were addicted to alcohol, could be reduced from 54 per cent to 6 per cent in a series of 125 cases.<sup>2</sup> The death rate from severe endemic pellagra, however, has remained high, irrespective of the method of treatment.<sup>3</sup> Since endemic pellagra and the pellagra associated with chronic alcoholic addiction are clinically indistinguishable, and since the mortality rate among patients with severe endemic pellagra is high, it seemed imperative that we should apply to patients with endemic pellagra those methods of treatment which had lowered the death rate significantly among the so-called alcoholic pellagrins. Such a study is presented in this communication.

### MATERIAL AND METHODS

It was decided before undertaking the present study that beginning March 1, 1936, fifty consecutive cases of

severe endemic pellagra would be admitted either to the Hillman or to the T. C. I. Hospital<sup>4</sup> for treatment.

**Selection of Cases.**—Pellagra was diagnosed by the presence of characteristic skin and oral lesions. The disease was considered severe if, in addition to a poor general condition, the pellagrins had one or more of the following manifestations of pellagra: mental symptoms, persistent vomiting, intractable diarrhea, an inexplicable elevation in temperature to more than 102 F., a heart rate of more than 120 with the patient at rest, or stomatitis so severe that the patient did not want to eat. The disease was considered mild if the pellagrins' general condition was good and if he had none of the ominous manifestations of pellagra mentioned. No pellagrins were excluded from the study because of the presence of a coexisting disease.

The selection of the fifty severe endemic cases for the present study was made from a total number of 696 persons suspected of having pellagra. These persons either came of their own accord to the Hillman Hospital for treatment or were referred by the physicians of Jefferson County, by the Red Cross authorities, or by the public health departments of Birmingham and Jefferson County. The initial examination of the 696 pellagra suspects showed that 568 had no physical signs diagnostic of acute pellagra (many did have symptoms suggestive of the disease and residual dermal changes from previous attacks), ninety had mild pellagra, three persons with severe alcoholic addiction had severe "alcoholic pellagra," and thirty-five had severe endemic pellagra.

After the initial examination, the 568 persons with no evidence of acute pellagra were told to return to the referring physician or organization. So far as could be ascertained, none of these patients developed manifestations of acute pellagra from the time they were seen by us until June 15, 1936 (the termination of the study). Responsibility was immediately assumed for all persons on whom a diagnosis of pellagra had been made. Accordingly, the ninety patients with mild pellagra were advised to return to their homes and take yeast and a highly nutritious diet rich in milk, eggs, vegetables and protein and were told to return to the hospital for observation at stated intervals. Seventy-five of the ninety patients with mild pellagra improved. The remaining fifteen either could not or would not follow recommendations and the disease became worse. The fact that these fifteen patients formerly having mild pellagra later had the disease in a severe form means that the disease became worse and not that the original interpretation was incorrect. After the development of the severe manifestations these fifteen were

4. The Hillman Hospital is a county hospital admitting indigent patients only. The T. C. I. Hospital of Ensley, Ala., admits indigent patients and employees.

This study was conceived by Dr. M. A. Blankenhorn, Dr. James S. McLester and Dr. Joseph T. Wearn. The professional and administrative responsibilities of organizing and carrying out the study were assumed by Dr. R. H. Bishop Jr., Dr. Blankenhorn, Dr. Alfred Friedlander, Dr. McLester and Dr. Wearn. The project was a cooperative one between the University Hospitals of Cleveland, the College of Medicine of the University of Cincinnati, the University of Alabama, the Hillman Hospital of Birmingham, Ala., and the Tennessee Coal, Iron and Railway Hospital (T. C. I. Hospital) of Ensley, Ala. Financial grants were obtained through the University Hospitals of Cleveland and through the May Fund of the School of Medicine of the University of Cincinnati. The investigation was conducted by the authors, who were assisted by Miss Jean Grant, dietitian, and Miss Ann Van Blaricom, nurse. The professional and administrative staffs of the Hillman and T. C. I. hospitals gave invaluable aid in the selection and care of the fifty patients admitted to the hospital.

1. (a) Spies, T. D., and De Wolf, H. F.: Observations on the Etiological Relationship of Severe Alcoholism to Pellagra, *Am. J. M. Sc.* 186: 521 (Oct.) 1933. (b) Unpublished observations.

2. Spies, T. D.: The Treatment of Pellagra, *J. A. M. A.* 104: 1377 (April 20) 1935.

3. (a) McLester, J. S.: The Nature of Pellagra: A Critique, *Ann. Int. Med.* 8: 475 (Oct.) 1934. (b) Boggs, T. R., and Padgett, Paul: Pellagra, *Bull. Johns Hopkins Hosp.* 50: 21 (Jan.) 1932.

be sought out and treated. Dietary indiscretions should be corrected and an adequate vitamin intake assured. In our experience the use of yeast or tin preparations has not proved efficacious. Manganese has had a recent vogue, but we have had no experience with it.

#### SUMMARY

1. Questionnaires were mailed to approximately 250 surgeons and an equal number of dermatologists throughout the United States and Canada in an effort to appraise the methods employed in the treatment of carbuncles and facial furuncles.

2. The information obtained from the questionnaires corroborates our own experience in the treatment of these conditions and may be stated briefly as follows:

3. The great majority of surgeons employ crucial incisions or cautery excision of carbuncles, whereas the great majority of dermatologists employ conservative methods, including x-rays, vaccines, bacteriophage and topical applications.

4. The average duration of treatment of carbuncles under surgical treatment is almost twice as long as under dermatologic treatment.

5. The mortality from carbuncles is low in both groups, but it is more than three times as great under surgical as under dermatologic treatment.

6. Cosmetic results in our experience are infinitely superior under the conservative methods used by dermatologists as compared with the radical surgical procedures.

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### PREVENTION OF GOITER IN MICHIGAN AND OHIO

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The Michigan State Department of Health made a survey of representative sections of the state in 1923 to determine (1) the incidence of goiter among school children and (2) the amount of iodine in the water supply of each section. Naturally the amount of iodine in the water supply is the best index to the food iodine found in that section. Early in 1924 a program of goiter prevention was outlined. This original program emphasized the importance of a complete resurvey of the same areas in ten years.

The results of the first survey showed beyond a doubt that there is a correlation between a scarcity of food iodine and a high incidence of simple goiter. These data are given here only graphically to recall the areas examined, the incidence of goiter and the amount of iodine in the water supply (fig. 1). From this study it is apparent that the incidence of goiter in any county is inversely proportional to the iodine content of the water supply.

Immediately following this survey a state-wide campaign by the state department of health was made to emphasize the fundamental causes of endemic goiter and the principles of its prevention. In the spring of 1924 a special committee was appointed by the state medical society to work with the state department of health in carrying out this work. These two groups, representing the medical profession of the state, cooperated with the Wholesale Grocers' Association and the Salt Manufacturers' Association to the effect that, beginning May 1, 1924, the salt manufacturers produced and put on the market throughout Michigan an

iodized salt containing one part of potassium iodide to 5,000 parts of salt. The wholesale grocers did everything they could to bring about the sale of this salt only, and the state department of health was responsible for advising the public to use it.

The fact should be reemphasized that there was no law compelling people to use iodized salt—only education and advice in the form of news articles throughout the state, health talks to school children and parents and placards to be used in the schools as in any other health program. All this information and advice was given by the state department of health and the state medical society.

The Ohio State Department of Health in 1925 made a rather comprehensive study of the incidence of goiter throughout the state and planned to support the general use of iodized salt. Six counties were selected as representative of average conditions in Ohio, and during October and November approximately 60,000 school children were examined for goiter. The results of this survey were never published and, because of active opposition to this method of prophylaxis by some of the leading goiter surgeons, the state department immediately withdrew its support and has since shown no active interest in this public health measure.

The study outlined by the Michigan State Department of Health in 1928 again had two objectives: (1) the efficiency of the method of prevention (the general use of iodized salt) and (2) the safety of this so-called indiscriminate use of iodine. The second objective was necessary because of published reports of cases of hyperthyroidism due to the use of iodized salt. To answer this question with scientific data we arranged for a comprehensive study of all adults with goiter in three counties. This study was made by the local medical society with the cooperation of the state department of health. The summary of the results of prevention given in figure 2 shows a marked decrease in goiter in every section. Also the conclusion as to the possibility of harm by the general use of iodized salt was equally definite. We studied 1,229 adults with goiter or patients who had recently been operated on for a toxic goiter in the three counties. Of 655 who had used iodized salt continuously for four years, twenty-seven, or 4.1 per cent, developed symptoms of toxic goiter after using iodized salt. There were 419 who had purposely avoided iodized salt and of this number 233, or 55.5 per cent, developed toxic goiter. After four years of the general use of iodized salt we found it an efficient as well as a safe method of prevention.

McClure<sup>1</sup> found a gradual decrease in the number of goiter operations throughout the state from 1926 to 1932. This decrease was very noticeable, yet there was a gradual yearly increase in the total number of operations.

For practical reasons the ten year resurvey in Michigan could not be made in 1934 but was made in 1935. In order to make our results comparable with the results in 1924 the committee for the prevention of goiter arranged for me to make this survey with the assistance of three physicians from the state department of health and one from the University of Michigan. The goiter committee is composed of two men from the state medical society, two from the state department of health and one from the state university.

1. McClure, R. D.: Thyroid Surgery as Affected by the Generalized Use of Iodized Salt in an Endemic Goiter Region, *Ann. Surg.* 100:924 (Nov.) 1934.

quality of the food eaten by these patients in their homes prior to admission to the hospital were made and will be reported in a separate communication.

A patient was arbitrarily considered as having an anemia if the hemoglobin value on repeated examination was less than 70 per cent. He was considered as having tachycardia if the heart rate was 90 or above on two or more examinations when the patient was at rest in bed. Previous attacks of pellagra were counted as such only if a diagnosis of pellagra had been made by a physician at the time. The presence of other diseases was determined by clinical and laboratory examinations.

**Method of Treatment.**—Each of the fifty pellagrins was treated individually and was given adequate professional and nursing care in order that the general and specific therapeutic measures might be effectively applied. After the diagnosis of severe endemic pellagra had been made, each pellagrin was admitted to the ward, confined to bed, and given antipellagric therapy immediately. In order to keep the patients alive, it was also necessary, in certain instances, to give prompt supportive treatment to those who were at the point of death and to apply specific therapeutic measures to those with coexisting organic diseases.

**General Therapeutic Measures.**—All patients were kept in bed until convalescence was well established. At times this was accomplished only after large doses of sedatives had been administered. Constant nursing care was given to conserve the patient's strength, to assure adequate rest, to give the specific and symptomatic therapeutic materials, and to aid in applying suitable dietary measures. An effort was made to give each pellagrin a well balanced diet of 4,500 calories or more each day. Every detail of the intake of food was supervised to make certain that an adequate diet was ingested and retained daily. When large amounts of food were lost because of vomiting or diarrhea, corresponding additional amounts were given.

**Dietary Management.**—In order to make sure that each pellagrin received and retained as much food as possible, he was urged by the physicians, nurses and dietitian to eat one of three diets each of which was high in calories and rich in protein. Every effort was made to see that the patients took as much solid food as possible. Therefore, at the time of admission, a "solid" diet (diet 1) was prescribed for every pellagrin. When a patient could not continue to eat it, he was given a "soft-solid" diet (diet 2) until he had improved sufficiently to eat the "solid" diet. Those unable to eat either the "solid" or "soft-solid" diet were administered a "liquid" diet (diet 3) until they could eat the "soft-solid" diet. Twenty-seven of the fifty patients continued to eat the foods in diet 1 from the time they were admitted to the hospital until the day of discharge. Seventeen of the twenty-three patients who could not eat the diet were given the "soft-solid" diet for their first three days in the hospital and were then continued on the "solid" diet throughout the remainder of their hospitalization. The remaining six patients ingested the "liquid" diet for from forty-eight to seventy-two hours before they improved sufficiently to take the "soft-solid" diet. By the eighth day of hospitalization, all six were able to eat the "solid" diet.

**Specific Therapeutic Agents.**—All patients were given from 180 to 270 Gm. of powdered brewers' yeast<sup>5</sup> daily. They tolerated this best when it was

given in doses of about 20 Gm. in iced milk. Four patients with severe glossitis, diarrhea and vomiting were given intravenous liver extract<sup>6</sup> injections of 20 cc. each from four to five times a day in addition to the yeast. These injections were continued until improvement took place (usually two or three days).

#### DIET 3.—"Liquid" Diet

Food Included in One Day	Weight in Gm.	Approximate Amount	Gm. Protein	Gm. Carbohydrates	Gm. Fat
Sweet milk, in eggnog.....	2,400	12 aver. glasses	79	90	120
Cream, 18%.....	120	4 ounces	3	24	6
Eggs.....	450	9 eggs	60	47	..
Cereal, cooked and strained.....	300	2 large servings	6	..	46
Cream soup.....	360	2 aver. servings	10	22	26
Ice cream.....	600	6 aver. servings	24	36	84
Sugar.....	45	3 tablespoonfuls	..	..	45
Harris brewers' yeast.....	90	3 ounces	45	18	27
Total.....			227	243	354
Calories from protein.....					903
Calories from fat.....					2,187
Calories from carbohydrates.....					1,416
Total calories.....					4,511

#### Outline of Feedings

Time	Food	Weight in Gm.	Approximate Amount
7 a. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
8 a. m.	Strained cereal { Cereal.....	150	large serving
	Cream, 18% { Gruel.....	60	¼ cup
9 a. m.	Ice cream.....	100	average serving
10 a. m.	Eggnog.....	250	large glass
11 a. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
	Ice cream.....	100	average serving
12 a. m.	Cream soup.....	180	average serving
1 p. m.	Ice cream.....	100	average serving
2 p. m.	Eggnog.....	250	large glass
3 p. m.	Eggnog.....	250	large glass
4 p. m.	Milk.....	200	average glass
	Yeast.....	30	1 ounce
	Ice cream.....	100	average serving
5 p. m.	Eggnog.....	250	large glass
6 p. m.	Cream soup.....	180	average serving
7 p. m.	Ice cream.....	100	average serving
8 p. m.	Eggnog.....	250	large glass
9 p. m.	Eggnog.....	250	large glass
10 p. m.	Ice cream.....	100	average serving
11 p. m.	Strained cereal { Cereal.....	150	large serving
	Cream 18% { Gruel.....	60	¼ cup
12 p. m.	Eggnog.....	250	large glass
4 a. m.	Eggnog.....	250	large glass
6 a. m.	Eggnog.....	250	large glass

#### Method of Making Yeast Mixture and Eggnog

##### Yeast Mixture

Materials: 600 cc. of milk; 90 Gm. of yeast

Method: Pour milk into a mixing bowl. Put the yeast in a shaker and sift it into the milk, stirring constantly

##### Eggnog

Materials: 3 eggs, 15 Gm. of sugar, 600 cc. of milk

Method: Beat eggs, add sugar, add milk, beat well. If desired, flavor with vanilla

**Special Treatment of Symptoms.**—Skin Lesions: The application of potassium permanganate solution (1:5,000) to the moist type of pellagrous dermatitis often gave relief from the burning sensations and diminished the number of secondary infections.

Diarrhea: As a rule, pellagrous diarrhea ceased only when the pellagra had improved. The number and the amount of the stools were often increased following the administration of large amounts of yeast or food

5. Supplied by Dr. I. F. Harris, Tuckahoe, New York.

6. Furnished through the courtesy of Dr. E. A. Sharp, Parke, Davis & Co., Detroit.



Each of the four counties and the city of Grand Rapids was tabulated separately. To show our classification and extent of information obtained, table 1 gives the completed summary of Houghton County.

The whole survey is shown in table 2, in which only the incidence of goiter in relation to prophylaxis is shown.

Among the group not using iodized salt it will be noted that the incidence of goiter is less than half of

TABLE 1.—Houghton County—Michigan, 1935

	Total	Normal	Small Goiter	Moderate Goiter	Cong. ad. or ad.	Hyperplastic Goiter	Total Goiter	Per Cent Goiter
Using iodized salt.....	4,370	4,034	334	2	12	40	336	7.5
Not using iodized salt...	1,742	942	770	30	30	304	800	45.9
Indefinite.....	2,775	2,512	260	3	5	51	263	9.5
Total.....	8,887	7,488	1,364	35	47	395	1,899	15.75

\* Adenoma of the thyroid is a distinct nodular mass in one lobe. If associated with a persistent thyroglossal stalk it is called congenital adenoma.

TABLE 2.—Goiter Survey—Michigan, 1935

	Totals	Goiter	Per Cent Goiter
Used iodized salt regularly.....	47,360	1,363	2.88
Never used iodized salt.....	0,429	1,839	19.29
Use of iodized salt indefinite.....	5,778	316	5.47
	61,649	3,518	8.2

TABLE 3.—Houghton County, Michigan—Houghton High School

	Total	Normal	Total Goiter	Per Cent Goiter
Using iodized salt.....	305	255	20	6.55
Not using iodized salt.....	108	80	28	26.00
Indefinite.....	16	12	4	25.00
	429	377	52	12.12

what it was in 1924. Much of this decrease is due to the use of iodized salt before 1930. Another important factor has been the frequent reports from the state department of health urging prophylaxis. Many were taking iodine in some form from their physician or buying the chocolate iodine tablets formerly used in Grand Rapids and other city schools. But in every county or city of both Michigan and Ohio in which the study has been made the percentage of goiter among those using iodized salt is only a fraction of what it is among those not using it. A valuable study was possible in the comparison of two cities, Houghton and Calumet, in Houghton County, only 30 miles apart. All natural factors determining goiter would be the same. Dr. Newitt and I examined all the children of the junior high and high school in Houghton on one day and the same age group of the junior high and high school at Calumet the next day. The results are given in tables 3 and 4.

The difference in these communities responsible for this marked increase in goiter in Calumet lies in the fact that Calumet is a mining town, and during 1932 the copper mines closed. Approximately two thirds of the families were on relief and only bag salt (non-iodized) was given to relief families. Further, families

who were buying their groceries were so constrained by finances that they too bought bag salt, which is cheaper than package salt. Therefore the use of iodized salt was discontinued in about two thirds of the homes in Calumet during 1933, 1934 and 1935. The increase in the number of goiters, and especially moderately enlarged, hyperplastic goiters, was most striking. In a period of three years, with the only source of food iodine closed to half of the homes, endemic goiter is proportionately as prevalent as it was before prevention was initiated.

To demonstrate what can be done by any county or locality in the control of endemic goiter I give here the results in Midland County, Mich., and call attention to the factors that count most in the success of this public health measure: First, this county supports an efficient county health department which has consistently urged the continued use of iodized salt. Also, their assistance in obtaining accurate information regarding the use of iodized salt during this survey makes the data from this county much more valuable.

TABLE 4.—Houghton County, Michigan—Calumet High School

	Total	Normal	Total Goiter	Per Cent Goiter
Using iodized salt.....	458	400	58	10.00
Not using iodized salt.....	350	199	151	43.14
Indefinite.....	43	29	14	32.55
	851	628	253	29.72

TABLE 5.—Midland County—Michigan, 1935

	Total	Normal	Total Goiter	Per Cent Goiter
Using iodized salt.....	3,080	3,031	58	1.9
Not using iodized salt.....	1,184	1,000	175	14.52
Indefinite.....	618	593	25	4.00
	4,891	4,633	258	5.23

TABLE 6.—Division of Health, Cleveland: Goiter Survey—January 1936

	Total	Normal No. 1	Small Goiter No. 2	Moderate Goiter No. 3	Cong. ad.	Hyperplastic Goiter	Per Cent Goiter
Using iodized salt.....	2,703	2,503	199	1	35	14	7.7
Not using iodized salt.....	2,529	1,752	757	20	48	208	30.7
Indefinite.....	761	624	136	1	15	22	18.00
	5,993	4,879	1,092	22	99	244	18.00

From this survey we find that: 45.1 per cent of children use iodized salt regularly, 42.2 per cent of children never used iodized salt, 12.7 per cent of children use iodized salt irregularly—only part-time or occasionally (classified as indefinite users).

Because of the scientific interest in this health measure the iodized salt has been frequently analyzed and recommendations have been made to the effect that only reliable grades of iodized salt be used. The incidence of goiter in this county was 32.7 per cent in 1924.

Approximately 63 per cent of the homes are now using only iodized salt. It is thought that previous to 1932 more than 90 per cent of the homes were using only iodized salt. In table 5 the group not using iodized salt shows only 14.5 per cent goiter compared to 32.7 per cent in 1924. This reduction undoubtedly

and feet. Because of the severity of these symptoms the patient was forced to stay in bed. Her arms and legs became paralyzed and she had periods of unconsciousness which often lasted for several days. April 8, 1936, she was admitted moribund to the surgical service of the Hillman Hospital, where a diagnosis of rectal stricture, intestinal obstruction and severe pellagra was made. On admission she was given immediate supportive and antipellagric therapy. The pellagrous lesions healed remarkably prior to her death on her eighth day in the hospital.

Postmortem examination revealed multiple large and small pulmonary infarctions in both lungs. Large, firm, pulmonary emboli occluded the main branches of the right and left pulmonary arteries, and the ovarian and hemorrhoidal vessels were thrombotic. The sigmoid and rectum were occluded for a distance of 6 inches by a chronic inflammatory process (?lymphogranuloma inguinale).

CASE 3.—J. S., a colored woman, aged 64, was in good health until early in 1933, when she had trouble with her "teeth and kidneys." Since that time she has had considerable difficulty in chewing. Early in January 1936 she noticed a loss of appetite, sore mouth and severe diarrhea, often having as many as twenty stools a day. A month later a dermatitis appeared over the dorsum of her hands and feet. March 2, 1936, she was admitted to the surgical division of the Hillman Hospital because of rectal stricture and hemorrhoids, which were of such

peutic substances. Uncomplicated cases of pellagra will rarely be fatal provided early, prompt, intensive and persistent treatment is given. The remaining three patients died, but each of them was admitted to the hospital because she had, in addition to pellagra, a disease requiring surgical treatment. In none of them can it be said that pellagra alone was the cause of death. Autopsies on each patient showed the presence of an organic disease in itself capable of causing death and, in each instance, healing pellagrous lesions.

In a previous study<sup>1a</sup> it was shown that the signs and symptoms, seasonal occurrence and predisposing dietary insufficiency are the same for the so-called alcoholic and the endemic types of pellagra. Present observations show that the patient with endemic pellagra is remitted of his disease by the rigid application of the same general principles of treatment as is the so-called alcoholic pellagrin.

#### SUMMARY AND CONCLUSIONS

1. Fifty cases of severe endemic pellagra were admitted to either the Hillman or the T. C. I. Hospital

#### Analysis of Fifty Cases of Severe Endemic Pellagra

Race and Sex	Number of Cases	Average Age	Dermatitis	Glossitis	Stomatitis	Vomiting	Diarrhea	Anemia	Achylia Gastrica	Mental Symptoms	Periph-eral Neu-ritis	Loss of Weight and Strength	Tachycardia	Pre-vious Attacks	Other Diseases	Death	Autopsy
White males.....	19	46	Yes 13 No 1 N.D. 0	12 7 0 0	10 9 0 0	10 9 0 0	10 9 0 0	3 5 11 5	5 7 4 0	8 11 0 0	11 8 0 0	19 6 0 0	13 6 0 0	13 6 0 0	5 14 0 0	0	0
White females.....	19	39	Yes 13 No 1 N.D. 0	19 0 0 0	14 5 0 0	9 10 0 0	9 10 0 0	8 1 1 10	5 11 3 0	11 8 0 0	13 6 0 0	19 0 0 0	16 2 4 0	15 4 0 0	2 17 0 0	0	0
Black males.....	2	51	Yes 2 No 0 N.D. 0	2 0 0 0	2 0 0 0	2 0 0 0	2 0 0 0	1 0 0 1	1 0 0 0	1 1 0 0	2 0 0 0	2 0 0 0	1 1 2 0	0 2 0 0	0 2 0 0	0	0
Black females.....	10	36	Yes 10 No 0 N.D. 0	8 2 0 0	7 3 0 0	7 3 0 0	8 2 0 0	8 1 1 5	1 5 4 3	7 3 0 0	5 5 0 0	10 0 * 0	9 1 0 0	3 7 0 0	8 2 0 0	3	3
Totals.....	50	43	Yes 48 No 2 N.D. 0	41 9 0 0	33 17 0 0	28 22 0 0	29 21 0 0	20 13 17 12	15 23 12 0	27 23 0 0	31 19 0 0	50 0 * 1	39 19 0 0	31 19 0 0	15 35 0 0	13	3

N. D. = no data.

\* One patient had edema and weight loss, if any, could not be accurately determined.

severity that, despite the patient's poor general condition, an operation was performed at once. Soon after the operation the patient was seen in consultation. She was emaciated and had extensive pellagrous stomatitis, glossitis and dermatitis. Antipellagric therapy was initiated at once and the pellagrous lesions rapidly disappeared. At the time of the patient's sudden death on her twenty-fourth day in the hospital she had no signs or symptoms of pellagra.

Postmortem examination showed an occluded rectal and sigmoid stricture (?lymphogranuloma inguinale), proctitis and arteriosclerosis. The pathologist found no evidence of pellagra.

#### COMMENT

It has been shown in the present study that forty-seven of fifty patients with severe endemic pellagra, admitted to the hospital for treatment, recovered when given a high caloric, high protein diet, large amounts of a potent, specific therapeutic agent, symptomatic and supportive treatment, rest, and good nursing care. It must be fully understood that the ingestion and assimilation of a proper diet and specific therapeutic agents and the rigid application of the general principles of treatment are much more important than the symptomatic treatment. The latter, however, often affords the patients comfort and, in certain instances, aids in remitting the disease. Exacerbation of any gastrointestinal symptoms must not deter the physician from continuing the administration of proper diets or thera-

and, as a result of the efficacy of treatment, only three deaths occurred. The previous death rate in the Hillman Hospital had been 32 per cent.<sup>2a</sup>

2. Postmortem examination of the three pellagrins who died showed the primary cause of death to be in case 1 a pulmonary embolus and a ball-valve thrombus of the right auricle and in case 2 bilateral pulmonary emboli, thrombophlebitis of the ovarian and hemorrhoidal veins, and stricture of the sigmoid and rectum. In case 3 the primary cause of death was not fully determined; this patient was operated on for an occluding lesion of the rectum and sigmoid, and an exact interpretation of this lesion and of the operation in terms of the cause of death was impossible. In each case the lesions of pellagra were either healed or showed definite signs of healing.

3. The signs and symptoms, the predisposing dietary insufficiency, the clinical course of the disease and the response to treatment of these patients with endemic pellagra were the same as those of pellagrins previously studied whose disease followed the chronic, excessive use of alcohol (so-called alcoholic pellagra).

4. These observations show that endemic pellagra, like so-called alcoholic pellagra, responds to the administration of a high caloric, high protein diet, large amounts of yeast, adequate rest and good nursing care.

bag salt since the depression. No case of hyperthyroidism was found among 47,360 children using iodized salt regularly.

In Cleveland among the group using iodized salt regularly 7.7 per cent had goiter and fourteen of these had large hyperplastic iodine deficiency goiters. Contrast this with Midland County, Mich., where the incidence of goiter was much higher than in Cleveland in 1924, but in 1935 among those using iodized salt regularly less than 2 per cent had goiter. The condition in Cleveland is due to two salt manufacturers in this district who could not make up their minds on the value of this method of goiter prevention and consequently put little or no iodine in their iodized salt.

The Cleveland Health Department in 1931 made an analysis of the various brands of iodized salt being sold in the community and found three different brands which contained no iodine, although each was labeled iodized salt (0.023 per cent of potassium iodide). The two companies responsible for this condition agreed to make their product conform to the label. On repeated analysis in 1936 of the various brands of iodized salt sold in Cleveland, we found several brands of iodized salt that contained only one-third the amount of iodine stated on the label and one brand sold by a large chain store which contains no iodine. The same two manufacturers in the Cleveland district are responsible. Again I want to state that all the nationally advertised brands contain iodine exactly as stated on the label. However, the average of thirteen brands for Cleveland was only 0.012 per cent, or half of what was stated on the package.

The laboratories of the Michigan State Department of Health found an average for thirteen brands sold in Michigan to be 0.018 per cent. All advertised 0.023 per cent potassium iodide or 0.02 per cent sodium iodide.

The Wisconsin State Department of Health analyzed thirteen brands sold in Wisconsin and found an average of 0.014 per cent, yet all were labeled 0.023 per cent or 0.02 per cent, depending on the use of potassium or sodium iodide.

In each study we found the iodine content of the nationally advertised brands and the trade brands prepared by these manufacturers for other companies to approach closely the amount advertised.

#### SUMMARY

It has been demonstrated that salt can be iodized accurately and that a high standard of efficiency can be maintained. It has proved the least expensive and most satisfactory of any method yet devised to supply deficient food iodine in endemic goiter districts.

This survey shows conclusively that the general use of iodized salt is an efficient and safe method of goiter prophylaxis. The study in Houghton County, Mich., shows that the discontinuance of iodized salt was followed by a marked increase in the incidence of goiter within three years.

Every state in which goiter is endemic is advised to meet the deficiency of food iodine by the general use of iodized salt. From our experience it is advisable to have the state health department laboratory analyze every brand of iodized salt every other year, at least, and insist on a high standard. An accurate stable product can and should be maintained. It is also very necessary that the department of health continue its advice on goiter prophylaxis at definite intervals. Otherwise, interest in this measure will die because of

the ease and simplicity of prevention. Attempts to interest and educate the public need not be aimed solely at the deformity of the neck. One should think of the number of cases of feeble-mindedness (cretinoid type), the many boys and girls who do not mature normally through puberty (clinical hypothyroidism), the many cases of cretinism and myxedema and the thousands of large tumorous goiters with an occasional cancer, each of which is only a sequela of endemic goiter.

For over twenty years Marine and I have consistently emphasized the importance of the replacement of the food element iodine. In meeting this deficiency we are preventing infinitely more than meets the eye, the goiter.

Hanna Building.

#### THE PREOPERATIVE VISUALIZATION OF BREAST TUMORS

N. FREDERICK HICKEN, M.D.

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OMAHA

Tumors of the breast can be visualized *in situ* by contrast roentgenographic studies. The offending neoplasms are rendered visible by outlining them with such contrast mediums as stabilized thorium dioxide sol, lipiodine and air. This can be accomplished in one of two ways. The first method consists of injecting the milk ducts with the radiopaque substance and then making stereoscopic studies. The resulting roentgenograms, descriptively called mammograms, give an accurate anatomic pattern of the injected ductal system. Any pathologic condition that alters the size, shape or conformation of the lactiferous ducts is readily appreciated. Similar visualization studies can be made by inflating the breast tissues with air. This second form of study has been termed aeromammography. The technical simplicity and the diagnostic value of such visualizations are vividly portrayed in the cases reported here.

#### BILATERAL BREAST PAPILLOMAS

CASE 1.—Miss R. S., aged 41, complained of a bleeding breast. During the past three years she had intermittently observed two or three drops of a serosanguineous discharge escaping from the right nipple. Thinking that such secretions were always associated with the menopause, she dismissed the events as being unimportant. Two weeks before admission, however, she became alarmed, for a persistent hemorrhagic discharge seeped from the same nipple. Frequent examinations by herself and her physicians failed to locate the offending tumor. There had been no associated pain and she stated that there was no possibility of trauma being the exciting cause. The left breast seemed to be normal.

Both breasts were small and presented nulliparous characteristics. In the outer lower quadrant of the right breast was a small compressible tumor, which seemed to be confluent with the dilated milk ducts. Whenever pressure was applied to this cystic growth the regional ducts that led from the affected lobule became tense and distended, but no secretion could be expressed from the nipple. While the upper medial quadrant of the same breast was palpated, three drops of bright red blood were expressed from one gaping estuary. Painsstaking palpation, transillumination and soft tissue roentgenograms did not demonstrate the offending tumor. The small cystic growth

From the Bishop Clarkson Memorial Hospital.

tively. Most of the surgeons ignored the question and a few reported cosmetic results as being from fair to good. Under the heading of radical surgery it will be noted that 21 per cent of the cases of carbuncles treated by dermatologists were recorded as being treated radically. This does not give a true picture of the practice among dermatologists, however, as most of this group of cases occurred in the practice of one dermatologist who is associated with a large private group of physicians. The questionnaires specified that the heading "furuncle" was to include only those furuncles occurring about the face, head and neck; but some of the answers did not differentiate furuncles of the face from those occurring elsewhere.

The salient features of the answers to the questionnaires were that:

1. Dermatologists employ radical procedures much less frequently than surgeons.
2. Dermatologists employ x-rays much more frequently than surgeons.
3. The average duration of treatment by surgeons was nearly twice as long as under dermatologists.
4. The mortality was greater under surgical than under dermatologic treatment.

#### Summary of Replies to Questionnaire

	Dermatologists		Surgeons	
	250	71	250	33
Questionnaires mailed.....				
Questionnaires answered.....				
Cases treated in private practice				
in past five years.....	649	2,260	354	573
Radical surgery.....	21%		60%	
Incision and drainage.....	32%	49%	17%	64%
X-rays.....	63%	69%	19%	38%
Local applications: hot poultices.	30%	31%	21%	68%
Wet dressings.....	74%	80%	81%	89%
Bacteriophage or bacterial fil-				
trates.....	17%	11%	16%	38%
Ultraviolet or infra-red light.....	10%	4%	4%	35%
Phenol.....	16%	20%	10%	14%
Ichthammol (ichthyol).....	4%	8%	....	1%
	3%	10%		
	4%	9%	3%	
	14%	17%	1%	5%
	3%	8%	5%	3%
	16 days	10 days	27 days	16 days
	0.4%	0.3%	1.4%	0.7%

#### TECHNIC EMPLOYED BY AUTHORS

1. Unfiltered x-rays, in a dose of from one-fourth to one-half skin unit to the affected area. This may be repeated in about three days if necessary. The theory underlying the use of x-rays in furuncles or carbuncles is that certain cells, probably lymphocytes or leukocytes, being very radiosensitive, are broken down and liberate powerful antitoxic substances, which more effectively combat the infection. The protective wall of fibroblasts is apparently unaffected. X-rays exert little or no actual bactericidal effect.

2. Specific immunization. This is accomplished by two means. At the first visit a culture is taken from which is prepared an autogenous vaccine, which is administered intravenously at intervals of two or three days, the interval being increased later to four or five days. Recent investigations have shown that a higher degree of immunization is obtained by the intravenous method of administration of vaccines as compared with the subcutaneous or the intradermal route and that this immunization is accompanied by a desensitization to bacterial proteins, whereas vaccine administered by the other routes is sometimes followed by an increased sensitiveness to bacterial proteins. The usual beginning dose is twenty-five million organisms in the case of the staphylococcus, and this is increased to fifty million,

one hundred million, two hundred million and so on. Severe systemic reactions are very infrequently encountered. The use of autogenous vaccine not only tends to shorten the course of the individual lesion but it is especially valuable in cases of recurrent furunculosis.

From the same culture obtained at the first visit one can prepare a suspension of bacteria for testing the lytic potency of a bacteriophage, and if the bacteriophage is active against the bacteria in question we have felt that the softening and resolution of the lesion was materially hastened by daily irrigation of the cavity of the lesion with bacteriophage and the use of a bacteriophage wet dressing for several hours following.

#### Formula of Alibour Water

	Gm. or Cc.
B. Copper sulfate .....	1.6
Zinc sulfate .....	5.6
Saturated solution of camphor water.....	to 240.
Sig.: Dilute two tablespoonfuls to a glass of water and apply as a wet dressing.	

3. Local applications. In addition to the foregoing, we have employed with much satisfaction continuous wet dressings of Alibour water, the value of which is twofold. It is nonirritating except in extremely rare cases, and it is a very potent antiseptic and astringent, exerting a definite bactericidal effect on the open lesion as well as preventing reinfection of neighboring hair follicles from the purulent discharge.

We also employ hot flaxseed poultices for about one hour twice a day, alternating with the wet dressings, on the time-honored theory that the heat and possibly some active principle of the flaxseed exert a beneficial softening and sedative effect on the lesion. The poultice is made by mixing flaxseed meal and boiling water, placing within a single layer of linen or muslin and applying over the lesion after it has cooled enough to be comfortably hot. As soon as it becomes cold it is replaced by a hot one, and this is repeated for at least one hour twice a day.

4. Drainage. The lesions should be kept open and draining if pus is present. We do not favor incising early lesions. A single one-half skin unit dose of x-rays will frequently abort them. However, if pus shows at the surface or if there is obvious fluctuation, incision is indicated. Frequently a slight prick with the point of the scalpel will free the pus. Two reasons for keeping free drainage are (a) to prevent deep burrowing and extension with the formation of a carbuncle and (b) to allow more effective action of topical applications.

5. Phenol puncture. This procedure has been in vogue for many years and is particularly valuable for softening tough necrotic sloughs and "cores." A pointed tooth pick is dipped into 95 per cent phenol and with very light pressure is bored into the necrotic mass. The anesthetic effect of the phenol prevents any pain and the central portion of the lesion so treated soon liquefies and facilitates drainage and resolution of the lesion.

6. General care. The extreme pain of furuncles and carbuncles justifies the use of appropriate sedatives such as acetylsalicylic acid or codeine and some sleeping aid such as sodium amytal at night. Bromides should be avoided, since they are sometimes excreted through the sebaceous glands and may cause a folliculitis. In acute or extensive cases, especially with involvement of the face, rest in bed is imperative, fluids should be forced and simple nourishing food administered, although, if the lip is involved, vigorous chewing should be avoided.

Any physical abnormalities such as anemia, focal infection, diabetes or gastro-intestinal disorders should

expressed, the orifices of the milk ducts could not be located. The neoplastic mass transmitted light with the same facility as did the normal breast tissues; hence no differentiation was possible. Soft tissue roentgenograms likewise failed to locate or identify the tumor (fig. 5A).

In order to obtain some information concerning the nature of this new growth a No. 20 gage needle was plunged directly into the neoplastic mass. Considerable resistance was encountered, as if the needle was traversing a firm fibrous tumor, for neither cells nor fluid could be aspirated. Apparently this was a connective tissue tumor, the exact nature of which was not clearly understood. The transillumination test seemed to rule out a simple fibro-adenoma, for they are not translucent while this tumor was. The firm resistance imparted to the exploring needle seemed to preclude the possibility of this being a lipoma, for lipomas are not composed of connective tissue. All precision tests such as transillumination, palpation and soft tissue roentgenograms had failed to give sufficient information for the identification of this neoplasm.

It was felt that mammographic visualization might yield additional information concerning the nature of this puzzling tumor. Attempts, however, to introduce stabilized thorium dioxide sol into the milk ducts failed, for the small estuaries could not be located. Hence, the insufflation of air offered the only hope of visualizing the neoplasm.

The mammary gland was thoroughly cleansed with merthiolate and a No. 20 gage needle was inserted into the retromammary space and 500 cc. of filtered air was slowly introduced. The injected air gradually separated the breast from the pectoral muscles and elevated the gland from the chest wall. The needle was withdrawn and reinserted into the subcutaneous tissues directly overlying the tumor mass, and an additional 265 cc. of air was injected through this portal. The inflated emphysematous breast was about five times larger than its uninjected mate.

A stereoscopic roentgenogram produced a beautiful silhouette of the breast. The injected air had completely surrounded the mammary tissue, thus separating it from the skin and pectoral muscles. The air had also dissected its wall along the capsule of the offending tumor, thus separating the neoplastic mass from its bed of compressed breast matrix (fig. 5B). Because it was a translucent encapsulated tumor, Dr. Harris made the roentgenologic diagnosis of a lipofibroma. A large encapsulated bilobular fatty tumor was removed from the breast. The enucleation was accomplished with ease, for the air had already separated the tumor from its glandular bed. The lipoma measured 3 inches (7.5 cm.) in thickness and was 4 inches (10 cm.) long. It was composed of fatty tissue held together by a loose connective tissue stroma. Apparently the fibrous matrix was responsible for the resistance encountered by the exploring needle.

The patient made an uneventful convalescence and the emphysema completely disappeared during the next six days.

In this particular case the single aeromammogram vividly portrayed the characteristics of this supposedly malignant tumor and identified it as a benign lipofibroma. Similar experiences have taught us that insuf-

flations of air are valuable in facilitating the diagnosis of breast tumors, particularly lipomas, fibro-adenomas, simple retention cysts and carcinomas. Aeromammograms, however, have definite limitations, for they do not visualize small papillomas, early carcinomas, small

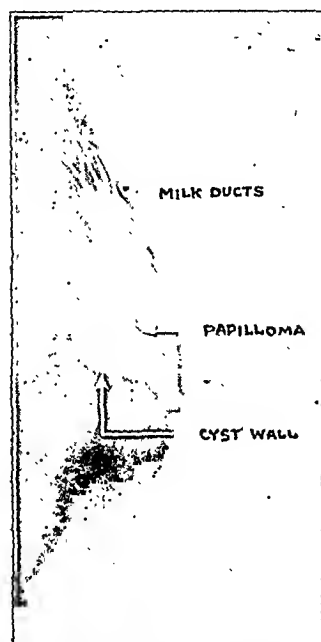


Fig. 3 (case 1).—One segment of the normal left breast was injected with stabilized thorium dioxide sol. Observe the small ramifying ducts, the large cyst and the negative shadow in the center of the cyst, which was interpreted as being a papilloma.

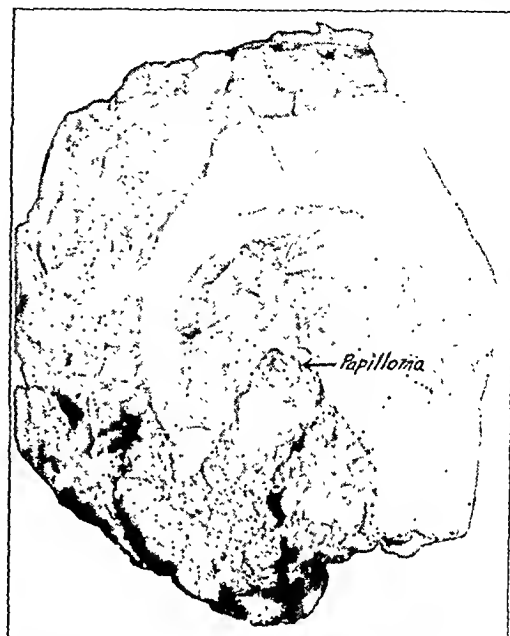


Fig. 4 (case 1).—The cystic cavity and the proliferating papilloma, confirming the mammogram.

retention cysts or cystic dilatation of the milk ducts. In order to visualize such tumors, the lactiferous ducts must be injected with some contrast medium. The combination of the ductal injection and the insufflation of air is ideal, for it permits a complete visualization of all the structures of the breast.

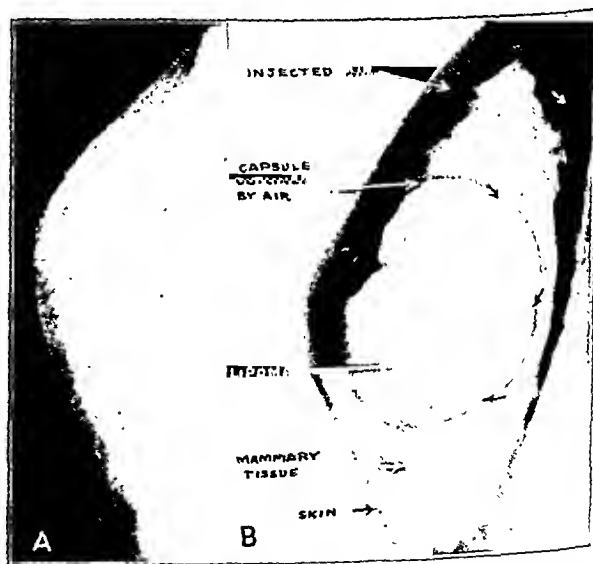


Fig. 5 (case 2).—A, soft tissue roentgenogram of right breast, failing to outline or define the offending neoplasm. B, the breast was inflated with 765 cc. of air. The air separated the breast matrix from the skin, the pectoral muscles and the neoplastic mass. The air dissected along the capsule of the tumor, thus outlining the lipoma.

These two cases are typical of many others which we have studied by contrast mammograms. Detailed discussions of technic, interpretations, limitations and indications for mammography have been reported else-



The physicians who assisted me in this survey were Drs. M. B. Beckett, A. W. Newitt and F. C. Forsbeck from the state department of health and Dr. H. S. Towsley from the division of pediatrics, University of Michigan Medical School. All readily adapted themselves to the same classification and method of examination that was used in the previous examination in

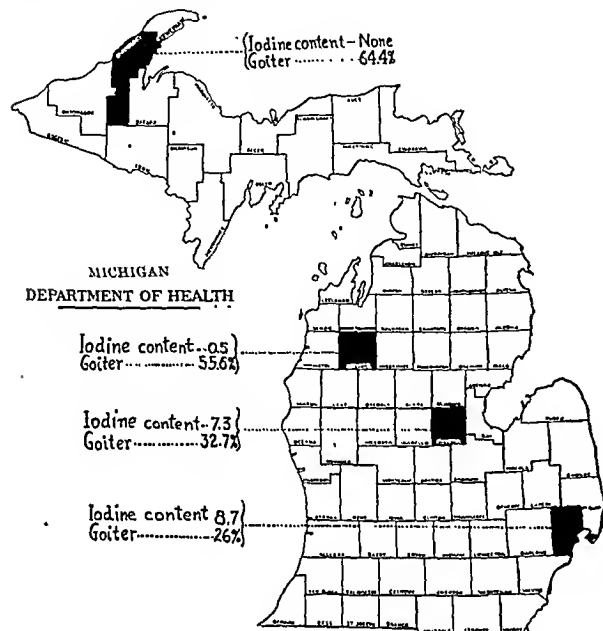


Chart 1.—Goiter survey of school population: Iodine in water estimated in parts per billion.

Michigan and was also the method used in the original survey in Akron. In every case we made a manual examination of the neck, palpating each lobe of the thyroid, estimating the size, and feeling the consistency and the presence or absence of nodules or persistent thyroglossal stalk.

The classification of goiter must begin with an appraisal of the normal thyroid. At the beginning of our study in Akron in 1916 Marine's standard of anatomically normal thyroid was one that does not exceed 0.5 Gm. of thyroid per kilogram of body weight. In an average size adult a strictly normal thyroid would average from 20 to 35 Gm. Correspondingly an adolescent child would have a thyroid weight of from 15 to 30 Gm. Further, Marine estimated that each lateral lobe is approximately the size of a medium sized lima bean, while the isthmus can barely be palpated. We stated in our first report<sup>2</sup> of this study (1917) that the lateral lobes, if normal, could not be palpated. By 1924 our knowledge and technic had improved to a point at which we taught the physicians who assisted with the survey in Michigan to palpate the lateral lobes in each case and to think in terms of consistency as well as of size. If distinct enlargement of one or both lateral lobes can be palpated, i. e., two or three times normal, and a change in consistency, soft or spongy, it is called a small goiter. If beyond a doubt this enlargement cannot be felt, the thyroid is called normal. The small goiter includes everything from a distinct enlargement to a visible goiter in which one or both lateral lobes cause a definite bulging of neck and the median lobe is easily apparent; i. e., from one-half to one inch (from 1.27 to 2.54 cm.) in thickness. In

such a goiter there may be as much as ten times the amount of a normal gland. If the enlargement is deforming, i. e., considerable bulging of one or both lateral lobes, it is called a moderate goiter. This moderate goiter included all average sized goiters. Only the exceptionally large deforming thyroid is called large goiter. Thus we had originally the following classifications: (1) normal, (2) small goiter, (3) moderate goiter and (4) large goiter. In all the surveys in Michigan we used only the numerals 1, 2, 3 and 4, but the meaning is exactly the same as the original classification.

The survey had three main objectives: (1) incidence of goiter in relation to the use of iodized salt, (2) the safety of the continued use of iodized salt and (3) the accuracy and dependability of this method of replacing food iodine. Therefore it was necessary to know in each case whether or not they were using iodized salt. To this end blank cards were sent to the school several days preceding the examination so that this information could be given with some assurance of accuracy. From our experience, however, these data can be procured with accuracy only when directed by public health nurses.

It was obvious from the start that our data would naturally fall into three groups: (1) those using iodized salt regularly for years, (2) those not using iodized salt at all and (3) all those in which the information is too indefinite to be classified with either group 1 or 2 and grouped under the heading indefinite. We frequently encountered such conditions as "Used iodized salt regularly from 1924 to 1930, but none since" or "We have used iodized salt regularly for the past three years, but none before that." In the reexamination of

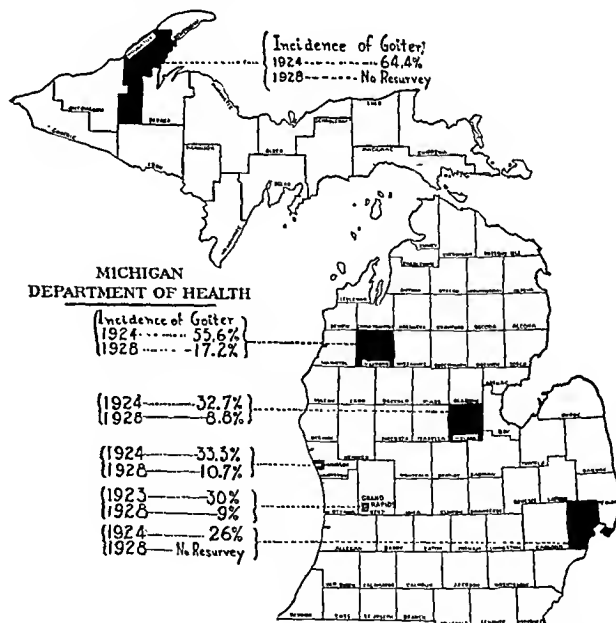


Chart 2.—Goiter survey in 1923 and 1924: School children examined, 65,537; incidence of goiter, 38.6 per cent. In 1928, school children examined, 50,134; incidence of goiter, 9.9 per cent.

1928 and in the yearly examination of school children in Detroit and Grand Rapids we found a most striking decrease in goiter during the first four years. Therefore, if a child stated that he had used iodized salt regularly for three years or more he was classed as using iodized salt, and if he had not used it for three years he was classed as not using iodized salt.

2. Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter in Man, *J. Lab. & Clin. Med.* 3: 40-48 (Oct.) 1917.

fore, of an early malignant growth by roentgen examination must first take into consideration the point at which "early malignancy" is to be placed. If the presence of the first neoplastic cells beyond normal limits, a condition often ascertained with difficulty even with the aid of the microscope and in the hands of the most experienced pathologist, is to be regarded as the



Fig. 2.—A diagnosis of chronic cystic mastitis was made from the sections of the breast in figure 1 because the main tumor mass was excised and withheld from the pathologist so that another area of malignant involvement was difficult to find macroscopically. The patient subsequently died with widespread metastatic malignant lesions.

"critical" point for establishing the earliest diagnosis of malignancy, then the use of the roentgen rays is futile at this stage. But if one proceeds with open eyes, there are other grounds for enthusiastic consideration of the roentgen examination. Its continued application seems warranted, especially in the large clinics where there is much material and where close cooperation among clinician, surgeon, pathologist and roentgenologist can be arranged.

We have had the opportunity to obtain the opinion of an expert pathologist<sup>5</sup> who studied sections of amputated breasts from forty-one patients in our private practice and from the tumor clinic of the Skin and Cancer Hospital. This material is naturally too meager on which to base statistical conclusions but does furnish some revealing data. The fact that the percentage of correct preoperative roentgen interpretations was higher than that made by the pathologist when limited to his macroscopic studies, but lower than that made after his histologic examinations, is in itself very encouraging. This feeling is further enhanced by recalling cases in which the roentgen diagnosis was the single cause for revision of the pathologic report, the initial disagreement between the roentgenologist's and the pathologist's observations leading to further histologic study resulting in correction of the diagnosis.

#### REPORT OF CASES

CASE 1.—A patient, aged 70, was operated on Oct. 4, 1935, by Dr. J. F. McCloskey at the Skin and Cancer Hospital for a lump in the right breast, diagnosed as probably carcinoma. No palpable lymph nodes were present in the axilla. The pathologic report was chronic cystic mastitis, but the roentgen diagnosis was malignant neoplasia, with a moderate generalized

cystiphorous desquamative epithelial hyperplasia of the entire breast. On further inquiry it was learned that the amputated breast was first turned over to the research laboratory, where a part of the actual tumor was dissected out. Sections selected by the pathologist revealed only evidence of chronic cystic mastitis (figs. 1 and 2). In the roentgenograms a nodular neoplasm is visible in the right breast (the nipple of which was pulled forward at the time of the roentgen examination). Very little subcutaneous fat is present, but many fatty loculi are irregularly distributed throughout the body of the gland itself. While no cysts are present large enough to be definitely discernible, the moderately increased thickness and density of the stromal structures were the basis for the roentgen diagnosis of chronic mastitis, and, because of the patient's age, cystic degeneration was inferred. The visible lobulation and radiating extensions of the tumor margins led to the diagnosis of malignancy. While a check of the histologic appearances of the sections gave no reason to change the pathologic report, malignant metastasis developed and the patient died seven months after the operation.

On reviewing the material of this report we learned of the partial dissection of the tumor by the research pathologist, and in his sections there was unequivocal evidence of malignancy.

While experienced pathologists are content to give opinions on pathologic changes in the breast from microscopic examination of small sections of areas selected macroscopically, they realize that frequently systematic examination of sections of the whole breast are necessary to gain a true impression of the state of the whole gland. One small section may show malignancy while another may reveal cystiphorous desquamative epithelial hyperplasia and still another some other pathologic change.

It is conceded that carcinoma may be present in areas not suspected from macroscopic examination. One of the possible advantages of the roentgen examination is expressly in this connection. The equivalent of macroscopic examination of the whole gland is made available and the pathologist is given more aid in selecting suspicious areas for histologic study.

Excepting for one case in this series, the patient or the clinician or both found a tumor in the breast prior to the roentgen studies.

Any tumor that is palpable can be demonstrated in the roentgenogram. If tumors too small

for detection by palpation could be revealed, the roentgen examination might become more essential in breast tumor diagnosis. As a matter of fact, this can already be partially realized if resort is made to serial roentgenographic studies of the normal breast in women



Fig. 3.—The delicate radiating striations springing from the periphery of this deep seated neoplasm was thought to indicate malignancy.

5. The histologic studies were made by Dr. Damaso deRivas, Professor of Parasitology, University of Pennsylvania School of Medicine, and Dr. Eugene Case, pathologist to the Graduate Hospital of the Graduate School of Medicine, University of Pennsylvania.

is due to the continued use of iodized salt from 1924 to 1932. In the original survey one third of the children of this county showed a well developed goiter, and a questionable enlargement was seen in almost every child. We now find an anatomically normal thyroid in 90 per cent; i. e., the theoretically normal thyroid that twenty years ago Marine said could be found only along the sea coast. Also in these schools we examined children of five families, all of whom stated that they had

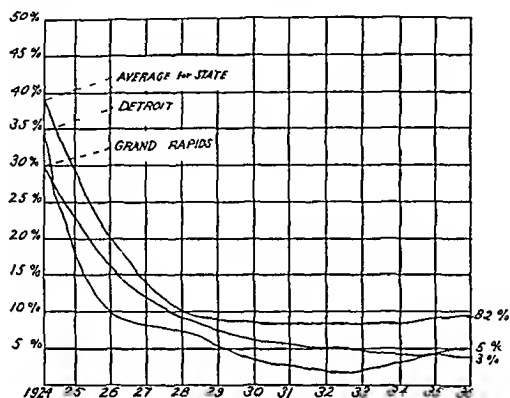


Chart 3.—Incidence of goiter in Michigan from 1924 to 1936.

purposely avoided iodized salt for years (from three to six) on the advice of their physician. On questioning we found that all five families had been advised by a dermatologist of Saginaw, who gave the advice on the theory that iodized salt caused acne vulgaris. Among these children there were eight cases of moderately enlarged, soft, spongy hyperplastic goiters, demonstrating as nothing else could the value of iodized salt in the prevention of goiter.

Not one case of acne was found among the children of these five families, nor did we find more cases of acne than would be expected among the 3,000 children using iodized salt regularly for years. But the important fact is that of these 3,000 children less than 2 per cent had goiter.

In January 1936 a goiter survey was made in Cleveland. This survey was made by the school health service of the city health department through the parochial schools. Here again there were two objectives: (1) the incidence of goiter and (2) the use of iodized salt. To make our data as accurate as possible, the school health nurse went into each schoolroom several days in advance of the examination, explaining the importance of this study, and arranged for each child to take home a blank card bearing his name and the questions on the use of iodized salt. This blank was to be filled out by the parent. The information was then transferred to his goiter card, on which our examination was recorded. The examinations were made by Drs. Sloan, Jackson, Larsen, Hutchison and Kimball. The examination and classification was the same as is described for the Michigan survey. The fifteen school districts were selected by the school health service as representative of average conditions in Cleveland. Table 6 gives the result of this survey.

A similar study made by me for the city health department through the parochial schools of Cleveland in 1924 showed 30 per cent goiter among school children (all grades, boys and girls). Today, as shown by data in table 6, among those not using iodized salt the incidence of goiter is still 30.7 per cent. This is the answer to any one who thinks that the incidence of

endemic goiter goes in waves; i. e., in 1924 we were at the peak of the wave due to natural causes and by 1935 we were at the low ebb of natural causes. Our results show that we are still at the 1924 peak for those not using any prophylactic iodine.

The actual changes that have taken place in Michigan and Ohio since 1924 can best be shown graphically. The incidence of goiter throughout Michigan was 38.6 per cent in 1924 and 9.9 per cent in 1928 and 8.2 per cent in 1935.

The true condition of Cleveland is strikingly shown in figure 4. The group not using iodized salt shows no change, while the group using iodized salt shows a decrease from 31 per cent to 7.7 per cent. In each county or city in Michigan the group listed as not using iodized salt showed some reduction in goiter over the 1924 survey. In some instances it is less than half. We can attribute this to the fact that a very high percentage of the homes used only iodized salt from 1924 to 1930, but many have used only bag salt (noniodized) since the depression. They were listed with those not using iodized salt because we had arbitrarily set three years as the limit for using or not using, but its use for the preceding years had a very definite effect. We cannot accurately evaluate this effect, so we stress only the percentage of goiter at present, which shows the entire reduction.

In Cleveland we had an entirely different situation. There was a great difference of opinion in the medical profession and consequently a distinct division of thought and advice was given the public. Our survey this year showed that 87.3 per cent of the homes had definitely decided either for or against iodized salt. The group of nonusers had purposely avoided it since it came on the market in 1925, for it was then that they were so strongly advised against its dangers. Also that was the time when the state and city departments of health urged the general use of iodized salt throughout this endemic goiter district. This definite stand for or against the use of iodized salt has accidentally pro-

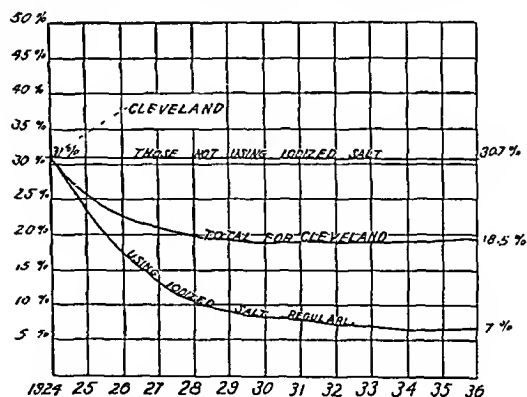


Chart 4.—Incidence of goiter in Cleveland from 1924 to 1936.

vided here in Cleveland indisputable data that should establish definitely the value and future of this method of prevention.

In Cleveland we did not find any case of clinical hyperthyroidism among the 6,000 children examined. In Michigan, among 9,429 children not using iodized salt, we found four with moderately sized nodular hyperplastic goiters with very definite clinical signs of toxicity. Three of these stated that they had never used iodized salt and the fourth stated he had used only

accentuation of the stromal striations leading up to it from the breast itself. A diagnosis was tentatively made of a benign, probably inflammatory, process and within four weeks an approximate total of 1,600 roentgens was delivered into the region of this node by cross-fire roentgen irradiation. At the end of this time the node had completely disappeared; both palpation and roentgen examination did not disclose any evidence of its presence.

The case has been followed for fifteen months and so far no changes have occurred (fig. 5).

The least number of errors in the roentgen diagnosis of malignant mammary tumors was made in the atrophic breasts, most of which occur in the fifth and sixth decades, usually at or after the menopause. In these breasts the single examination has already exhibited its diagnostic possibilities for accuracy. The chief reason for this is the clear visibility of the tumor margins afforded by the homogeneous fat content of the breast, the fat being a good radiolucent contrast medium. It is often surprising how easily discernible are the striations of malignant infiltrations radiating from the margins of a growth in breasts of this type; this is also partially true when there is excessive fat infiltration in the active breast of the younger individual. This is a particularly fortunate circumstance because it is in this type of breast that the clinician and the surgeon have the greatest difficulty in making a diagnosis.

Some slow growing tumors show a tendency to remain localized, enlarging slowly by gradual peripheral accretion of new cells, which press the tumor bed centrifugally so that compactness develops in a narrow zone adjacent to the neoplasm, thus creating a smooth surface, and leading to an erroneous roentgen impression of benignancy. When such tumors are small and confined within the limits of the body of the gland itself, it is hard to understand how the roentgen examinations can be of real help in deciding the question of malignancy. But it is characteristic of this kind of tumor sooner or later to enlarge "out of bounds" and to cross the sharp limiting zones of the mammary gland, either forward into



Fig. 7.—The nodule visible in this breast felt smooth and freely movable and therefore seemed benign but was thought malignant from its roentgen appearance because of the invading posterior margins.

the clear fatty subcutaneous layer or backward into the clear cleft between the corpus mammae and the pectoral muscle. Under such conditions it is justifiable to raise the question of malignancy. This was rather graphically impressed on us after reviewing whole breast sections of an instructive collection, an opportunity kindly given us by Dr. Joseph McFarland in his laboratory in the University of Pennsylvania School of Medicine.

#### NODULARITY

Palpation of the breast is probably one of the least satisfactory procedures in physical diagnosis. Not only does there seem to be a lack of standardization in the technic, but there is also chaotic misinterpretation of the results. The consistency of a breast is frequently referred to without the slightest appreciation of how a thick subcutaneous layer of fat may modify this prop-

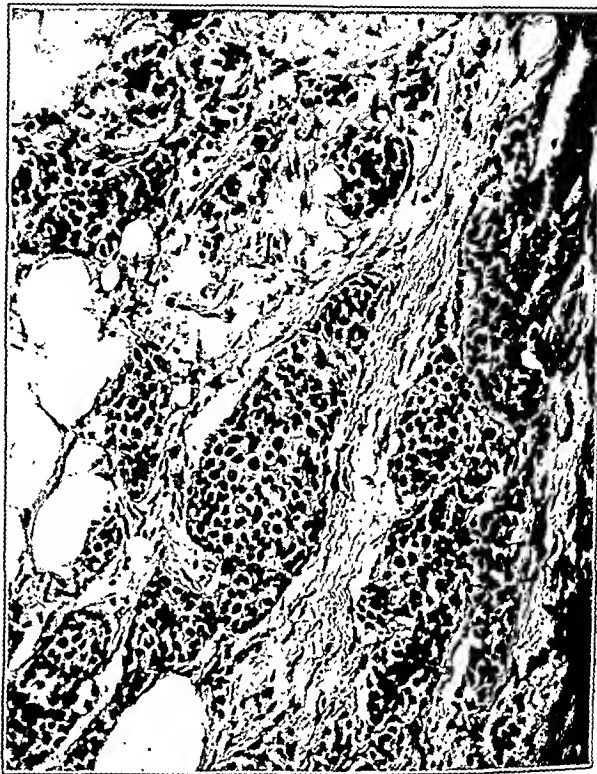


Fig. 8.—Section of nodule in figure 7, showing its malignant histologic characteristics.

erty. The multinodularity often ascribed to a breast is not commonly due to the unevenness of the surface of the gland itself but to isolated lobules of fat separated from one another by dense subcutaneous projections of the suspensory ligaments of Cooper. This can be proved by subcutaneous severance of the attachments of these ligaments, which abolishes the palpable multinodularity. The distribution of the subcutaneous fat, the extensions of the fibrous suspensory ligaments through it to the skin and the character of fat infiltration in the body of the gland itself are shown with extreme clarity in the roentgenograms. This should engender a reliable approach to the interpretation of the observations made by palpation and obviate undercutting of the skin for clinching the diagnosis. In the roentgenogram shown in figure 6, extensions of the mammary parenchyma into the bases of many of the subcutaneous projections of the ligamenta suspensoria are seen, dividing the subcutaneous fat into lobules, making differential diagnosis from nodules in the gland itself difficult by palpation alone.

Deep seated nodules are found more easily by the roentgen examination than by palpation. This implies, of course, that the proper roentgen technic has been employed for demonstrating the tissues in the base of the gland. Superficial nodularity is so clearly shown in the roentgenograms that there is no difficulty in making a differential diagnosis between false nodularity

in the lower portion of the breast did, however, transmit light, but no other abnormalities were noted. The left breast was apparently normal.

It was appreciated that the right breast harbored a bleeding neoplasm and attempts were made to locate the tumor by means of contrast mammographic studies. The dilated milk duct, from which the hemorrhagic fluid escaped, was cannulized with a blunt No. 25 gage needle and was injected with 1 cc. of stabilized thorium dioxide sol. The resulting roentgenogram clearly outlined the course of the milk duct and demonstrated a definite filling defect, which protruded into and completely filled the ductal lumen (fig. 1A). Apparently this filling defect was caused by a proliferating tumor arising from the walls of the milk duct. To exclude the possibility of this negative shadow being an artefact, such as an air bubble, a second mammogram was taken after an additional 3 cc. of stabilized thorium dioxide sol had been introduced into the same duct. The contrast fluid passed beyond the obstructing tumor and filled the terminal lacteals and acini. Not only was the first tumor still visible but a second and similar neoplastic mass was observed at the bifurcation of one of the smaller communicating ducts (fig. 1B). Thus two papillomas were definitely localized by these visualization studies.

In an attempt to understand these roentgenologic changes better and in order to have a normal breast pattern for comparison, four lactiferous ducts of the left nipple were cannulized and injected with stabilized thorium dioxide sol. The stereoscopic mammograms presented a startling and completely unexpected condition. The injected segment of the breast matrix was found to contain a large cyst, which was formed by the confluence of several adjacent ducts. The delimiting wall of the cyst was clearly seen, but its central portion was not distended with the thorium dioxide sol, as there seemed to be a moderate sized filling defect present (fig. 3). Repeated mammograms indicated that this negative shadow maintained a constant size, shape and position; therefore it was interpreted as being a pedunculated papilloma arising from the cyst wall.

Appreciation of the tendency of papillomatous neoplasms to undergo malignant transformation, combined with the fact

left breast several dilated ducts had fused so as to form a cyst, and arising from its wall was a friable, nonbleeding pedunculated papilloma (fig. 4).

This particular case presents several interesting features. First, it emphasizes the fact that papillomatous tumors are often multiple and that they may arise in any segment of the lactiferous ducts. Second, it clearly

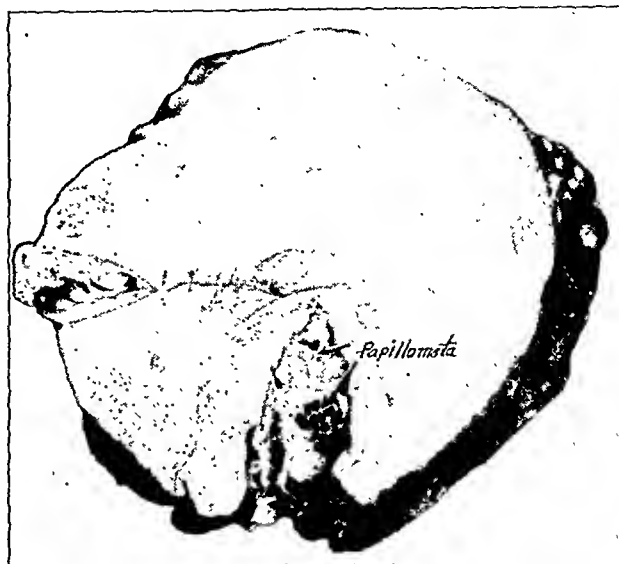


Fig. 2 (case 1).—Excised breast, showing dilated duct containing two papillomas

demonstrates that a simple excision of one tumor is not curative, for similar growths may be developing in other portions of the same breast. Third, it proves that papillomas may simultaneously involve the two breasts and that the absence of symptoms and physical signs is no assurance that such tumors are not present. Fourth, the multiplicity of these neoplasms lends credence to the belief that they may have a certain constitutional or endocrinologic background. Fifth, it most emphatically demonstrates the clinical value of mammographic studies in the diagnosis of breast neoplasms. The mammograms not only locate the offending tumors but also determine the degree of involvement. Such information is valuable, as it assists the surgeon in selecting the proper therapeutic procedure.

#### LIPOMA OF THE BREAST

CASE 2.—Mrs. M. F., aged 21, a housewife, was worried about a lump in her breast. Two months before admission while bathing, she accidentally discovered a small asymptomatic tumor in the right breast. About this time she became pregnant and both breasts began to enlarge. The neoplasm, however, grew very rapidly, for during the past two weeks it had more than doubled its original size and now interfered with the free motion of her arm. She had never observed a discharge from the nipple nor had the breast been subjected to trauma. Her physician interpreted this history and his observations as signifying a rapidly growing carcinoma which was being activated by an early pregnancy.

The right breast was twice as large as the left and in the upper half there was a large bulging tumor mass. It was firm, slightly tender and partially fixed, for it blended insensibly into the adjacent breast matrix. The overlying skin was tense and apparently attached to the tumor, but one could not determine whether the fixation was caused by an actual cellular infiltration or by contact pressure with the neoplasm. The tumor mass was not adherent to the pectoral muscles, for a layer of normal breast tissue seemed to separate the two. The nipple was partially inverted and, as no secretion could be

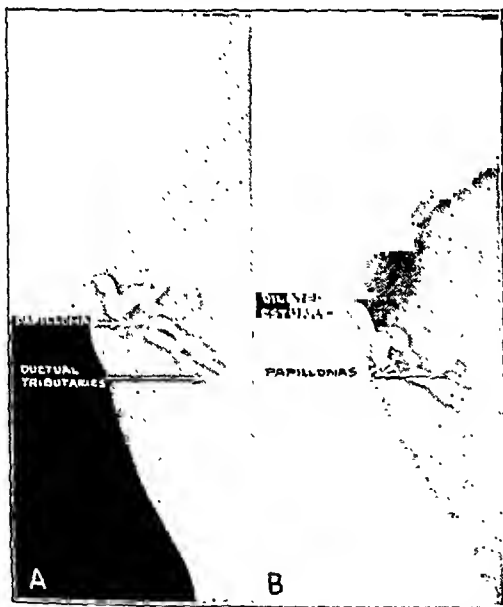


Fig. 1 (case 1).—A, the bleeding duct was injected with 1 cc. of stabilized thorium dioxide sol. The mammogram evidenced a filling defect, which was interpreted as a papilloma protruding into the ductal lumen. B, the same duct was injected with an additional 3 cc. of stabilized thorium dioxide sol. The entire duct and its tributaries were visualized and two filling defects were seen, indicating multiple papillomas.

that these tumors were bilateral, caused Dr. Moon to remove both breasts. Examination of the excised specimens verified the mammographic studies. The right breast contained a large dilated duct which harbored two bleeding papillomas (fig. 2). The tumors were too small to be detected by palpation or to cast a dark shadow on transillumination. In the asymptomatic

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DERMATITIS FROM DYED AND OTHER-  
WISE TREATED CITRUS FRUITS

## REPORT OF TWO CASES

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The practice of coloring citrus fruits by means of dyestuffs, aniline and other substances to give a fully ripened appearance has come into vogue only during the past two to two and one-half years. A large number of chemicals have also been used in recent years to ripen artificially and preserve the fruit for distant markets. These include ethylene gas, kerosene, paraffin, soap, wax and borax. The fruit is also washed in various fungicidal solutions, the formulas of which are generally secret and known only to the manufacturers. Some orange growers use insecticide sprays on their trees, while others cover each tree with a sort of tent into which is pumped hydrocyanic gas. It has also been found that gases from the exhaust pipe of an automobile have a ripening effect on green fruit skins, an action similar to that obtained with ethylene, and as a result this method also has been employed. The United States Department of Agriculture informs us that there is some evidence that oranges may themselves produce small amounts of ethylene during the natural fading out of the green color in the peel after picking, and it is known that this is the case with other fruits. It is asserted that 90 per cent of the Florida oranges in the New York markets are artificially colored. According to the United States Department of Agriculture the permitted food dye used for artificially coloring fruit is Yellow O B, as well as a combination of two dyes similar to sudan I and sudan II except that

occurring from wrist-watch straps dyed with amidoazotulene hydrochloride, which contains one of the same radicals found in Yellow O B. Three different brands of Florida oranges purchased in the market where the patient worked were used for patch testing. All three brands were labeled "color added." In addition we secured some Florida oranges that were picked from the trees and delivered directly to us, no treatment or color having been added.

The California oranges furnished us for the sensitivity test were accompanied with the following information from the United States Department of Agriculture:

The unwashed oranges were of the Washington navel variety and had not been treated in any way. The washed oranges had

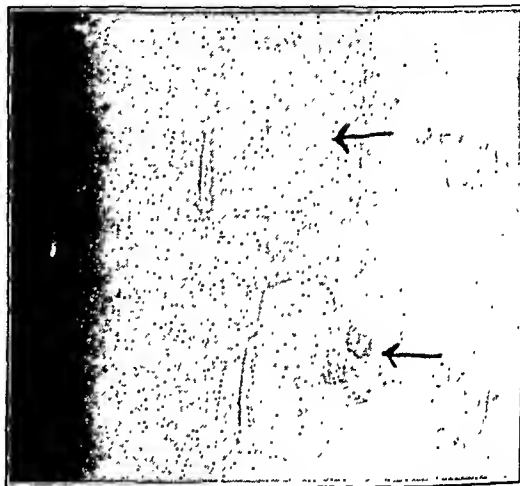


Fig. 2.—Upper area represents a negative patch test to the inside of a dyed orange peel. Lower area is a positive patch test to the outside of a dyed and treated orange peel.



Fig. 1.—Dermatitis of face in case 1 (hands and forearms similarly affected).

one is formed by coupling xylydine and amidoazoxylene on beta-naphthol, and the other by coupling orthotoluidine on beta-naphthol, both processes being carried out in alkaline solution. Yellow O B is known to chemists as orthotoluene-azo-beta-naphthylamine. In a recent article Louis Schwartz<sup>1</sup> draws attention to a dermatitis

been given the commercial treatment being practiced generally at the season at which these oranges were picked. They were not treated with ethylene, although similar oranges earlier in the season would be treated with ethylene.

The oranges from the grove were first dumped into a long metal tank containing a solution of 2 parts of boric acid and 1 part of borax, so that the total content of borates was about 6.9 per cent. The oranges were kept in this solution for two and one-half minutes, the solution being at a temperature of 117 F. From this solution they went to another tank, where they were washed with soap and water. The soap used was a liquid soap labeled "Bobrick's Citr-O-Zone No. 1 for Oranges Bobrick Mfg. Co., Los Angeles." The oranges were then passed under sprays of clear, clean water and then went through a drier.

Both the washed and the unwashed oranges came from a grove at Upland, Calif. The trees are about 30 years old. The trees had not been sprayed or dusted this season. They will be either sulfured or fumigated with cyanide after the fruit is picked.

There has been no special law passed with reference to using dyes on oranges. The federal Food and Drugs Act provides that a product shall be considered adulterated if it is stained or colored in a manner whereby damage or inferiority is concealed.

Some years ago a standard for the maturity of oranges was adopted which provided that an orange would be considered mature if the ratio of soluble solids to acid calculated as anhydrous citric in the juice was 8 to 1 or greater. When coloring was first practiced on oranges it was held that oranges were mature when judged by this ratio and that inferiority was not concealed by coloring them. Last fall, however, the department issued a notice that after Sept. 1, 1936, they would consider that oranges were colored to conceal inferiority regardless of

From the Skin and Cancer Unit of the Post-Graduate Hospital.  
 Mr. Louis Schwartz collaborated in the testing of the normal subjects with orange peels and dyes.  
 1. Schwartz, Louis: Skin Hazards in American Industry, Pub. Health Bull. 229, part 11

where.<sup>1</sup> A personal experience (N. F. H.) with more than 320 contrast mammograms testifies that they are invaluable in the diagnosis and recognition of mammary neoplasms.

#### CONCLUSIONS

1. Tumors of the breast can be visualized by contrast roentgenograms made by introducing radiopaque substances into the milk ducts or by inflating the breast tissues with air.
2. Tumors arising within or communicating with the milk ducts are best visualized by introducing stabilized thorium dioxide sol into the diseased ducts. The stereoscopic mammograms locate the tumor and portray its identifying characteristics.
3. Tumors arising in the periductal tissue or those having no communication with the milk ducts can be visualized by inflating the breast with air. A large encapsulated lipoma was visualized by this method.
4. A combination of the ductal injection and the insufflation of air produces the most satisfactory visualization patterns of the structures of the breast.
5. Lipoma, fibro-adenoma, simple retention cysts, cystic degeneration of the ducts and carcinoma are some of the tumors that have been visualized preoperatively and correctly diagnosed.

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### AN EVALUATION OF THE ROENTGEN DIAGNOSIS OF EARLY CARCINOMA OF THE BREAST

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An accurate roentgen diagnosis of any breast lesion based on recognition of morbid anatomic change presumes familiarity with the normal anatomic roentgen appearances. In a recent report of the normal breast we<sup>1</sup> indicated some limitations of the roentgen examination in such borderline pathologic states as mazoplasia, cystiphorous desquamative epithelial hyperplasia, epitheliosis and adenosia. Since the roentgenologist can attain little more accuracy than the pathologist, if limited to a macroscopic examination in making conclusive diagnoses of breast lesions, claims made for the roentgen studies inferring accuracy akin to the pathologist's microscopic studies must be carefully analyzed. This is well exemplified in those cases of fibro-adenomas of the puberal period when clinically, roentgenographically and macroscopically a diagnosis of neoplasia is agreed on only to be controverted by the microscopic finding of simple hyperplasia.<sup>2</sup> While it is difficult to credit some of the recent enthusiastic reports on the roentgen examination of the breast which seem almost tantamount to histologic studies, the high percentage of roentgen interpretations that were confirmed by microscopic examination of the tissue<sup>3</sup> is remarkable.

1. Hicken, N. F.: Mammography: The Roentgenographic Diagnosis of Breast Tumors, Surg., Gynec. & Obst., to be published; The Radiographic Visualization and Diagnosis of Breast Tumors Following Air Insufflation, Ann. Surg., to be published.

The authors acknowledge the assistance and facilities given by Dr. Albert Strickler, medical director of the Skin and Cancer Hospital, where many of the examinations were done.

2. Gershon-Cohen, Jacob, and Strickler, Albert: The Roentgenologic Examination of the Normal Breast, Am. J. Roentgenol., to be published.

3. Dawson, E. K.: A Histological Study of the Normal Mammary in Relation to Tumor Growth: I. Early Development to Maturity, Edinburgh M. J. 41: 653 (Dec.) 1934.

4. Lockwood, I. H.: The Roentgen-Ray Evaluation of Breast Symptoms, Am. J. Roentgenol. 29: 145-155 (Feb.) 1933.

#### ROENTGEN CRITERIA FOR MALIGNANT CONDITIONS OF THE BREAST

When we speak of any method for the detection of early neoplastic changes, it might be well to make clear first when neoplastic changes are early. The pathologist regards malignancy as early when he discovers microscopic invasion of any proliferating group of cells or tissue beyond normal bounds. But it is very likely that cells are malignant before this invasion occurs, and some pathologists endeavor to diagnose malignancy on the morphologic changes they observe in the cell itself while still within its normal confines. Certainly with the present limitations of knowledge of the diagnostic applications of the roentgen rays a diagnosis of malignancy at this early stage seems ludicrously hopeless. However, if malignancy were regarded in most instances as simply a later stage in the evolution of neoplasia, the beginning of which is always benign, like tumors of the type classified as adenoma, fibro-adenoma and papilloma, the prob-



Fig. 1.—The neoplasm in this breast was regarded as malignant because of the spreading irregular margins.

lem would be relatively simple. There are some good reasons to look on this idea as tenable. The occurrence of malignancy in about 20 per cent of cases of Schimmelbusch's disease is an example in point. This disease begins with what Cheate<sup>4</sup> regards as a desquamative epithelial hyperplasia with cyst formation, usually occurring in the late twenties and early thirties. In the next stage, usually in the late thirties and the forties, a radical neoplastic change takes place in the biology of epithelial growth, although the cells remain within normal but distended boundaries. Papillomas are conspicuously present at this stage, and the earliest neoplastic changes that can be recognized by the pathologist occur at this time. Cheate has seen all three stages of transition in breasts at this period, and he logically remarks on the similarity of these changes with the development of tar carcinoma in mice. The dermatologist and gynecologist are also acquainted with the transition of benign leukoplakia, warts and papillomas into malignant processes. The diagnosis, there-

4. Cheate, G. L., and Cutler, Max: Tumors of the Breast, Philadelphia, J. B. Lippincott Company, 1931.

CASE 2.—S. L., a man, aged 35, Norwegian, a cook, stated that he did not have any skin condition until somewhat over two years before, when an eruption appeared on the hands. This was erythematovesicular and was most pronounced about the palms and fingers. The rest of the body was entirely free and clear. The patient stated that he had noticed that the handling of certain foodstuffs in his work as a cook seemed to aggravate the condition. He was quite definite in his history that oranges and to a less degree lemons and grapefruit seemed to cause flareups but only during the past two to two and one-half years, as he had always previously handled these fruits without irritation. Examinations for tinea on the hands and feet were negative both culturally and by a direct smear. All trichophyton, dermatomycol and oidiomyein tests were negative. The Wassermann and Kahn tests were negative. Patch tests were done by applying various foodstuffs with the following results: spinach negative, apple rind negative, strawberry rind doubtful, grapefruit rind +, orange rind +++, tomato rind negative, lemon rind ++, apple meat negative, strawberry meat negative, grapefruit meat negative, orange meat negative, tomato meat negative and lemon meat negative. All routine scratch tests, including thirty-two foods, all pollens and epidermals were negative.

It is interesting in this particular case to note that the patient's history is very definite as to the onset of his dermatitis, and that this onset coincides exactly with the time the practice of dyeing citrus fruits was first begun.

#### COMMENT

Both of our patients, but particularly patient 1, were studied for a long time before this report was prepared. Patient 1 has been under treatment for years and has repeatedly been hospitalized for observation and testing. Patient 1 had several attacks of dermatitis, one of which was attributed to arsenic, before the present trouble began. For this reason we have made every effort to exclude all other factors as far as possible by careful history, observation and patch tests. In addition to the tests performed on these two patients, a number of normal individuals were checked and the results are of considerable interest and significance. It was discovered that the manner in which the orange peel was applied to the skin had considerable bearing on the result obtained. In all the tests tabulated in the foregoing, the outer surface of the peel was simply laid next to the skin surface. We found, however, that if the peel was crushed or squeezed and some of the oils contained in it were expressed on the skin area to which the peel was then applied, many positive tests resulted, indicating that the concentrated oils so expressed, whether obtained from dyed or undyed oranges, were apparently a primary irritant. Eight physicians and nurses were tested with the rind of a California Sun-kist and a Florida color added orange. The test material remained on all for from twenty-four to thirty-six hours except that in the case of the senior author (E. F. T.) the reaction was so severe in thirty minutes (erythema and vesiculation) that the patches had to be removed. None of the seven others showed a reaction to the skin of the Sun-kist orange, but three reacted positively to the dyed Florida orange. In two the reaction was strong enough to cause vesiculation and small bleb formation. Four of the same group applied the pure powdered dyes in a refined white liquid petrolatum. Three showed no reaction after twenty-four hours, but one was positive to all the dyes (Yellow O B, sudan I and sudan II) after seventy-two hours—the control with the white liquid petrolatum was negative. Although the senior author failed to react to the dyes in oil after twenty-four hours, there was marked erythema and vesiculation present at the site of the F. M. C. No. 1 and to a less degree at the place of the

Yellow O B test in the soap solution supplied to us from a Florida packing house. The soap solution control was negative.

These additional tests have demonstrated that the manner of application of the orange peel is of considerable importance, because crushing or squeezing the rind must be avoided if the patch test is used to determine sensitivity to substances applied to the outside of the peel. Delayed reactions should be watched for, as these occur occasionally. The following facts seem important (case 1):

1. A visit to the fruit market would immediately be followed by a flareup in the patient's skin eruption even though nothing was actually handled.

2. When the patient was given a dyed orange to handle for a few minutes while in the hospital, erythema and vesiculation could gradually be seen developing.

3. Keeping the patient away from citrus fruits always promptly freed him from his eruption, which invariably returned within twenty-four to forty-eight hours after he returned to the market.

4. Patch tests with dyed fruit produced not only local but focal and general reactions as well.

5. Patch tests with known untreated and undyed fruit skins gave negative results.

6. A circumstance of case 1 for which we are unable to account on the basis of information supplied us and despite our many repeated tests is the positive reaction to undyed oranges from California. All known dyed fruit from Florida gave positive tests, while the fruit from this state, which to our certain knowledge was undyed, gave repeatedly negative tests. The fact that this patient regularly reacted negatively to orange skins that we knew were untreated and undyed and gave positive tests to the citrus fruits from California obtained on the market here certainly seems to incriminate some preparation used on the California oranges.

#### CONCLUSIONS

1. For more than the past two years some citrus fruits have been treated with various dyes in addition to the other chemicals used for aging, ripening and preserving against molds and decay.

2. Two patients were seen with a dermatitis from handling such treated and dyed fruit.

3. In both instances the dermatitis was caused by the chemically treated or dyed fruit, our patch tests in both patients indicating Yellow O B dye as the prime offender.

4. Evidently the dye and chemicals used did not penetrate even to the inside of the peel, as patch tests with the inner surface of the rind gave negative results. Patch tests with the meat of the fruit also were negative.

5. Patch tests with dyed orange skin were repeatedly found to be positive in our cases. Patch tests with known undyed and untreated skins (Florida oranges) were negative.

6. In case 1, patch tests with dyed orange peel produced actual blistering of the skin and a severe focal and general reaction.

7. The dyes used on citrus fruits may definitely irritate some skins.

8. These dyes are not general irritants, because the majority of individuals do not react to them.

9. Hypersensitivity to the dyes may be acquired by constant and repeated exposure.

140 East Fifty-Fourth Street.

past the age of 25. This procedure is so simple and economically practicable that it is certainly worthy of serious consideration as a measure to be taken now in the control of mammary carcinoma.

CASE 2.—A woman, aged 50, was one examined in a series selected for roentgen studies of normal breasts. While she was being placed in position for the first examination, a small nodule was felt deep in the right breast, and from its roentgenographic appearance a diagnosis of a malignant neoplasm was made, based on the delicate radiating striations springing from its margins. After amputation this diagnosis was confirmed by Dr. Damaso deRivas from histologic studies (figs. 3 and 4).

Like Espaillet,<sup>6</sup> we made our most frequent errors in the diagnosis of mammary malignant growths in breasts if examined at the time of their greatest physiologic activity. The complexity of the stromal structures, the wide irregular intermeshing of the perilobular fatty infiltration and the extensive crossing of these shadows by those of the vascular tree, the superficial radicles of which are always so plainly visible in the roentgenograms, make visibility of the exact marginal limits of a

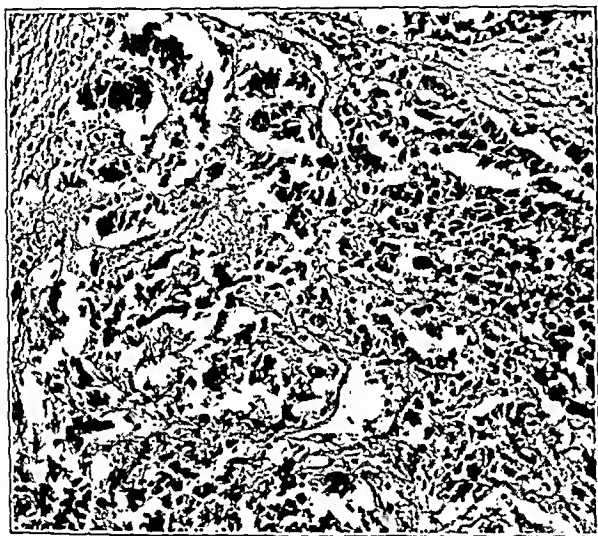


Fig. 4.—Section of tumor seen in figure 3, regarded as carcinomatous by the pathologist.

neoplasm very difficult. And since one of the essential criteria for malignant infiltration is the presence of an invading peripheral margin, the difficulties we encountered in differentiating the tumor margins from the complex normal adjacent and superprojected tumor bed tissue outlines can be readily appreciated. Our diagnostic judgment was correct on misinterpreted premises in two cases in which there was visualization of irregular margins of benign growths, due not to malignant peripheral invasion but to the reactive proliferation in the perifocal parenchyma, giving the growth a malignant appearance. It is mainly from this chance observation that we believe some element of speculation will generally be present in a diagnosis based on a single roentgen study of an adult breast, still active in a woman during the premenopausal years. What can be accomplished by serial examinations may be entirely another matter, and this has already been appreciated by Reiman and Seabold,<sup>7</sup> who made serial planimetric

measurements of breast lesions whose size and shape changed with menstruation and time. Warren<sup>8</sup> and Lockwood<sup>9</sup> also stressed the usefulness of this procedure, which deserves more emphasis.

Some have suggested that enlarged lymph nodes in the axilla, which can be demonstrated in the roentgeno-

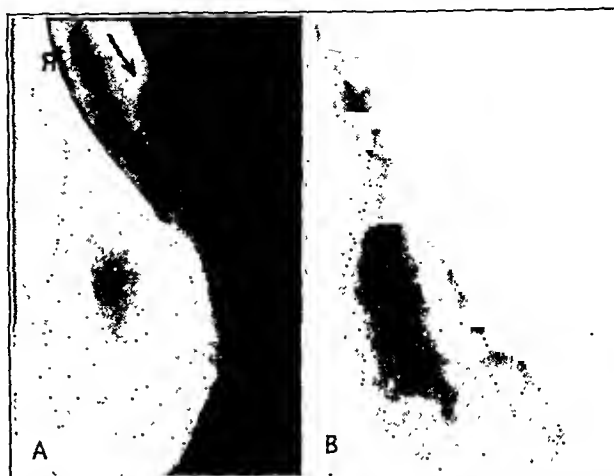


Fig. 5.—In A an enlarged node is seen in the axilla, which disappeared after roentgen irradiation (B).

grams, have malignant or inflammatory identifying characteristics. Seabold<sup>9</sup> coped with this problem and at one time thought that there was a difference in density between inflammatory and malignant lymph nodes. We have failed to note such a difference, and to complicate the picture further is the frequent occurrence of enlarged nodes when the breasts are apparently normal. Radiation therapy appears to us as one method offering some diagnostic aid, and we have resorted successfully to this method.

CASE 3.—A woman, aged 42, married, menstruating normally, noticed a lump behind the right anterior axillary fold while bathing. There was some slight pain in the right breast but she was not sure that this was abnormal because she regularly experienced pain and discomfort in the breasts, usually

preceding the onset of menstruation. The first roentgen examination nicely demonstrated this palpable node and revealed some

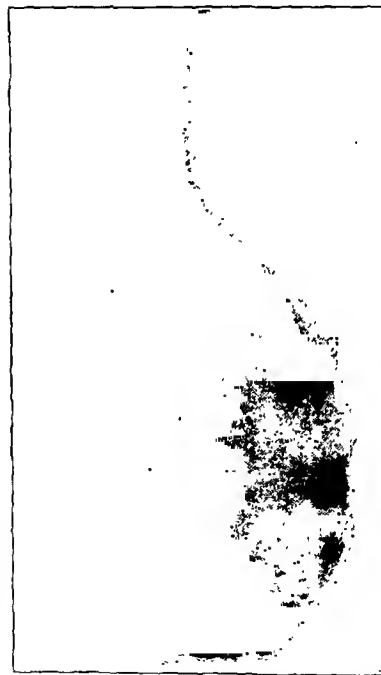


Fig. 6.—Invasion of mammary parenchyma into the bases of the subcutaneous projections of the suspensory ligament is seen, dividing the subcutaneous fat into lobules, making differential diagnosis from nodules in the gland itself difficult by palpation alone.

6. Espaillet, G. Alexander: Contribution to the Radiographic Study of the Normal and Pathological Breast, thesis for the University of Paris, 1933.

7. Reiman, S. P., and Seabold, P. S.: Correlation of X-Ray Picture with Histology in Certain Breast Lesions, *Am. J. Cancer* 17: 35 (Jan.) 1933.

8. Warren, S. L.: A Roentgenologic Study of the Breast, *Am. J. Roentgenol.* 24: 113-124 (Aug.) 1930.

9. Seabold, P. S.: Roentgenographic Diagnosis of Diseases of the Breast, *Surg., Gynec. & Obst.* 53: 461 (Oct.) 1931.

ous paper<sup>1</sup> suggest that contamination of food by persons infected with *Endamoeba histolytica* rarely happens under ordinary conditions of foodhandling.

#### SUMMARY

A protozoological survey was made of 1,072 food handlers in public dining rooms and kitchens in San Francisco. Twenty-two persons, or 2.04 per cent, were found to be infected with *Endamoeba histolytica*. The concomitant protozoan infections were found to be correspondingly low, as shown in table 1.

The clinical histories of the cases positive for *Endamoeba histolytica* are given in table 2.

Parnassus and Second avenues.

## Clinical Notes, Suggestions and New Instruments

### HODGKIN'S DISEASE WITH LEUKOPENIA

SAM BOYER JR., M.D., DULUTH, MINN.

The blood picture in Hodgkin's disease has been of great interest and a subject for controversy since Bunting<sup>1</sup> published his classic work on this subject over two decades ago. Bunting postulated two constant features in the blood count: "an increase in blood platelets and an absolute increase in transitional cells." Furthermore, he stated that "in early cases there is a transitory increase in lymphocytes and basophils with a deficiency in eosinophils and a normal or low neutrophil percentage which is followed by a gradual decrease in lymphocytes and an increase in eosinophils. In late cases there existed a marked neutrophilic leukocytosis with a diminution in white cell elements other than in those cells and the transitionals." In the early cases of one year or less in duration he found that there was a normal or slightly diminished total white blood cell count and in those of longer duration a moderate or sometimes extreme leukocytosis.

Numerous contributors have disagreed with Dr. Bunting. Barron,<sup>2</sup> Cooper,<sup>3</sup> and lately Roth and Watson<sup>4</sup> have argued that there is no typical blood picture. However, Falconer,<sup>5</sup> Boles<sup>6</sup> and Muller and Boles<sup>7</sup> agree that the blood picture is characteristic and is of distinct aid in diagnosis.

In his series of cases Bunting noted no marked reduction in white blood cells, the lowest count in his group being 3,400. Fabian<sup>8</sup> noted a leukopenia in one fifth of the cases he reported. A review of the literature reveals only a small number of cases on record in which there had occurred a marked leukopenia. Of these, it may be seen, a number can be excluded because of high voltage roentgen therapy or coexistent disease of another nature that could also produce leukopenia. Mellon<sup>9</sup> has reported a case of Hodgkin's disease presenting moderate anemia and a severe leukopenia. The white blood count in this instance reached the low level of 800 cells. This case was purely Hodgkin's disease and no treatment that could possibly produce leukopenia was given. Miller<sup>10</sup> cites a case of Hodgkin's disease in which there developed an extreme leukopenia

with a reduction in white blood cells to 240 with a complete lack of granular cells and an accompanying anemia. This patient had received high voltage therapy. Gutig's<sup>11</sup> patient with a marked anemia and with a reduction of white cells to 680, of which 55.5 per cent were neutrophils, also had tuberculosis of the peribronchial lymph nodes and miliary tuberculosis of the spleen. Barron<sup>2</sup> has reported a case in which there existed a marked anemia and a leukopenia of 250 cells. This patient had received roentgen therapy over a long period of time. In Pilkington's<sup>12</sup> case the leukocytes dropped to less than 50, but here also high voltage therapy had been administered. Weber's<sup>13</sup> patient with a reduction to 900 cells had received radium therapy previous to the development of leukopenia. In Cooper's<sup>3</sup> paper there is reported a case in which the white blood cell count had fallen to 900 cells and in this instance there had been no previous therapy. At the Société médicale des hôpitaux of Paris<sup>14</sup> there has recently been reported a case of Hodgkin's disease in which the red blood cell count was 1,500,000 and the white blood count 1,600 cells but which had been preceded by high voltage roentgen therapy. Of these reports found in the literature in which there were noted instances of extreme leukopenia in Hodgkin's disease, high voltage or radium therapy had been administered in all but three. Of these three cases, there are two which were purely Hodgkin's disease. It is entirely probable that other cases in which there occurred an extreme leukopenia have been reported, but certainly it is obvious that the condition is rare enough to merit attention.

#### REPORT OF CASE

B. L., a white man, aged 37, a farmer, married and the father of three children, admitted to St. Luke's hospital Aug. 26, 1935, complained chiefly of "fever." In April 1935 he had been sick for about ten days with headache, fever, constipation and pain in the abdomen. In May of that year he again became ill with a cold, headache, fever and constipation. This attack lasted for two weeks. He was then in fairly good health, although somewhat weak, until August 22, when he again became ill with a cold, fever, headache, generalized muscular aching and a feeling of emptiness in the lower part of the abdomen. He also noted anorexia, occasional emesis and marked constipation. There had been a loss of 30 pounds (13.6 Kg.) since April 1935. History by systems revealed night sweats during the course of his illness, restlessness, and pains in the legs. The past medical history indicated that he had had a gonorrheal infection about fifteen years before, which had resulted in a urethral stricture. The important detail in the family history was that the patient's father died at the age of 51 years of pernicious anemia.

On physical examination the patient was well developed but thin. The skin was hot and dry and there was a café au lait color. The mucous membranes were pale. The pupils reacted to light and to accommodation. There were carious teeth. The lungs were apparently normal. The heart was normal. The pulse rate was 120 and regular. The blood pressure was 120 systolic and 70 diastolic. The abdomen was scaphoid and the spleen was distinctly palpable 1 cm. below the left costal margin. The cervical, axillary and inguinal lymph nodes were palpable but not enlarged. There was no sternal tenderness. Rectal examination and neurologic examination were negative. The temperature on admission was 103.4 F.

Laboratory studies included urinalysis, which showed 1 pus but was otherwise within normal limits. The red blood cell count was 2,780,000, hemoglobin 45 per cent and white blood cell count 3,400 with 69 per cent polymorphonuclear leukocytes, 22 per cent lymphocytes, and 9 per cent large mononuclear cells. Anisocytosis and poikilocytosis were present. In all, fifty-four complete blood counts were performed and are given in the accompanying tables. The bleeding time and coagulation time were found to be within normal limits. The platelets varied from 250,000 to 310,000. The icteric index was 6.7. Fractional gastric analysis after histamine showed no free hydrochloric acid and a total and combined acidity varying from 6.7 to 12 degrees. Examination of the stool was

Read before the Minnesota Society of Internal Medicine, June 6, 1936.

1. Bunting, C. H.: Blood Picture in Hodgkin's Disease, *Bull. Johns Hopkins Hosp.* 25: 173-177, 1914; 22: 369-372, 1911.

2. Barron, Moses: Unique Feature of Hodgkin's Disease, *Tr. Sec. Practice Med.*, A. M. A. 1926, pp. 309-336.

3. Cooper, E. L.: Hodgkin's Disease, *M. J. Australia* 1: 585-590 (May 11) 1935.

4. Roth, Grace M., and Watson, C. H.: Morphologic Changes in the Blood in Hodgkin's Disease, *abstr. J. A. M. A.* 106: 326-327 (Jan. 25) 1936.

5. Falconer, E. H.: Blood Picture in Hodgkin's Disease, *California & West. Med.* 32: 83-87 (Feb.) 1930.

6. Boles, R. S.: Hodgkin's Disease, Abdominal Type, *Illinois M. J.* 52: 112-120 (Aug.) 1927.

7. Muller, G. P., and Boles, R. S.: Abdominal Manifestation of Hodgkin's Disease, *J. A. M. A.* 88: 301-307 (Jan. 29) 1927.

8. Fabian: Blood Picture in Hodgkin's Disease, *Wien. klin. Wchnschr.* 23: 1515, 1910.

9. Mellon, R. R.: A Case of Primary Splenic Hodgkin's Disease, *Am. J. M. Sc.* 151: 704-712 (May) 1916.

10. Miller, H. R.: The Occurrence of Leukopenia in Hodgkin's Disease, *Am. J. M. Sc.* 173: 490-502 (April) 1927.

11. Gutig: *Berl. klin. Wchnschr.* 42: 1067, 1905.

12. Pilkington, F.: Agranulocytosis Complicating Hodgkin's Disease, *Lancet* 1: 1307-1308 (June 18) 1932.

13. Weber, F. P.: Agranulocytosis, Aplastic Anemia and Varieties of Bone Marrow Failure, *Practitioner* 127: 430-438 (Oct.) 1931.

14. Hodgkin's Disease with Extreme Anemia and Fever, *Paris Letter*, *J. A. M. A.* 105: 1131 (Oct. 5) 1935.



due to the subcutaneous loculi of fat and actual nodulation of the anterior surface of the mammary gland. Even extensions of the gland parenchyma into the bases of the ligamenta suspensoria are clearly seen in the roentgenograms. This finding is probably the only roentgen sign on which to predicate a diagnosis of desquamative epithelial hyperplasia.

Whether a given nodule is solid or cystic from its roentgen appearance would seem to go unquestioned in some reports. It is claimed that a cystic tumor is more radiolucent than a solid tumor. The roentgen shadows of these two types of tumors do not differ as the shadows cast by transillumination. We have, however, made a successful differential diagnosis not by the differences in densities but by careful attention to a study of the margins. A cystic tumor, uncomplicated by perifocal inflammatory infiltration and not surrounded by too much active gland tissue, has a sharp, smooth and almost perfect circular margin, while a solid tumor, under the same circumstances, practically never has a perfect circular margin but always some eccentric bulge due to lobulation or some flattening or interaction of its periphery due to fibrosis.

On the whole, we believe that more accurate information concerning nodularity can be obtained from the roentgen examination, than from palpation, as happened in the following cases:

**CASE 4.**—The nodule visible in the left breast of the patient was palpable but felt smooth, freely movable and seemed benign. The posterior margins in the roentgenograms, however, were seen to radiate definitely into the parenchyma, and the roentgen diagnosis was malignant neoplasia. This was confirmed by histologic study done by Dr. Eugene Case (figs. 7 and 8).

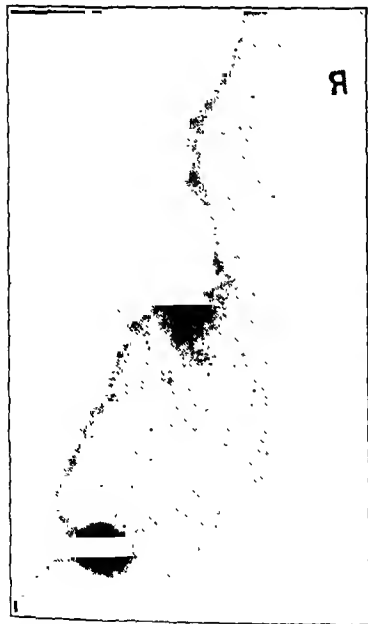


Fig. 9.—The nodule in this breast was thought to be malignant because it was associated with fixation and puckering of the overlying skin. In the roentgenogram, the smooth margins and short pedicle were the reasons for assigning a benign basis to this growth.

tion by Dr. Dorothy Case Blechschmidt; after histologic study a fibro-adenoma with some cystic degeneration was disclosed (figs. 9 and 10).

#### SUMMARY

The roentgenographic examination of the breast is a more useful diagnostic procedure than is generally

appreciated. A diagnostic accuracy better than that resulting from macroscopic inspection of sections can be attained. A remarkably high percentage of roentgen diagnoses is proved to be correct by histologic studies, and this can be increased if the examination is more seriously and uniformly emphasized. Early malignancy can be very frequently determined, especially in the fat and postclimacteric breast. Otherwise there are many



Fig. 10.—Sections of the tumor in figure 9, a fibro-adenoma with cystic degeneration.

limitations to the roentgen study of the pathologic breast which probably could be materially reduced if resort were made to serial examinations.

If periodic examinations of normal breasts were carried out in women past 25 years of age, we venture to say that a much more effective campaign could be therapeutically waged in carcinoma of the mammary gland because of the diagnosis of early malignancy so obtainable. The examination can easily be done with so little expense that it is entirely practicable from these standpoints. It is even possible that the therapeutic effect on breasts of many endocrine substances might be revealed more graphically by the roentgen examination than by any other practical clinical method now available, and this suggestion warrants further investigation.

255 South Seventeenth Street — 269 South Nineteenth Street.

**To a Young Man of Good Disposition.**—This delicate word sickness includes drink, the contagious diseases, infant mortality, starvation, the sweating system, the immigrant alien, dangerous trades, insanity, childbirth, heredity, attempted suicide, accidents, assaults, and all the innumerable adventures, tragical or comical, which end in the Casualty Department. To a young man of good disposition, tired of the preliminary sciences and of humanity stated in terms of anatomy and physiology to the satisfaction of the examiners, this plunge into the actual flood of lives is a fine experience.—Paget, Stephen: *Confessio Medici*, New York, Macmillan Company, 1931.

127.2 / 100 / 450

Concentrated-Lilly) every other day. Curiously enough the red and white blood cell counts immediately began to rise coincident with a drop in temperature. After nine days of normal temperature a rise in the red blood cell count to 3,810,000, hemoglobin of 51 per cent, white blood cell count of 8,300, and a marked improvement in symptoms, he was discharged, September 12. One week later, September 19, he was readmitted with a recurrence of symptoms, a temperature of 102.4, a red blood cell count of 2,490,000, hemoglobin of 35 per cent, and a white blood cell count of 2,200 with 60 per cent

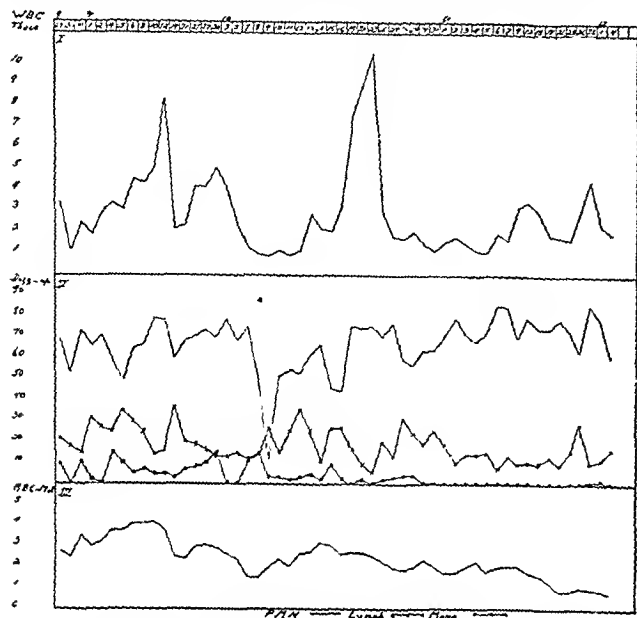


Chart 1.—Graphic demonstration of the blood counts. Only neutrophils, mononuclears and lymphocytes are included in the differential count in this graph.

polymorphonuclear cells, 37 per cent lymphocytes, and 3 per cent mononuclears. At this time there were occasional nucleated red cells and reticulocytes.

His course thereafter for a long time was fairly constant. There were periods of fever, which varied from 100 to 106 F. usually continuous in type but at times remittent, and lasting from seven to thirty-two days. The afebrile periods varied in length from three to eleven days. October 9 and 11 the white blood cell count fell to 900 cells with a serious reduction in the red blood cell count. Liver intramuscularly had been started at the time of his second admission but appeared to be of no value, and from October 9 to October 23 it is noted that he had an eosinophilia varying from 4 to 21 per cent. As he experienced chills and exacerbations of fever after the administration of liver during the latter part of the period of eosinophilia, it was felt that this was due to sensitivity to liver and it was discontinued. A sensitivity test was performed intradermally with liver but was negative. Pentnucleotide was given intramuscularly twice daily from October 8 to October 12, with a slight temporary rise in leukocytes. Four blood transfusions, the first of 400 cc., the others of 200 cc., were given on October 8, 10, 12 and 29. It is noted that on the days after all but one of these transfusions there was a reduction in the white blood cell count. During his course, sternal tenderness developed. A hypostatic pneumonia also developed, from which he recovered. However, he became progressively weaker and cachectic, steadily lost weight, finally passed into a muttering delirium, and died December 7.

During the latter part of his illness, although a definite diagnosis could not be established, it was felt that this was a case of Hodgkin's disease involving the spleen, the abdominal lymph nodes and possibly the bone marrow. These conclusions were reached for two reasons: the first, an atypical Pel-Ebstein or Murchison type of fever; the second, the tendency toward an increase in mononuclear cells and polymorphonuclear cells.

Permission for autopsy was secured and was performed by Dr. D. H. Kaump of the Mayo Clinic. His report follows: The unembalmed body, 163 cm. in length, was estimated to

weigh 125 pounds (56.7 Kg.). There was no edema or obesity. There was a grade 1 jaundice and grade 2 emaciation. Both pupils measured 0.4 cm. There was a small scar 3 cm. in length over the anterior portion of the sternum. When the peritoneal cavity was opened, the omentum lay free. There was no free fluid. The coils were smooth and glistening. The epiploic foramen was open and the duodenal folds were present. The liver margin projected 3 cm. below the right costal margin. The diaphragm arched to the fifth rib on both sides. When the pleural cavity was opened, 200 cc. of clear yellow fluid was found in each side. There were a few dense old adhesions at each apex. The transverse pericardium measured 15 cm. and there was 400 cc. of clear straw colored fluid in the sac. The thymus was apparently replaced by fat. The heart weighed 350 Gm. and was a reddish brown with normal fat and no soldier's spots. The consistency was diminished (grade 2). The cut surface was reddish brown and the septum showed no streaking. The appendages, endocardium and valves were normal. The foramen ovale was closed. The coronary arteries showed sclerosis (grade 1). The valve measurements were as follows: aortic valve 6.5 cm., mitral valve 11 cm., tricuspid valve 14 cm. and pulmonary valve 8 cm. On examination of the lungs the right upper lobe was a gray blue with anthracosis (grade 2) and apical scarring (grade 1). There was no atelectasis and the consistency and crepitation were normal. The cut surface was bluish gray and showed normal frothing and no edema. The right middle lobe was essentially the same and the right lower lobe was essentially the same except that the cut surface showed an increase in edema (grade 2). The left upper lobe was essentially the same as the right upper lobe. The left lower lobe was essentially the same as the right lower lobe. There was a diffuse emphysema (grade 2) throughout both lungs. The bronchi and vessels appeared to be normal. The spleen weighed 440 Gm. and was a mottled reddish purple and grayish red. There was an increase in lobulations (grade 2) and no perisplenitis. The consistency was normal and the wrinkling was diminished (grade 2). The cut surface was mottled reddish purple and grayish red. There was an increase in trabeculations (grade 1) and follicles (grade 2). There was a large number of these small grayish red areas of hyperplasia. The liver weighed 2,200 Gm. and was a light tan with a smooth surface and normal consistency. The color of the cut surface was light tan and mottled, with numerous small reddish hemor-

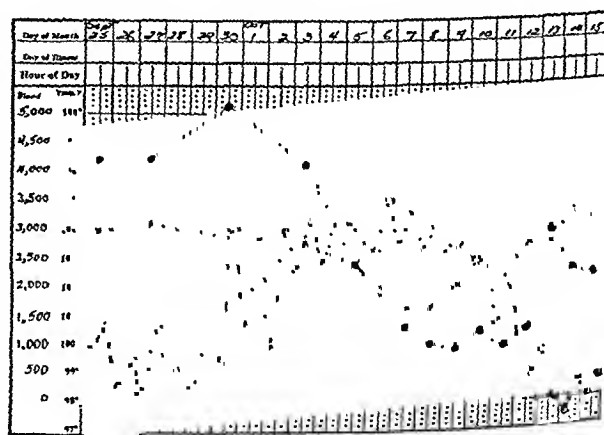


Chart 2.—Although not exactly coinciding, the rise in temperature and fall in red and white blood cell counts and the reverse procedure are shown. Circles denote temperature, x's red blood cells and solid dots white blood cells.

rhagic areas. The markings were distinct. The gallbladder contained 30 cc. of dark greenish black viscid material but was normal. The bile ducts were patent and showed no dilatation. The esophagus was normal except for a number of small linear hemorrhagic areas in the middle third. The stomach, duodenum, jejunum, ileum, colon and rectum appeared to be normal. The pancreas was estimated to weight 100 Gm. and appeared to be normal. Both adrenals were normal. The right kidney weighed 200 Gm. The capsule stripped with difficulty from a translucent light gray surface on which the lobulations and stellate veins were normal. There were no adenomas,

this test if they were colored to indicate that they had attained their best quality when as a matter of fact they were picked before they had attained their best quality. [We believe this date has since been put forward.]

Further information obtained from other sources relative to the handling of California oranges follows:

The spray used in the orange groves is an oil spray; a highly refined petroleum oil known as cosmetic oil. There is also some sulfur used in dusting. The petroleum oil penetrates the skin of the orange and there is undoubtedly still some of it present in the peel. There is no lead arsenate used in California. They have been trying out a spray of calcium chloride and selenium. This has been experimental only and probably very few of these oranges have been marketed in New York. They have been experimenting in Berkeley with "felocide," made up of selenium and sulfur. This is not in commercial use as yet. The oranges are all washed with a very good quality of soap and they are rinsed and dried before packing. A very few oranges are waxed. This is done with a wax made from the leaves of a palm that grows in South America and is much like paraffin. In the washing of the oranges there is a little borax used, which is rinsed off. There is about 0.01 per cent of this which remains in the peel, as measured in terms of boric acid. There is no artificial color used on California oranges. The only artificial coloring done at all is by sweating them with ethylene gas. A few sprayers have used a very small amount of creosol. However, the Orange Exchange discourages the use of any creosol in the spray. Lately they have been experimenting with sulfide of fatty alcohols.

TABLE 1.—Results of Fruit Tests in Case 1

Treated or dyed Florida oranges:	Inside Rind	Outside Rind
1. Parson Brown (color added).....	Negative	Positive
2. Monarch Grove (color added).....	Negative	Positive
3. Pineapple orange (color added).....	Negative	Positive
4. Temple orange (dyed).....	Negative	Positive
5. King orange (dyed).....	Negative	Positive
6. Tangerine (dyed).....	Negative	Positive
7. Grapefruit.....	Negative	Positive
8. Nectarine.....	Negative	Doubtful
9. Florida orange untreated.....	Negative	Negative
10. Florida grapefruit untreated.....	Negative	Negative
California fruits:		
11. California red orange.....	Negative	Strongly positive
12. California light orange.....	Negative	Strongly positive
13. California Sunkist.....	Negative	Weakly positive
14. California rough skin orange.....	Negative	Positive
15. California smooth skin orange.....	Negative	Positive
16. California orange untreated.....	Negative	Strongly positive
17. California orange treated.....	Negative	Strongly positive
18. Gauze dipped in ether rubbed on California orange—	Negative	
19. Gauze dipped in chloroform rubbed on California orange—	Negative	

\* The fruits used in tests 9 and 10 were picked from the tree in Florida and shipped directly to us.

This represents only a small fraction of information on some of the many and varied processes to which the citrus fruits are subjected today. We found it exceedingly difficult to get reliable information on the various processes from any source. Each grower employs a slightly different method from the next, and all the procedures are subject to frequent changes in each of the groves. There is a definite reluctance in many instances to give information that would prove helpful

in an investigation of this kind. All these factors probably play their part in accounting for the positive patch tests obtained from presumably undyed and untreated California oranges (to be mentioned in detail later) when known undyed and untreated Florida oranges gave negative results and the patient also reacted negatively to the oil of orange and lemon.

CASE 1 (presented at the February 1936 meeting of the New York Academy of Medicine by Dr. Traub).—M. C., a white

TABLE 2.—Dyes, Fungicidal Solutions, Ripeners and Preservatives Tested in Case 1

Parson Brown.....	Negative
Tetrazine Yellow, 20%.....	Negative
Chrome Yellow, 20%.....	Negative
Naphthol Yellow, 20%.....	Negative
Sudan III, 5%.....	Negative
Yellow O B.....	Positive
F. M. C. no. 1 } (shipped from packing house in }	Negative
F. M. C. no. 6 } Florida, exact nature unknown) }	Negative
Soap solution.....	Negative
Borax.....	Negative
Kerosene.....	Negative
Wax, white.....	Negative
Wax, brown.....	Negative
Paraffin.....	Negative
O. K. solution 1% (fungicide solution used on oranges).....	+
(O. K. solution furnished us by chief chemist of Food and Drug Administration, U. S. Dept. of Agriculture)	
Cotton in olive oil and ethylene.....	Negative
Cotton in liquid petrolatum and ethylene.....	Negative
Cotton in water and ethylene.....	Negative
Red dye 1:4 diluted.....	++++
Red dye 1:5.....	++++
Red dye 1:10 diluted.....	++++
Red dye 50%.....	++++
Red dye 1:100 diluted.....	±
Oil of orange.....	Negative
Oil of lemon.....	Negative

man, aged 31, a fruit and vegetable handler, whose family history was irrelevant except that his mother had diabetes, had his first skin eruption in 1929, which consisted of a slight irritation of the hands and face, lasting a very short time. In 1932 he developed a more severe irritation of the same areas and at the time the eruption was attributed to the arsenic used on the fruits and vegetables he handled. He was found to have excessive amounts of arsenic and lead in the urine and he was positive to lead arsenate and arsenic trioxide by patch tests. He had frequent attacks of diarrhea, nausea and vomiting. Several months later, when this eruption had cleared up, patch tests with sodium and lead arsenate were repeated and found to be negative.

Laboratory reports on this patient were as follows: The blood Wassermann reaction was negative. Routine examination of the urine gave negative results. The lead content was 0.016 mg. in 1,000 cc.; arsenic, 0.140 mg. per hundred grams of solids. The basal metabolism was —11.6.

Blood examination revealed 4,530,000 erythrocytes; 83 per cent hemoglobin and 5,800 leukocytes, the differential count being polymorphonuclear neutrophils 44 per cent, lymphocytes 50 per cent, eosinophils 5 per cent and basophils 1 per cent. Chemical tests revealed: urea nitrogen 14.9 = 13.9, sugar 79 = 100.4, uric acid 1.86 = 2.35, chlorides 466.8 = 441.8, and carbon dioxide 64.8.

The present trouble began in April 1934 with a severe erythematous, edematous, vesicular, weeping, crusting and scaling eruption covering the hands, face and neck. The eyelids were extremely swollen. The eruption came on while the patient was working in an open fruit and vegetable market.

Patch tests were made with the following substances to determine the cause of this irritation and were all negative: chlorox 10 per cent, Colgate face powder, wife's face powder (Lady Esther), wife's lipstick (Regina), tooth paste (Colgate), Octagon soap, cold cream, boric acid ointment, Camay soap, petrolatum, cotton, chicken feathers, duck feathers, sheep wool, silk, goosefeathers and tobacco (Camel).

Fruit tests are given in table 1; dyes, fungicidal solutions, ripeners and preservatives in table 2.

property of sodium bicarbonate or magnesium oxide which stimulates the secretion of acid. If these alkalis, therefore, are administered in doses that will not produce complete neutralization, secondary stimulation of secretion need not occur.

#### CERTAIN METHODS OF INSTITUTING ANTACID TREATMENT

The Sippy treatment for peptic ulcer has as its basis an attempt at complete neutralization of the gastric acidity until healing occurs. The prevention of acid irritation of the ulcer is rational but it is well recognized today that complete neutralization is not necessary and often impossible and that ulcers may heal as well with moderate doses as with large amounts of alkalis. The Sippy powders consist of No. 1, which contains 0.65 Gm. of heavy magnesium oxide and 0.65 Gm. of sodium bicarbonate, and No. 2, which contains 0.65 Gm. of bismuth subcarbonate or calcium carbonate and from 1.3 to 2 Gm. of sodium bicarbonate. One criticism of the Sippy regimen is that the amounts of alkali administered are too large. In fact, some clinicians have discontinued the use of alkalis altogether, a procedure with which we are not entirely in accord because, even though one may dispute the healing effects of alkalis, there can be no doubt that by their use symptoms are relieved and the corrosive effect of the acid at least partly overcome. Others have criticized the use of alkalis on the basis that complete or partial reduction of acidity interferes with gastric digestion; but when one remembers that this interference is only temporary and that the small intestine is capable of continuing the digestion of the contents passed on from the stomach as it does in achylia gastrica, this criticism is without substantial proof. The Sippy plan is logical, since it is much more important to reduce acidity than it is to allow the acid irritation to continue. It would seem, therefore, that unless other means such as carefully managed diet could accomplish what alkalis tend to do, the latter are an important part of therapy in gastric disease.

The following modification in the Sippy powders has been recommended: No. 1 consists of 0.65 Gm. of sodium bicarbonate and 0.65 Gm. of calcium carbonate; No. 2 consists of 0.65 Gm. of calcium carbonate and 0.65 Gm. of Heavy Magnesium Oxide, U. S. P. If bowel action is normally regular or if there is a natural tendency to diarrhea, the heavy magnesium oxide may be replaced by an equal amount of Bismuth Subcarbonate, U. S. P., or powder 1 substituted for powder 2. However, the Sippy powders can also be so regulated for, if diarrhea does develop, the second powder can be substituted for the first as often as may be required or, if constipation occurs, the opposite change can be made. Eusterman and Balfour recommend that one can readily substitute 1.3 Gm. of bismuth subcarbonate or 1.3 Gm. of sodium citrate, or the tribasic phosphates of calcium ( $\text{Ca}_3(\text{PO}_4)_2$ ) (Precipitated Calcium Phosphate, N. F.), 1.3 Gm., and magnesium ( $\text{Mg}_3(\text{PO}_4)_2$ ), 1 Gm., for the sodium bicarbonate in powder 1 whenever necessary if any unfavorable reactions occur that can be attributed to it.

Winkelstein has recommended a continuous alkalized milk drip into the stomach to maintain constant neutralization for twenty-four hours. He had demonstrated the high night acidity curves and this seemed a logical method of attack. The solution of milk contained 5 Gm. of sodium bicarbonate to the quart, regu-

lated as a drip so that the patient received 3 liters of milk and 15 Gm. of sodium bicarbonate a day. Theoretically this will neutralize 9 liters of tenth normal hydrochloric acid. Others before Winkelstein have stressed the importance of removing all acid contents from the stomach of the patient on retiring, by means of a stomach tube.

Wosika and Emery administered an alkalized (0.6 Gm. of calcium carbonate and 2 Gm. of sodium bicarbonate) powdered milk preparation every hour and found it somewhat more successful in neutralizing acidity than the usual Sippy plan. They believe, however, that in the majority of instances the Sippy plan produces complete neutralization but that when the acid was thoroughly controlled a greater quantity of alkali may have been administered than was needed.

Hurst considers milk the most efficient of all alkalis. He does not use the Sippy medication but adds 0.65 Gm. of sodium citrate with magnesia magma to each glass of milk not only because they are both efficient alkalis and neutralize any acid that is already present but also because the sodium citrate combines with the calcium of the milk and thus prevents the rennin from acting on the caseinogen. In this manner curds which act as a mechanical irritant to the ulcer are prevented from forming and the delay in stomach evacuation which might follow is avoided. His second mixture contains 0.3 mg. of atropine sulfate and this is administered twice daily, at 8 a. m. and 3 p. m. Sufficient magnesia magma is given to regulate bowel evacuation; at the same time it is a useful antacid. When heartburn or discomfort is present, 4 Gm. of prepared chalk is given between feedings. He believes that carbonates have the disadvantage of liberating carbon dioxide and he prefers not to use sodium bicarbonate because it produces an excessive rise in acidity after the initial neutralization. Interestingly enough, 15 Gm. of powdered charcoal with water is prescribed at 7 a. m. and in order to minimize the night acidity citrated milk is placed at the bedside to be taken if necessary. Hurst considers bismuth oxycarbonate completely inert and without alkalizing properties.

Crohn points out the familiar fact, with which we are in accord, that combinations of the various antacids

#### PRESCRIPTION 1.—Compound Magnesium Oxide-Bismuth Subcarbonate Powder, Flavored

	Gm. or Cc.
$\mathcal{R}$ Peppermint .....	0.5
Resorcinol .....	1
Bismuth Subcarbonate .....	4
Magnesium Oxide .....	4

#### PRESCRIPTION 2.—Magnesium Oxide and Bismuth Subcarbonate with Belladonna

	Gm. or Cc.
$\mathcal{R}$ Extract of Belladonna.....	0.02
Magnesium Oxide .....	0.5
Bismuth Subcarbonate .....	0.5
Sodium Citrate .....	1

seem to exert a better effect than the individual preparations. For example, the rapid action of sodium bicarbonate is continued by the more slowly acting magnesia and bismuth, the latter of which Crohn writes are lacking in untoward secondary effects. For routine use he advises one of the combinations given in prescriptions 1 and 2.

In the first formula, oil of peppermint is added because of its pleasant taste and its carminative action on the gastric mucosa. However, Meyer, Scheman and

# AMEBIASIS IN FOOD HANDLERS IN SAN FRANCISCO

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In this paper it is proposed to give completely the results of the survey for intestinal protozoa in food handlers conducted during the past three years in some of the hospitals, hotels, restaurants, clubs and lunch rooms of San Francisco. A preliminary report<sup>1</sup> has been published during the progress of this investigation. A total of 1,072 employees of public dining rooms and kitchens was examined and it was found that twenty-two, or 2.04 per cent, were infected with *Endamoeba histolytica*.

There were no fresh examinations of the stool specimens made, as it was thought that the most efficient method for disclosing protozoan infections with economy of time and labor was to make the fecal smears on the premises, directly after the passage of the stool, immersing them immediately in the fixing fluid. The smears, then brought to the laboratory, were stained by the iron alum-hematoxylin method and subsequently examined. Every employee was required to submit one specimen on each of three successive days. All those found to be infected with *Endamoeba histolytica* were compelled to stop work for not less than two weeks, during which period each infected person was given a course of treatments with carbarsone. These treated food handlers were then checked by three successive

The results of the examinations of the entire food handling personnel of one hospital, one health home, five hotels, four clubs, four cafeterias, two restaurants, two grills and three lunchrooms are given in table 1.

Of the twenty-two persons found positive for *Endamoeba histolytica*, eighteen had been born, lived or visited outside the United States. A notable feature in the histories of these twenty-two people is an almost complete absence of admitted symptoms, only nine complaining of any gastro-intestinal upset, as shown in table 2.

TABLE 2.—Positive Cases of *Endamoeba Histolytica*

Name	Age	Sex	Position	Residence	Clinical History
1. E. E.	36	♀	Waitress	U. S.	None
2. W. P.	40	♂	Cook	Canada and U. S.	None
3. G. H.	40	♂	Baker	Germany and U. S.	None
4. G. S.	40	♂	Waiter	Greece and U. S.	Slight intestinal upset in August 1933; no medical care
5. P. M.	28	♂	Waiter	Italy and U. S.	Constipation
6. B. A.	36	♂	Waiter	Italy and U. S.	Occasional diarrhea
7. S. D. B.	31	♂	Waiter	Italy and U. S.	None
8. H. B.	29	♂	Bus boy	Turkey, U. S., Mexico	Under treatment in 1930 in Mexico City for loss of appetite and abdominal pain; no further illness
9. A. P.	42	♂	Waiter	U. S.	None
10. J. S.	50	♂	Steward	U. S. and So. Africa	Diarrhea while en route to Capetown in 1933
11. P. D.	49	♂	Second cook	France and U. S.	None
12. J. R.	31	♂	Waiter	Switzerland and U. S.	Had occasional diarrhea
13. M. D.	50	♂	Pot washer	France and U. S.	None
14. A. R.	25	♂	Bus boy	Italy and U. S.	Treated during 1933 for gas
15. P.	28	♂	Bus boy	Italy and U. S.	None
16. F. G.	63	♂	Waiter	Italy and U. S.	None
17. T. S.	40	♂	Cook	Yugoslavia and U. S.	None
18. T. C.	59	♀	Assistant manager	U. S.	None
19. E. Z.	24	♂	Dish washer	U. S.	None
20. C. R.	28	♂	Dish washer	Mexico and U. S.	Intestinal disturbance in 1928; medical care; no history available
21. J. K.	50	♂	Baker	Germany and U. S.	Diarrhea and stomach upsets
22. J. G.	38	♂	Supply boy	Scotland, China, Russia and U. S.	None

TABLE 1.—Results of Examination of Food Handlers

Place	Number Examined	<i>Endamoeba histolytica</i>	E. coli	E. nana	<i>Endamoeba butschlii</i>	<i>Giardia intestinalis</i>	<i>Trichomonas hominis</i>	D. fragilis	<i>Chlamydomonas</i>	<i>Enteromonas hominis</i>
Hospital A										
(1).....	129	2	25	14	5	4	1	2	..	1
(2).....	44	..	..	..	..	..	..	..	..	..
Hotel A.....	04	1	1	1	2	3	..	..	..	..
Hotel B.....	165	5	4	3	2	5	..	..	..	..
Hotel C.....										
(1).....	64	2	7	4	..	6	1	..	..	..
(2).....	71	..	3	3	1	5	..	..	..	..
Club A.....	39	1	4	..	..	..	..	..	..	..
Club B.....	22	..	..	..	..	1	..	..	..	..
Club C.....	15	1	1	1	..	..	..	..	..	..
Hotel D.....	56	..	..	..	2	3	..	..	..	..
Club D.....	21	0	2	..	..	..	..	..	..	..
Cafeterias.....	21	..	..	1	1	..	..	..	1	..
Health home.....	164	..	..	1	3	4	..	..	..	..
Hotel E.....	10	..	..	..	..	..	..	..	..	..
Luncheon room A.....	88	..	3	2	2	1	..	..	1	..
Restaurant A.....	33	..	..	..	..	..	..	..	..	..
Restaurant B.....	44	..	..	3	..	2	..	..	..	..
Grill A.....	4	..	..	..	..	..	..	..	..	..
Luncheon room B.....	14	..	1	1	..	..	..	..	1	..
Grill B.....	6	..	..	..	..	..	..	..	..	..
Luncheon room C.....	12	..	..	..	..	..	..	..	..	..
Grill C.....	9	..	1	1	..	..	..	..	..	..
Totals.....	1,072	22	58	36	19	38	2	2	3	1
Per cent positive.....		2.04	5.41	3.35	1.77	3.54	0.18	0.18	0.27	0.09

daily stool examinations and were allowed to return to their employment when found negative. Each person was reexamined every two weeks for a period of three months. There were no cases resistant to treatment and there were no reinfections or relapses during these follow-up periods.

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In cooperation with Dr. J. C. Geiger, director of the Department of Public Health, San Francisco.

1. Johnstone, H. G., and Iverson, Margaret K.: Food Handlers and the Epidemiology of Amebiasis, *Am. J. Trop. Med.* 15:197-207 (March) 1935.

During the progress of the food handler survey, the Public Health Department of San Francisco conducted a companion survey to establish the exact plumbing efficiency of the hotels. This investigation was incomplete but in all hotels where the plumbing was inspected it was found that back siphonage (causing the contamination of water supply) is prevented by the maintenance of an adequate water pressure.

There has been little evidence to prove or disprove a direct contamination of food under practical conditions by food handlers. Hands, debris under finger nails and nail parings were examined after defecation and before the hands were washed in a group of seventy-four infected persons by Spector, Foster and Glover.<sup>2</sup> In only five of those examined were the cysts of *Endamoeba histolytica* found, two showed very few live *E. histolytica* large cysts, one showed very few dead *E. histolytica* large cysts, and two showed live small cysts. These observations along with those noted in the previ-

2. Spector, Bertha K.; Foster, J. W., and Glover, N. G.: *Endamoeba Histolytica* in Washings from the Hands and Fingernails of Infected Persons, *Pub. Health Rep.* 51:163-165 (Feb. 8) 1935.



The symptoms of discomfort or distention may be caused by a purely functional disturbance or it may be due to ulcer, as it commonly is, to cancer or to an inflammatory condition such as gastritis. In any event, antacids bring relief even though it is well recognized that they may only temporarily change the acid content of the stomach. Nevertheless, temporary relaxation of spasm or neutralization of acidity must be of therapeutic value in the healing of ulcer or gastritis or the various spastic conditions. Sodium bicarbonate, although the most commonly employed alkali, has been overused and therefore abused in the treatment of these conditions.

As has already been mentioned, the use of antacids in peptic ulcer is generally accepted not only as a means of neutralizing acidity but also to prevent the irritation and digestion of tissues. It is also essential to continue at least temporarily some form of antacid therapy of those patients who have been operated on. There are many reasons for this caution just as there are reasons for continuing antacid treatment in patients whose ulcers have apparently healed under medical management. There may not be an entire agreement regarding this point, but those who control their ulcer cases with diet alone are far fewer than those who cling to a rational antacid supplementary therapy.

In chronic alcohol gastritis, catarrhal duodenitis and other subacute and chronic gastric catarrhal conditions with excessive mucus formation, a mixture of sodium bicarbonate and sodium phosphate given in hot water about one hour before meals has been recommended. Bourget's mixture is also beneficial in these cases. In gastric hypersecretion, antacids give temporary but not lasting relief from symptoms.

Antacids are used in the gastric neuroses for the relief of heartburn, nausea, hyperesthesia or pain. The usual antacids, such as sodium bicarbonate or magnesium oxide, may be given in doses of from 0.3 to 0.65 Gm. or they may be combined with small doses of oil of peppermint. Bismuth subcarbonate and the neutral salts are also employed. Crohn recommends the preparation of magnesium superoxol, from 0.65 to 1 Gm., as a pleasant and convenient form of alkaline salt to administer. However, it has no advantage over other magnesium salts. Most antacids tend to relieve hyperperistalsis, irritability and spasm and so should be equally valuable in all dyspepsias, and especially in those which are associated with a high acid content, whether the hyperacidity is nervous or reflex in origin or whether it is associated with an ulcer or acid gastritis or whether it is unexplained.

#### MODE OF ADMINISTRATION OF ANTACIDS

As with other medicinals, there are rules which may be followed in order to administer alkalis properly. If the alkali is soluble it should be dissolved in water or if insoluble mixed with water before ingestion. When prepared in this manner its action is not too rapid and is probably far more soothing to the stomach. All alkalis should be prescribed in small or moderate doses, from 0.3 to 0.65 Gm., and should be administered not directly after the meal but between one and two hours later. Large doses are not more beneficial and only lead to overalkalinization with the secondary untoward reactions. Furthermore, relief of symptoms, intra-gastric tension and distention and spasm of the pylorus can be best obtained by the smaller doses. Given from

one to two hours after meals, that is, toward the end or late in the digestive cycle, alkalis are much less likely to cause a secondary hyperacidity and hypersecretion but, on the other hand, bring about not only a more efficient neutralization of acidity but also the relief of gastric discomfort or heartburn, which usually appear at this stage of the digestive cycle.

#### PRESCRIPTION 3.—Saline-Alkaline Mixture

℞ Sodium Bicarbonate .....	8 Gm.
Sodium Phosphate .....	4 Gm.
Sodium Sulfate .....	2 Gm.

Mix and pulverize.

Sig.: Dissolve powder in a liter (or quart) of cold water and sip slowly until relieved.

Crohn recommends the Bourget saline-alkaline mixture (prescription 3), sipped slowly, as an ideal method of administering alkalis by fractional dosage. The use of a mild aperient salt with an alkaline salt gives an added advantage by providing a laxative effect on the intestinal tract.

#### TYPES OF ANTACIDS

Thus far, most of our remarks have been general and have referred to antacids of the type represented by sodium bicarbonate. There are others, however, and some of them have been highly recommended for one reason or another. It is now our purpose to discuss these groups and then to refer again to sodium bicarbonate and its related alkalis for individual discussion.

*Aluminum Compounds.*—Two aluminum compounds, aluminum silicate and aluminum hydroxide, have been employed with apparently good effect, but these results require further confirmation before they can be finally accepted. The neutralizing effect of aluminum silicate is said not to have the disadvantage of producing a secondary rise in acid secretion and it does not cause gas formation as is occasioned by the carbonated alkalis. Systemic disturbances such as alkalosis do not occur. Colloidal aluminum hydroxide is supposed to act by colloidal-chemical absorption and not by chemical neutralization. It, too, produces no systemic reactions such as alkalosis or other toxic symptoms.

*Basic Phosphates.*—Greenwald in 1923 reported the gastric antacid effect of the dibasic and tribasic phosphates or calcium and magnesium. He also pointed out that since these substances are excreted in the stool and not in the urine they are not systemic alkalis. He regarded overalkalinization of gastric contents and urine as unphysiologic, and since sodium bicarbonate was known to produce these changes he did not consider it as an ideal antacid. Kantor used both the dibasic and tribasic phosphates and found the latter more effective. The calcium salts were slightly constipating and the magnesium salts slightly laxative, and the tendency of the patient to constipation or to diarrhea was recognized as a guide in the choice of the appropriate drug in any particular case. The dose of either compound was from 1 to 6 Gm., three times a day after meals. Kantor was able to conclude from his work that the common symptoms associated with hyperacidity (pain, heartburn, sour belching, distress and gas) were effectively controlled in most cases by these preparations and he thought that they were particularly useful in cases in which prolonged reduction of excessive gastric acidity was deemed advisable. Shattuck, Rohdenburg and Booker also reported favorably on these preparations and, in England, Hurst recommends them in certain cases.

TABLE 1.—Results of Twenty-Seven of the Fifty-Four Blood Counts \*

Date	Hemo- globin	Red Blood Cells	White Blood Cells	Poly- morpho- nuclears	Lympho- cytes	Mono- nuclears	Eosino- phils	Baso- phils	Myelo- blasts	Myelo- cytes	Neutro- phils	Reticulo- cytes
8/27/35	45	2,780,000	3,400	69	22	9	..	..	..	..	..	..
8/31/35	44	3,560,000	2,500	73	15	11	1	..	..	..	..	2
9/ 2/35	45	3,220,000	3,000	71	27	1	1	..	..	..	..	..
9/ 5/35	47	3,720,000	3,100	40	35	10	6	..	..	..	2	1
9/ 8/35	48	4,120,000	4,300	67	25	7	1	..	..	..	..	3
9/12/35	51	3,810,000	8,300	78	16	5	6	..	..	..	..	1
9/21/35	35	2,300,000	2,400	68	20	7	..	..	..	5	6	..
9/27/35	41	3,100,000	4,200	73	17	10	..	..	..	..	2	..
10/ 3/35	37	2,650,000	4,100	78	13	..	1	..	..	8	..	..
10/ 7/35	29	1,590,000	1,300	75	12	11	..	..	2	..	..	..
10/ 9/35	30	1,970,000	900	11	27	3	6	1	7	14	3	..
10/11/35	32	2,100,000	900	55	25	2	5	..	2	11	2	..
10/13/35	40	2,720,000	2,900	62	26	5	7	..	..	..	..	..
10/15/35	44	3,100,000	2,100	46	27	9	18	..	..	..	..	..
10/19/35	52	2,770,000	7,500	76	17	..	4	1	..	2	..	..
10/23/35	43	2,610,000	10,600	76	6	..	17	..	..	1	..	..
10/27/35	35	2,000,000	1,800	77	13	3	1	..	1	5	..	..
10/29/35	33	1,960,000	2,100	57	24	4	..	..	3	12	2	..
10/31/35	33	2,100,000	1,200	64	26	4	..	..	4	6	4	..
11/ 2/35	34	1,770,000	1,800	80	10	..	..	..	4	8	2	..
11/ 4/35	30	2,300,000	1,200	68	14	..	..	..	..	18	..	..
11/ 6/35	31	2,010,000	2,000	86	7	..	..	..	1	5	1	..
11/ 9/35	31	2,080,000	3,250	70	10	..	..	1	3	16	..	..
11/15/35	25	1,620,000	3,000	75	10	..	..	..	..	15	..	..
11/21/35	10	850,000	1,800	79	9	..	..	..	..	12	..	..
11/26/35	—10	1,060,000	3,200	63	29	..	1	..	..	7	28	..
12/ 1/35	—10	850,000	2,450	79	12	2	2	..	..	5	6	..

\* Note the tendency in the tables toward an increase in percentage in polymorphonuclears and mononuclears.

TABLE 2.—Results of Fifty-Four Blood Counts

Date	Hemo- globin	Red Blood Cells	White Blood Cells	Poly- morpho- nuclears	Lympho- cytes	Mono- nuclears	Eosino- phils	Baso- phils	Myelo- blasts	Myelo- cytes	Platelets	Neutro- phils	Reticulo- cytes
8/27/35	45	2,780,000	3,400	69	22	9	..	..	..	..	..	..	..
8/30/35	41	2,460,000	1,200	53	18	..	..	..	29	..	..	..	..
8/31/35	44	3,560,000	2,500	73	15	11	1	..	..	..	..	..	..
9/ 1/35	45	3,010,000	1,900	66	31	2	1	..	..	..	..	..	..
9/ 2/35	45	3,220,000	3,000	71	27	1	1	..	..	..	..	..	2
9/ 4/35	48	3,720,000	3,300	59	25	15	1	..	..	..	..	..	5
9/ 5/35	47	3,720,000	3,100	49	35	10	6	..	..	..	..	2	1
9/ 6/35	44	4,100,000	4,500	65	30	5	..	..	..	..	..	..	2
9/ 8/35	48	4,120,000	4,300	67	25	7	1	..	..	..	..	..	3
9/10/35	52	4,210,000	5,100	79	13	5	2	1	..	..	..	..	3
9/12/35	51	3,810,000	8,300	78	16	5	6	..	..	..	..	..	1
9/19/35	35	2,400,000	2,200	60	37	3	..	..	..	..	..	3	..
9/21/35	35	2,380,000	2,400	68	20	7	..	..	5	..	..	6	..
9/25/35	37	3,040,000	4,200	71	19	8	2	..	..	..	..	1	..
9/27/35	41	3,100,000	4,200	73	17	10	..	..	..	..	..	2	..
9/30/35	43	2,890,000	5,100	70	13	15	1	1	..	..	..	3	..
10/ 3/35	37	2,650,000	4,100	78	13	..	1	..	8	..	..	1	..
10/ 5/35	20	2,330,000	2,400	68	15	..	1	..	15	..	..	3	..
10/ 7/35	29	1,590,000	1,300	75	12	11	..	..	2	..	..	..	..
10/ 8/35	23	1,590,000	1,000	50	14	15	4	..	17	310,000	2	..	..
10/ 9/35	30	1,970,000	900	11	27	3	6	1	7	14	..	3	..
10/10/35	30	2,300,000	1,200	52	14	3	4	..	12	15	..	2	..
10/11/35	32	2,100,000	900	55	25	2	5	..	2	11	..	2	..
10/12/35	36	2,670,000	1,200	53	36	3	8	..	..	..	..	1	..
10/13/35	40	2,720,000	2,900	62	26	5	7	..	..	..	..	..	..
10/14/35	41	3,200,000	2,200	67	11	2	14	1	3	2	..	..	..
10/15/35	44	3,100,000	2,100	46	27	9	18	..	..	..	..	..	..
10/16/35	44	2,650,000	3,300	45	27	..	21	..	2	3	..	..	..
10/19/35	52	2,770,000	7,500	76	17	..	4	1	..	2	..	..	..
10/21/35	50	2,780,000	9,000	75	9	2	10	3	1	..	..	..	..
10/23/35	43	2,610,000	10,600	76	6	..	17	..	..	1	..	..	..
10/26/35	42	2,300,000	3,000	71	21	2	3	..	..	..	..	..	..
10/27/35	35	2,000,000	1,800	77	13	3	1	..	3	5	..	..	..
10/28/35	32	1,900,000	1,750	60	32	4	2	..	2	..	..	..	..
10/29/35	33	1,960,000	2,100	57	24	4	..	..	3	12	..	1	..
10/30/35	33	2,350,000	1,500	64	19	1	1	..	5	10	..	2	..
10/31/35	33	2,100,000	1,200	61	26	..	..	..	4	6	..	1	..
11/ 1/35	33	1,720,000	1,600	70	18	..	2	..	2	8	..	4	..
11/ 2/35	34	1,770,000	1,500	80	10	..	..	..	4	8	..	3	..
11/ 3/35	30	2,010,000	1,500	72	14	..	..	..	..	14	..	2	..
11/ 4/35	30	2,300,000	1,200	68	14	..	..	..	..	18	..	..	..
11/ 5/35	30	1,790,000	1,100	72	15	..	..	..	2	11	..	..	..
11/ 6/35	31	2,010,000	2,000	86	7	..	..	..	1	5	..	1	..
11/ 7/35	33	2,080,000	1,700	85	13	..	..	..	..	2	..	..	..
11/ 9/35	31	2,080,000	3,250	70	10	..	..	1	3	16	..	..	..
11/12/35	30	1,720,000	3,500	80	11	..	..	..	..	9	..	..	..
11/15/35	25	1,620,000	3,000	75	10	..	..	..	..	15	..	..	..
11/18/35	15	1,300,000	1,900	75	12	..	..	..	3	9	..	1	..
11/21/35	10	850,000	1,800	79	9	..	..	..	..	12	..	..	..
11/23/35	—10	850,000	1,700	73	16	..	..	..	..	17	..	..	..
11/26/35	—10	1,060,000	3,200	63	29	..	1	..	..	7	16	..	..
11/28/35	12	1,000,000	4,500	86	10	1	..	..	..	3	28	..	..
12/ 1/35	—10	850,000	2,450	79	12	2	..	..	..	5	8	..	..
12/ 4/35	—10	750,000	2,000	61	17	..	1	5	16	250,000	6	..	..

negative for ova, parasites and occult blood. An x-ray film of the chest was essentially negative. X-ray examination of the stomach after a barium sulfate meal was negative. X-ray examination of the colon after a barium sulfate enema showed the descending colon to be narrow, smooth walled and with a loss of haustral markings. X-ray examination of all the long bones, pelvis and skull showed no evidence of bony pathologic changes. Blood cultures were repeatedly negative. Agglutina-

tion tests for typhoid, paratyphoid, *Brucella melitensis* and *Baeterium tularensis* were repeatedly negative. A skin test for tularemia was negative. A biopsy from the sternum was unsatisfactory and one from the left inguinal lymph nodes showed only chronic inflammatory changes.

Although a definite diagnosis was lacking, it was felt that a blood dyscrasia existed. The patient was empirically given liver extract intramuscularly (3 cc. of Solution Liver Extract

We have used prescriptions 7, 8 and 9.

**PRESCRIPTION 7.—Alkaline Peppermint Powder**

	Gm.
℞ Calcium Carbonate .....	1.3
Bismuth Subcarbonate .....	0.65
Magnesium Carbonate .....	0.3
Sodium Bicarbonate .....	1.0
Oil of Peppermint.....q. s.	

**PRESCRIPTION 8.—Small Powder**

	Gm.
℞ Sodium Bicarbonate .....	20
Calcium Carbonate .....	
Magnesium Oxide .....	4

Make twenty powders.

Sig.: One three times a day, one hour after meals.

**PRESCRIPTION 9.—Large Powder (for antacid and laxative effects)**

	Gm.
℞ Magnesium Oxide .....	15
Sodium Bicarbonate .....	90
Calcium Carbonate .....	15

Sig.: 4 Gm. in water three times a day, one hour after meals.

A useful preparation is the soda mint tablet (Tablets of Sodium Bicarbonate, N. F.), which contains sodium bicarbonate and oil of peppermint. The dose is from one to six tablets. The liquid form, known as the soda and mint mixture (Solution of Soda and Mint, N. F.) is also quite popular. It contains sodium bicarbonate 5 per cent and aromatic spirit of ammonia 2 per cent with spearmint or peppermint water. It is a mild antacid and carminative and may be given in doses of 8 cc.

Prescriptions 10 to 14 are commonly used.

**PRESCRIPTION 10.—Saline-Alkaline Mixture**

℞ Exsiccated Sodium Bicarbonate .....	
Exsiccated Sodium Phosphate .....	
Exsiccated Sodium Sulfate .....	30 Gm.

Sig.: One-half teaspoonful in water before meals.

**PRESCRIPTION 11.—Alkaline-Bismuth Subcarbonate Mixture**

	Gm.
℞ Sodium Chloride .....	2
Sodium Bicarbonate .....	
Kaolin .....	
Bismuth Subcarbonate .....	
Heavy Magnesium Oxide.....	15
Saccharin .....	0.065
Oil of Peppermint.....q. s.	

Sig.: One-half teaspoonful in water after meals.

**PRESCRIPTION 12.—Flavored Alkaline Mixture**

	Gm.
℞ Calcium Carbonate .....	
Tribasic Calcium Phosphate.....	
Sodium Bicarbonate .....	15
Saccharin .....	0.065
Oil of Lemon.....q. s.	

Sig.: One-half teaspoonful in water, one hour after meals.

**PRESCRIPTION 13.—Alkaline Gentian Mixture**

	Gm. or Cc.
℞ Tincture of Nux Vomica.....	12
Sodium Bicarbonate .....	12
Compound Tincture of Gentian.....	12
Peppermint Water, q. s.....	175

Sig.: 8 cc. three times a day in water, after meals.

**PRESCRIPTION 14.—Bourget Mixture**

	Gm.
℞ Sodium Bicarbonate .....	30
Sodium Phosphate (dry).....	
Sodium Sulfate (dry).....	15
(a) Sig.: From 4 to 8 Gm. in a glass of hot water on waking.	
(b) Sig.: From 8 to 15 Gm. in a glass of hot water half an hour after meals.	

The alkaline saline waters have been employed in the treatment of chronic gastric disturbances accompanied by hyperacidity. Of these Vichy, Carlsbad and Kissingen water are best known. As a general rule the

alkaline mineral waters contain only a small amount of the carbonate and are not to be preferred to pharmacopeial preparations.

One of the many useful drugs is aromatic spirit of ammonia. It is mentioned as a useful reflex stimulant, antacid and carminative. The dosage is 2 cc. freely diluted with water.

Among the official drugs used as gastric antacids are prepared chalk, compound chalk powder, chalk mixture, precipitated calcium carbonate, magnesium oxide, heavy magnesium oxide, magnesia magma, magnesium carbonate, solution of calcium hydroxide, aromatic spirit of ammonia, sodium bicarbonate and potassium bicarbonate.

**UNTOWARD REACTIONS OF ALKALIS**

1. *Alkalosis*.—Many instances have been recorded in which the administration of large doses of sodium bicarbonate has produced alkalosis with kidney injury and diminished excretion of nitrogen leading to uremia. Bastedo believes there is reason to suspect that in those cases in which alkalosis develops, abnormal factors of elimination and acid base metabolism may be present. Since alkalosis has not been detected following the administration of calcium carbonate or magnesium oxide it is suggested that as a precautionary measure these may be substituted for sodium bicarbonate in those cases in which large quantities of the latter have been used and the urine kept persistently alkaline.

As has been pointed out, the symptoms of alkalosis generally appear between the first and second week after the beginning of the alkaline treatment. As a precautionary measure the use of the tribasic phosphates of calcium and magnesium instead of other alkalis has been advised in those patients who have even a mild degree of renal disease or of pyloric obstruction. The tribasic phosphates act as local antacids without producing systemic alkalinization. In all instances in which the slightest suspicion of the onset of alkalosis arises the regulation of alkali can always be guided by analyses of the plasma carbon dioxide. Since alkalosis has been most frequently observed in patients on the Sippy treatment or in cases of pyloric or upper intestinal obstruction accompanied by vomiting, such plasma determinations are extremely important when these conditions exist. Care must likewise be exercised in cases of hypertension and renal disease. Eusterman and Balfour called specific attention to the observation that ulcer-bearing patients who had chronic nephritis, pyelonephritis, hepatic cirrhosis, arteriosclerosis or hypertension were markedly susceptible to alkalosis.

Alkalosis is manifested by such symptoms as headache, drowsiness, anorexia, nausea, vomiting, muscle ache, nervousness, mental depression, vertigo and aching pain in muscles and joints. Tetany may develop. When such symptoms appear, administration of alkalis must cease at once and appropriate measures instituted to overcome the toxic state. In such cases some form of substitution therapy may be used instead of antacids. These are mucin, kaolin, alumina cream, colloidal kaolin and the tribasic phosphates used cautiously. With sufficient care, it is clear that alkalosis should be the rarest of complications in antacid therapy.

2. *Stone*.—Meyer and Singer reported a case of intermittent pyloric obstruction due to a gastrolith which consisted of magnesium and sodium, following treatment of ulcers with alkalis. This complication, however, is extremely rare.

scars or cysts. The consistency was normal. The cut surface was light gray and the markings were distinct. The cortex measured 0.5 cm. and the medulla 2 cm. The peripelvic fat was normal. The calices, pelvis and ureters were all dilated (grade 2). The left kidney weighed 210 Gm. and was essentially similar to the right. The bladder was empty at examination. It was somewhat contracted and thickened. The wall measured 8 mm. in thickness and was firm and fibrous to touch. There was a small amount of hemorrhage of the mucous membrane most marked in the area of the trigon. Both ureteral orifices were patent. The prostate measured 3 by 3 by 2.5 cm. and appeared to be normal on cut surface. The thyroid was normal in size and consistency. The aorta and its large branches were sclerosed (grade 1). The spine was normal in alignment. The periaortic lymph nodes were enlarged (grade 1). The largest of this chain of nodes measured 3 by 2 by 1 cm. These were fairly discrete and were of a light gray waxy appearance. The bone marrow was pyemia and semiliquid in consistency. The anatomic diagnosis was lymphoblastoma (Hodgkin's type); pulmonary congestion and edema with early diffuse bronchopneumonia; bilateral hydrothorax; contracted (grade 2) hypertrophied (grade 2) bladder with mural fibrosis, hydro-ureters bilateral (grade 2) and hydronephrosis bilateral (grade 2); emaciation (grade 2); arteriosclerosis (aorta grade 1, coronaries grade 1).

The report on the microscopic study will be limited to one of the lymph nodes from the abdomen: The normal structure was lost. There was a rather marked increase in the amount of connective tissue, much of which had undergone hyaline change. The remaining lymph spaces were filled with lymphocytes and a second type of cell which was large, slightly irregular and possessed a large pale nucleus in many of which there was a small deeply stained nucleolus. There was some increase in the size of the reticulo-endothelial cells. There were occasional multinucleated cells with a moderate amount of pale cytoplasm. There were occasional eosinophils and a few mitotic figures. The diagnosis was Hodgkin's disease. These slides were also studied by Dr. Arthur Wells of St. Luke's Hospital, Drs. Kernohan and Robertson of the Mayo Clinic and Dr. C. H. Bunting of the University of Wisconsin, all of whom agreed in the diagnosis. Microscopic sections of the spleen studied by Dr. Wells showed a diffuse moderate increase of the interstitial fibrous connective tissue. A few areas had a complete obliteration of sinusoids and much hyalinization, and others were comparatively free from fibrosis. There was a diffuse prominent eosinophilic infiltration throughout the sections. Rare giant cells of the Dorothy Reed type were noted. The diagnosis was Hodgkin's disease.

I sincerely regret that the specimens of bone marrow were unsatisfactory. Dr. Bunting also studied the blood smears and reported that the platelets were large, swollen and numerous.

This, then, represents a case of Hodgkin's disease diagnosed prior to death by reason of the atypical Pel-Ebstein fever and by repeated blood studies. Referring to table 2 it is noted that, in all, fifty-four blood counts were performed. I have already stated that the bleeding time, clot retraction time and clotting time were within normal limits. At times there was a considerable number of immature cells in both red and white groups. In the latter group these cells were members of the granular series. The anemia of 750,000 and 850,000 was extremely grave and with a hemoglobin of less than 10 per cent is worthy of mention. The platelet count, taken twice, varied from 250,000 to 310,000, and on constant study all smears failed to show any reduction in the number of platelets. Despite the absolute lack of mononuclears on occasion, it was felt that there was a tendency for these cells to be increased. If one adds the number of myelocytes and myeloblasts to the neutrophil count, it is found that the number of polymorphonuclear cells is quite above normal.

Chart 1 reveals these counts in graphic form and indicates the relatively high percentage of neutrophils and the tendency toward mononuclear increase and the progressive, severe anemia that existed. In chart 2 the interesting relationship between fever and blood count is observed. It was found that when the temperature rose above normal the red and white blood cell counts fell and, conversely, when the temperature returned to normal the blood elements increased.

## SUMMARY

A case of Hodgkin's disease was characterized by atypical Pel-Ebstein fever, a persistent and severe leukopenia and a steady and often extremely marked anemia; prior to death the physical changes gave no suggestion of Hodgkin's disease other than the palpable spleen. I wish to stress the point that had only one blood count been taken an antemortem diagnosis could not have been made. It is evident that the blood count could have been performed when the mononuclears were entirely absent or when they were increased, and also at a time when the immature cells could have led one astray. The continued study indicated a tendency toward an increase in mononuclear cells and polymorphonuclear cells. Also, although the number of platelets was not increased, it may be postulated that in comparison with the other formed elements they were relatively increased. I will make no effort to explain either the leukopenia or the anemia.

## CONCLUSION

It is felt that the blood picture is a distinct aid in the diagnosis of Hodgkin's disease and that in this condition, as in blood dyscrasias, a continued study of the blood is of extraordinary importance.

1115 Medical Arts Building.

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**Special Article**

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**THE PHARMACOPEIA AND THE  
PHYSICIAN****USE OF GASTRIC ANTACIDS****JULIUS FRIEDENWALD, M.D.**

AND

**SAMUEL MORRISON, M.D.**

BALTIMORE

*This is one of a series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—Ed.*

Antacids are employed primarily to reduce or neutralize the acidity of the gastric secretion, preferably by local action rather than through systemic alkalinizing effects. Gastric acidity is largely due to excess of free hydrochloric acid, but other fermentative acids may also contribute to its production. The condition may be recognized by an examination of the gastric contents or may be surmised from the symptoms noted by the patient. However, the ordinary test meal does not demonstrate excessive acidity as often as does the fractional test meal after the use of histamine.

## • IMPORTANT FACTS CONCERNING ANTACIDS

Hurst and Stewart point out that both sodium bicarbonate and magnesium oxide are the most powerful stimulants of gastric secretion known, with the exception of histamine. This is based on the work of Crohn and Reiss, who demonstrated by fractional test meals the primary neutralizing effect of these antacids followed by stimulation of acid secretion. It appears that since these alkalis produce an alkaline solution when given in excess whereas calcium carbonate, sodium and potassium citrates and tribasic calcium and magnesium phosphates produce a neutral solution, it is rather the alkaline reaction of the gastric contents than any specific

From the Gastro-Enterological Clinic of the University of Maryland School of Medicine and College of Physicians and Surgeons.

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SATURDAY, MARCH 13, 1937

## WHAT IS AN AMERICAN?

The answer to the question propounded in the title is likely to reflect the narcissism or self idealization of the one who attempts to answer it. The physical anthropologist alone, however, according to a discussion by Hooton,<sup>1</sup> is qualified to view this question objectively and impartially. The anthropologist's data are derived from caliper measurements, indexes, morphologic observations and statistical analysis pertaining to masses of the population. His view, therefore, cannot be so easily affected by human frailty. When applied to civilized nations, in fact, anthropology has a distressing tendency to shatter cherished delusions.

Americans, for the purposes of Hooton's study, were divided into four classes: (1) old Americans, (2) new Americans, both of whom have been born to Americanism, (3) immigrant Americans—those who have achieved Americanism—and (4) Afro-Americans, or those who have had Americanism thrust upon them. The largest group of individuals used for the racial sorting of the survey was a criminal series composed of 5,689 inmates of penal institutions in nine states. The states were selected for the purpose of furnishing representative samples of all the more important racial groups domiciled in the United States. In addition, some 3,000 free citizens in and around Boston were measured to furnish a check sample. Anthropometric data were also compiled on about 6,000 visitors to the Harvard Model Laboratory at A Century of Progress Exposition in Chicago. The primary concern of all the observations was to determine the racial composition of the white population of the United States. The criteria used for the laboratory sorting method were primarily cephalic and combinations of hair color and eye color, combined in certain subgroups with a twofold division of stature or of the nasal index. Nine so-called racial types emerged in a relatively clear-cut fashion and could be statistically validated. These nine groups were (1) the pure Nordic type of pure blond long heads, (2) the pure Mediterranean type of pure brunet long heads,

(3) the predominantly Nordic type of near blond long heads, (4) the Celtic type of long heads with disharmonic pigment combinations, (5) the mixed Nordic Mediterranean type of long-heads with intermediate but darkish pigmentation, (6) the East Baltic type of pure blond round heads with medium to broad noses, (7) the Alpine type of pure brunet round heads with medium to broad noses, (8) the mixed Nordic Alpine type of round heads with intermediate but lightish pigmentation and medium to broad noses, and (9) the mixed Dinaric type of round heads with intermediate pigmentation and narrow noses.

The proportions of the nine racial types in the three series—criminal, civilian check sample and world's fair visitors—were extraordinarily similar. The ranking physical type in the combined series was the Nordic Mediterranean group. It constituted about 25 per cent of the combined series, ranking first among the criminals and a close second in each of the two civilian series. It was strongest among the native whites of native parentage and seems to be a predominantly British type. Among the criminals it was remarkable because of its high ranking in first and second degree murder and its low ranking in burglary and larceny. In the two civilian series, those who belonged to this type were separated by a wide margin from the criminal group, both occupationally and educationally. The other physical types were similarly studied in some detail but cannot be cited here for lack of space.

As far as the data allow judgment, according to Hooton, the ethnic origins of the several types distinguished are identical or closely similar for the same types in all three of the series. The European antecedents, where ascertainable, confirmed anthropologic tradition as to the existence of certain physical races. No claim can be made, however, that these types constitute, singly, bodies of persons of exactly the same ethnic derivation. It is, however, a remarkable fact that the imperfectly segregated and classified physical types should exist in virtually identical proportions in these three widely divergent series. It is also clear that no anthropologic basis exists for singling out any so-called racial or national group, or religious or linguistic group, for preferment or for condemnation. Anthropologically it is much more rational to segregate and to eliminate the unfit, worthless, degenerate and antisocial members of each racial and ethnic strain in our population so that the substantial merits of the sound majority of each and the special and diversified gifts of its superior members can be utilized.

Professor Boas,<sup>2</sup> who has long been a student of this subject, has recently written briefly on the effects of American environment on immigrants and their descendants—a subject both closely allied to and indistinguishable from the question asked by Professor Hooton. The problem, Boas states, involves the answer to

1. Hooton, E. A.: What is an American? *Am. J. Phys. Anthropol.* 22:1 (Oct.-Dec.) 1936.

2. Boas, Franz: The Effects of American Environment on Immigrants and Their Descendants, *Science* 84:522 (Dec. 11) 1936.



Neches have pointed out that oil of peppermint when used by itself or with a secretory stimulant depresses or inhibits the secretion of acid by the stomach.

#### GENERAL DISCUSSION OF ALKALIS IN ULCER CASES

As a rule some form of alkaline therapy is indicated in the treatment of peptic ulcer. Usually sodium bicarbonate combined with either bismuth subcarbonate or calcium carbonate or magnesium oxide (heavy or calcined) is prescribed. As we have already pointed out, however, caution must be taken in the use of large doses of these remedies since toxic effects may result after their absorption. Many clinicians are definitely opposed to the use of sodium bicarbonate or magnesia in doses exceeding 0.5 Gm. of either of the ingredients. Furthermore, Crohn has shown experimentally that large doses of alkalis neutralize or depress acidity only temporarily (from a quarter to half an hour), being followed by a secondary hypersecretion of gastric acidity that more than counterbalances the primary neutralizing effects. It is for this reason that the use of neutral salts such as the tribasic phosphate of calcium and magnesium have been recommended because they are not systemic alkalis but act rather locally in the stomach as antacids. They can therefore be used continuously without giving rise to toxic effects, since they are excreted in the intestine and produce no changes in the urine or blood. Moreover, they afford a degree of relief from symptoms in ulcer cases equal to that obtained by the more frequently used soluble and absorbable alkalis. On the other hand, it must be stated that others do not consider neutral salts as having any superiority over the ordinary alkalis. Perhaps no general rule can be formulated in antacid therapy. In our experience, certain individuals have responded to one type of therapy whereas other types have not been given relief. In rare instances, alkalis seem to aggravate rather than relieve the patient's symptoms.

#### EFFECTS AND MODE OF ACTION OF ALKALIS

Cushny considers that alkalis have no effect whatever on the activity of the secretory glands of the stomach as far as inducing a more rapid secretion of gastric juice is concerned. However, alkalis may affect the juice already secreted, rendering it neutral or even alkaline and, moreover, useless for digestion and disinfection. Nevertheless they are of benefit in cases of hypersecretion because they lessen the amount of free acid present. Dilute solution of the alkalis may overcome pain, eructations and distention by acting as slight irritants to the stomach wall and in this manner increase circulation. This carminative action may be strengthened when carbonates or bicarbonates are employed, owing to the liberation of carbonic acid by the action of hydrochloric acid. Alkalis may also help to render mucus less tenacious and apparently have definite effects on the movements of the stomach. Ordinarily excess of alkali is rapidly excreted in the form of alkaline salts. Nevertheless sodium bicarbonate, which is the most frequently used antacid, may produce alkalosis if given too frequently or in too large doses; and particularly in those cases in which pyloric obstruction or impairment of kidney function is present, constant care must be taken in order to avoid the production of any toxic effect.

Alkalis given with meals, i. e., during the digestive period, do not influence the acid secretion, although if given in large enough quantities they may render the

gastric contents alkaline and interfere with gastric digestion. During the period of digestion, however, the presence of food prevents acid irritation; but the presence of alkalis, such as sodium bicarbonate, will later give rise to higher acid values than would be present when this alkali is not taken. Even smaller amounts of alkali may diminish gastric activity by reducing the amount of free acid below the optimum concentration. As Bastedo points out, "it seems that we are dealing with a quantitative chemical neutralization made difficult by the attempt of the stomach to secrete more acid in order to accomplish its digestive function and this in turn requires more alkali. How much alkali is required depends also on the phase of digestion, for there is more acid present at the height of digestion than earlier or later in the digestive process." Bastedo also discusses the importance of the volume of contents in determining the effect of any antacid. The loss of contents through the pylorus as well as the fact that acid is continually being secreted while the amount of alkali is fixed also must be given consideration in determining the effect of a particular antacid. Since the presence of food combines with and absorbs acid, a high acid content may not be productive of symptoms during the digestive period, whereas even a lower level of acidity at the end of digestion may give rise to very distressing symptoms. It seems clear, therefore, that the time for antacid administration is at the end of digestion and in actual practice it is at this period that antacids actually afford most relief. It is believed, Bastedo points out, that the relaxation of the pyloric and cardiac sphincters after the administration of sodium bicarbonate, resulting perhaps from the liberation of carbon dioxide, is an important factor in overcoming acidity, hunger or empty pain. Perhaps this also explains why alkalis are also beneficial even when excessive acidity does not exist.

Meyer and Rubin carried out experiments on the effect of alkalis on experimental ulcer produced by Mann's method and were unable to support the view that alkalis are a factor in aiding the healing of ulcer. On the other hand, Dragstedt and Vaughan found that alkalis in amounts sufficient to neutralize the gastric secretion promote the healing of experimental gastric ulcers produced by a method different from that used by Mann.

#### INDICATIONS FOR ANTACIDS

Antacids are used primarily to neutralize excessive acid secretion in the stomach. In this way they relieve discomfort and perhaps also diminish the tendency to the development of peptic ulcer. Any mild antacid may be used for this purpose, but the many disadvantages of sodium bicarbonate have already been noted. Magnesium carbonate or soda may be used if a mild laxative action is needed; and if general stimulation is desired, such as in sudden "sour stomach" with headache as well as nausea, aromatic spirit of ammonia is useful. Belladonna and atropine are of value in hypersecretion, especially when the latter is associated with pylorospasm.

Since antacids are so commonly employed for relief of stomach discomfort, it seems logical that they should be administered just preceding the occurrence of pain if this is periodic. If the time of onset of pain cannot be judged, the antacid should be taken simultaneously with its onset. During the digestive period or toward its end, antacids may be beneficial if the discomfort is due to food irritation, distention or pylorospasm.

further course of atelectasis, according to Coryllos, will depend on the duration of the obstruction and the virulence of micro-organisms contained in the mucous exudate causing the obstruction. The presence of virulent pneumococci will cause pneumonia; the presence of pyogenic organisms may lead to suppuration and the presence of certain fusiform anaerobes to gangrene of the lung. Thus, atelectasis, either patchy, involving small areas or massive, is the forerunner of postoperative pneumonia or bronchopneumonia.

While most clinicians will not accept the theory that pulmonary atelectasis and postoperative pneumonia are two phases of essentially the same process, it appears reasonable to assume from the mass of accumulated evidence that atelectasis is the predominant postoperative pulmonary complication. And since the reduction of the vital capacity and interference with pulmonary ventilation are the two important factors in its production, the prophylaxis as well as the active treatment of the condition is clearly indicated. Among such measures one may mention the preoperative determination of the vital capacity, and in the postoperative period frequent change of posture, pulmonary exercises, hyperventilation with carbon dioxide inhalations suggested by Henderson, judicious administration of sedatives and narcotics sufficient to allay the pain but not to inhibit the cough reflex, avoidance of tight bandaging, and getting the patient up as soon as possible.

### *Current Comment*

#### GEORGE W. MCCOY AND THE U. S. PUBLIC HEALTH SERVICE

The Serums and Vaccines Act of 1902, with subsequent amendments, placed in the hands of the Hygienic Laboratory (now known as the National Institute of Health) the control of serums and vaccines sold in interstate traffic. The medical profession has benefited greatly by this work throughout the years, and especially by the services of Dr. George W. McCoy, its director for more than twenty-one years. Now comes the news that there has been an alteration in the administrative organization of the Scientific Research Division of the Public Health Service which directs such activities as do not conveniently come under the scope of the National Institute of Health. With the increase in scope of the investigative activities, all the research work of the service will be consolidated under the National Institute of Health. As a result of this reorganization, the chief of the Division of Scientific Research, Assistant Surgeon General Lewis R. Thompson, automatically becomes the director of the institute. To Dr. Thompson the change will not be great; in his capacity in charge of all the research work of the Public Health Service he has had intimate contact with the affairs of the laboratory. It is understood that the National Institute of Health is planning the establishment of a center for Public Health Service research

activities at Bethesda, Md., and that the plans for the center are maturing rapidly. The change brings the opportunity for Dr. George W. McCoy to return to his favorite study of leprosy, with which his name has long been identified as an investigator. Dr. McCoy has served on international commissions with distinction and has been showered with honors recognizing his value as a bacteriologist and administrator. It requires one of unusual talents to occupy an administrative position that involves direction of research work and at the same time supervision of commercial concerns. In his years with the Public Health Service, Dr. McCoy not only has maintained his high prestige as a research worker but has inspired the manufacturers of biologic products with high regard for the fairness of his decisions and for the efficiency of his department. Dr. McCoy has been a most valuable and cooperative member of the Council on Pharmacy and Chemistry since 1916. *THE JOURNAL*, speaking for American medicine, expresses to Dr. McCoy its best wishes as he returns to the field of pure science, in which he has already made many noteworthy contributions.

#### BRITISH COLUMBIA PHYSICIANS REJECT SICKNESS INSURANCE

A letter from A. J. MacLachlan, M.D., registrar of the College of Physicians and Surgeons of British Columbia, states that a ballot conducted among the members of the college on the question of whether or not they were in favor of working under the proposed plan of health insurance resulted in a vote of 619 against the plan and 13 in favor. The press announces that the premier, who was in Ottawa when the vote was received, wired instructions that collections under the act be postponed sine die and that the whole situation will be reviewed on his return from the East. This should suffice as a reply to those who said that the British Columbia scheme was adopted with the approval of the physicians of the province and that the first system of sickness insurance in North America was about to go into operation.

#### THE CULTS DEMAND NEW LEGISLATION

Congress and the forty-four state legislatures now in session, as will be seen under the heading Medical Legislation in the Organization Section of *THE JOURNAL* are busy with legislative proposals far more numerous than those in previous years. The causes of the deluge are obvious: Legislation is necessary to enable the states to avail themselves of the largesses offered by the federal government through the Social Security Act. The economic and social upheavals caused by the depression call for corrective measures. Outmoded and otherwise inadequate legislation needs revision. Tremendous problems with respect to revenue demand attention. Intelligent action on these matters will require all the time of the various legislative bodies. What mockery to have the cult practitioners of the healing art interject their selfish proposals at such a time. Possibly they do so in the hope that busy legislatures will pass without adequate discussion measures that will especially

**Bismuth Compounds.**—Crohn believes that bismuth salts, especially bismuth subcarbonate, although not alkaline in themselves, may be considered as a form of antacid therapy because by actual observation after test breakfasts he observed a depression of acid secretion in most cases. Bastedo, however, believes that the action is a demulcent and protective one, for bismuth salts either take up no acid or combine too slowly to have any gastric antacid effect. Notwithstanding this, bismuth salts are used to lessen hypersecretion and as a demulcent in peptic ulcer cases and also to check nausea, vomiting and gastric irritation. When it is employed in too large doses or over too long a period, bismuth becomes constipating and sometimes when not controlled the degree of constipation may become extremely distressing.

The usual dosage of bismuth salts, subgallate, subcarbonate and the much less used subnitrate because of its toxicity, is from 0.65 to 2 Gm., and magma of bismuth, 4 cc. Hurst directs attention to the fact that 0.3 per cent of hydrochloric acid has no action whatever on bismuth oxycarbonate, which indicates that it cannot possibly exert any neutralizing action on the acid gastric contents. He would therefore discourage its use not only because it has no neutralizing effect but also because it has the disadvantage of rendering the stools black, so that the immediate recognition of slight melena by the patient is made impossible.

**Sodium and Potassium Bicarbonates.**—According to Bastedo, sodium bicarbonate is a weak antacid of its kind but is considered superior and most generally valuable because it is the physiologic alkali of the body. Furthermore, it is soothing to irritated tissues when administered in dilute solution, gives off the carminative and soothing carbon dioxide in the presence of acid, and leaves a weak acid and nonirritation solution of sodium chloride. It also seems to have a special power to relax the pylorus and possibly also the cardia and, being in solution, it may help to dissolve mucus. On the other hand, it may produce alkalosis if administered in large amounts. When administered in ulcer cases, for example, sodium bicarbonate gives immediate relief from pain in most instances. The rapid neutralization of acid, however, is followed by a secondary rise in secretion, as has already been discussed. It has also been pointed out that some of the relief brought about by sodium bicarbonate is due to the effect of distention of the stomach with gas. This, however, may be dangerous, as Hurst and Stewart point out, if an ulcer is near perforation. In moderate doses a mild yet rapid effect may be produced, without so many disadvantages. It is the only soluble antacid in common use for stomach conditions.

Potassium bicarbonate is much less frequently used. Both it and the sodium compound are classed among the "alkali carbonates and bicarbonates." The dose of each is 1 Gm.

**Magnesium Salts.**—Magnesium oxide is in itself insoluble. It has a laxative effect, which may be of value but prevents the administration of any but moderate doses. The official magnesium antacids are the oxide, carbonate and hydroxide. They all have considerable combining power for acid but are very weak alkalis. Nevertheless they are valuable aids in the treatment of peptic ulcer and hyperacidity. Magnesium oxide has nearly four and one-half times the neutralizing power of an equal weight of sodium bicarbonate.

Furthermore, the period of neutralization is prolonged when compared with sodium bicarbonate. There is also no evolution of gas and consequently no gastric distention. However, as with sodium bicarbonate there is a secondary rise in acidity following the initial neutralization.

The average antacid dose of magnesium oxide (light or calcined magnesia) is 0.25 Gm. There is also a heavy magnesium oxide. According to Bastedo, it does not hydrate readily and is thought by many to be of less value than the light magnesia but it is used in powder form because of its smaller bulk. Magnesia magma, or magnesium hydroxide, is administered in doses of from 4 to 10 cc., magnesium carbonate in 0.25 Gm. doses. Bastedo points out that in neutralizing power 1 Gm. of magnesium oxide is approximately equivalent to 2.5 Gm. of magnesium carbonate, 3 Gm. of calcium carbonate, 4 Gm. of sodium bicarbonate and 21 cc. of magnesia magma and that these amounts can neutralize 18 cc. of diluted hydrochloric acid or 600 cc. of gastric contents containing 0.3 per cent of hydrochloric acid.

**Calcium Salts.**—Both calcium carbonate (chalk) and magnesium carbonate belong to the group of "carbonates of alkaline earths." Calcium carbonate is also insoluble and has a tendency to constipate mildly. It occurs in two forms, precipitated calcium carbonate, a heavy fine powder, and prepared chalk. The dose of either is 1 Gm. It has been shown that calcium carbonate has two thirds of the neutralizing power of sodium bicarbonate and the advantage of not giving rise to any secondary hypersecretion. Loevenhart and Crandall consider that calcium carbonate is the ideal antacid for the following reasons: 1. When suspended in water it is neutral in reaction. 2. It is only a "potential" alkali but it neutralizes the gastric acid, forming calcium chloride and carbon dioxide. 3. It can be given almost ad libitum. If an excess is taken, it passes out in the feces. 4. It apparently has no effect on the activity of the bowel except that, if taken in excess, it increases the bulk of the stool. (Others believe that it has a slightly constipating effect.) 5. When taken in excess it will coat over ulcerated areas and may in this manner afford protection from the action of irritants.

#### PRESCRIPTIONS

In discussing the powders presented in prescriptions 4, 5 and 6, Rutherford-Darling cautions that if such

##### PRESCRIPTION 4.—Powder of Bismuth Carbonate and Chalk

	Gm.
℞ Bismuth Carbonate.....	15
Heavy Magnesium Carbonate.....	45
Sodium Bicarbonate .....	45
Chalk .....	45

##### PRESCRIPTION 5.—Antacid Powder

	Gm.
℞ Heavy Magnesium Carbonate.....	1.3
Chalk .....	1.0
Sodium Bicarbonate .....	2.0

##### PRESCRIPTION 6.—Akloline Chalk Powder

	Gm.
℞ Sodium Bicarbonate .....	90
Heavy Magnesium Carbonate.....	240
Chalk .....	360

compound powders as these three are administered they should be prescribed in doses insufficient to effect complete neutralization, so that secondary stimulation is not produced.

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Chandler, on "Medicine, Metaphysics, Psychiatry and Cults." Dr. Alexander D. Waroshill, Florence, presented a case report on "Hemolytic Degeneration of the Blood in a Case of Influenza."—Dr. Jack G. Hutton, Denver, discussed the diagnosis and treatment of the twelve most common skin diseases seen in general practice before the Arapahoe County Medical Society, Englewood, January 25.—The Medical Society of the City and County of Denver was addressed, March 3, by Drs. Harry Gauss on "Gastro-Intestinal Symptoms of Cardiovascular Origin"; Joseph R. Plank, "Mesenteric Lymphadenitis," and James R. Jaeger, "Newer Conceptions of Sciatica," with motion picture demonstration. Dr. Siegfried J. Thannhauser, Boston, conducted a diagnostic clinic before the society, February 2.

### CONNECTICUT

**Appointments to State Department of Health.**—Dr. Franklin M. Foote, Elizabethton, Tenn., has been appointed chief of the division of local health administration of the Connecticut State Department of Health. He succeeds Dr. Benjamin G. Horning, who was appointed health officer of Hartford. Dr. Martha L. Clifford, assistant director of the bureau of child hygiene, has been named director of the department, and Dr. Martha A. O'Malley, Waukon, Iowa, has been made a member of the bureau staff. Dr. Foote graduated from Yale University School of Medicine in 1933 and from the school of public health in 1935, and Dr. O'Malley took her medical degree at the State University of Iowa College of Medicine, Iowa City, in 1933. Dr. Clifford graduated from the University of Colorado School of Medicine, Denver, in 1933.

### DELAWARE

**Hospital News.**—The new \$104,000 addition to the Brandywine Sanatorium at Marshallton was opened January 25. Fully equipped, the new addition is valued at \$120,000 and provides accommodations for fifty new beds, making the total bed capacity of the institution 160.

### DISTRICT OF COLUMBIA

**Annual Graduate Clinic.**—The fifth annual graduate clinic of the George Washington University School of Medicine, Washington, was conducted February 20. The following program was presented:

- Dr. Roger M. Choisser, Sudden Death: A Clinical Pathologic Consideration with Case Presentations.
- Dr. William E. Clark, Duodenal Ulcer.
- Dr. Jacob Kotz, How to Examine a Female Endocrine Patient.
- Dr. Harry A. Davis, Cancer of the Thyroid.
- Dr. Elijah W. Titus, Practical Considerations in Gynecologic Practice.
- Dr. Walter A. Bloedorn, Relation of Clinician and Pathologist.
- Dr. Francis R. Hagner, Results in Operations for Sterility.
- Dr. William H. Jenkins, Autoplastic Facial Nerve Graft.
- Dr. Herbert P. Ramsey, Factors in Marital Pathology.
- Dr. Guy W. Leadbetter, The Mechanics of Traction in Fractures.
- Dr. George Louis Weller Jr., Treatment of the Anemias.
- Dr. William Ross Morris, A Method of Completing Unsuccessful Pneumothorax.
- Dr. Harry F. Dowling, Present Day Status of Pneumonia Therapy.
- Dr. Margaret M. Nicholson, Congenital Heart Disease.
- Dr. Samuel M. Dodek, Management of the Persistent Occipitoposterior and Arrested Transverse Positions.

### ILLINOIS

**Physicians Honored.**—The Madison County Medical Society conferred honorary membership on Drs. Adam H. Oliver, Edwardsville; Charles R. Kiser, Madison, and Leonard Schreifels, Granite City, at a recent meeting. All are 70 years or more of age. Dr. Schreifels was president of the society in 1929 and Dr. Kiser in 1919.

**Immunization of Parochial School Children.**—A campaign to immunize children against diphtheria was projected in eighty parochial schools in the diocese of Belleville by the school authorities and the Catholic Physicians' Guild. Children who paid no tuition were inoculated without charge, the others going to their family practitioners. The parochial school physician gave the free inoculations and supervised the program. In the future all children entering school for the first time will have medical examinations.

### Chicago

**Society Moves Offices.**—The Chicago Medical Society will have its headquarters in the Michigan Boulevard Building, 30 North Michigan Avenue, after April 1. The society will occupy four rooms on the fifteenth floor of the building.

**Malaria Traced to Narcotic Addicts.**—Six deaths from malaria have been reported among narcotic addicts since January 1, according to the newspapers. Investigation of the death from this cause of Earl Davidson, 27 years of age, in the County Hospital, February 8, revealed that he had served

a year in Leavenworth Penitentiary for possessing narcotics. At his home a hypodermic needle and narcotics were found. An outbreak of malaria among a group of narcotic addicts who admitted they used the same syringe was reported in *THE JOURNAL*, Feb. 9, 1935, page 481.

**Dr. Hektoen to Deliver First Fenger Lecture.**—Dr. Ludvig Hektoen will deliver the first Christian Fenger Lecture of the Institute of Medicine of Chicago and the Chicago Pathological Society at a joint meeting with the Society of Medical History of Chicago and the Chicago Surgical Society, March 26. His subject will be "Early Pathology in Chicago and Christian Fenger." The lectureship has recently been established under the joint auspices of the institute and the pathologic society in honor of Dr. Christian Fenger, who was the first teacher of pathology in the Middle West. He was born in Copenhagen, Denmark, Nov. 3, 1840, and died March 7, 1902. He served as professor of clinical surgery at the College of Physicians and Surgeons, Chicago Medical College and Rush Medical College.

### INDIANA

**Secretaries' Conference.**—The annual conference of the county medical society secretaries will be held March 21. The conference was scheduled for January 31 (*THE JOURNAL*, January 16, p. 212), but was postponed because of flood conditions.

**Society News.**—Dr. Albert C. Furstenberg, dean, University of Michigan Medical School, Ann Arbor, discussed "Acute Infections of the Mouth, Throat and Cervical Region" before the Fort Wayne Medical Society, February 2.—Dr. Philip S. Hench, Rochester, Minn., addressed the Indianapolis Medical Society, February 23, on "Diagnosis and Treatment of the Various Types of Chronic Rheumatism."—Dr. John H. Warvel, Indianapolis, addressed the Northeastern Indiana Academy of Medicine in Kendallville, January 28, on "Protamine Insulin."

### KANSAS

**Cancer Control Program.**—The Kansas Medical Society will conduct its second annual program on cancer control, March 15-20. Sessions will be held for physicians in the evening and for the public in the afternoon in Emporia, Hutchinson, Garden City, Colby, Concordia and Kansas City. The speakers will be:

- Dr. Burton T. Simpson, director, New York Institute for Study of Malignant Disease, Buffalo, N. Y.
- Dr. Louis C. Kress, assistant director of cancer control at the institute.
- Dr. Frank L. Rector, Evanston, Ill., field representative of the American Society for the Control of Cancer.

Also cooperating in the series are the Northwest Kansas Medical Society and the Lyon, Reno, Cloud, Finney and Wyandotte county medical societies.

### KENTUCKY

**Special Studies in Mental Hygiene.**—The U. S. Public Health Service is making special studies of mental hygiene in Fayette and Scott counties with the ultimate object of determining whether the situations influencing the evolution of mental disorders group themselves into etiologic categories. Another objective is to determine whether there is a pattern approach to this problem from the standpoint of the place mental hygiene might occupy in a regularly constituted health organization. The work is directed by Dr. Lieuen M. Rogers of the U. S. Public Health Service and is conducted in cooperation with the state health department, the health departments of Fayette and Scott counties and the University of Kentucky, Lexington.

### MAINE

**Society News.**—Dr. Chester M. Jones, Boston, discussed "Treatment of Liver Disease" before the Cumberland County Medical Society, February 26.—At a meeting of the York County Medical Society in Sanford, April 7, Dr. Stephen A. Cobb will speak on the injection treatment of hernia.—The Kennebec County Medical Association was addressed in Waterville, February 18, by Dr. Frank B. Bull, Gardiner, on cancer and Drs. John O. Piper, Waterville, and Richard B. Cattell, Boston, on thyroid from the medical and surgical points of view, respectively.

### MARYLAND

**Personal.**—Dr. William J. French, health officer of Anne Arundel County, has been made an honorary member of the Howard County Medical Society.—Dr. Lewis H. Weed, professor of anatomy, Johns Hopkins University School of Medicine, Baltimore, will deliver an advanced course of lectures in anatomy at the University of London this spring on "The Cerebrospinal Fluid."

Another rare complication is the precipitation of phosphatic stones in the urine following alkaline (sodium bicarbonate) therapy with the production of a persistently alkaline urine.

3. *Interference With Digestion.*—There has been much discussion concerning the unphysiologic action of alkalis which reduce gastric acidity and diminish or inhibit gastric digestion. This problem has already been discussed. Moreover, in ulcer cases in which duodenal alimentation is used the stomach does not participate in digestion. Furthermore, not only is digestion adequately carried on by the intestine alone but frequently gastric acidity is alkalinized or neutralized by the oral administration of antacids. This is another proof that overalkalinization or neutralization need not be objected to on the basis of interference with gastric digestion.

4. *Sensitivity to Alkali.*—It has been recognized that some patients are sensitive to almost any alkali, whether systemic absorption occurs or not. On the other hand, neutralization is not readily effected in a certain number of cases, even with the addition of increasing amounts of calcium carbonate or other suitable alkali. In the latter instances the possibility of obtaining a cure is less favorable, yet healing of the lesion may be complete and permanent if the treatment is followed through thoroughly.

5. *Other Unfavorable Effects.*—The secondary rise in acid secretion following the primary neutralization brought about by certain alkalis has already been discussed. It has been suggested that a catarrhal gastritis may result from the hypersecretion thus produced, but this must be extremely rare if it actually does occur. Rehfuess suggests that excessive gastric secretion associated with night distress may be the result of overalkalinization, representing as it does chiefly the attempt of the stomach to produce acid sufficient to neutralize the enormous doses of alkali administered.

Tetany is also said to have been known to follow the therapeutic administration of sodium bicarbonate.

Finally, Eusterman and Balfour are of the opinion that intestinal irritation caused by the purging effect of magnesium or other alkalis with aperient quality may cause discomfort which is attributed to the ulcer. They also report that fecaliths and chalk balls may form in the sigmoid in cases of constipation in which large amounts of calcium carbonate are being taken of necessity. This gives rise to symptoms of anorexia, abdominal fulness and distress.

#### CONCLUSION

The important lesson to be derived from this discussion of gastric antacids is the availability of a group of accepted pharmacopoeial drugs as well as a supplementary group of medicinals which can be used as substitutive therapy or to augment the desired therapeutic effect of the first group. It therefore becomes apparent that the physician can easily select any of these preparations and vary them according to the specific and individual need of each patient. For that reason, as well as for many others, we recommend that the physician take advantage of the opportunities offered by such sensible prescribing rather than to resort to the use of proprietary remedies, many of which are known to him only by their trade names, whereas the proportion of their ingredients as well as the ingredients themselves are often only vaguely given. Furthermore, such proprietary remedies do not permit of careful proportioning of ingredients to suit the needs of the individual patient.

## Council on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

- (1) SECCO BRAND TOMATO JUICE
- (2) PRIDE OF EGYPT BRAND TOMATO JUICE
- (3) SWEET VIOLET QUALITY TOMATO JUICE
- (4) DEFENDER BRAND TOMATO JUICE

*Distributors.*—(1) Comstock Canneries, Inc., Newark, N. Y. (2) and (4) Egypt Canning Company, Inc., Fairport, N. Y. (3) Finger Lakes Canning Company, Inc., Pennyan, N. Y.

*Packer.*—Comstock Canneries, Inc., Newark, N. Y. (Factories at Egypt and East Pembroke, N. Y.)

*Description.*—Canned tomato juice retaining in high degree the natural minerals and vitamins. Seasoned with salt.

*Manufacture.*—Choice variety of field-ripened tomatoes are graded, washed, inspected and preheated. Juice is mechanically extracted, heated, salt is added, and the juice is filled into cans, which are exhausted, sealed and processed at 100 C. (Small plants are sprayed with Bordeaux mixture.)

*Analysis* (submitted by manufacturer).—Moisture 94.0-94.2%, total solids 5.8-6.0%, insoluble solids 0.1-0.5%, soluble solids 5.4%, ash 0.8-0.9%, fat (ether extract) 0.01-0.03%, sodium chloride, 0.7%, protein (N  $\times$  6.25), 0.9-1.0%, reducing sugars as invert sugar 4.1-4.4%, sucrose 0.0%, carbohydrates (by difference) 3.4-3.9%, acidity as citric acid 0.4-0.5%.

*Calories.*—0.18 per gram; 5 per ounce.

*Vitamins.*—Approximately 80 international units of vitamin C per fluidounce.

#### SEXTON BRAND SPINACH, WATER PACKED

*Manufacturer.*—John Sexton & Company, Chicago.

*Description.*—Canned spinach, packed in water.

*Manufacture.*—Spinach crowns are cut for uniform stem length, washed, blanched, again inspected and hand filled in cans. The cans are filled with boiling water, exhausted, sealed and processed.

*Analysis* (submitted by manufacturer).—(Analysis of entire content including liquid): moisture 90.9%, total solids 9.1%, ash 1.2%, fat (ether extract) 0.3%, protein (N  $\times$  6.25) 3.5%, crude fiber 1.04%, carbohydrates other than crude fiber (by difference) 3.1%.

*Calories.*—0.29 per gram; 8 per ounce.

*Claims of Manufacturer.*—Choice quality spinach packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

#### DAKOTA MAID FLOUR (BLEACHED)

*Manufacturer.*—State Mill and Elevator, Grand Forks, N. D.

*Description.*—A hard spring wheat "first patent" flour; bleached.

*Manufacture.*—Selected grades of North Dakota hard spring wheat are mixed, washed, dried, scoured, polished, ground thirty-two times, sifted and impurities are removed. The flour is bleached with benzol peroxide (one-half ounce per barrel) and nitrogen trichloride (1½ Gm. per barrel).

*Analysis* (submitted by manufacturer).—Moisture 15.0%, total solids 85.0%, ash 0.4%, protein (N  $\times$  6.25) 11.6%, fat (ether extract) 1.4%, crude fiber 0.3% and carbohydrates other than crude fiber (by difference) 71.3%.

*Calories.*—3.44 per gram; 98 per ounce.



Ossining, and Herman O. Mosenthal addressed the New York Endocrinological Society, January 27, on "Insulin Treatment of Schizophrenia" and "Protamine Insulin: Its Clinical Application" respectively.—At a meeting of the New York Surgical Society, February 27, Dr. Paul C. Morton spoke on "Carcinoma of the Rectum."—Members of the faculty of Temple University Medical School, Philadelphia, presented the program of the New York Cardiological Society, January 28, as follows: Drs. Charles L. Brown, on "The Urinary Cast Count in a Study of Mercurial Diuretics; Experimental and Clinical Observations"; Joseph B. Wolfe, "Angina Pectoris: Newer Therapeutic Approach," and William Wayne Babcock, "Surgical Treatment of Cardiovascular Diseases."

## OHIO

**Dr. John Honored.**—Dr. Henry J. John, Cleveland, received the Eisenman Award of the Cleveland Jewish Welfare Federation at the annual meeting of the organization February 4 in recognition of his work for diabetic children in Cleveland. Dr. John established a summer camp for these children at his estate in Geauga County several years ago, the first of its kind. The award of \$750 will be used for the camp, it was announced. Dr. John was graduated from Western Reserve University School of Medicine in 1916.

**Alumni Assembly at Ohio State.**—Medical conferences and a graduate assembly were presented at Ohio State University College of Medicine, Columbus, March 4-6, to celebrate the one hundred and third anniversary of the founding of Willoughby Medical College, the original school from which the present one developed. Thursday, March 4, was devoted to an open house at the college of medicine, during which demonstrations were open and physicians of the state were invited to confer with the clinical teachers. Friday a program was presented by numerous members of the faculty, and in the evening the Alpha Omega Alpha Lecture was given by Dr. Henry E. Sigerist, William H. Welch professor of the history of medicine, Johns Hopkins University School of Medicine, Baltimore, on "Early Medical History in the United States." Saturday morning there were presentations at University Hall until 10:45 o'clock, when a new outpatient building was dedicated. Speakers at the dedication were Drs. Charles Gordon Heyd, New York, President of the American Medical Association; Gatewood and Arthur C. Bachmeyer, Chicago, and Charles W. McClure, Boston. Reunions and class luncheons were held at noon at the Deshler-Wallick Hotel. Dr. Henry W. Lehrer, Sandusky, president of the alumni association, presided and Drs. John H. J. Upham, dean of the college of medicine and President-Elect of the American Medical Association, and John B. Alcorn, Columbus, president-elect of the Ohio State Medical Association, were presented. Saturday afternoon the program was given at the St. Francis Hospital, with Dr. McClure as the guest speaker, on diseases of the liver. Arrangements for the meeting were made by Dr. Upham; Dr. Lehrer and other officers of the medical alumni association, and a committee of which Dr. Russel G. Means, Columbus, was chairman.

## PENNSYLVANIA

**Society News.**—Drs. Marc W. Bodine and Robert C. Bastian, Williamsport, addressed the Lycoming County Medical Society, Williamsport, February 12, on "Surgical Phases of Peptic Ulcer" and "Pathologic Conditions of the Paranasal Sinuses" respectively.—Dr. Guy M. Nelson, Philadelphia, addressed the Montgomery County Medical Society, Norristown, March 3, on "The Gallbladder Problem."—A symposium on therapeutics was presented at a meeting of the Fayette County Medical Society, Uniontown, February 4, by Drs. Ralph L. Cox, Star Junction, on drugs that induce sleep; John B. Hibbs, Uniontown, drugs that induce diuresis, and Charles Franklin Smith, Uniontown, drugs that relieve or prevent itching.—Dr. John Lansbury, Philadelphia, addressed the Lebanon County Medical Society, February 9, on diabetes.

### Philadelphia

**Dr. Sakel Lectures.**—Dr. Manfred Sakel, Vienna, Austria, gave a special lecture on "The New Insulin Treatment of Mental Disease" at the Institute of the Pennsylvania Hospital, February 19.

**Fire at University Hospital.**—Fire damaged severely the roof and the fourth floor of the D. Hayes Agnew Pavilion of the Hospital of the University of Pennsylvania, February 24. Seventy-eight patients were removed to safety and movable equipment was saved. It was estimated that the damage to

the building and heavy equipment was about \$100,000. The origin of the fire was not determined, but it was believed to be a short circuit in electric wiring.

**County Society Secretary Dies.**—Mr. Franklin M. Crispin, executive secretary of the Philadelphia County Medical Society for the past thirteen years, died February 7, aged 60. Mr. Crispin had been associated with the society for twenty-five years. He was a native of Philadelphia and attended Princeton University. He was at one time advertising manager of *Forum* and treasurer of the Philadelphia Grand Opera Company, according to newspaper accounts.

**Society News.**—Dr. George P. Müller has been elected president of the College of Physicians of Philadelphia; Dr. Edward B. Krumbhaar, vice president, and Dr. James Harold Austin, secretary.—The subject of discussion at the meeting of the Philadelphia County Medical Society, March 10, was "Abdominal Quadrants," with Dr. Eldridge L. Eliason speaking on surgical aspects and Dr. Edward J. G. Beardsley on medical aspects.—Drs. George M. Coates and William Gordon presented a paper on "Abscess of the Epiglottis" and Dr. Charles E. Towson, "Aural Complications of Pneumonia in Children" at a meeting of the Philadelphia Laryngological Society, March 2.—Speakers before the Philadelphia Roentgen Ray Society, March 4, were Drs. Richard T. Ellison, on "Mediastinal Hernia"; George J. Willauer, "Internal Pneumolysis in the Treatment of Pulmonary Tuberculosis," and Richard H. Meade Jr., "Value of the Roentgen-Ray Examination in Thoracic Surgery."—Dr. Baldwin L. Keyes, among others, addressed the Philadelphia Pediatric Society, February 9, on "Visceral Symptoms in Acute Anterior Poliomyelitis."

## Pittsburgh

**Society News.**—Dr. Gilbert J. Thomas, Minneapolis, addressed the Pittsburgh Urological Society, March 8, on "Genito-Urinary Tuberculosis."—At a meeting of the Women's Medical Society of Pittsburgh, February 23, Dr. William W. G. MacLachlan discussed pneumonia.—Speakers at the meeting of the Allegheny County Medical Society, February 16, were Drs. Stuart N. Rowe, on "Indications for Operation in Cases of Head Injury"; Joseph A. Soffel, "Resection of the Distal Colon for Malignancy," and Leon H. Hetherington, "Closed Intrapleural Pneumolysis as an Adjunct to Artificial Pneumothorax."—Dr. Claude S. Beck, Cleveland, delivered the Robert W. Stewart Memorial Lecture at the Pittsburgh Academy of Medicine, January 26; his subject was "Recent Developments in Surgery of the Heart."

## RHODE ISLAND

**Society News.**—Dr. William P. Buffum, Providence, addressed the Washington County Medical Society, Westerly, January 13, on "Allergy in Childbirth."

**Reference Required for Clinic Patients.**—The chief of the division of hospitals and infirmaries of the state department of public welfare has issued an order to the effect that no patient will be admitted to any outpatient clinic under the jurisdiction of that division without a written reference from a physician registered in the state.

## TENNESSEE

**Dr. Madsen Gives Flexner Lectures.**—Dr. Thorvald Madsen, director of the State Serum Institute, Copenhagen, Denmark, is in residence at Vanderbilt University School of Medicine, Nashville, to deliver the Abraham Flexner Lectures. He gave the first lecture March 10, on "Control of Venereal Diseases in Denmark, with Special Reference to Syphilis." Coming lectures are as follows:

- March 15, Mechanism of Bacterial Infections.
- March 19, Epidemiology of Tuberculosis.
- March 24, The Influence of Seasons on Infections.
- March 29, Whooping Cough.

Dr. Madsen has been head of the state serum institute in Copenhagen since 1902 and president of the hygiene committee of the League of Nations since 1921.

## TEXAS

**New Division in Charge of Eleemosynary Institutions.**—The state board of control has established a division of eleemosynary institutions in the state government; it is reported. Dr. Charles W. Castner, superintendent of the Wichita Falls State Hospital, was appointed chief of the division. Dr. Castner had previously been superintendent of the Terrell, Rusk and San Antonio state hospitals. Dr. Barton W. Dorbandt, assistant superintendent of the San Antonio State Hospital, has been appointed to succeed Dr. Castner at Wichita Falls.

two questions. Knowing the importance of heredity in determining bodily form and function, it is necessary to understand the composition of the immigrant and native populations and their biologic differences; furthermore, it is necessary to differentiate sharply between what is hereditarily and what environmentally determined. Populations have always moved from one climate to another, and distinct cultures have been thrown together. Even more important than the bodily effects of these changes, Boas believes, is the problem of hereditary determination of personality. One method of studying this problem is the proof by motion pictures of the inaccuracy of the common assumption that Americans do not gesticulate. This motor habit, and probably others, seems to be definitely allied to environment and is peculiarly unstable. The study of such peculiarities, he concludes, shows first of all that no race can be treated as a unit but that in every case the individual must be evaluated according to his own characteristics. As far as the aspects studied are concerned, the descent of the individual plays an insignificant part in his behavior, and the organism is so plastic that its physiologic, mental and social behavior follows the pattern of culture with which it becomes identified. It may be seen, therefore, as far as these two studies interlock in the indicated conclusions, that there is complete agreement concerning the lack of anthropologic support for any clear-cut division of characteristics by racial grouping.

#### THE RÔLE OF ATELECTASIS IN POSTOPERATIVE PULMONARY COMPLICATIONS

Postoperative pulmonary complications occur in from 2 to 4 per cent of all operative interventions. When operations on the upper abdominal region alone are considered, this figure rises to 10 per cent and higher. The mortality from the same cause is given as 0.6, or one in every 200 cases. The view that ether anesthesia, because of its chilling effect on the lung and the increased possibility for aspiration of septic contents from the mouth into the bronchial tree, was largely responsible, was abandoned when studies revealed that the introduction of local and spinal anesthesia did not diminish either the morbidity or the mortality from this cause.

Research on the pathogenesis of the postoperative pulmonary complications resulted in three distinct theories: that of aspiration pneumonitis developed by A. O. Whipple; that of infected emboli supported by Lichtenberg, Wölfler, Cutler and Morton, Cutler and Hunt, and others; and, more recently, that of pulmonary atelectasis. Since William Pasteur in 1910 revived interest in postoperative collapse of the lung, the number of reported cases has risen, so that in 1930 Coryllos<sup>1</sup> believed its incidence to be nearer 50 or 75 per cent.

The most striking clinical and roentgenologic sign of massive collapse of the lung is the unusually high position and immobility of the diaphragm. This led Pasteur and Sir John Rose Bradford to believe that the collapse was due to paralysis of the diaphragm and that this paralysis was a reflex phenomenon. Yandell Henderson<sup>2</sup> emphasized the fact that after an operative intervention there is a loss of tonus involving all of the body musculature. In the thorax this decrease of tonus of the respiratory muscles and particularly of the diaphragm results in such a diminution of the size of the thoracic cavity and such a deflation of the lungs that many minute deaerated areas are produced. He believes that this condition of hypoventilation exists in most cases after an abdominal operation. Churchill and McNeil<sup>3</sup> demonstrated a reduction of the vital capacity to 30 and 50 per cent of the normal in patients following an abdominal operation. Khromov<sup>4</sup> showed that a comparison of a regimen of protracted stay in bed after an abdominal operation with that of leaving bed early reveals that the vital capacity on the latter regimen is affected much less and returns to normal much more promptly. These authors likewise pointed out that there is a direct relationship between the reduction in the vital capacity and the incidence of pulmonary complications.

The second factor, one apparently of determining importance, is the accumulation of mucus in one or another bronchus. The air in the occluded lobe or lung is absorbed, and collapse of the alveoli follows. The clinical course of the massive collapse of the lung, with its almost invariably excellent prognosis, and above all the striking results of the bronchoscopic aspiration, emphasize the importance of the mechanical factor of the occlusion of a bronchus by a mucous plug. Lee, Tucker and Clerf<sup>5</sup> cured a case of postoperative collapse of the lung by bronchoscopic aspiration of the mucous exudate and produced a typical pulmonary collapse in an anesthetized dog by introducing into its right bronchus the material aspirated from the patient. Coryllos believes that postoperative bronchitis, atelectasis and pneumonitis have the same etiology. He bases his assertion on the clinical, pathologic and etiologic similarities of the three conditions and regards them as successive steps of essentially the same process. The two important factors in determining the collapse are the viscid and tenacious mucus in the bronchial tree and the impairment of the natural means of defense: namely, coughing, respiratory movements and ciliary action. The more or less temporary occlusion of a bronchus leads to the absorption of the alveolar gases of the collapsed lung. The

2. Henderson, Yandell: Atelectasis, Massive Collapse and Related Postoperative Conditions, *Bull. New York Acad. Med.* 11:639 (Nov.) 1935.

3. Churchill, E. D., and McNeil, Donald: The Reduction in Vital Capacity Following Operation, *Surg., Gynec. & Obst.* 44:483 (April) 1927.

4. Khromov, B. M.: Effect of Leaving Bed Early After Operation on Respiratory Function, *Sovet. khir.*, 1936, No. 9, p. 389.

5. Lee, W. E.; Tucker, Gabriel, and Clerf, Louis: Postoperative Pulmonary Atelectasis, *Ann. Surg.* 88:6 (July) 1928.

1. Coryllos, P. N.: Postoperative Pulmonary Complications and Bronchial Obstruction, *Surg., Gynec. & Obst.* 50:795 (May) 1930.

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represented, according to announcements. Motion pictures will be used and in many cases the treatment of certain diseases will be demonstrated. The relation of physics and chemistry to medicine will be shown in exhibits, and possibilities of the future will be indicated in displays dealing with research.

## Government Services

### Dr. Thompson Appointed Director of Institute of Health

Dr. Lewis R. Thompson, assistant surgeon general, U. S. Public Health Service, has been made director of the National Institute of Health, effective February 1. Dr. Thompson is 53 years of age and a graduate of the Louisville Medical College, class of 1905. From 1932 to 1934 he was a scientific director of the International Health Division of the Rockefeller Foundation and is now in charge of the division of scientific research of the public health service. Dr. Walter T. Harrison, senior surgeon in the service, has been placed in charge of the division of biologic control of the institute.

### Annual Report of Public Health Service

According to the annual report of the surgeon general of the U. S. Public Health Service for the fiscal year ended June 30, 1936, the general death rate in twenty-five states was 10.8 per thousand of population as compared with 10.9 in 1934. The infant mortality rate, based on data from twenty-four states, was 52 deaths per thousand live births for the calendar year 1935, the lowest infant mortality rate recorded for these states. In twenty-four states the maternal mortality rate was 5.3 deaths of mothers per thousand live births. New low mortality rates were recorded for tuberculosis (54.3 per hundred thousand of population), diphtheria (3) and typhoid (2.8). Neither cholera nor yellow fever appeared in the United States during 1935. Three cases of plague occurred during the first six months of 1936, one in April in Sonoma County, Calif., one in June in Monterey County, Calif., and one in June in Beaver County, Utah. Plague infection was found in ground squirrels in California, Oregon, Montana and Idaho, and in fleas from ground squirrels taken in Nevada. After the close of the fiscal year, in July and August 1936, plague infection was found in a marmot, in ground squirrels and in prairie dogs from Utah. A fatal case of plague was reported in Hamakua District, Hawaii, in March 1935. During the calendar year 1935 twenty plague-infected rats were found on the island of Hawaii and six on the island of Maui, and during the first six months of 1936 eight plague-infected rats were found in Hawaii.

A total of 10,839 cases of poliomyelitis was reported in 1935 as compared with 7,517 cases for 1934 and an average of 8,249 cases for the five years ended with 1934. During 1935 the disease was unusually prevalent in North Carolina, Virginia, the District of Columbia and several of the Northeastern states. Although nearly 8,000 cases of smallpox were reported in the United States in 1935, an increase of more than 2,500 over the number for the preceding year, the prevalence was less than that for any year prior to 1933 for which there are records. The New England and Middle Atlantic states reported only three cases, while Montana and Wyoming together reported 1,060 cases. No cases were reported in Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania and the District of Columbia.

During the year 266,626 new cases of syphilis and 162,487 new cases of gonorrhea were reported to the state health departments as compared with earlier totals of 254,551 and 161,810 respectively; 713 clinics furnishing morbidity reports to state health departments reported 79,905 new cases of syphilis and 44,358 new cases of gonorrhea. They discharged as arrested or cured 63,566 patients and gave a total of 3,344,257 treatments, including 934,063 doses of arsphenamine.

There were examined 15,981 vessels, carrying 733,495 passengers and 1,182,232 seamen. Of a total of 3,823 airplanes, carrying 37,352 persons, which arrived at airports of entry in the United States from foreign countries requiring quarantine inspection, only 2,281 airplanes carrying 31,898 persons, of whom 5,537 were aliens, were inspected by medical officers prior to entry, owing to many arrivals at airports at which medical officers are not available. Fumigations were made of 1,193 vessels either for the destruction of rats or because of the presence on board of some contagious disease. Examinations for plague infection were made of 2,971 of the 4,585 rats

retrieved following fumigation. No importation of any of the quarantinable diseases into the United States or its possessions occurred during the fiscal year. One vessel arrived at Boston with a case of smallpox. Two cases of smallpox were detected on the Mexican border and refused entry.

Hospital and outpatient care was furnished to American seamen and other beneficiaries at 154 ports; 331,215 accredited persons applied for treatment and other medical service. There were 102,573 more hospital days furnished to all classes of patients during the fiscal year 1936 than in 1935. New hospital facilities were completed and occupied at Stapleton, N. Y. A new hospital ward building at Memphis is under construction and funds have been allocated for complete new hospitals at Boston and St. Louis.

The report points out that industrial diseases are becoming a chief consideration. In a study of about 7,000 workers employed in fourteen factories, about one third were examined for the existence of skin hazards. An investigation was made of the dust hazard incident to the asbestos textile industry in North Carolina. Of 517 persons examined, forty-six, or 8.9 per cent, had asbestosis. During the year establishment of industrial hygiene units in the health departments of industrial states was inaugurated with the passage of the Social Security Act. A seminar for thirty-four physicians and engineers from sixteen state health departments was held in May 1936 for the purpose of training personnel in the specialized field of industrial hygiene.

Studies on child health completed during the year revealed that, so far as size and growth of children are concerned, the depression has not seriously affected any considerable number of American children. Automobile accidents, burns, drowning, falls, poisonings and mechanical suffocation are the most frequent causes of accidental fatalities of children under 15 years of age.

The largest quantity of Rocky Mountain spotted fever vaccine yet produced, 506.8 liters, was prepared during the fiscal year. Sufficient vaccine to vaccinate the personnel in forty-eight camps in the more dangerous endemic areas of the West and Northwest was furnished to the Civilian Conservation Corps. The incidence of the disease showed a marked decrease.

Special studies were made on heart disease, with emphasis on rheumatic fever, the largest single cause of disability and death from heart disease, and surveys are now in progress in San Antonio, Texas, and in Mecklenburg County, N. C., to determine the prevalence of brucellosis, particularly in atypical and chronic forms. Of special importance was the study of serodiagnostic tests for syphilis, which included an evaluation of the ability of state, municipal and private laboratories to perform these tests.

For the first time in the history of the public health service, a national health program was made possible under the provisions of the Social Security Act. Grants-in-aid were made to the states for the last five months of the fiscal year 1936 and allocations were made for 1937. By the close of the period covered by this report, every state had submitted a program of work under the provisions of the public health title of the Social Security Act.

Since the opening of the U. S. narcotic farm at Lexington, Ky., in May 1935, 1,240 patients have been admitted. Of these 960 were admitted during the fiscal year 1936 and 479 were discharged, leaving 761 patients in the institution at the close of the year. Of the voluntary patients discharged as cured none are known to have relapsed, but some of those discharged as having received maximum benefit have relapsed as well as some of the prisoners released on "conditional release" and parole. Plans were inaugurated during the year to furnish psychiatric diagnostic services to federal courts for a period of one year as a research project to determine the feasibility of establishing such services as a permanent activity of the service. The first unit was established at Boston in May 1936, and similar units will be set up at other points throughout the country. The report emphasizes the need of a new dispensary at Washington, D. C., to replace the present inadequate facilities for relief activities; the completion and rehabilitation of the hospital plant at Fort Stanton, N. M., including the construction of a recreation building and quarters for doctors, nurses and attendants; replacement of all existing frame structures at the leper hospital, Carville, La., with fireproof construction; completion of the marine hospital at Stapleton to provide a total of 1,200 beds, and a building to house a cancer investigation laboratory, and the erection of new hospitals in Miami, Fla., Los Angeles and Portland, Maine. The appropriations during the fiscal year totaled \$15,939,712, including social security grants of \$3,333,000. A total of \$14,914,170 was expended by the service.

benefit their personal interests. The cult proposals fall into three classes: (1) to force governmental and tax-exempt hospitals to permit all practitioners of the healing art, no matter whether they are physicians or practitioners of bizarre cults, to practice within their confines; (2) to authorize osteopaths, chiropractors, naturopaths and other substandard practitioners to care for, at the employers' expense, workmen injured in the course of their employment; and (3) to force public officials, charged with the duty of furnishing medical care to indigents and other persons on relief rolls or unable to pay for such services, to permit cultists to treat such persons at public expense. Bills to force hospitals to admit cultists to practice in them are pending in twelve states. None of them have as yet been reported out of committee, but there is always the danger that one or more of them will be enacted. The threat which these bills offer certain hospitals is obvious. Proposals to permit cultists to render services in workmen's compensation cases are pending in Congress and in two states; similar proposals may be expected in other states before the present legislative sessions are ended. A law has been enacted in Oklahoma this year which in effect permits osteopaths to treat indigents at public expense. A proposal has passed the North Dakota house to permit licensed adherents of any cult to treat such cases, and a similar proposal has been killed in New Hampshire. The fate of bills of this type rests to a great extent on the presence or absence of vigorous opposition on the part of the medical profession and its members and on the ability of the medical profession to convince legislators of the dangers inherent in such bills. In view of the baneful effect on the public health which the enactment of such measures would have, it is the duty of the medical profession to oppose such legislative activities energetically. The public should certainly discourage such waste of their legislators' time.

#### "IS MILK CANCER'S ALLY?"

In an editorial a few weeks ago THE JOURNAL condemned the editors of *Esquire* and *Coronet* for printing articles in the medical field without scientific background. Their ignorance in accepting and publishing such articles as they have published on the glands and on autotherapy was a sort of unfortunate, supercilious or silly ignorance. Now in the March issue of *Coronet* they lead off with an article entitled "Is Milk Cancer's Ally?" that betrays such a broad and comprehensive ignorance of milk and of cancer that one is stimulated to wonder as to the mental age of both editors and author of this publication. Here is the old argument that modern civilized man died of cancer but the American Indian did not die of cancer. The answer is of course that modern civilized man has a life expectancy of some sixty years at birth whereas the life expectancy of the Indians was about thirty years at birth. The Indians simply did not live long enough to die of cancer. More than 90 per cent of deaths from cancer occur in persons over 40 years of age. The Indians died of infectious diseases, exposure and other Indians. The same argument has been made with relation to the eating of white bread versus the eating of whole grain. It

might just as well be made with relation to automobiles. The Indians had no automobiles; hence the Indians did not die of cancer. Some preposterous arguments are made to show that cancer rates are higher in the states using the most milk. It may easily be shown that life expectancy is longer in the states using most milk because of better nourishment in those states. In some small type at the end of its article *Coronet* affirms its seriousness in presenting this article; this affirmation adds insult to injury. There is evidence that the article has already produced fear in the minds of some readers who do not stop to remember that neither the author of the article nor the magazine that prints it has the slightest scientific standing.

### Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

Information concerning new medical legislation in various states appears in the Organization Section of The Journal.

#### ARKANSAS

**Dr. Vinsonhaler Retires as Dean.**—Dr. Frank Vinsonhaler, since 1927 dean and professor of medical ethics at the University of Arkansas School of Medicine, Little Rock, has announced his retirement. He will be succeeded by Dr. Silas C. Fulmer, professor of medicine and associate dean of the school. Dr. Vinsonhaler was born in Graham, Mo., in 1864 and graduated from Columbia College of Physicians and Surgeons, New York, in 1885. He was for many years professor of ophthalmology at Arkansas and engaged in private practice in Little Rock. He retired from practice in 1934 to devote full time to his duties at the medical school. He was president of the Arkansas Medical Society, 1900-1901, and in 1933 was awarded a medal by Columbia University for conspicuous service rendered to the university. Dr. Fulmer graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1922.

#### CALIFORNIA

**Special Meeting in Honor of Guests.**—The Los Angeles County Medical Association held its meeting January 25 in honor of the guests of the sixth annual midwinter clinical course, given by the Research Study Club of Los Angeles. The speakers were Drs. Edward Jackson, Denver, on "The Share of General Medicine in Preventing Blindness"; Felix R. Nager, Zurich, Switzerland, "The Mental Effect of Deafness," and Meyer Wiener, St. Louis, "Limitations in the Field of Ophthalmology for the Man in General Practice."

#### COLORADO

**Midwinter Graduate Clinics.**—The Colorado State Medical Society held its annual midwinter graduate clinics in Denver, January 21-23. Sessions were held at the Denver General, St. Joseph's, Children's, St. Luke's and Colorado Psychopathic hospitals, and the Cosmopolitan Hotel. The speakers included:

Dr. Arthur E. Hertzler, Halstead, Kan., Cardiotoxic Goiter.  
Drs. John C. Mendenhall and Thomas D. Cunningham, Treatment of Bronchial Asthma by Injection of Iodized Oil.  
Dr. Charles J. Lowen, Massive Collapse of the Lung.  
Dr. Harold R. McKeen, Gallbladder Disease in Relation to Cardiac Lesions.  
Dr. Paul R. Weeks, Radiation in Treatment of Malignancy of Head and Neck.

**Society News.**—At a meeting of the Mesa County Medical Society in Grand Junction, January 19, Dr. Galen M. Hover, Grand Junction, discussed the treatment of gonorrhea and Dr. Gordon G. Feldman, Grand Junction, the treatment of common skin diseases.—The Fremont County Medical Society was addressed in Florence, January 25, by Dr. Aurel Goodwin,

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the position was increased by the tendency of juries to award high damages. He divided actions for negligence into four groups: 1. The purely malicious, in which allegations were made by a disgruntled patient on no substantial grounds, perhaps to avoid paying his bill. A summons by a defense society would often bring payment, sometimes immediately before the hearing. 2. Cases in which there had been negligence. Here the proper course was to obtain a settlement on the best possible terms at the earliest possible moment. 3. Cases in which there appeared to the layman to be evidence of negligence, but from the medical point of view there was quite a good defense. If the complainant was reasonable it might be wiser to make a settlement on suitable terms without allowing the matter to be pursued by legal process. Often the defense society was convinced that there was a perfectly good defense but the respondent was unwilling to go into court because of the undesirable publicity even if the verdict should be favorable. 4. Cases in which there had been negligence but the physician was not to blame. Until recently it was held by the law that the physician primarily in charge of the case was responsible for all that happened. Now he was regarded as responsible in his own field. The surgeon was responsible for seeing that the theater sister was properly trained, but he was not responsible for a mistake made by her.

## PARIS

(From Our Regular Correspondent)

Feb. 13, 1937.

### Insulin Treatment of Schizophrenia

The Nov. 23, 1936, meeting of the Société médico-psychologique of Paris was devoted to a symposium by visiting and local alienists on the insulin treatment of schizophrenia. Muller of Munsingen reported the experience in 300 cases in Vienna and Switzerland. There were only four deaths, and these were due to organic disease associated with the mental disorder. The results were grouped according to the duration of the disease: Group 1, disease of less than six months' duration: 89.8 per cent improved, including 73 per cent completely cured. Group 2, disease of more than six months' duration: 82 per cent improved, including 50 per cent completely cured. Group 3, disease of more than eighteen months' duration: 45 per cent improved but including only 0.5 per cent complete cures. The reactions that have been observed vary from somnolence to convulsions, salivation, coma and numerous neurologic symptoms (pyramidal, meningeal, reflex). The treatment is to be given for several weeks.

Schmid of Münchenbusec spoke on the histopathology of insulin shock. Eleven rabbits were given daily injections of insulin at the rate of 2 cc. per kilogram of body weight over a period of several weeks. The symptoms resembled in every respect the neurologic and organic signs of hypoglycemia. Immediate necropsy of animals killed (before death from hypoglycemia could take place) has revealed much less marked changes in the nerve centers than anticipated. No destructive lesions, hemorrhage or edema were found, only "tumefaction." The changes were those of a capillary hyperemia due to the epinephrine response to the insulin treatment.

Bersot of Neuchâtel described the neurologic syndrome of insulin shock. Following injection the patient, before becoming more or less deeply comatose, can present all sorts of cortical, pyramidal, extrapyramidal and vagosympathetic symptoms. One most commonly observes tonic rigidity, clonic twitchings, more or less uncoordinated movements of the face and trunk, catatonic attitudes, stereotyped gestures, attacks of convulsive epilepsy, abolition of one or all reflexes, excessive perspiration and salivation, vasomotor disturbances, and a bradycardia down to 50. An instructive film was shown, illustrating the neurologic symptoms of insulin shock.

Guirard and Nodet read a paper on the principles and technique of insulin treatment. It is impossible to prove the theories as to the mechanism of this method. Experience has shown that severe physical ailments are often followed by the most chronic mental diseases. This suffices as a basis for cautiously reproducing severe organic disturbances in certain psychiatric cases, incurable by other methods, in order to improve the mental condition. The patient thus treated must be under the constant surveillance of the physician or intern, who has dextrose solutions ready to administer in case the symptoms following insulin injection should threaten life. The temperature should be taken frequently so as to detect an excessive lowering (hypothermia). The respiration must also be carefully noted and apparatus for artificial breathing be close at hand in case of necessity. The doses of insulin that produce coma should be kept at a minimum and not progressively increased, because the susceptibility of patients varies greatly. Carbohydrates should not be given the day before insulin is injected, and only a small dose of the latter, given every two days. If these precautions are followed, the chances of success are greatly increased.

Claude and Rubenovitch took up the insulin shock treatment of schizophrenia. Professor Claude is the leading alienist in Paris, having a large service at the St. Anne Asylum. They stated that the insulin should be injected early in the morning before breakfast. The effects last for three hours. The injections are given daily for five days, followed by an interval of two days. The sensibility of every patient is evidenced by the difference in time of appearance of the symptoms of shock. The insulin shock causes an "anarchic" activity of the somatic, neurovegetative and psychic functions. The coma should never be prolonged. It should be allowed to recede slowly and progressively in making use of psychotherapy during the recession period. The results obtained by using insulin as a shock treatment prove that the neurologic disturbances are due to a dynamic dysfunction and not to a lesion.

Bauer of Naugeat stated that his observations in seventeen cases have convinced him that the favorable results in schizophrenia are beyond dispute even in cases of long duration. The dangers of the treatment can be minimized through vigilant surveillance. During the recession of the coma, one has an excellent opportunity to study the psychologic mechanism of the disease.

### Congress of French Electroradiologists

The third annual Congress of French Electroradiologists was held in Paris, Oct. 8-10, 1936. The first paper, on radiologic features of osteo-articular disturbances termed chronic rheumatism, was read by Robert and Forestier, who divided the bone changes into two groups: (a) arthritis, or infectious lesions, and (b) arthroses, or degenerative lesions. The former are characterized by local and general decalcification of the bone, by ulceration of the bone contours and, from the point of view of evolution, by the possibility of arrest of development of the lesions or even by reconstructive articular changes. The arthroses, on the other hand, are characterized by the production of erosive lesions at areas where there is articular friction, by the formation of osteophytes and by the slow, progressive character of the evolution of the lesions. A special place ought to be given to inflammatory disorders, which determine calcification of ligaments, the early diagnosis of which is of much importance in such a serious disease.

Three papers on high voltage radiotherapy formed a symposium on this subject. One on the physical aspects was read by Wangermez and Auriole of Bordeaux. A primary well founded fact at present is that of the nonselectivity of short wavelengths. Based on the general principles of physics, it appears that radiant energy can be utilized only by a diminution of frequency and formation in the tissues of radiations of



**Society News.**—The Baltimore City Medical Society was addressed January 8 by Drs. Walter L. Winkenwerder and Leslie N. Gay, "Clinical Course and Treatment of Allergic Rhinitis"; Lawrence R. Wharton, "Criteria of Cure in Gonorrhea in Women," and James C. Owings and Otto C. Brantigan, "Intraspinal Injection of Absolute Alcohol for the Cure of Intractable Pain."—At a meeting of the Historical Society of the University of Maryland, January 19, Drs. George Carroll Lockard and James M. H. Rowland, Baltimore, discussed "Medicine in Baltimore in the Early Part of the Nineteenth Century and the Organization of the University of Maryland."—Dr. Joseph E. Moore, Baltimore, addressed the Frederick County Medical Society, recently, on "The Control of Syphilis in Maryland."

#### MASSACHUSETTS

**New Health Commissioner for Boston.**—Dr. Henry F. R. Watts, Dorchester, has been appointed health commissioner of Boston, succeeding the late Dr. William B. Keeler. Dr. Watts graduated from Harvard University Medical School in 1894. He is 67 years of age. According to the *New England Journal of Medicine*, Dr. Watts has been a member of the health department since 1909 and for many years was a member of the faculty of Tufts College Medical School.

**Lowell Institute Lectures.**—Dr. Lewis W. Hackett, assistant director of the International Health Division, Rockefeller Foundation, and representative of the Rockefeller Foundation in Italy and Albania, is giving the current series of free public lectures sponsored by the Lowell Institute, Boston, in Huntington Hall. The series deals with "Man Against Malaria in Southern Europe" and the individual titles are "The World War and Malaria," "The Malaria Puzzle in Europe," "The Solution of the Problem," "Modern Strategy in Malaria Control," "The Albanian Experiments" and "Land Reclamation in Italy." The lectures opened February 2 and are being given Tuesdays and Fridays.

#### MICHIGAN

**Superintendent Appointed.**—Dr. Donald M. Morrill, director of Blodgett Memorial Hospital, Grand Rapids, has been appointed medical superintendent of the Receiving Hospital, Detroit. He assumed the position March 1. In a recent competitive examination for the position, Dr. Morrill received a rating of 96, the highest in the group. He graduated from the University of Michigan Medical School, Ann Arbor, in 1918. He served as chief resident at the University Hospital and later as assistant superintendent.

**Society News.**—Dr. George W. Crile, Cleveland, addressed the Detroit Philosophical Society, February 19, on "The Interpretation of Man."—At a meeting of the Essex County Medical Society in Windsor, February 2, Dr. Frank A. Kelly, Detroit, spoke on "Hernia, with Special Reference to Injection Treatment."—Dr. William S. Reveno addressed the staff of Highland Park General Hospital and the Highland Park Physicians' Club, February 4, on "Medical Management of Hyperthyroidism."—At a meeting of the Macomb County Medical Society, January 18, Dr. Bernhard Friedlaender, Detroit, discussed "Chronic Endocervicitis, Its Significance and Rational Treatment."—At a meeting of the Muskegon County Medical Society in Muskegon, February 26, Dr. William R. Cubbins, Chicago, spoke on "Abdominal Injuries."—The Detroit Pediatric Society was addressed February 3 by Dr. Herman L. Kretschmer, Chicago, on "Surgical Lesions of the Genito-Urinary Tract in Infancy and Childhood."—Dr. Frederick J. Taussig, St. Louis, addressed the Wayne County Medical Society, Detroit, March 1, on "The Legal and Social Control of Induced Abortion." Dr. Ambrose L. Lockwood, Toronto, addressed the surgical section of the society, February 22, on "The Surgical Dyspepsias."

#### MINNESOTA

**Dr. Maxcy Appointed a Scientific Director.**—Dr. Kenneth F. Maxcy, professor and head of the department of preventive medicine and public health, University of Minnesota School of Medicine, Minneapolis, has been selected as one of the scientific directors of the International Health Division of the Rockefeller Foundation. The appointment, effective January 1, is for three years. Dr. Maxcy graduated from Johns Hopkins University School of Medicine in 1915 and represented the U. S. Public Health Service at the malaria conference of the League of Nations in Geneva in 1928. Prior to his appointment at Minnesota, Dr. Maxcy was professor of preventive medicine and bacteriology at the University of Virginia School of Medicine, Charlottesville.

#### MISSOURI

**Centennial Celebration Postponed.**—The St. Louis Medical Society will celebrate its one hundredth anniversary April 5-7 instead of March 22-23 as previously announced. The program will include a reenactment of the first meeting, portrayed from the original minutes in the archives of the society and written by Dr. Arthur W. Proetz, an account of the society's history by Dr. James Archer O'Reilly, and a discussion of the "Aims and Accomplishments of Medical Societies and Ours in Particular" by Dr. Malvern B. Clopton. Tuesday evening the speakers will be Drs. Major G. Seelig on "Medical Progress in the Last One Hundred Years" and Amand N. Ravold, "Our Library." The woman's auxiliary will present a play by Byron B. Boyd entitled "Mushrooms Coming Up." Dr. R. Emmet Kane will be toastmaster at the dinner Wednesday evening in the Gold Room of the Jefferson Hotel, and the speakers will include Dr. Robert E. Schlueter on "The Art of Medicine"; Rev. Martin O'Malley, D.D., "The Great Physician," and Charles M. Hay, LL.D., "The Doctor and the State." Memorabilia of the society will be on exhibition during the centennial.

#### NEW YORK

**Theobald Smith Memorial Laboratory to Be Dedicated.**—A new laboratory for the departments of physiology, pharmacology and experimental surgery at Albany Medical College, Union University, Albany, will be dedicated March 19 to the memory of the late Dr. Theobald Smith, who was an alumnus of the college. Dr. Thomas Ordway, dean at Albany, will give the principal address at an afternoon ceremony, at which a plaque of Dr. Smith will be unveiled. At an evening assembly Dr. Charles R. Stockard, professor of anatomy, Cornell University Medical College, New York, will deliver an address on "The Spirit of the Laboratory." The new laboratory was remodeled from the old Albany County Hospital, according to a newspaper account. Dr. Smith, who has always been regarded as the "outstanding alumnus of the school," was a native of Albany and graduated from the medical college in 1883. He wrote a noteworthy thesis there on "Cell Activity in Health and Disease" and received a prize for obtaining the highest grade in the final examinations, says an announcement. Through his long career as professor of comparative pathology at Harvard University Medical School and head of the division of animal pathology at the Rockefeller Institute for Medical Research, Dr. Smith remained in touch with Albany Medical College and was twice president of the alumni association. He died Dec. 10, 1934.

#### New York City

**Personal.**—Dr. Robert P. Ball, Chattanooga, Tenn., has been appointed assistant professor of radiology at Columbia University College of Physicians and Surgeons.—Dr. Alan Gregg, New York, of the Rockefeller Foundation, addressed the Listerian Society at King's College Hospital, London, February 10, on research in psychology.

**Harvey Lectures.**—Dr. Thorvald Madsen, director of the Serum Institute, Copenhagen, Denmark, delivered the fifth Harvey Lecture of the current series at the New York Academy of Medicine, February 18. His subject was "The Scientific Work of the Health Organization of the League of Nations." Dr. Herbert S. Gasser, director of the Rockefeller Institute for Medical Research, will deliver the sixth lecture March 18 on "The Control of Excitation in the Nervous System."

**Dr. Curran Appointed Dean at Long Island.**—Dr. Jean A. Curran, who has recently made a survey of hospital internships and residencies in New York, has been appointed dean of Long Island College of Medicine, Brooklyn. Dr. Curran fills the vacancy created by the death of Adam M. Miller, M.A., who was dean from 1922 to his death in 1935. Dr. Wade W. Oliver, professor of bacteriology, has been acting dean. Dr. Curran was graduated from Harvard University Medical School, Boston, in 1921 and after a two year internship at Brooklyn Hospital spent six years in China. He returned to the United States seven years ago and for some time taught at New York University College of Medicine. Since 1934 Dr. Curran has been engaged in the hospital survey under the auspices of a special committee representing the New York Academy of Medicine and the five medical schools in New York, the final report of which is in process of completion.

**Society News.**—Drs. Thomas Grier Miller, Philadelphia, and Edward C. Reifenshtein, Syracuse, addressed the National Society for the Advancement of Gastro-Enterology, January 26, on "Factors in the Maintenance of Physiologic Conditions Within the Small Intestine" and "Lymphosarcoma of the Gastro-Intestinal Tract" respectively.—Drs. Bernard Glueck,

the women, a circumstance which goes far to explain why 59 per cent of the men (366 out of 616) and 82 per cent of the women (409 out of 496) had never before, or only at a late date, received any treatment. Only 20 per cent of the men and a mere 6 per cent of the women had received treatment directly after the infection. Of the patients who had received previous treatment (if these are considered separately) only 50 per cent of the men and 35 per cent of the women had been treated immediately following infection. Moreover, exactly one half of this previously treated group had received but a single treatment, which, of course, could not have sufficed to eradicate the disease.

The influence of syphilis on the patient mortality was considerable; among nonsyphilitic patients received during the five year period the death rate was 9.6 per cent, whereas that of the syphilitic patients was 15.7 per cent, that is, 61 per cent greater.

The incidence of incipient disturbances of the central nervous system and of the circulation was a particular object of study (from this category were excluded all cases of fully developed tabes, cerebrospinal syphilis and dementia paralytica). Among the syphilitic patients there were 151 persons, or 13 per cent of the total number, who presented incipient neural disorders. Pupillary alterations of various sorts were observed in 110 cases, and anomalies of the patellar reflexes in only fifteen. To these 151 wholly incipient cases were added 229 cases of fully developed neurosyphilis; this means that about a third of all the syphilitic patients presented a disturbance of the nervous system. In 16 per cent of all syphilitic patients there was pronounced tabes. Thus every sixth syphilitic patient was tabetic. Careful evaluation of the connection between metasymphilitis and therapeutic measures showed that there exists no provocation of tabes with antisymphilitic treatment at least, if only the antisymphilitic therapy is initiated as early as possible and administered intensively and repeatedly. The age of the male tabetic patients ranged from 25 to 66 years (the 25 year old tabetic patient became ill six years after infection; the 66 year old patient, twenty-seven years after infection). The average period of incubation was fourteen years (on the basis of forty-seven cases). The mean age of male tabetic patients at the time of first manifestation of the disorder was about 44 years; the mean age at which the disease had attained its complete clinical form was above 50 years. It may be that this six year interval should be regarded as the mean duration of development of tabes from the incipient stage to the stage of fullest development. The mean age of the tabetic women lay somewhat below that of the men; for the women too the average period of incubation amounted to fourteen years. The Wassermann reactions were positive for only about half of the tabetic patients, for 65 per cent of the women and for 50 per cent of the men. Accordingly, positive Wassermann reactions were even less frequent among the tabetic patients than among the syphilitic patients taken as a whole, perhaps because of the more intensive treatment usually accorded tabetic patients in the course of their illness.

With regard to syphilis of the circulatory system, thirty-one of the 155 tabetic patients (one in every five) presented unequivocal syphilitic disease of the aorta. On the other hand, aortic disease was established in only 137 of the 1,112 syphilitic cases; namely, one out of every nine patients was so afflicted. Of the 175 syphilitic patients who died in the course of the five year period, sixty-three patients (one out of every three) presented disease of the aorta accompanied in some instances by aneurysms and diseased valves. In twenty-two cases, that is, one out of every eight cases, there was a postmortem finding of coronary sclerosis. Syphilitic disease of the aorta or coronary arteries was given as the cause of death in thirty-seven of the 175 fatal cases. Vascular disease thus accounted for a fifth of the fatalities among syphilitic patients. Clinically, most of

these thirty-seven fatal cases presented a picture of chronic cardiac insufficiency; not infrequently, however, there were sudden cardiac failures due in a few instances to the rupture of an aneurysm.

### Congress of the German Society of Pathology

At the 1936 congress of the German Society of Pathology, held in Breslau, Professor Fischer-Wasels presided, and the chief topic of discussion was "Spontaneous Cerebral Hemorrhages." Nordmann of Hanover supplemented his observations with abundant illustrations. In two cases in which arteriography was used, permanent cerebral stasis with subsequent malacia was demonstrated. It was possible in cases of traumatic carotid sinus thrombosis to gauge the progressive stages of this process: permanent stasis, diapedesis, malacia, vascular necrosis. In arteriosclerosis, cyclic hemorrhage and necrosis of the media were considered as characteristic prehemorrhagic alterations. If a malacia relates to the capillaries and is surrounded by cyclic hemorrhages, the afferent arteries will frequently exhibit necroses on the basis of which hemorrhages originate. The frequently encountered necrosis of the media in arteriosclerotic patients leads, after partial rupture of the arterial walls, to the formation of mural hematomas and of aneurysms. It has been proved by statistics that in hypertonic patients the softening process is manifested on an average ten years subsequent to the massive hemorrhage. In experiments it was determined that the "hypertensive" animals are especially predisposed to local disturbance of the cerebral circulation.

Professor Westphal of Hanover accords a prominent place in the production of spontaneous hemorrhage to the vascular functional factors. Necroses of the arterial walls, all important in the etiology of massive hemorrhages, are in turn based on functional ischemias. Changes in the vasomotor functions within the brain can first of all be determined on the basis of alterations in the fundus oculi. Westphal further considers an increase in the lactic acid a prime etiologic factor in arterial necrosis.

Beitzke of Graz discussed the rôle of small aneurysms in massive hemorrhage of the brain. In fifteen cases observed by him, small aneurysms were found concomitant with badly diseased arterial walls. Moreover, from microscopic observations in the brain substance he assumes the following etiologic background for the hemorrhage: After the bursting of an aneurysm the blood burrows into the cerebral substance which has been altered by atrophy or scarification and, proceeding farther, breaks the tissue asunder. By the rupture of a small adjacent vessel a fatal hemorrhage can be produced within the space of a few minutes.

After comparative studies of apoplexy and malacia, Fahr of Hamburg decided that younger persons are affected by apoplexy more frequently than is commonly assumed. The tendency of miliary aneurysms to form in apoplectic states has also been distinctly undervalued. In the majority of apoplexy cases the hemorrhage was traceable to organic alterations of the blood vessels; in a few cases, however, spasms seemed a more likely cause.

Among the papers submitted, Roessle of Berlin discussed the internal or anatomic similarity of blood relatives. In enzygotic twins there exist, in addition to external resemblance, striking visceral similarities; in one case these involved the contour of the heart, anomalies of the cardiac apex, the shape of the liver and distinctive furrows and flaps in both the liver and the lungs. Two of a set of triplets were considered to be enzygotic twins. This pair exhibited extensive correspondences in the shape of the heart, including the apex, whereas the third triplet presented a differently shaped heart.

Aschoff of Freiburg-in-Breisgau, on the basis of 150 cases, studied the types of pneumococci present in various organic diseases. In lobar pneumonia types I, II and III preponderated

## WYOMING

**Maternal and Child Health Program.**—The state board of health at its annual meeting in Cheyenne January 17 adopted a program for the new division of maternal and child health set up under the Social Security Act. The plan was drawn up by an advisory committee appointed by the governor, of which Dr. Josef F. Replogle, Lander, president of the Wyoming State Medical Society, was a member. Education is the keynote of the program, education of the lay public by classes, lectures and special literature and education of the medical profession by institutes and refresher courses in obstetrics and pediatrics. There will also be an investigation of maternal deaths, infant mortality and the physical status of children in general. Finally, public health nurses will be assigned to counties that desire them to educate the community in health matters. These nurses are instructed to work under physicians' orders when sick persons have a family doctor. They are expressly instructed not to suggest or show preference for any physician. Material to be used in classes for expectant mothers will be submitted to the family physician before classes are formed. Dr. Margaret H. Jones, Cheyenne, is director of the new division.

## ALASKA

**Tuberculosis Clinic.**—St. Ann's Hospital, Juneau, recently opened a weekly tuberculosis clinic under the auspices of the territorial board of health. The same service is provided to natives at the government hospital on other afternoons weekly. According to the *Bulletin of the National Tuberculosis Association*, the incidence of tuberculosis in the territory of Alaska is now four times as great as that in New York.

## PHILIPPINE ISLANDS

**Medical Election.**—At the recent annual meeting of the Philippine Islands Medical Association in Cebu, Dr. Juan C. Nanagas, Manila, was elected president and Dr. Antonio S. Fernando, Manila, was reelected secretary. Drs. Ramon L. Blanco, Cebu, and Sixto A. Francisco, Manila, were made vice presidents.

## GENERAL

**Academy of Ophthalmology and Otolaryngology.**—The annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago at the Palmer House, October 10-15, instead of Detroit, as first decided. The society plans to make its scientific exhibit this year definitely educational, as well as to permit members on the program to demonstrate, through exhibits, material supplementing their contributions. Members having such exhibits are asked to communicate as soon as possible with Dr. William P. Wherry, executive secretary of the academy, 107 South Seventeenth Street, Omaha, Neb.

**Warning Against Fraudulent Salesman.**—A man giving the name J. S. Ray is reported to have solicited orders for a medical dictionary, magazines and "National Medical Monographs," a six volume work, as a representative of the Continental Press, Inc., 418 Wabash Avenue, Chicago. The National Publishers' Association recently issued a bulletin warning against a man using this scheme in the Southern states. He uses a fake contract form and a fake receipt. There is no such concern as the Continental Press, the bulletin says. Any one approached by this man is asked to hold him if possible and wire immediately to Mr. Frank Ware, National Publishers' Association, 232 Madison Avenue, New York.

**Conference on Silicosis.**—The division of labor standards, U. S. Department of Labor, sponsored its second conference on silicosis in Washington, D. C., February 3. Committees appointed by Secretary Perkins following the first conference in April 1936 made their reports. The speakers included Verne A. Zimmer, director, division of labor standards, and Secretary Perkins. Chairmen of the committees are:

Dr. Royd R. Sayers, U. S. Public Health Service, Washington, Committee on Prevention of Silicosis Through Medical Control.  
Warren A. Cook, Hartford, Conn., Committee on Prevention of Silicosis Through Engineering Control.  
V. P. Alearn, Washington, Committee on Economic, Legal and Insurance Phases of the Silicosis Problem.  
L. Metcalf Walling, Providence, R. I., Committee on the Regulatory and Administrative Phases of the Silicosis Problem.

The first silicosis conference was called by Secretary Perkins following reports to Congress that silicosis had caused the deaths of "many workers" on a tunnel project in West Virginia.

**Opportunities for Physicians in California.**—Examinations for the following positions in the California state service will be held March 27: physician and psychiatrist, physician

and surgeon, physician and internist and junior physician. The last is primarily for younger men and pays a salary of \$100 plus maintenance, while the others pay \$200 monthly plus living costs for each physician and his family. All four positions require a license to practice medicine in California and an education equivalent to that represented by graduation from an approved medical school. The "physician and psychiatrist" is also required to have had three years of experience in medical practice with some experience in psychiatry; the "physician and surgeon," three years of experience in medical practice with specialization in surgery, and the "physician and internist," three years of experience in medical practice with specialization in internal medicine, including one year of experience in an institution for the mentally diseased or deficient. The position of "junior physician" requires only one year of experience as a senior intern in a mental hospital or two years of experience as a junior intern, or two years of experience in the practice of medicine in a general hospital. Applications must be filed with the state personnel board in Sacramento before March 20. Physicians who are not residents of California will be eligible to apply for the positions.

**Foundation to Educate Needy Boys.**—A charitable foundation will be created under the will of the late Charles Hayden, New York banker, to assist needy boys and young men. According to the *New York Times* the bulk of Mr. Hayden's estate, estimated at about \$50,000,000, will be used to set up and endow the Charles Hayden Foundation. The general scope of the organization will be as follows:

1. To assist needy boys and young men.
2. To aid and assist in charitable and public educational uses and purposes for the moral, mental, intellectual and physical well-being, uplifting, upbuilding and development of boys and young men of this country.
3. To found and/or to provide scholarships for deserving boys and young men of this country and for graduates or undergraduates of colleges, and to assist them in attending any educational institution in this country or abroad.
4. To assist in and/or to found, equip or provide for the maintenance of institutions or associations for the advancement of learning in this country.
5. To aid, assist, build, equip and maintain clubs, gymnasiums and recreation centers in this country for the training and development of boys and young men.
6. To aid and assist and to receive, hold, administer and dispose of property to or for the benefit of any university, college, school or other institution for the advancement of learning or of any branch or department thereof or for the benefit of any hospital or of any branch or department thereof.

The will pointed out that in the disposition of the funds preference should be given to New York and Boston but emphasized that nothing in the will should be construed to prevent the aiding of such activities anywhere else in this country.

## CANADA

**Dr. Abbott Honored.**—McGill University, Montreal, at a special convocation conferred the honorary degree of doctor of laws, honoris causa, on Dr. Maude E. S. Abbott, formerly assistant professor of medicine and curator of the Museum of the History of Medicine. Dr. Abbott retired in August 1936 from the faculty of medicine after an association of thirty-seven years. She was graduated in 1894 from the University of Bishop College Faculty of Medicine, later absorbed by McGill, and was appointed assistant curator of the museum in 1901 and curator in 1902. She spent two years, 1923-1925, as professor of pathology and bacteriology at the Woman's Medical College of Pennsylvania, Philadelphia, after which she received the teaching appointment at McGill. Dr. Abbott has for many years been engaged in research on congenital heart disease.

## FOREIGN

**British Medical Journal Adopts New Cover and Type.**—With the first issue for January 1937 the *British Medical Journal* appeared with a new dress and with new and improved typography. The new type is far more readable than that formerly used and is arranged in a column with sufficient spacing and white space to aid greatly the eyes of those who peruse regularly this publication. Typographical improvement has also been made in the supplement to the *British Medical Journal*, which, like the Organization Section of *THE JOURNAL*, is concerned with problems of organizational and medical economic character.

**Medicine at the Paris Exposition.**—Three pavilions will be devoted to medicine at the Exposition of Arts and Technics that will open in Paris in May. One will be known as the Claude Bernard Pavilion, in honor of the great physiologist, and in it will be demonstrations of the functioning of the human body, including a "transparent man." In the Laënnec Pavilion will be exhibits showing the evolution of clinical medicine during the past fifty years. All branches of medicine will be

executives of those bureaus which deal with problems of public health, hygiene and sanitation would appear the surest and simplest means of fostering unity of action in the domain of hygiene and of arriving at a perfect synergy of the various organized groups without upsetting the administrative framework. The proposed innovation by no means implies the subordination of other departments to the ministry of health, it merely creates obligatory liaisons. The maintenance of tight partitions only acts as a detriment to concerted action.

The foregoing was the gist of the report submitted to the king which led up to the creation by his majesty of an inter-ministerial executive committee of sanitary affairs. The duties of this committee are to establish a liaison between the various bureaus that are concerned in any manner whatever with problems of health, hygiene and public sanitation and to coordinate the health activities sponsored by these bureaus. Any contemplated legislation, decision or regulation having to do with problems of health must be examined beforehand by the committee, and it is compelled to submit its report within two weeks after it has been provided with the material requisite for a study of the measure in question.

The chairman of the committee is the minister of public health or his representative. The committee is composed of fifteen members, fourteen of whom are selected by the various ministers to represent respectively the following governmental departments: public health, justice, foreign affairs and foreign commerce, the interior, public instruction, finance, agriculture, public works and unemployment reabsorption, social service and welfare work, economics, transportation; posts, telegraphs and telephones; national defense, the colonies. The fifteenth committeeman serves as secretary.

## ITALY

(From Our Regular Correspondent)

Feb. 6, 1937.

### National Congress of Industrial Medicine

The twelfth National Congress of Industrial Medicine took place recently at Naples under the presidency of Prof. Nicola Castellino. Respect was paid to the memory of Prof. Luigi Devoto, recently deceased, founder of the first clinic for the treatment of industrial diseases and the president of the Società di Medicina del Lavoro. The first official topic concerned pathology from modern industrial chemistry. Professor Castellino said that physicians have to be familiar with the reactions to substances used in industry to prevent and treat the pathologic conditions that may result from intoxications or other forms of contact of workers with industrial substances. The development of modern working methods may result in physical and psychic disturbances of workers, which may be as serious as those caused by contact of the organism with chemical substances.

The subject of the second topic was ear diseases from noise. Professors Bruzzi of Naples and Malan of Turin were speakers. Ear diseases from noises are of great importance in industrial medicine, as they may develop in several modern industrial fields. Noise is the stimulation of the hearing apparatus by periodic and nonperiodic vibrations in association, causing, respectively, specific and nonspecific sensations in the human hearing apparatus. The latter collects the sounds induced by from 16,000 to 20,000 Hertz waves. Infrasounds (lower than 16,000 Hertz waves) and ultrasounds (beyond 20,000 Hertz waves) stimulate the hearing apparatus with nonspecific sensations and may produce alterations. The most harmful effects from stimulation of the zone of maximal sensitivity of the human hearing apparatus are those produced by intense sounds of 23,000 Hertz waves. Trauma from noise may be acute or chronic. The slow and benign evolution of industrial deafness, the absence of lesions of the middle ear and of symptoms from

the vestibule, heredity and constitutional and endocrine predisposition of the worker are all factors in making a diagnosis. The speakers described the forms of deafness that develop in tinkers, weavers, railroad men, aviators and artillerymen. Early development of progressive lesions and failure of the treatment in improving the patient's condition are common characteristics of industrial deafness.

The third topic was diseases of the spine from work. Prof. Luigi Preti of Milan spoke on the causation of the condition. A process of degeneration of the intervertebral disks which is stimulated by continuous flexion, extension and bending of the spine during work is the most important factor. Degeneration of the vertebral disks is followed by a process of irritation of the periosteum of the entire vertebra, with possible consequent ossification of the periosteum and final destruction of the involved vertebra. Professor Prisco of Naples classified industrial spinal diseases in four groups: Those developed from repeated abnormal movements or effort of the spine, vertebral arthritis and diseases which seem to be related to infections that take place during work or with industrial intoxications. Diseases of the first group develop from para-industrial defective conditions of the worker stimulated by conditions of work beyond his individual resistance. Spondylitis deformans and apophysal arthritis are the most frequent forms of vertebral arthritis in workers. They are the result of kinetic efforts which are necessary in performing certain types of work and have to be considered industrial diseases, especially from the point of view of medical insurance.

Professor Caso of Naples said that the dynamic, mechanical and physical agents which most frequently cause spinal diseases during accidents in work are acute effort, violence, falls, contusions, wounds and shock from either atmospheric or industrial electricity.

The fourth topic, obligatory insurance of workers against industrial diseases, was discussed by Professor Ranelli of Rome. For the last two years, insurance against poisoning from lead, mercury, white phosphorus, carbon sulfide and benzene has been obligatory in Italy. Also insurance against ancylostomiasis is obligatory. The speaker reviewed statistical data obtained in Italy for the last two years in relation to frequency of denunciation, harm caused to workers from different diseases and the amount of money paid for indemnification and compared the data with those obtained in other countries. He advised that industrial medicine be more thoroughly taught in Italian universities.

Professor Aiello of Milan discussed the last topic, which was the mutual type of health insurance, a type of social insurance which is developing at the present in the departments of the ministry of working corporations in Italy.

The next Congress of Industrial Medicine will take place at Bari city.

### Oncogenic Action of Hydrocarbons

Prof. Vincenzo Bisceglie of the Catania University, in a lecture recently given to the Società medico-chirurgica of the city, reported results of studies on the oncogenic action of polycyclic hydrocarbons. The author succeeded in obtaining growth of sarcomatous tumors from subcutaneous injections of 1:2 benzopyrene dissolved in olive oil in all rats that were treated. The tumors grew rapidly, passed by a process of infiltration and sometimes produced metastases. The speaker succeeded also in transplanting the tumors up to the fourth transplantation. Application of 1:2 benzopyrene over the skin of mice results in the production of spinocellular carcinoma in 75 per cent of the animals treated. The tumors develop within 110 and 162 days from the beginning of the treatment. Death took place shortly after development of the tumors. Lesions of the internal organs, especially myeloid transformation of the liver and the spleen and increase of the number of splenic megakaryocytes, were shown in all animals regard-

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb. 13, 1937.

#### Regulations for the Health and Safety of Factory Workers

The present law regulating the conditions of work in factories is based mainly on the factory and workshops act of 1901, which has been amended from time to time but has never been subject to a general overhauling. Since 1901 there have been great advances in knowledge and practice with regard to health and safety in industry. The government is therefore about to introduce a new bill, which is not only consolidating but revising and is said to give greatly improved provisions. The requirements as to the cleanliness of factories are made more precise by including specific provisions with regard to accumulations of dirt and the cleaning of floors. The amount of space required per person is increased from 250 to 400 cubic feet, subject to a clause allowing the present arrangements to continue in existing workrooms, provided there is effective mechanical ventilation. In addition to requiring a reasonable temperature to be maintained in all workrooms, a standard of temperature is laid down for light work of a sedentary character, and power is given to the government to prescribe standards of temperature and prohibit unsuitable methods of heating. Not only must sufficient and suitable lighting be provided, but arrangements must be made for the medical supervision of the workers in certain circumstances, as, for example, in outbreaks of disease in particular factories.

#### SAFETY PROVISIONS

The provisions of the existing law have been largely recast and there are many new proposals requiring the adoption of various safety devices or arrangements, imposing duties on manufacturers with regard to the construction of new machines, and requiring precautions in the case of cranes, chains, air receivers and containers, compressed air receivers, and processes involving risk of explosion from dust or fumes. Specific requirements are laid down with regard to hoists and elevators, bringing them into conformity with modern practice. Provisions as to the means of escape from fire are considerably extended. When more than twenty persons are employed in the same building or when explosive or highly inflammable materials are stored or used, effective provision must be made for giving warning in case of fire. In certain cases effective steps must be taken to familiarize all employees with the means of escape and the routine to be followed in case of fire.

#### WELFARE WORK

By an act of 1916 the government was empowered to make "welfare orders" for work in factories. As the result of experience gained, specific provisions are now made for dealing with the provision of drinking water, washing facilities, accommodation for clothing in certain prescribed processes, and facilities for sitting for female workers. Existing provisions for the removal of dust are made much stronger. New provisions are introduced to control underground workrooms. Young persons must not be employed in lifting heavy weights, and maximum weights are prescribed both for them and for men and women, either generally or in particular industries.

#### SHORTER WORKING HOURS

According to the existing provisions, women and young persons may work in any week up to a maximum of sixty hours in nontextile and fifty-five and one-half hours in textile factories, exclusive of intervals for meals. Also women may be employed on a limited amount of overtime in certain trades. The bill greatly reduces hours. The weekly working hours shall not

exceed forty-eight and the daily nine, exclusive of intervals for meals. But to enable pressure of work to be dealt with, women and persons over the age of 16 may work overtime to an aggregate not exceeding 100 hours in the year, subject to a maximum of six in any one week and to overtime taking place in not more than thirty weeks in the year. Also the 100 hours may be increased to 150, by permission of the government, for women in trades subject to seasonal or other pressure. Persons under 16 are not allowed to work overtime, and provision is made for reducing the amount of overtime for persons over 16 in any process in which this is prejudicial to health. Exceptions are made for processes connected with the curing of fish, the preserving and canning of fruits and vegetables, and the making of cream, butter and cheese.

#### Store Depots for Gas Masks

The government is manufacturing 30,000,000 masks, enough to supply every person in the country in case of gas attacks. In the meantime the masks will be stored by the government, as they are of delicate construction and, if issued to the population now, many would probably be out of order when required. Two regional depots for storage have been acquired—one at Manchester and the other in the London district. These have between them a capacity of about 4,000,000 gas masks and facilities for their inspection and preservation. Eleven more regional store depots will be required and urgent steps are being taken to secure them. The system of distribution from these depots is now under investigation and it is proposed that the arrangement will include local store depots, each with a capacity of 30,000 gas masks. Ultimately the regional depots will be used to house the reserves of gas masks and of other stores required in connection with air raid precautions, some of which are of a bulky nature. In reply to a question in Parliament whether the gas masks would not have deteriorated before the war started, the minister replied "No. Special technical precautions are being taken so that these gas masks are in good condition."

#### Carcinogenesis

William Cramer and E. S. Horning have studied the carcinogenic properties of hormones. Estrogen is closely related chemically to some of the carcinogenic hydrocarbons. It is therefore not surprising that some of these induce estrus. But when tested by painting on the skin, the estrogens proved inactive. Subsequently Lacassagne found that subcutaneous injection over many months produced mammary cancer, even in male mice. This has been confirmed by several workers. It therefore seemed that a substance can be carcinogenic for one organ (the mamma) and not for another (the skin). To test this point, Cramer and Horning applied a dilute solution of estrogen to the skin of male and female mice for a prolonged period. The surprising result was that cancer developed in the mamma but not in the skin, and as readily in males as in females. This result indicates an organ specificity for carcinogenic agents, a fact not previously suspected. Some apprehension has been aroused as to the danger of using estrogen, but Cramer and Horning have shown that carcinogenesis requires much larger doses and much longer periods than those of therapeutic administration.

#### The Defense of Actions for Negligence

At the West London Medico-Chirurgical Society, Mr. Pearce Gould, president of the Medical Defense Union, gave an address on the defense of actions for negligence. He said that it was unfortunate that actions for negligence or threatened actions were on the increase. For this there were several causes. One was a loosening of the old time mutual confidence between physician and patient. Another was that lay persons were acquiring more knowledge of medical matters. A third was the news value of physician's peccadilloes; their publication encouraged others to attack their physicians. The gravity of



## Deaths

**William Hermann Dieffenbach**, New York; New York Homeopathic Medical College and Hospital, 1900; member of the American Roentgen Ray Society; at one time professor of therapeutics at his alma mater and professor of physical therapeutics and vice president at the New York Medical College and Hospital for Women; was an adviser to the U. S. Army Medical Corps during the World War; in 1905 was a delegate and vice president of the First International Congress of Radiology at Liege, Belgium; aged 71; a founder and past president of the medical board of the Broad Street Hospital and president of the board of directors of the Community Hospital, where he died, January 13, of cerebral hemorrhage.

**Francisco Maria y Hernandez Fernandez** ☉ Miami, Fla.; Columbia University College of Physicians and Surgeons, New York, 1908; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; past president of the Pan-American Medical Association; formerly Cuban secretary of state and Cuban secretary of sanitation; at one time assistant professor of ophthalmology at the University of Havana Faculty of Medicine; formerly chief of clinic, eye department, Mercedes Hospital, Havana; had been decorated by several governments; aged 50; died, February 14, of coronary thrombosis and diabetes mellitus.

**Charles Moore Gandy** ☉ Colonel, U. S. Army, retired, Ocean View, N. J.; Jefferson Medical College of Philadelphia, 1879; entered the regular army as an assistant surgeon in 1884, was lieutenant colonel in the medical corps in 1909, colonel in 1913 and retired in 1921 by operation of law; served in the Sioux Indian and Spanish-American wars, the Philippine Insurrection and the World War; served in the office of the Surgeon General, 1912-1914; past president of the Cape May County Medical Society; aged 79; died, January 8, of chronic cardiac disease.

**Frederick Beach Burke** ☉ Detroit; Georgetown University School of Medicine, Washington, D. C., 1906; associate professor of pediatrics at the Wayne University College of Medicine; president elect of the Wayne County Medical Society; aged 54; consultant in pediatrics at St. Joseph's Mercy Hospital and Deaconess Hospital; for several years chief of staff of Children's Hospital; on the attending staff of the Receiving Hospital and the Harper Hospital, where he died, February 2, of pneumonia.

**Reginald Copeland Plummer**, Seattle; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908; member of the Washington State Medical Association, and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; past president of the King County Medical Society; served during the World War; aged 55; formerly on the staffs of the Providence Hospital and the Swedish Hospital, where he died, Dec. 26, 1936, of pulmonary and genito-urinary tuberculosis.

**James Percy McKelvy** ☉ Pittsburgh; Columbia University College of Physicians and Surgeons, New York, 1901; past president of the Allegheny County Medical Society; fellow of the American College of Physicians; director of the medical division of the Allegheny General Hospital; chairman of the board of managers of the William Harton Singer Memorial Research Laboratory; aged 67; died, January 28, in St. Luke's Hospital, Kansas City, Mo., of heart disease.

**Walter Olin Nisbet** ☉ Charlotte, N. C.; Medical College of South Carolina, Charleston, 1889; fellow of the American College of Physicians; at one time dean and professor of diseases of the digestive system, North Carolina Medical College; on the staffs of the New Charlotte Sanatorium and the Presbyterian Hospital; aged 70; died, January 18, of coronary occlusion.

**Edward Burke Bailey**, Demopolis, Ala.; University of Virginia Department of Medicine, Charlottesville, 1897; member of the Medical Association of the State of Alabama and the Southeastern Surgical Congress; president of the Marengo County Medical Society; medical director and owner of the Hand-Bailey Infirmary; aged 60; died, January 5, in Linden.

**Clarence W. Chapin**, Clinton, Ill.; Northwestern University Medical School, Chicago, 1899; member of the Illinois State Medical Society; past president of the DeWitt County Medical Society; served during the World War; on the staff of the Dr. John Warner Hospital; aged 64; died, January 21, at St. Joseph's Hospital, Bloomington, of coronary thrombosis.

**Stanley Blair Andrews**, Toledo, Ohio; Miami Medical College, Cincinnati, 1908; member of the Ohio State Medical

Association and the Associated Anesthetists of the United States and Canada; served during the World War; aged 53; on the staff of St. Vincent's Hospital, where he died, in January, of injuries received in an automobile accident in August.

**Augustine Patrick Douglas Cleary**, Canon City, Colo.; University of Virginia Department of Medicine, Charlottesville, 1892; Bellevue Hospital Medical College, New York, 1896; M.R.C.S., England, L.R.C.P., London, 1896, and F.R.C.S., Edinburgh, Scotland, 1897; veteran of the Spanish-American War; aged 66; died, January 12, in the Colorado Hospital.

**Sidney Meeker**, Memphis, Tenn.; University of Alabama School of Medicine, 1907; member of the Tennessee State Medical Association; served during the World War; physician to the Juvenile Court; on the staff of the Home for Incurables, St. Joseph's Hospital and the Garity-Ramsay Hospital; aged 66; died, January 9, of heart disease.

**Ross A. Mitchell**, Moberly, Mo.; University Medical College of Kansas City, 1905; member of the Missouri State Medical Association; past president of the Randolph-Monroe County Medical Society; aged 55; formerly on the staff of McCormick Hospital, where he died, Dec. 8, 1936, of myocarditis.

**Alfred William Bayliss**, Buffalo; Niagara University Medical Department, Buffalo, 1889; for many years a member of the city health department; formerly on the staffs of the Sisters of Charity Hospital and the Emergency Hospital; aged 83; died, January 11, of cardiovascular disease and arteriosclerosis.

**John Priestes** ☉ Pittsburgh; University of Pittsburgh School of Medicine, 1922; fellow of the American College of Surgeons; resident physician to the Western Penitentiary Hospital; member of the staff of St. John's General Hospital and St. Joseph's Hospital; aged 38; died, January 10, of meningitis.

**Claire H. Denman**, Berkeley, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1893; also a minister; member of the California Medical Association; past president of the city board of education; formerly a medical missionary; aged 69; died, January 13, of acute dilatation of the heart.

**Lawrence M. Demarest**, South Orange, N. J.; University and Bellevue Hospital Medical College, New York, 1918; served during the World War; aged 48; died, January 14, in the United States Marine Hospital, Stapleton, N. Y., of cholecystitis, cholelithiasis and chronic appendicitis.

**William Patterson MacCracken**, Chicago; Hahnemann Medical College and Hospital, Chicago, 1887; formerly senior medical examiner for the aeronautics branch of the U. S. Department of Commerce; aged 73; died, January 31, of chronic myocarditis and arteriosclerosis.

**Chauncy Valentine Perry**, Greenfield, Mass.; Harvard University Medical School, Boston, 1928; member of the Massachusetts Medical Society; on the staff of the Franklin County Public Hospital; aged 36; died, Dec. 7, 1936, of an overdose of morphine, self-administered.

**Carl Lester Magnus Holmberg**, Brockton, Mass.; Harvard University Medical School, Boston, 1900; member of the Massachusetts Medical Society; formerly member of the city board of health; aged 62; died, Dec. 29, 1936, of aortic stenosis and chronic myocarditis.

**Herman Haughton James**, Bog Walk, Jamaica, British West Indies; Howard University College of Medicine, Washington, D. C., 1912; L.R.C.P., of Edinburgh, L.R.C.S., Edinburgh, L.R.F.P. & S. of Glasgow, 1924; aged 51; died, Dec. 15, 1936, of pneumonia.

**John Jervis Allen**, Monaca, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; member of the Medical Society of the State of Pennsylvania; on the staff of the Rochester (Pa.) General Hospital; aged 77; died, January 21, of cardiorenal disease.

**Elton Streett Warner** ☉ Wilkesburg, Pa.; University of Pittsburgh School of Medicine, 1918; member of the school board and for many years chairman of the board of health; on the staff of the Columbia Hospital; aged 42; died, January 2, of pneumonia.

**Joseph Tregelles Fox**, San Diego, Calif.; L.S.A., London, 1877, and M.R.C.S., England, 1878; formerly a medical missionary; aged 81; died, January 4, in the Paradise Valley Sanitarium and Hospital, National City, of pyelitis, cystitis and carcinoma.

**Henry Kajetan Seelaus** ☉ Philadelphia; Jefferson Medical College of Philadelphia; assistant professor of surgery at his

very long wavelength. Hence the problem of high voltage radiotherapy is to find the factors that are able to cause penetration into the tissues of sufficiently large quantities, which by successive "degradations" will act on the most radiosensitive cells. It is unnecessary, however, that these successive "degradations" should be very numerous. It suffices that such changes can take place. A study of the factors of penetration shows that the most advantageous changes in the expense of transmission of the current are obtained in passing from 0.5 meter to 1 meter of focal distance at 200 kilovolts or in passing from 200 to 700 kilovolts without change of distance.

Gumsett of Strasbourg described the high voltage apparatus that he used for radiotherapy. The tension is constant and the tube is a special one, attaining a voltage of 520,000 volts and 3 milliamperes. He believed that the advantages of very high voltage were the following:

1. A very marked increase of the deep dose, which at between 200 and 520 kilovolts is 30 per cent.

2. A noteworthy decrease (about 36 per cent) of diffuse radiation, which enables the skin to tolerate a higher dosage with resultant beneficial action on the deep lying cancer.

3. With 520 kilovolts one can lessen the distance up to 80 cm. and shorten the duration of the sittings, the latter being of especial importance in cases in which several fields are to be treated by cross-firing.

Mathey-Cornat of Bordeaux said that the introduction in radiotherapy of high tensions, above 200 kilovolts, and especially from 300 to 500 kilovolts, has raised many new questions of a biologic and clinical nature. The term still currently employed of "high tension" is an imperfect description of this ultrapenetrating roentgenotherapy, which combines increase of distance with that of filtration and permits sittings that are not too long in cases in which fractional treatments over a prolonged interval are indicated. From the biologic point of view it is advisable to increase not only quantitatively but also qualitatively the deep dose to be distributed in the tissues. The high voltage technic demands accuracy and safety. The tumors in which irradiation from 300 to 600 kilovolts is especially indicated are deep seated thoracic and abdominal neoplasms. The contraindications are the same as exist for 200 kilovolts. Since using the high voltage treatment, the results at the Bordeaux anticancer center have shown a 10 to 15 per cent improvement. Of eighty-five patients treated during the past two years with the high voltage currents, 65 per cent primary cures and 55 per cent of over a year's duration have been noted in cases of cancer without selection of any special localization. For certain cancers the results do not show any improvement over the period when 200 kilovolts was used. The end results cannot be determined as yet. However, although high tension radiotherapy represents a step in advance, the cancer problem remains dominated by the biology of the question.

#### The Compulsory Retirement Law

A bill will be introduced by Mr. Pomaret during the present session of the French legislature to compel the members of all the liberal professions (architects, engineers, physicians, dentists, lawyers) to surrender their diplomas at the age of 65 without any prospect of receiving a government pension. The object of the proposed law is to make room at the top for the younger members of the respective professions. The bill has encountered violent opposition on all sides and it is doubtful whether it will ever reach a vote even in the Chamber of Deputies, in which there is a strong socialist majority. The members of all the liberal professions, in addition to payment of personal property and income taxes, are subjected to a third tax termed the "patente," or license to practice tax, which is calculated on the rental value of the space occupied in practicing the given profession. It has been suggested recently that the revenue from this third tax, instead of being

paid to the government, should, in case the Pomaret bill becomes a law, be turned over to a fund from which a pension should be made to those who are forced to retire. Until the bill is actually subjected to open debate in the committee to which it will be referred for investigation as to its merits and injustice, no definite action can be taken by the organizations that represent the various liberal professions. Sufficient protests against the passage of such a law have already been made to render it doubtful whether the bill will ever emerge from the committee deliberations.

#### Irradiation of Adrenals in Obliterating Arteritis

Desplats and Langeron have employed radiation treatment during the past eight years in 200 cases of obliterating arteritis with about 62.5 per cent good results, 22.5 per cent partial results, 5 per cent failures and ten cases in which radiation could not be employed because of the presence of embolism, thrombosis or aneurysm. In diabetic arteritis, the results are almost constantly good. In thrombo-angiitis (juvenile arteritis) the results have thus far been favorable but close surveillance is necessary. In angioscleroses, many relatively good results have been obtained, and it has frequently been possible to avoid amputation. As to technic, the authors advise giving 150-250 roentgens per treatment, with a prolonged sitting. This method appeared to increase the number of successful cases.

#### BERLIN

(From Our Regular Correspondent)

Jan. 30, 1937.

#### Investigations of the Extent of Syphilis in a Large Urban Community

Dr. StreLOW reports in the *Münchener medizinische Wochenschrift* observations from the examinations of syphilitic patients made at the University Clinic at Cologne, the largest hospital in that Rhenish city of 750,000 inhabitants. From 1921 to 1925, 15,000 cases of all kinds were received at the hospital, a patient received more than once being reckoned of course as a single case. StreLOW states that the figures arrived at on the basis of this clinical material may be considered average for the entire population of Cologne. Of these 15,000 patients, 52 per cent were men and 48 per cent women. Among them there were 1,112 persons, or 7.4 per cent, who had become infected with syphilis. This proportion of syphilitic patients to the gross material fluctuated but little from one year to the next. There was a somewhat higher incidence of syphilitic infection among the men; 7.9 per cent of all male patients were syphilitic against 7 per cent of all female patients. Strange to say, there was a smaller proportion of unmarried persons among the syphilitic patients than among the hospital patients as a whole: 27.2 per cent of syphilitic male patients were single, against 40.2 per cent of all male patients, and 41.1 per cent of syphilitic female patients were unmarried, against 54.7 per cent of all female patients. Conversely, the number of syphilitic patients who had been married one time or another was greater than the corresponding proportion among all patients. The number of syphilitic patients who had been divorced was about four times the corresponding proportion among the patients as a whole.

As to age, the largest number of syphilitic men (28 per cent) were in the fifth decade of life and the largest number of women were in the third decade. Positive Wassermann reactions produced by early syphilis were observed in 76 per cent of 572 men and in 84 per cent of 470 women examined. The more frequent positive reactions among the women may be ascribed to their having received fewer treatments and this in turn may be due to the fact that syphilitic women are less apt to be familiar with the nature of their illness. According to the anamneses the infection had remained latent in more than 50 per cent of the men and in an even greater proportion of

## Correspondence

### ARGYRIA AND LIPOID PULMONARY DISEASE FOLLOWING INTRANASAL MEDICATION

*To the Editor:*—Pity the persons today having what is termed the common cold. Especially unfortunate are infants and children. No sooner does a child have a snuffle than the mother, who may have been instructed by a physician or local druggist, begins flushing the nose with various popular nose remedies. A timely report by W. J. Kerr (*The Common Cold*, *THE JOURNAL*, Aug. 1, 1936, p. 323) asks: "Since it is apparent that no rational means are available to prevent or treat a common cold on the basis of the hypothesis of infectious origin, isn't it urgent to go back to fundamentals and start anew?" It is well to recall that a few decades ago the physician in treating a cold prescribed the usual supportive measures, letting the nose "run" at will. Who can question the rationale of permitting natural drainage?

Little is known concerning the function of the erectile tissue situated over the turbinate bones of the nose. Every one, however, recognizes that it is an exceedingly sensitive and delicate vascular structure. It is thought that it not only prepares the incoming air for the respiratory tract but also is in some way related to the function of the skin, lungs and kidneys in regulating the heat and water in the body. Another structure equally important in the physiologic as well as defense functions of the body is the ciliated epithelium in the nose. It has been shown that even saline solutions and distilled water will interfere with the normal function of the cilia. What is going to happen to these important structures in the nose when they are repeatedly doused with various irritating or even nonirritating chemicals and oils? Time alone will bring out the resultant effects and thus decide their fate. It always has proved true that any tampering with the purposeful function of an organ sooner or later leads to untoward consequences.

Appearing in *THE JOURNAL*, Dec. 5, 1936, was one of a series of articles prepared by eminent authorities for the purpose of extending information concerning the official medicines. They have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and *THE JOURNAL*. This report, by Clyde A. Heatly, was entitled "Local Medication of the Upper Respiratory Tract." The introductory sentence suggested that the general practitioner confine his use of local medication for the most part to acute infections of the upper respiratory tract. Under the subject acute rhinitis the author said "The commonly used silver colloids mild protein silver and neosilvol (10 per cent solution) have been found experimentally to destroy epithelium and to impair ciliary action. Nevertheless, they will continue to be widely used for their recognized empirical value." There was no statement or word of caution concerning the likelihood of argyria from their continued use. Cases of argyria from intranasal and pharyngeal applications of silver preparations have become increasingly prevalent during the last few years (Gaul, L. E., and Staud, A. H.: *Clinical Spectroscopy*, *THE JOURNAL*, April 20, 1935, p. 1387). There is no successful treatment for these unfortunate victims, who of late include a fair number of discolored children. Silver preparations were again mentioned for the local treatment of acute infections of the throat. The following, reported through the courtesy of Dr. Juan Figueroa of Havana, is a typical case history in argyria: B. M. O., a Cuban druggist, aged 46, had had hay fever for sixteen years. In 1929 an ear, nose and throat specialist "recommended" the use of a 3 per cent solution of mild protein silver, 30 drops twice a day, in both nostrils. He followed this treatment for two years. In 1931 the strength of the solution

was doubled. In 1932 he noticed the first signs of discoloration, which gradually became more marked. He was ordered to stop the medication in 1934. Fifteen additional cases have been reported and observed since 1935.

In addition, Heatly emphasizes that present experimental studies have demonstrated that many of our accepted local preparations are actually destructive to epithelium and favor infection by impairing ciliary activity. He refers to the commonly used nasal oils containing liquid petrolatum, eucalyptol, menthol, camphor and thymol as having this effect. He also points out that the indiscriminate use of liquid petrolatum as nasal drops in infancy is not entirely without danger in view of the numerous reported cases of lipoid pneumonia from accidental inhalations.

Even though experimental data and actual clinical and pathologic observations stress the outcome of using oily preparations intranasally, strangely enough the author has included prescriptions containing these very substances. More or less paralleling the popularity and wide usage of oily preparations in the nose have been not only the increasing number of cases of sinusitis and lipoid pneumonia but also bronchopulmonary disease attributed to their use (Tchertkoff, I. G., and Ornstein, G. G.: *Bronchopulmonary Disease Attributed to the Use of Intranasal Instillations of Oily Substances*, *Sea View Bull.*, January 1936). During 1936 there have been additional cases reported and observed. In view of these facts it seems out of place and hazardous to recommend such medications to physicians, who in turn may advise their home use by parents.

Today proprietary remedies for the nose are advertised blatantly to the profession and public and sold by druggists indiscriminately. If the common cold proves to be a constitutional reaction to fortify and keep mobile the defense mechanism of the human body, some one has certainly erred.

L. EDWARD GAUL, M.D., New York.

### REQUESTS FOR REPRINTS

*To the Editor:*—Under this title in *THE JOURNAL* of January 16, page 224, Dr. W. A. Bastedo has reported that he has been irritated by requests for reprints which were not accompanied by return postage, and that he throws the post card requests in the waste basket.

I have observed that many earnest workers in laboratories and in the clinical sciences keep files of reprints of articles pertaining to the subjects in which they are particularly interested.

My associates and I too receive numerous post card requests for reprints, and from some of the best known men and laboratories in the country. I disagree with Dr. Bastedo. I feel that special studies should be encouraged by the free distribution of reprints to any one interested enough in any given line, as long as it does not become too much of a financial burden on the author. This the author can control by the number of reprints ordered.

ROY D. McCLURE, M.D., Detroit.

### FACIAL INJURIES

*To the Editor:*—In his paper on facial injuries in *THE JOURNAL*, January 9, Dr. C. L. Straith refers to Dr. J. J. Shea (*THE JOURNAL*, Feb. 7, 1931, p. 418) as "elevating the malar bone by means of an antrum trocar inserted into the antrum through the nose."

In *THE JOURNAL*, Dec. 21, 1929, I described the method reported by Dr. Shea. In the same article I mentioned the method Dr. Straith calls his—entering the antrum through the lateral alveolar margin—and gave reasons for not using it.

Entering the antrum with a trocar (preferably through the nose) is a proper procedure; however, elevating the fractured

over type X and its subspecies. Conversely, type X and its subspecies predominated in various forms of bronchitis and bronchopneumonia. Types I and II preponderated in meningitis, type I alone in peritonitis.

#### New Aspects of the Castration Question

As reported previously, data on the favorable results of castration are being assembled in Germany. However, these data are still to be appraised with the utmost caution in view of the brief period of observation which they represent and also as the interval between the operation and the first manifestation of its effect is far from uniform. The effect usually is first manifested only after an interval of months, but in many cases a period of years may elapse. Dr. Kopp, a jurist, whose article appeared in the *Deutsches Aerzteblatt*, stresses the paramount

#### Number of Castrations Performed in Germany to August 1936

Year	1934	1935	1936
In Germany .....	672	324	120
In Berlin .....	141	135	37

importance of a careful choice of the criminals to be castrated. The most frequently encountered sex offenders are exhibitionists, rapists, and persons guilty of crimes against children. According to Dr. Schlegel, medical superintendent of the Berlin Prison Hospital (*THE JOURNAL*, Feb. 2, 1935, p. 412) the libido became extinguished in some 90 per cent of castrated persons about four weeks subsequent to the operation; in a few cases it was enfeebled but became obliterated only after four months. The working ability of the prisoners was restored two weeks after operation. The morale of the castrated persons was good throughout; several among them who had previously showed a disposition to grumble became more friendly and tractable after the operation.

#### BELGIUM

(From Our Regular Correspondent)

Jan. 22, 1937.

#### The First Congress of Structural Surgery

The first Congress of Structural Surgery proved completely satisfactory to both its organizers and its members. In addressing the opening session, Dr. Coelst stressed the importance of the new designation of this particular branch of surgery, a branch that is not to be confused with simple repair surgery, with general surgery or with purely esthetic and plastic surgery. Structural surgery includes all operations that concern morphologic changes and functional amelioration both in the internal bodily cavities and on the bodily periphery. Dr. V. Cheval, a member of the Academy of Medicine, after having furnished an account of plastic surgery in its relation to otorhinolaryngology, expressed his pleasure at the replacement of the term "esthetic surgery" by the term "structural surgery." Among those who then expressed their approval of structural surgery and discussed various aspects of the field were Professor Remynse of Rotterdam, Dr. Esser of Monaco, Professor Héger-Gilbert and Dr. Watry, both of Brussels, and Dr. Dupuy de Frenelle of Paris. Among the principal topics of discussion were the testing of free grafts, traumatic lesions of the face, and the treatment of cleft palate.

Mr. Dufourmentel of Paris has made a study of conditions under which transplanted tissues are most likely to take or survive. He sought first to determine the circumstances that underlie the successful taking of a transplant: the physiologic condition of the selected graft, the way in which it is adapted to the field of transplantation, the condition of this field and so on, and, if a homograft is used, the importance of the reciprocal reactions of the tissues of the donor and the tissues of the recipient. He emphasized in particular the importance

of keeping the field of transplantation absolutely free from foreign bodies, with especial regard to microscopic bodies. He described the condition of transplanted tissues that had been observed after varying periods of time up to twenty years and more. He concluded that a transplant may actually become naturalized provided the operation has been performed under favorable circumstances.

Dr. Straith of Detroit discussed the treatment of facial injuries: The frequency of traffic accidents has increased the number of traumatic lesions of the face that require surgical treatment. Disfiguration is often a source of mental anxiety and often enough may even lead to a psychic handicap that mars the social life and career of the victim. The end result will depend on the meticulous care with which diagnosis is made and the proper therapeutic measures, beginning with the first aid treatment, are instituted. If infection or some other complication should prevent initiation of an optimal course of treatment immediately following the trauma, plastic intervention should be postponed. No surgical treatment should be undertaken unless it can be carried through to completion. From beginning to end, every effort should be made to diminish the cicatricial formations and to return the patient to society as little disfigured as possible and without needless delay.

Dr. Wardill of Newcastle-on-Tyne discussed the treatment of cleft palate: In subjects presenting cleft palate the distance between the superior maxillae is greater than in the normal skull. There is a smaller amount of soft tissue filling the interstice. The anteroposterior and transverse diameters of the nasopharynx are increased. The objective of operative treatment is to create a functioning nasopharyngeal valve. This can be effected by use of the following procedures: rapprochement of the sides of the nasopharynx and the projection of the pharyngeal wall, the restoration of the soft palate in a position from which it can easily attain the posterior wall of the pharynx and thus close the valve, and the freshening of the borders of all the soft tissue at the level of the movable parts. Both sides of the nasopharynx are brought more closely together and the pharyngeal wall is projected forward by a pharyngoplasty. This operation should be performed before the child has learned to speak; that is, in the third year or earlier. Infants treated by this method acquire normal speech and the need for relearning is obviated.

#### Liaison Between Departments in Sanitary Affairs

The liaison between the Ministry of Public Health and all departments which, on no matter what head, are concerned with questions of hygiene and public health, constitutes, in theory at least, an extremely desirable innovation.

In several foreign countries some such measure of centralization exists and if these arrangements are by no means perfect they at least represent notable advances in the right direction. The reorganized Belgian health ministry may be expected to produce optimal results, although it represents so far only a first step along the path of centralization. But no matter how far this policy is carried in future, the fact cannot be overlooked that there will always remain certain types of service which it will not be possible or which it would not be desirable to sever from the ministry in which they are integrated. Some substantial and encouraging results have already been obtained along these lines without any intervention of a regulatory character, thanks to a generous breadth of understanding of hygienic and public health problems on the part of the men whose duty it is to uphold these things.

The time seems ripe on the occasion of the creation of the department of public health to organize suitably close cooperation between the services involved, in such a way as to assure a maximal efficiency and to coordinate all common efforts.

The establishment in conjunction with this department of an interministerial committee on which would serve all the

and eyes. It has been observed that railroad track workers employed in hot summer months around freshly impregnated ties may develop a dermatitis from emanations of the chemicals used for water proofing and fire repelling. This occurs in the absence of direct contact. The present situation involving impregnated conduits is comparable.

Another item worthy of consideration grows out of the possible use of inorganic chemicals as constituents of the impregnating materials for fire prevention. Zinc chloride may be so used. When completely dry, zinc chloride dust might be produced on wood or paper impregnated articles; blown on the skin, a dermatitis may arise.

In the trade described, the occurrence of an industrial dermatitis is not questioned—it is expectable; but a dermatitis of the face without eye irritation and without an appearance on the hands and arms is doubted. For clarification purposes it is suggested that patch tests be carried out on both afflicted and control groups, using shavings from untreated conduits, treated conduits before and after outside exposure, impregnating pitch, and so on. In the absence of positive tests, other irritants or sensitizers should be sought. In case the dermatitis is traced to dust or vapors blown off the conduits on the faces of workmen, reasonable protection may be procured by smearing the face with a tenacious grease, such as hydrous wool fat, prior to the beginning of any work period. Such grease will serve as a fairly effective barrier, preventing contact with the skin.

#### TREATMENT OF ANEMIAS

*To the Editor.*—A man, aged 75, has a typical "pernicious anemia," according to the blood picture, gastric examination and nervous symptoms. He is taking large quantities of liver daily (orally in capsule form) and hydrochloric acid (dilute) three times daily. The blood picture remains normal except for occasional remissions. The gastro-intestinal symptoms of nausea, diarrhea (occasional) and anorexia persist, as do certain nervous manifestations such as temporary aphasia and mild mental depression. He complains that every morning at 10 o'clock he feels drowsy and languid with some clouding of the mental faculties, and after 4 p. m. he feels mentally alert and fairly comfortable. Do you think intramuscular liver would be of value and can you account for the periodic 10 a. m. to 4 p. m. condition?

P. R. BRIGGS, M.D., Hartland, Maine.

**ANSWER.**—The adequate treatment of a patient with primary pernicious anemia is an individual problem which must be guided by the response of the patient. From the history of the case cited there is every reason to change from the oral to the intramuscular method of administration. In patients whose gastro-intestinal symptoms are not as pronounced the intramuscular use of liver extract is advisable, as this method assures the physician that absorption will be more complete than when the extract is taken by mouth. With the marked atrophy that occurs in the gastro-intestinal mucosa, abnormal bacterial flora and the rapid peristaltic movements, absorption must be impaired. In this particular case the number of capsules required by mouth may in themselves aggravate the gastro-intestinal symptoms of nausea, anorexia and diarrhea described.

While the dosage of hydrochloric acid was not noted, it should be appreciated that as a rule too little acid is given. The amount of diluted hydrochloric acid U. S. P. is seldom given in quantities which would equal that produced by a normal person. Not less than from 6 to 12 cc. should be given three times daily, well diluted in water. In a considerable proportion of cases the administration of hydrochloric acid may markedly alleviate the gastro-intestinal symptoms, including the disappearance of the glossitis and sore mouth. Virtues of acid therapy other than these may be said to rest on an uncertain basis.

It would seem advisable to administer iron (inorganic) in some form, as often patients with persistent gastro-intestinal symptoms have in addition a deficiency of iron and thus lack this element for the maximum production of red blood cells and hemoglobin. Iron ammonium citrate, from 4 to 6 Gm. daily, preferably in capsule form, or ferrous sulfate, from 2 to 3 Gm. daily, are two among many of the soluble preparations that will be found satisfactory.

The central nervous system involvement, of course, is characteristic of Addisonian pernicious anemia, though the aphasia and mental depression described during remission may possibly be attributed to the age of the patient. Cardiovascular changes especially involving the cerebral vessels may produce similar signs and symptoms without the presence of pernicious anemia. Publications dealing with arteriosclerosis as a complicating factor in the treatment of pernicious anemia point out that such patients require larger daily amounts of liver extract, and about the best

that can be expected with regard to the central nervous system is to see that the red blood cells and hemoglobin percentage are kept as near normal as possible (red blood cells 5,000,000, hemoglobin from 85 to 90 per cent). By such treatment it is usually possible to prevent further progress of the lesions of the central nervous system, though the complete disappearance of these symptoms cannot be anticipated in a patient so advanced in age. As to why the attacks of aphasia, drowsiness and the like should occur from 10 a. m. to 4 p. m. it is not possible to say unless the physical activities between these hours produce changes in the cerebral blood supply which are associated with or accentuated by arteriosclerosis of the brain. It might be advisable to obtain samples for blood sugar determination at these times, though disturbances in carbohydrate metabolism are not common in pernicious anemia. Pathological Physiology and Clinical Description of the Anemias, by W. B. Castle and G. R. Minot, Oxford Medical Publications, gives an excellent review of the general care of patients with various types of anemia, which might be helpful.

#### DYSPNEA

*To the Editor.*—A man, aged 39, has complained for the last year of a feeling of suffocation, that is, the inability to get air into the lungs, especially when he arises in the morning. The suffocating feeling does not change either when lying down or sitting up. This occurs at varying intervals, ranging from half an hour to several hours. There are some days on which he has none of these symptoms. Accompanying this feeling of suffocation, he may have an occasional dizzy spell and palpitation of the heart, and he quite often has a feeling of anxiety and becomes frightened. In the intervals he is quite cheerful and states that he would be perfectly all right if it were not for the difficulty of getting air into his lungs. He has had dyspnea on severe exertion. A year ago, when I examined him, his blood pressure was 144 systolic, 85 diastolic, pulse 165, and weight 138 pounds (62.6 Kg.). He has not lost any weight during the last year. He had all his teeth removed in 1932 on account of pyorrhea and dental caries. He had a compound fracture of the radius and ulna near the elbow in 1915. He shows inability to pronate and supinate. In 1924 he was caught between a wall and a trolley car and was said to have had several of his vertebrae dislocated. He was treated by a chiropractor for two months, but he has not been bothered with his back lately. He had influenza in 1918. He was bitten by a dog in 1930. Probably no ill after-effects have been apparent. He had his tonsils removed by diathermy in July 1935. The cardiorespiratory system is otherwise negative. The gastro-intestinal tract is practically normal. The genito-urinary system is normal. He has been sleeping well at night. On physical examination his heart, lungs and abdomen are negative to abnormalities. His eyes show internal and external nystagmus. His eyesight has always been poor. The left optic nerve on the temporal side is pale; the pupil reacts to light and slightly to accommodation. He has conductive and receptive deafness in both ears. He has sclerosis of both ear drums. His mouth is normal. The thyroid gland is uniformly but slightly enlarged. The lumbar region is normal. He is able to bend his spine in all directions with ease. Coordination of muscles is normal. The knee jerks are hyperactive. There is no ankylosis. From January 6 to February 3 he was given aqueous solution of iodine, three drops three times daily. His pulse was from 70 to 100, the blood pressure 145/75, and his weight 138 pounds. There was some noticeable diminution in the size of the thyroid but no improvement in breathing. The basal metabolic rate was —19 and —15, Feb. 10, 1935 (Sanborn). His pulse was from 84 to 92, the blood pressure 140/85. He was given 1 grain (0.065 Gm.) of thyroid extract daily for several weeks and phenobarbital with apparently a decrease in the size of the thyroid. Occasionally when he had one of these spells in breathing he would have clonic and tonic contractions in the muscles of his arms and legs, which would last about five minutes. This occurred once or twice, but he was reported not to be unconscious during one of these attacks. The basal metabolic rate several weeks after treatment with thyroid extract was +5 and +9 (Jones). The thyroid was much smaller. The hemoglobin in February 1935 was 80 Tallqvist, 56 Sahli. The red blood count was 3,060,000; the Wassermann and Kahn reactions were negative. His voice is normal, with no sign of hoarseness. His vocal cords are apparently in the midline and show no paralysis. At the present time the patient has a good color and is cheerful, and only for his difficulty in breathing he would be all right. The roentgenogram of the chest showed no masses in the mediastinum or any enlargement that would cause pressure. He has stated in the past few weeks that he has had a little difficulty on one or two occasions in swallowing his food, either liquids or solids. Examination of the bronchi, trachea and the esophagus was negative. The roentgenogram of the chest shows no substernal thyroid gland enlargement or mediastinal masses that would cause any pressure on the upper respiratory tract. His difficulty in breathing has become more marked lately and his attacks more frequent. His thyroid gland does not seem to be as large as it was formerly. Please omit name and address.

M.D., Connecticut.

**ANSWER.**—A reply to this question involves a discussion of the causes of dyspnea. The question differentiates between the dyspnea of severe exertion and the difficulty in breathing that constitutes the patient's chief complaint. Dyspnea, however, means difficulty in breathing regardless of the respiratory rate, so the patient's chief complaint must be regarded as dyspnea.



less of the form (either cutaneous or subcutaneous) of application of the treatment. The development of blastoma was not in direct relation with the intensity and extension of the general organic lesions. The tumor developed more rapidly and extensively in animals with small and few organic lesions than in those which had extensive lesions in great numbers.

#### Surgery of Pulmonary Tuberculosis

Professor Pototschnig, at a meeting of the Federazione per la lotta contro a tubercolosi, reviewed the progress in surgery of pulmonary tuberculosis during the last twenty years. The main object of the surgical treatment is to induce regression of tuberculosis by placing the lung in functional rest by collapse. Surgical treatment is resorted to with the same aim as that of artificial pneumothorax. It is resorted to when the latter cannot be performed or when the results of artificial pneumothorax are incomplete or insufficient. The speaker discussed the indications, advantages and disadvantages of the several surgical methods resorted to in treating pulmonary tuberculosis, with special reference to resection of the phrenic nerve, alcoholization of the intercostal nerves, scalenotomy, apicolysis and the operation of Jacobaeus. According to the speaker, surgery of pulmonary tuberculosis cannot be separated from general surgery. Close collaboration between the pulmonary tuberculosis specialist, the roentgenologist and the surgeon is important, especially in sanatoriums.

#### Personals

Prof. Francesco Pentinalli was recently appointed professor of general pathology at Naples University.

#### BUCHAREST

(From Our Regular Correspondent)

Jan. 23, 1937.

#### New Health Insurance Bill

As the law now stands, any employee who is incapacitated either through illness or by accident may claim sick benefit for six weeks no matter how many years he has been employed. A bill has been put before the Chamber of Deputies which proposes that ten years' employment shall entitle the employee to eight weeks' benefit, and every further five years of employment shall entitle the employee to a further week's benefit. Thus after thirty years' employment twelve weeks' benefit may be claimed. The employee will also be entitled to a further two weeks sick leave without pay, during which time his position must not be filled and he cannot be given notice. After two years' employment, maternity benefit is to be paid. An insured person who loses his employment will still be eligible for benefits for his employment for a quarter of the total period over which he has paid contributions, with a minimum of twenty-four months. According to present regulations the period is fixed at thirty months. The new system has been in force in Czechoslovakia for some time, where it is found to work well. Another suggested innovation is that contributors of ten years' standing who lose their jobs at the age of 55 should after twelve years' unemployment automatically become eligible for the old age pension, while for women the age limit is to be 54.

#### Medical Gymnastics for Mentally Deficient Children

At the recent meeting of the Bucharest Pediatric Society, Dr. Calimanesco stated that, in the treatment of backward or mentally deficient children, medical gymnastics is useful as a prelude to physical education. The treatment must of course be strictly individualized. Its effect is to develop the latent potentiality of the brain cells. Increase in muscular power goes hand in hand with progress of mental development and improvement in the child's sensory condition. The chief aims of medical gymnastics in cases of mentally deficient children

are to aid in developing the efficiency of the motor, sensory and psychic elements of the cerebrospinal system, the sympathetic system, and generally to improve the constitution. The exercises are passive manipulations, mechanical shaking and strong vibration applied over the brain and spinal cord, and local nerve friction. Auditory and visual stimulation is afforded by telling the child to perform or to imitate movements. Active and passive, or resisted, movement of the joints may be associated with other forms of treatment.

#### The Campaign Against Venereal Diseases

The Commission on Venereal Diseases held its annual meeting recently. The secretary of the commission said that he thought that venereal diseases were somewhat less prevalent than in the years following the World War, but on this point it was difficult to speak with certainty; the statistics of deaths certified as due to syphilis are unreliable. He remarked that although large subscriptions are given to the combating of other diseases, little has been done with regard to venereal diseases. If it is desired to cure syphilis and get rid of the disease, said the report, anything that would aid early diagnosis ought to be at a patient's disposal without expense to him. In any scheme for the efficient treatment of the diseases, the establishment of night clinics in the large cities—Bucharest, Galatz, Jassy, Cluj—was essential.

The commission stated that though it had formerly been in favor of notifying all cases of venereal disease to the health authority, it had modified its view because it was convinced that notification would deter sufferers from seeking proper advice and would lead to increased recourse to quack treatment.

As to the education of public opinion with regard to venereal diseases, the commission stated that in the first place the infected person must be instructed. It should be made compulsory for medical practitioners to supply to every patient suffering from venereal disease printed instructions as to the nature of his disease and as to the measures he should adopt to avoid spreading it; copies of these instructions should be supplied gratuitously to physicians. Secondly, it suggested that all institutions where there are a large number of employees or institutions, such as colleges and universities, ought to have some course of lectures explaining the dangers of venereal disease. It was also of the greatest importance that the standard of knowledge of these diseases in the medical profession should be raised; in the past the teaching given was inadequate, but steps were now being taken in some of the more important hospitals to improve that situation.

## Marriages

RASMUS V. WILLIAMS to Mrs. Helen Smith Merriam, both of Rushford, Minn., in Chicago, Dec. 27, 1936.

LEWIS WILLIAM GLATZAU to Mrs. Winnifred McDonald, both of Daytona Beach, Fla., Nov. 12, 1936.

JOHN A. SIMPSON, Athens, Ga., to Miss Mary Louise Schuman of Savannah, in December 1936.

JOSEPH THOMAS WHITFIELD to Miss Virginia Louise Evans, both of Nashville, Tenn., Dec. 30, 1936.

WELDON PAUL SANGER, Durham, N. C., to Miss Mary Ann Carr of Atlanta, Ga., in December 1936.

JOHN C. WEST to Mrs. Elizabeth Ann Patterson, both of Batavia, Ill., in Wheaton, Dec. 23, 1936.

RALPH BERNARD GARRISON to Miss Evelyn Louise Blackley, both of Hamlet, N. C., Nov. 14, 1936.

CLIFFORD H. BEACH, Richmond, Va., to Miss Jebbie Whitehead of Chatham, January 30.

CLARENCE GUNTER, Globe, Ariz., to Miss Camilla Nolstad in Reno, Nev., Dec. 16, 1936.

ANDREW B. SMALL, Dallas, Texas, to Miss Nancy Wright, Dec. 15, 1936.

BRAIN ABSCESS AND TREATMENT IN BRONCHIECTASIS  
—CLIMATE OF TUCSON

*To the Editor:*—My brother, aged 23, developed bronchiectasis following pneumonia in 1934. Since then he has tried most of the routine treatments, including postural drainage, bronchoscopy and autogenous vaccine injections, and he has lived in Tucson, Ariz., for the past two winters. However, he does not feel improved clinically, though the x-ray plates show some evidence of lessening of the process. The latest plate taken (January 29) is reported thus: "There are clouding and mottling and apparently some bronchial dilations in the area of the descending bronchial branches and spreading out over the dome of the diaphragm on the right. A single fusiform dilatation is seen at the left base." The conclusions are: "Bronchiectasis, moderate in degree, without apparent inflammatory reaction, right base. Bronchiectasis, minimal, without inflammatory reaction, left base. Also, thickened pleura and slight pleural adhesions at right costophrenic angle." Clinically, the patient does not look any worse than he did before onset of the condition; his breath is not foul, although the sputum he brings up is; his finger tips are not clubbed, and he shows no cyanosis. He is attending college at Tucson. What percentage of danger of cerebral abscess is there? Is there any other climate, outside the United States if necessary, that might do him more good than that of Tucson? He tells me that there is a higher humidity this year than ever before. Is there any other nonsurgical procedure that should be attempted first? Please omit name and address.

M.D., New York.

**ANSWER.**—The fact is well established that brain abscess may be a complication of bronchiectasis; however, it apparently is not a frequent one in the milder cases. Although the mechanism that results in brain abscess is not definitely known, it is believed to be due to infected emboli from the area of disease through the left side of the heart, the aorta and the carotid artery. Others are of the opinion that, since paranasal sinuses are frequently involved in patients who have bronchiectasis, brain abscesses may result from the sinus infections.

If careful examination of the fetid sputum should reveal spirochetes and fusiform bacilli, benefit may be derived from administration of the arsenicals, with particular reference to controlling the odor of the sputum; in some cases definite clearing of the x-ray shadows has been reported. However, when marked dilations are present it is too much to hope for their disappearance through such treatment. When the arsenicals are used, the best results are obtained from small doses. When fusiform bacilli and spirochetes cannot be demonstrated in the sputum, autogenous vaccines have been employed with some apparent success. Iodized oil introduced into the bronchial tree once every five to ten days, until ten or twelve administrations have been given, is worthy of a trial when the disease is not coming under control by other methods of treatment. Iodized oil probably acts as a lubricant and prevents obstruction of ramifications of the bronchi by mucous plugs. It is believed also to coat the lining of the bronchial tree and thus protect it from irritation. Since the oil has a higher specific gravity than mucus and other material in the ramifications, it gravitates to the most dependent parts and thus facilitates the removal of infected material, thus aiding in the prevention of absorption of toxins.

The climatic conditions at Tucson, Ariz., are as good as can be found anywhere in the world.

## POISONING WITH BARBITURIC ACID DERIVATIVES

*To the Editor:*—I should appreciate some communication in your columns relative to specific measures of value in the treatment of poisoning with the barbiturates. I have understood that picrotoxin has been used and I should appreciate some comment on its value. I have recently read the article in *THE JOURNAL* giving the Cook County Hospital therapy, but this article does not give any form of treatment that will specifically combat such poisoning. Please omit name. M.D., Illinois.

**ANSWER.**—There are at least four differently acting possible antagonists that might be of value in the treatment of barbiturate poisoning, and among these picrotoxin is not by any means the most important or the best established (Status of Picrotoxin, Report of the Council on Pharmacy and Chemistry, *THE JOURNAL*, Aug. 1, 1936, p. 354). Caffeine with sodium benzoate, given intramuscularly in doses of from 0.2 to 0.4 Gm. every two hours, is perhaps the most rational and safest one. The French have been employing, with reported good success, doses of strychnine sulfate, as high as 10 mg. injected every hour or two. Recovery has occurred after total dosages of 170 mg. (!) and even more, given in the course of several days, doses that would have produced convulsions and death in normal persons. The soluble camphor derivatives, such as metrazol and coramin, also have an experimental as well as clinical background; and again large dosage is being advocated, e. g., from 10 to 15 cc. of coramin, partly intravenously and partly intramuscularly, which doses may be repeated in from half an hour to one hour as required. The occurrence of

muscular twitching indicates temporary cessation of administration of these convulsants. In desperate cases one may employ such remedies in succession, provided the results are carefully watched.

## DIPHTHERIA OF VAGINA

*To the Editor:*—Please advise me with regard to treatment of the following case, evidently a chronic vaginitis due to the diphtheria bacillus: A woman, aged 23, otherwise apparently healthy, has had a leukorrhea for the past eighteen months. Repeated smears have been negative for the gonococcus. Hanging drop preparations were negative for *Trichomonas vaginalis* and the reaction was persistently acid. The condition was considered probably due to a fungus and numerous antiseptic solutions were employed, including mercuric bichloride suppositories and phenylmercuric nitrate. About two months ago further bacteriologic studies were made and smears were reported positive for bacillus diphtheriae. A culture was then made and this was also reported positive for the diphtheria bacillus. The patient was given 20,000 units of diphtheria antitoxin and forty-eight hours later a solution consisting of one part of tincture of iodine to two parts of glycerin was applied locally. A cleansing douche was then used regularly for several weeks. Marked improvement followed this treatment, but the condition did not entirely clear up and has now regressed until it is about as before the antitoxin was given. A recent smear was again reported positive for the diphtheria bacillus. The exudate is not profuse. It is white and of a caseous consistency. I will appreciate greatly any suggestions as to further treatment.

M.D., Georgia.

**ANSWER.**—Genuine diphtheria of the vagina is rare, but the bacteriologic studies in this case would seem to leave no doubt as to the correctness of the diagnosis. The chief reliance in treatment must of course be the use of diphtheria antitoxin, and it would seem wise to repeat the former dosage of this substance after determining possible sensitivity, especially as such definite improvement then followed its use. In addition to such local antiseptic and cleansing measures as have been used, the employment of lactic acid douches, in a strength of from 0.5 to 1 per cent, may be of benefit.

## ACUTE GRANULOPENIA

*To the Editor:*—We recently had in our hospital a white woman, aged 48, with an acute fulminating agranulocytic angina characterized by sore throat and marked glossitis. The throat clinically appeared to have an acute streptococcal infection with exudate on both tonsils and the post-pharyngeal wall. The tongue was markedly swollen, so that it could not be protruded from the mouth, inhibiting both speech and swallowing. The floor of the mouth was edematous, and there was an associated cervical adenitis. The temperature ranged from 104.4 on admission to about 102 before death. The tongue became progressively worse and gangrenous appearing on its dorsal surface. The patient had been taking tablets for reduction of weight and I am attempting, if possible, to ascertain their nature. The blood count revealed 4,700,000 red blood cells, 250 white cells, all lymphocytes; no granulocytes were seen on smear. The count repeated again shortly after admission revealed only 50 cells with a complete agranulocytosis. We gave pentnucleotide transfusion. However, the patient died about thirty-six hours after admission. What I would like to know is: 1. Is glossitis a usual feature of agranulocytic angina? 2. What drugs to date have been proved factors in causing agranulocytic angina? 3. Cecil states that one third of these patients have positive blood cultures. This patient had a hemolytic streptococcus septicemia. Would this be primary or secondary as a terminal event? 4. What is the lowest white cell count reported in the literature on this condition? 5. What is the final status of pentnucleotide? Has any other more effectual preparation supplanted it—and altered the prognosis?

P. G. BAKER, M.D., Hartford, Conn.

**ANSWER.**—1. Vincent's or streptococcal infections commonly develop in the mouth, involving the posterior nasopharynx, soft palate, gums, and not infrequently the tongue during an acute agranulocytic episode.

2. Aminopyrine, dinitrophenol, benzene, acetanilid, arsenphenamine, neoarsphenamine and certain proprietary mixtures of aminopyrine and barbitol preparations have all been reported in an etiologic relationship to acute granulopenic states.

3. A survey of the literature reveals more than 70 per cent positive blood cultures in cases of acute granulopenia in which this examination was recorded. A primary bacterial focus followed by septicemia may overwhelm the bone marrow and produce a secondary and terminal leukopenia; however, it has been definitely proved that in many, perhaps in the great majority, of instances of agranulocytic angina, the granulopenia precedes the actual invasion of tissues and blood stream by bacteria.

4. Cases have been reported in which serial blood studies were made without disclosing a single white cell after a prolonged search of a single drop of blood.

5. Whether nucleic acid derivatives act as specific granulopoietic stimuli or simply as nonspecific irritants, there can be little doubt in the mind of the physician who has had a con-

alma mater; fellow of the American College of Surgeons; on the staff of St. Mary's Hospital; aged 40; died, February 14, of pneumonia.

**Charles Brown Bastian**, Williamsport, Pa.; Jefferson Medical College of Philadelphia, 1889; member of the Medical Society of the State of Pennsylvania; on the courtesy staff of the Williamsport Hospital; aged 75; died, January 13, of lobar pneumonia.

**Arthur Hieronymus** ♂ Alameda, Calif.; Bellevue Hospital Medical College, New York, 1897; for many years a health officer of Alameda and formerly health officer of Oakland; aged 65; died, Dec. 5, 1936, of arteriosclerosis and coronary thrombosis.

**Leo Alexander Chrzanowski**, Joliet, Ill.; Loyola University School of Medicine, Chicago, 1933; member of the Illinois State Medical Society; aged 30; died, January 21, in St. Joseph's Hospital, of duodenal ulcer and secondary hemorrhage.

**Mary Emma Dickinson**, Rochester, N. Y.; University of Buffalo School of Medicine, 1890; member of the Medical Society of the State of New York; aged 78; died, January 13, in the Belvidere Private Hospital, of myocarditis and influenza.

**William Rightman**, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; on the associate staff of the Frances E. Willard Hospital; aged 61; died, January 19, of coronary thrombosis.

**Carl Renz** ♂ Mill Valley, Calif.; Eberhard-Karls-Universität Medizinische Fakultät, Tübingen, Württemberg, Germany, 1889; fellow of the American Psychiatric Association; aged 72; died, January 22, of heart disease and influenza.

**Neill John Doherty** ♂ Crystal Lake, Ill.; Loyola University School of Medicine, Chicago, 1933; aged 40; died, Dec. 9, 1936, in the Hospital of St. Anthony de Padua, Chicago, of hypertension, chronic nephritis and cardiac dilatation.

**Floyd William Burns**, St. Paul; College of Physicians and Surgeons, School of Medicine of the University of Illinois, 1902; served during the World War; aged 60; died, January 20, of cerebral hemorrhage and hypertension.

**William Winston Waggoner**, Webb City, Mo.; Cincinnati College of Medicine and Surgery, 1892; member of the Missouri State Medical Association; aged 74; died, Dec. 15, 1936, of paralysis following cerebral thrombosis.

**Gilson Hild**, Indianapolis; Indiana University School of Medicine, Indianapolis, 1936; aged 24; intern at the Methodist Episcopal Hospital, where he died, Dec. 29, 1936, of pulmonary embolism following an appendectomy.

**Charles G. Corson**, Rileyville, Pa. (licensed in Pennsylvania, year unknown); member of the Medical Society of the State of Pennsylvania; aged 78; died, January 17, of cerebral hemorrhage and arteriosclerosis.

**Adolph Baron** ♂ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; on the staff of the Lenox Hill Hospital; aged 72; died, January 3, of heart disease.

**Henry Tutwiler Young**, Greensboro, Ala.; University of the South Medical Department, Sewanee, Tenn., 1899; also a lawyer; aged 67; died, Dec. 23, 1936, of acute dilatation of the heart and myocarditis.

**Morton Leonard Dudley**, Roanoke, Va.; College of Physicians and Surgeons, Baltimore, 1905; attached to the relief and pension department of the Norfolk and Western Railway; aged 52; died, Dec. 17, 1936.

**Ralph S. Piper**, Chicago; Hahnemann Medical College and Hospital, Chicago, 1900; aged 59; died, January 10, in the Chicago Memorial Hospital, of peritonitis due to a perforated duodenal ulcer.

**William Thomas Burke**, Toledo, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; aged 68; died, January 2, in the Mercy Hospital, of tumor of the kidney.

**William Aaron Melick** ♂ Zanesville, Ohio; Bellevue Hospital Medical College, New York, 1884; aged 77; on the staffs of the Good Samaritan and Bethesda Hospital, where he died, Dec. 1, 1936.

**August Theodore Schaefer**, Boston; College of Physicians and Surgeons, Boston, 1903; aged 84; died, Dec. 10, 1936, in the Boston City Hospital of bronchopneumonia and coronary occlusion.

**Frank Elmer Tilden**, North Easton, Mass.; Harvard University Medical School, Boston, 1876; aged 83; died, Dec. 21, 1936, of fracture of hip due to an accident and bronchopneumonia.

**Joseph Michael Baldwin**, Woodbridge, N. J.; Tufts College Medical School, Boston, 1935; aged 27; died, January 5, in the Muhlenberg Hospital, Plainfield, of acute cardiac dilatation.

**Isaac N. Campbell**, San Antonio, Texas; Louisville (Ky.) Medical College, 1892; aged 67; died, January 7, in the Nix Hospital, of endocarditis and blood stream streptococcus infection.

**Henry R. Wheeler**, Pocatello, Idaho; University Medical College of Kansas City, Mo., 1896; formerly a physician in the Indian Service; aged 73; was found dead in December 1936.

**Elizabeth I. Samuel**, West Barnstable, Mass.; College of Physicians and Surgeons, Boston, 1886; aged 76; died, January 6, in West Yarmouth, of shock following phlebitis.

**Edward U. Banker** ♂ Aurora, Ill.; Rush Medical College, Chicago, 1904; on the staff of St. Charles Hospital; aged 59; died, January 10, of a malignant tumor of the colon.

**Henry Perkins Moseley**, Santa Barbara, Calif.; Columbia University College of Physicians and Surgeons, New York, 1898; aged 64; died, January 4, of angina pectoris.

**Frederick Harrison Busby**, Detroit; University of Michigan Medical School, Ann Arbor, 1920; aged 53; died, January 16, in the Harper Hospital, of multiple myeloma.

**Albert F. Huddleston**, Winchester, Ind.; Pulte Medical College, Cincinnati, 1881; aged 77; was killed, Dec. 25, 1936, in an automobile accident near Forsythe, Ga.

**Robert James Campbell**, Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1891; aged 75; died, January 29, of coronary artery thrombosis.

**Bruno Schallern**, Ripon, Wis.; College of Physicians and Surgeons of Chicago, 1888; also a pharmacist; formerly mayor of Ripon; aged 82; died, Dec. 7, 1936.

**Nevin Millet Wetzel**, Kansas City, Mo.; Barnes Medical College, St. Louis, 1900; aged 67; was stabbed and killed with an ice pick, January 11, by a patient.

**George Henry Randell**, Orange, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1878; aged 84; died, Dec. 12, 1936.

**William John Chambers**, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1884; L.R.C.P., Edinburgh, Scotland, 1884; aged 75; died, Nov. 29, 1936.

**George Elkanah Drew**, New Westminster, B. C., Canada; University of the City of New York Medical Department, 1881; aged 79; died, Dec. 14, 1936.

**E. Lafayette Harmon**, Corbin, Ky.; Hospital College of Medicine, Louisville, 1906; aged 56; died, January 19, near London, of cerebral hemorrhage.

**Mary Innis Denton**, Buffalo; University of Buffalo School of Medicine, 1891; aged 80; died, January 19, in St. Catharines, Ont., Canada, of myocarditis.

**James M. Digby** ♂ Newport, Ky.; Medical College of Ohio, Cincinnati, 1889; formerly county coroner; aged 70; died, January 17, of heart disease.

**Howard S. Mace**, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1890; aged 69; died, Dec. 6, 1936, of chronic nephritis.

**Mary Carswell McClellan**, Lexington, Ky.; Woman's Medical College of Pennsylvania, Philadelphia, 1907; aged 63; died, Dec. 21, 1936.

**Gadsden E. Howe**, Silverdale, Wash.; Medical College of the State of South Carolina, Charleston, 1887; aged 82; died, Dec. 2, 1936.

**William Cluthe**, Evansville, Ind.; Medical College of Ohio, Cincinnati, 1875; aged 89; died, January 16, of prostatic obstruction.

**Lee Bird**, Rock Spring, Ga.; Chattanooga (Tenn.) Medical College, 1902; aged 59; died, January 11, of cardiovascular renal disease.

**George Eric Miller**, Fayetteville, Ark.; Pulte Medical College, Cincinnati, 1885; aged 84; was found dead in bed, Dec. 5, 1936.

**William A. R. Wickham**, South Bend, Ind.; Eclectic Medical Institute, Cincinnati, 1880; aged 76; died, Dec. 20, 1936.

**Will T. Neal**, Omaha; Rush Medical College, Chicago, 1890; aged 70; died, Dec. 19, 1936, of coronary thrombosis.

**David W. Holmes**, Bellevue, Texas; Eclectic Medical Institute, Cincinnati, 1891; aged 73; died in December 1936.

**Elmer Logan Sloan**, Joplin, Mo.; Barnes Medical College, St. Louis, 1907; aged 67; died, Dec. 2, 1936.

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## NONUNION AFTER FRACTURE IN DIABETES

*To the Editor:*—A man, aged 73, single, has had diabetes for eight years, kept well under control. The diet consists of protein 79 Gm., carbohydrate 141 Gm. and fat 100 Gm. daily. The diet contains 240 Gm. of milk three times a day and also all proper vitamins. The amount of insulin is 20 units before breakfast, 8 units before the noon meal and 10 units before supper. The blood sugar is 135 mg. fasting. The body weight appears to be about right. The temperature is 98 F., pulse from 70 to 74, and respiration 20. He has no goiter, but the metabolic rate was plus 23 in April. March 27 he sustained a fracture of the right femur. Since then the fragments have been in a Hodgen splint, which keeps them in fair position. July 5, x-ray examination showed no new bone formation. At that time the blood calcium was 7.8 mg. (normal would be from 9.5 to 10 mg.). Since then I have given the patient 15 grains (1 Gm.) of calcium gluconate and 10 drops of viosterol three times a day. July 25 the blood calcium was 7.47 mg. Still there is no new bone formation. What can be done to cause new bone formation? Please omit name.

M.D., Missouri.

*ANSWER:*—This may be merely a delayed union, and long and continuous use of conservative treatment may result in union. It is not stated whether the fracture is through the neck, through the intertrochanteric region or through the shaft of the femur, but the fact that treatment with a Hodgen splint maintains good position would indicate that the fracture is in the shaft. If union becomes too much delayed, it would be wise to drill several holes in each fragment with a one-eighth inch drill. This frequently stimulates the growth of callus and hastens union. If definite nonunion results, an autogenous bone graft may be necessary, and the indications and the contra-indications for an operation of such severity must carefully be weighed, before advising it.

## BENIGN PLAQUES OF THE TONGUE

*To the Editor:*—A child, aged 4 years, has for the past few months had what appears to be a ringworm of the tongue. It starts as a slight depression on the tongue, smoother in appearance than the rest of the surface. It gradually spreads about 3 mm. in thickness, the center becoming normal and finally covering half of the tongue. This condition lasts from two to three and one-half weeks and disappears. There are often four or five of these lesions at a time or successive crops following one another. It gives no inconvenience to the child. All other physical signs are negative and irrelevant. The parents are worried for fear it may develop into something else later. I have not been able to find a description or the treatment of this condition in any of the books on hand. Please discuss. Kindly omit name.

M.D., California.

*ANSWER:*—The symptoms detailed conform, on the whole, to a clinical description of the condition known as transitory benign plaques of the tongue, or glossitis areata exfoliativa, and is described in most of the larger textbooks on dermatology. Many of the patients are delicate children, and debility seems to be an exciting or predisposing cause.

The condition may follow a clinical course marked by exacerbations and remissions. Treatment consists in constitutional remedies to correct any deviations from the normal, such as anemia and marked constitutional debility. High vitamin feedings and the use of antianemic substances are indicated. Local irritation should be reduced to a minimum, and the use of a bland diet and soothing astringent lotions and mouth washes is in order. Serious sequelae, as a rule, are not noted in this condition.

## LEUKONYCHIA AND ONYCHOLYSIS

*To the Editor:*—A man, aged 37, 6 feet (183 cm.) tall, weighing 195 pounds (88.5 Kg.), married, a salesman, began to notice a gradual whitening and then a cracking of the fingernails five years ago, beginning at the edge of the cuticle. A number of such white cracking areas gradually appeared on the nail. The nail gradually loosened up. The nail becomes hard and brittle, and striking the nail against anything solid breaks it. The only treatment given, to my knowledge, was capsules of vitamin B. Please give me what information you can regarding the diagnosis and treatment. Please omit name.

M.D., Wisconsin.

*ANSWER:*—From the description the patient apparently has a combination of leukonychia and onycholysis. The cause of these conditions is obscure. The separation and loss of the nail, together with increased fragility, sometimes occurs as a symptomatic process in psoriasis, eczema and syphilis. Idiopathic neurotic cases have also been described. In some of these patients there is associated hyperhidrosis. The possible contributory factor of external irritants in the course of occupational contact must be borne in mind.

The response to treatment in these cases is quite variable. Protection of the nail from trauma, the application of bland oils and ointments, and the use of a high vitamin diet fortified by the administration of vitamins A, B and D is of value. Dicalcium phosphate by mouth is also a useful adjunct to therapy.

## NEURITIS DURING PREGNANCY

*To the Editor:*—A woman, aged 35, in her first pregnancy, had pyelitis two years ago and one year ago. The urine has been normal since conception in April. In May there was numbness over both lateral cutaneous nerves of the thigh. In June an occasional pain was felt in the nerves, and numbness was continuous. By July the pain was considerable, requiring acetylsalicylic acid. There has been no change in the area of the numbness or the pain. The urine, blood pressure, teeth, tonsils, bowels, Wassermann reaction, blood sugar, gain in weight, habits and attitude are all normal. In August, bromides were required for rest at night. Please omit name.

M.D., Texas.

*ANSWER:*—Pain over the distribution of both lateral cutaneous nerves during pregnancy is extremely unusual. The most common site for root pains in pregnancy is in the distribution of the sciatic nerves. It is possible that the gravid uterus by pressure upward has involved the lateral cutaneous nerves as it passes through a tunnel in the inguinal fascia; or the wearing of a special corset during pregnancy or for that matter the change in posture, although a corset worn before is used, may shift pressure on these nerves, causing pain on the lateral thigh surfaces, known to neurologists as meralgia paraesthetica. The treatment should consist of removing all tight constriction from the inguinal region. In any case, relief is to be expected on termination of the pregnancy.

## DERMATOMYOSITIS

*To the Editor:*—A clerk, single, aged 21, had pain and tenderness in the right thigh and in the back of the left knee. He stated that he had four or five previous attacks of this nature in the past few years. They had always followed a toothache and his dentist did not care to remove the offending tooth for some time because of orthodontic work that was being done. The patient's temperature was 102.2 F. and pulse 84. His right lower first molar was carious. The rest of the physical examination was without significance except in the lower extremities. The right sartorius muscle was clearly defined by redness, swelling, heat, tenderness and induration. A similar condition was observed for the left popliteus muscle. There was no evidence of fluctuation. Conservative treatment—rest, fluids, analgesics and hot applications—was prescribed. In two days the symptoms had abated but there was still some induration at the site of these muscles. By the fourth day even this had subsided. I would like to ask whether a diagnosis of acute suppurative (aborted) myositis is justified. If not, what are the diagnostic possibilities? How common is the condition in this country? What further treatment should the patient have besides the removal of the apparently offending tooth? If published, please omit name.

M.D., New York.

*ANSWER:*—This is an unusual case and might be a dermatomyositis. The condition is uncommon in this country, most of the cases of infectious myositis having originated in Europe. The local treatment would be symptomatic. There is no question that the tooth should be removed and, if pus is found, a vaccine made in case it is desired to administer it.

## TREATMENT OF PAGET'S DISEASE

*To the Editor:*—I have a female patient, aged 52, whose illness has been diagnosed by several competent clinicians as nonsyphilitic Paget's disease of the bones, which at present involves the cranium, pelvic bones, legs and one arm. Each physician has discouraged the patient as to treatment and prognosis. She has appealed to me for relief of her severe headaches and leg pains. Please inform me of the latest developments in this disease, if any, and the best treatment for the relief of her pains. Please omit name.

M.D., Wisconsin.

*ANSWER:*—The treatment for Paget's disease of the bone is still highly unsatisfactory except for orthopedic measures. The administration of high doses of viosterol together with daily intravenous injections of calcium has been recommended. For palliative purposes of relief of the intolerable pain, in some instances irradiation with small amounts of x-rays or radium to the involved area may be successful.

## PIGMENTATION OF VACCINATION SCAR

*To the Editor:*—I have a child, 7 years of age, who was vaccinated ten months ago for smallpox by another physician. A hematoma formed at the site of the vaccination and was surgically removed in May 1936. The vaccination scar is entirely healed but there is still considerable discoloration of the skin about an inch in diameter at the site of an old hematoma. The child's mother is much concerned as to whether this discoloration will ever entirely disappear. Please omit name.

M.D., Wyoming.

*ANSWER:*—The discoloration and pigmentation of the skin at the vaccination scar is the result of pigment deposited at the site. The pigment in this instance is most probably derived from the blood (an old hematoma), in which case it contains iron and is situated in the dermis. There may also be asso-

bone with a sharp pointed instrument such as an antrum trocar obviously will further injure the already traumatized mucous membrane within the antrum and should not be used for elevating the bone. A solid urethral sound is better.

J. J. HORTON, M.D., Memphis, Tenn.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### PREGNANCY AFTER TUBERCULOSIS

*To the Editor:*—What is the present best opinion as to dangers of pregnancy in a 40 year old American born, one-eighth colored blood, who had one child sixteen years ago and developed active pulmonary tuberculosis five years ago for which she spent two years in a state sanatorium, where extensive left thoracoplasty was done, resulting in apparently completely arresting the disease? The patient returned home two years ago and has been observed monthly since, negatively as to a pulmonary condition. Is an early abortion definitely indicated? If pregnancy proceeds, what are the chances of lighting up the pulmonary condition? At what stage of pregnancy is it most likely to reappear, if it does at all? If she goes to term is a long labor more or less dangerous than operative intervention in the second stage? If any operative intervention becomes essential, what type of anesthesia is least dangerous? M.D., Massachusetts.

*ANSWER:*—Pregnancy is usually considered safe for the patient who has had pulmonary tuberculosis provided the lesion is healed and has remained so for a period of two years or longer, corroborated by repeated x-ray examinations. From the information given, the prognosis as regards this pregnancy should be good, since one assumes that the first pregnancy was not complicated by toxemia or difficult labor. The age factor of itself is of little moment. Such a patient, however, requires careful watching throughout the pregnancy and frequent x-ray examinations to make certain that no new infection has developed.

An early abortion is not indicated unless it is demonstrated that a fresh infection has developed in the other lung or the healed lesion has become activated. On the other hand, if nephritis or heart disease should complicate the picture or if hyperemesis is present, the uterus should be emptied early. As to the possibilities of lighting up the pulmonary condition, little can be said one way or the other. The chances are all dependent on whether or not the lesion has been completely healed. If a lighting up of the pulmonary condition does occur, it is most likely to occur in the latter months of pregnancy when the splinting of the diaphragm induces a costal type of breathing and the respiratory rate becomes increased. If activation does take place it is most likely to manifest itself as a tuberculous pneumonia.

More frequently, however, activation occurs in the puerperium, owing perhaps to the effect of the labor, the straining and increased blood pressure being sufficient to break down walled off areas and thus liberate many free organisms. If the patient goes to term she should certainly be spared the exhausting effects of a long labor with the resulting depletion in the powers of resistance. Therefore, if a long labor is anticipated, one should seriously consider elective laparotomies under local infiltration anesthesia, combining with this operation some form of sterilizing procedure. If active infection is present it might be well to do a Porro operation, removing a potentially tuberculous placental site.

When the first stage is likely to be normal, the analgesic of choice would logically be morphine, avoiding the newer barbiturates. Voluntary bearing down efforts should not be permitted in the second stage, since the increased work throws too much strain on the lungs. The treatment of the second stage should resemble that of the cardiac patient; i. e., an operative delivery provided the patient does not quickly and effortlessly deliver herself.

The least dangerous type of anesthesia is obviously one that will not affect the respiratory system. Therefore, some form of local anesthesia is indicated. Thus, for a simple outlet forceps infiltration anesthesia or infiltration plus pudendal block is satisfactory. When it is necessary to do a major operative delivery, such as a midforceps, the parasacral technic may be used and will usually give adequate anesthesia and is least dangerous.

### BLEEDING AT THE MENOPAUSE

*To the Editor:*—A woman, aged 51, in whom menstruation began at 14 and was regular every twenty-eight days, with a profuse flow of from nine to ten days, went through the menopause at 47 with irregular menstruation for two and one-half years. She was treated by a physician, who stopped the bleeding in six months. She came to my office complaining of profuse bleeding after nine months' cessation, weakness, headache and slight lumbar pain. At the first period, February 23, she bled for ten days. The second period started March 23 and she is still flowing after sixteen days. Her weight is 200 pounds (91 Kg.). The blood pressure is 144 systolic, 90 diastolic. There is tenderness to pressure over the uterus and the left tube. The cervix is clear. The flow is mixed with clots. What is the diagnosis? Please outline therapeutic measures. Kindly omit name. M.D., Illinois.

*ANSWER:*—The only certain way to make a diagnosis in this case is to perform a curettage and this should be done without any delay. A woman who is 51 years of age and begins to bleed profusely from the uterus after having stopped menstruating for nine months should be looked on as having a carcinoma of the uterus until this diagnosis is ruled out. It is by no means true that all women with such a history have cancer of the uterus, but every physician should think of this diagnosis first and waste no time in performing a diagnostic curettage or biopsy of the cervix or both. If the uterine endometrium fails to reveal a carcinoma, a benign endocrine basis may be assumed for the bleeding. However, this diagnosis should not be made until a careful bimanual examination has been made to rule out an ovarian tumor, such as a granulosa cell tumor. If there is no malignant condition present in the cervix or the body of the uterus the bleeding can be stopped by the application of radium within the uterine cavity or, by high voltage roentgen therapy. If cancer is present in the uterus a total hysterectomy may be performed with preoperative or postoperative radiation therapy, or the treatment may consist entirely of irradiation.

### INDUSTRIAL DERMATITIS IN CONDUIT FACTORY

*To the Editor:*—Workers in a line manufacturing company near here have been having considerable trouble with a dermatitis limited to the face. These men work in a yard where conduits are stacked. Contact with the conduits is not necessary to produce the eruption, and they are able to handle them without danger of the dermatitis developing on the hands. The workers believe that the wind blowing off the conduits toward them carries some chemical that causes the dermatitis. Six out of the ten yard workers are afflicted in this manner. Workers inside the plant engaged in the manufacturing of the conduits have no trouble, but when they go into the yard they too develop the eruption. The yard workers, on the other hand, when transferred to the factory have no trouble. The conduits are made in the following manner: Pulp and water are mixed together, placed on a form and allowed to dry. They are then dipped in pitch again, allowed to dry and then stacked in the yard. The chemical components of the pitch solution are not known and the manufacturer won't tell. Apparently when the pitch dries some irritating chemical is released which is the irritant. We have ruled out ragweed, ivy, and so on. We believe that it is due to some chemical in the pitch and I wondered whether you have any knowledge as to what the irritant might be and some method to combat it. H. J. FARRELL, M.D., Milwaukee.

*ANSWER:*—Only a speculative reply can be made at this time, owing to the absence of salient information in the data submitted. The term "pitch" is loosely applied to rosin, bituminous and petroleum still residues, asphalt, creosotes, and conceivably water gas tar and coal tar. Since the high temperatures necessary to reduce some of these substances to a limpid state suitable for application to paper would damage the paper, it is presumed that this pitch is applied in chemical solution or suspension. The solvent employed for this purpose might be any one or a combination of several. The most likely is some petroleum derivative on the order of naphtha. Additional possible constituents among others are solvent naphtha, carbon bisulfide, chlorinated hydrocarbons and crude light oils. Any of the agents mentioned may be the source of a dermatitis following contact either indoors or outdoors, but more readily prior to drying. The diagnostic difficulty lies in the statement that the dermatitis arises only among workers employed outdoors handling the dried conduits and in the limitation of the dermatitis to the face, whereas the hands coming directly in contact with the conduits are consistently free. It is well known that certain chemicals respond to the action of chemical rays in the sunlight by the production of new or augmented irritants. Turpentine may be presented as an example. Freshly distilled gum spirit turpentine is relatively nonirritating to the skin. After it has been exposed to the sunlight, irritant properties quickly are increased. This is equally true when air is bubbled through fresh turpentine. A related phenomenon may account for the occurrence of a dermatitis in these yard workers but will not explain the freedom from involvement of the skin.

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St. Joseph's Hospital, Lexington, Ky. Surgery.  
Oakland County Tuberculosis Sanatorium, Pontiac, Mich. Tuberculosis.  
Eitel Hospital, Minneapolis. Mixed.  
University Hospitals, Minneapolis. Dermatology, medicine, neuropsychiatry, obstetrics-gynecology, ophthalmology, otolaryngology, pediatrics, radiology and surgery.  
St. Louis County Hospital, Clayton, Mo. Medicine and surgery.  
Brooklyn Eye and Ear Hospital, Brooklyn. Ophthalmology and otolaryngology.  
Coney Island Hospital, Brooklyn. Medicine.  
Queens General Hospital, Jamaica, L. I., N. Y. Communicable diseases, medicine, obstetrics-gynecology, ophthalmology-otolaryngology, pathology, pediatrics, radiology, surgery and urology.  
Kings Park State Hospital, Kings Park, N. Y. Neuropsychiatry.  
Loomis Sanatorium, Loomis, N. Y. Tuberculosis.  
Marcy State Hospital, Marcy, N. Y. Neuropsychiatry.  
New York City Hospital, New York City. Pathology.  
Syracuse Memorial Hospital, Syracuse, N. Y. Gynecology, obstetrics and pediatrics.  
Hamilton County Tuberculosis Sanatorium, Cincinnati. Tuberculosis.  
St. Ann's Maternity Hospital, Cleveland. Obstetrics.  
Huron Road Hospital, East Cleveland, Ohio. Obstetrics-gynecology and surgery.  
Norristown State Hospital, Norristown, Pa. Neuropsychiatry.  
Institute of the Pennsylvania Hospital, Philadelphia. Neuropsychiatry.  
Eye and Ear Hospital, Pittsburgh. Ophthalmology-otolaryngology.  
Robert Packer Hospital, Sayre, Pa. Medicine and surgery.

### Hospitals Approved for Additional Residencies

Children's Hospital, Denver. Orthopedics.  
Denver General Hospital, Denver. Pediatrics.  
Garfield Memorial Hospital, Washington, D. C. Medicine and obstetrics.  
Michael Reese Hospital, Chicago. Physical therapy.  
Research and Educational Hospital, Chicago. Neurosurgery.  
City of Detroit Receiving Hospital, Detroit. Fractures.  
Henry Ford Hospital, Detroit. Obstetrics-gynecology, ophthalmology, orthopedics, otolaryngology, radiology and urology.  
University of Nebraska Hospital, Omaha. Gynecology and obstetrics.  
Newark Beth Israel Hospital, Newark, N. J. Radiology.  
Buffalo City Hospital, Buffalo. Obstetrics-gynecology, tuberculosis and urology.  
Buffalo General Hospital, Buffalo. Urology.  
Bellevue Hospital, New York City. Dermatology-syphilology.  
Lincoln Hospital, New York City. Obstetrics.  
New York Polyclinic Medical School and Hospital, New York City. Anesthesia and obstetrics.  
St. Luke's Hospital, New York City. Ophthalmology-otolaryngology.  
Elizabeth Steel Magee Hospital, Pittsburgh. Medicine.  
Roper Hospital, Charleston, S. C. Obstetrics-gynecology and pediatrics.  
St. Joseph's Hospital, Milwaukee. Surgery.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, March 6, page 832.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical examination* will be given in St. Louis in April and at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. *Applications must be received at least sixty days prior to the examination dates.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7 and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Philadelphia, June 12. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. *To be considered for this meeting, applicants must be in the hands of the Secretary before April 2.* Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Written examinations* will be held in various cities in the United States, April 3. *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicolet Ave., Minneapolis.

### Idaho October Examination

Hon. J. L. Balderston, commissioner of law enforcement, reports the oral and written examination held by the Idaho State Medical Examining Board at Boise, Oct. 6-7, 1936. The examination covered 22 subjects and included 135 questions. An average of 75 per cent was required to pass. Nine candidates were examined, all of whom passed. Nineteen physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists.....	(1936)		83
Loyola University School of Medicine.....	(1935)		87
Northwestern University Medical School.....	(1936)		86, 88
Harvard University Medical School.....	(1934) 90,	(1935)	83
University of Rochester School of Medicine.....	(1934)		84
University of Oregon Medical School.....	(1936)		86*
Universität Leipzig Medizinische Fakultät.....	(1934)		78†

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists.....	(1929)		Michigan,
(1935) California, (1936) Oregon			
University of Colorado School of Medicine.....	(1934)		Colorado
Northwestern University Medical School.....	(1932)		Wyoming,
(1934) Utah			
Rush Medical College.....	(1934)		Illinois
University of Kansas School of Medicine.....	(1906)		Kansas
University of Louisville School of Medicine.....	(1931)		Kentucky
University of Michigan Medical School.....	(1928)		Michigan
University of Minnesota Medical School.....	(1919)		Minnesota
St. Louis University School of Medicine.....	(1927),		
(1933) Missouri			
Washington University School of Medicine.....	(1933)		Missouri
Creighton University School of Medicine.....	(1929)		S. Dakota
University of Oregon Medical School.....	(1932),		
(1933) Washington, (1934) Oregon			
University of Tennessee College of Medicine.....	(1931)		Tennessee

\* License withheld pending completion of internship.  
† Verification of graduation in process.

### Arizona October Report

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Oct. 6-7, 1936. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventeen candidates were examined, 12 of whom passed and 5 failed. Sixteen physicians were licensed by reciprocity and 4 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine.....	(1935)		77.3
George Washington University School of Medicine.....	(1934)		85.9
Northwestern University Medical School.....	(1936)		77.9
Rush Medical College.....	(1935)		77.2

School	FAILED	Year Grad.	Per Cent
School of Medicine of the Division of the Biological Sciences.....	(1936)		81.5
Washington University School of Medicine.....	(1934)		83.2
Creighton University School of Medicine.....	(1936)		79.9
80, 80.7			
University of Pennsylvania School of Medicine.....	(1935)		80.9
(1936) 81.8			
University of Wisconsin Medical School.....	(1934)		84.4

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine.....	(1925)		Arkansas*
College of Medical Evangelists.....	(1933)		California
Emory University School of Medicine.....	(1926)		Georgia
Chicago College of Medicine and Surgery.....	(1914)		Illinois
Loyola University School of Medicine.....	(1918)		Illinois
State University of Iowa College of Medicine.....	(1922)		Iowa
Kentucky University Medical Department.....	(1905)		Oklahoma
College of Physicians and Surgeons of Baltimore.....	(1900)		Penna.
Tufts College Medical School.....	(1912)		New York
University of Michigan Medical School.....	(1927)		Michigan
University of Minnesota Medical School.....	(1922)		N. Dakota
University of Cincinnati College of Medicine.....	(1921), (1924)		Ohio
University of Pennsylvania Department of Medicine.....	(1900)		S. California
Medical College of the State of South Carolina.....	(1932)		S. Carolina
Regia Università degli Studi di Padova. Facoltà di Medicina e Chirurgia.....	(1917)		Illinois

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists.....	(1936, 2) N. B. M. Ex.		
Stanford University School of Medicine.....	(1933) N. B. M. Ex.		
Rush Medical College.....	(1932) N. B. M. Ex.		

The question rules out most of the common causes for dyspnea. Inspiratory dyspnea, or difficulty in getting air into the lungs, occurs most commonly as a result of obstruction of the trachea or larynx by a foreign body or tumor, an aneurysm of the aorta or subclavian artery, laryngeal spasm, paralysis of the posterior crico-arytenoid muscle, edema of the lung, lung collapse, or massive pleural or pericardial effusion. Most of these seem unlikely in the case under discussion.

The question states that at the first examination the patient was found to have a pulse of 165. It is assumed that this finding was not constantly present together with the dyspnea. A pulse rate of 165 could in itself produce dyspnea, and an abnormal rhythm, such as paroxysmal tachycardia, could easily bring about such a rate. If this assumption is correct, cardiac dyspnea does not seem likely. It is assumed that renal disease does not exist, although the question does not so state. Nor does obstructive dyspnea seem reasonable. The only reasonable explanation seems to lie in a central nervous system or constitutional cause.

A brain tumor irritating the respiratory center seems unlikely because of the lack of further signs of tumor. This is worth consideration, however. The nystagmus and disk pallor suggest a multiple sclerosis, but this condition is not usually associated with dyspnea. Postencephalitic parkinsonism is characterized by dyspnea, but this patient shows no symptom other than the dyspnea.

The convulsive seizure raises the question of parathyroid disease. Did the seizure resemble parathyroid tetany? Tetany is often accompanied by laryngeal spasm, which would produce dyspnea. This possibility should be investigated.

Did the negative Wassermann and Kahn reaction include the spinal fluid or only the blood?

Lastly a functional disturbance must be considered. A neurosis may produce dyspnea and the unexplained dysphagia is highly suggestive. An anxiety neurosis will cause a pulse of 165. It is unwise, and even dangerous at times, to assume that a neurosis is responsible for such a condition without working out all possible organic causes.

#### EFFECTS OF TRAUMA ON HEART

To the Editor:—About four months ago I first saw a man, aged 52, who was complaining of pains in the lower part of the chest and the upper part of the abdomen, anorexia, nausea, loss of weight and constipation. The patient was in perfect health up until one month before my first visit, when he was struck by a radiator casing, which fell from the second story of a building and landed on the lower part of his chest and abdomen. From the day of the accident until his death five months later his course was progressively downward, with the chief complaints being pains in the epigastrium, nausea, anorexia, constipation and insomnia and the loss of 60 pounds (27 Kg.). X-ray examination of the chest after the accident revealed no fractures. Examination of the patient one month after the accident revealed his heart slightly enlarged with the tones of fair quality. The liver was enlarged to four fingerbreadths below the costal arch (there was a history of alcoholism) and it had several irregular masses on the surface. There was tenderness in the epigastrium. The patient finally died of heart failure. Complete x-ray examination of the gastro-intestinal tract, one month before death, revealed no evidence of cancer. In view of the fact that the patient was in perfect health before his injury and had a downward course until death following the accident, is it possible in any way to make some connection between cause and effect in relation to the injury and some internal injuries? Please also give me references as to where I can find similar cases of traumatic origin. Please do not publish name.

M.D., New York.

ANSWER.—With a history of perfect health before the injury and progressive weakness until death five months later apparently from cardiac changes, one must consider traumatic injury to the heart.

The history of epigastric pain, loss of appetite and weight with enlargement of the liver would suggest some abdominal change such as cirrhosis of the liver or chronic passive hyperemia. The nodular feeling would suggest a malignant condition such as metastases from a carcinoma of the body or tail of the pancreas. This and other pathologic changes in the abdominal viscera of traumatic or other origin cannot be excluded. Certainly without a postmortem examination no definite diagnosis can be made.

Bright and Beck (Nonpenetrating Wounds of the Heart, *Am. Heart J.* 10:293 [Feb.] 1935), in reviewing cases in the literature in which traumatic injury to the heart was survived, found that in practically all instances the symptoms developed immediately and persisted until recovery. In one instance the symptoms disappeared and the patient resumed work but died suddenly ten months after the injury. From experimental observations Beck (Contusions of the Heart, *THE JOURNAL*, Jan. 12, 1935, p. 109) believed that the onset of cardiac symp-

toms may be somewhat delayed in certain cases, although further data are necessary. Usually after experimental trauma to the heart there was a tachycardia but occasionally it slowed later. The electrocardiographic changes may resemble coronary disease and ventricular fibrillation.

The Kahns (Cardiovascular Lesions Following Injury to Chest, *Am. Int. Med.* 2:1013 [April] 1929) described the development of symptoms which is necessary to place the responsibility of cardiac damage on the injury from an industrial or compensation standpoint.

Briefly these constitute: An injury to a healthy person who was able to pursue his occupation previously. The development of cardiovascular symptoms that would indicate aggravation of an existing lesion or damage to a normal heart. The time that elapses between the injury and pain, dyspnea, and rapid or irregular pulse must be short.

Schlomka (Die akute traumatische Herzdilatation, *Verhandl. d. Deutsche gesselsch. f. inn. Med.* 45:220, 1933) found that definite changes of the heart could be produced by trauma experimentally as evidenced by electrocardiography with changes in the rate and regularity of the pulse. There was an early increased arterial and especially venous pressure, but with more extensive trauma there developed dilatation of the heart, symptoms of shock and cerebral anemia. Experimental work indicated that there may be permanent damage to the heart muscle from severe trauma, without rupture.

#### STAINING FROZEN SECTIONS FOR TUBERCLE BACILLI

To the Editor:—I would appreciate very much any information as to the most reliable method of staining frozen sections for the identification of the tubercle bacillus.

R. F. MILLER, M.D., Glasgow, Mont.

ANSWER.—H. J. Corper (Methods of Staining Tubercle Bacilli, *J. Lab. & Clin. Med.* 11:503 [March] 1926) studied a large variety of staining methods for tubercle bacilli, from which he concluded that for practical purposes the simple steaming carbolfuchsin (Ziehl-Neelsen) method for staining tubercle bacilli or one of its modifications is to be recommended and suggested (A Control Method in Staining Smears for Tubercle Bacilli, *Arch. Path. & Lab. Med.* 1:93 [Jan.] 1926) that the student practice the technic of staining tubercle bacilli on known positive tuberculous material for control. The carbolfuchsin technic is adaptable to all kinds of pathologic specimens containing acid-fast bacilli when appropriately used. Sections require a little longer staining than smears of pus or sputum. When chemical fixative is present, E. G. D. Murray (*J. Path. & Bact.* 27:118 [Jan.] 1924) removes formaldehyde by means of ammonia before staining frozen sections; Marbais (*Schweiz. med. Wchnschr.* 62:377 [April 16] 1932) points out that iodine inhibits the acid-fast reaction; this should be removed preferably by appropriate neutralizing or washing before staining with the fuchsin. Basic stains as a rule are suitable for staining, a standardized basic fuchsin being preferable. Usually the removal of interfering chemicals will make frozen sections adaptable to staining with carbolfuchsin for acid-fast bacilli, but Emma S. Moss (*U. S. Vet. Bur. M. Bull.* 6:590 [July] 1930) presents the following method for staining tissues containing tubercle bacilli by the frozen section technic:

Fixation over night in 4 per cent solution of formaldehyde or boiling a few minutes in 40 per cent solution of formaldehyde to which a few drops of acetic acid have been added.

Wash in tap water to remove fixing solution.

Freeze and cut sections.

Select a thin section for staining and float onto a slide with the aid of a capillary pipet, removing excess of water.

Flood section with 40 per cent solution of formaldehyde for eight minutes.

Remove and flood with water several times.

Slightly overstain with Harris's hematoxylin about thirty seconds.

Flood with water several times, removing the excess.

Stain with Ziehl-Neelsen carbolfuchsin cold for eight minutes.

Remove stain and flood with 70 per cent alcohol or water.

Decolorize to a faint pink with 10 per cent citric acid in 70 per cent alcohol.

Flood with water several times.

Neutralize in 0.5 per cent lithium carbonate.

Flood with water several times.

Dehydrate in 95 per cent alcohol.

Completely dehydrate and clear in terpineol (absolute alcohol may be used).

Completely clear in earholxylene (phenol 30 parts, xylene 70 parts).

Wash with xylene and mount in Canada balsam.

This method has proved satisfactory with human necropsy material and surgical materials, as well as animal materials. It is possible to cut, stain and examine the tissues within thirty minutes and the sections may be filed as permanent mounts.

cent of the sum of the sugars plus the total acid hydrolyzable carbohydrate from the alcohol insoluble residue, a considerable part of which is known to be pentosans and not available for human beings.

In these studies of McCance and Widdowson the unavailable carbohydrate for almonds is reported as 74 per cent, for Brazil nuts 78, for peanuts 52 and for walnuts (*Juglans regia*) 82. There are too few analyses of nuts available to make any satisfactory comparisons.

One section of the report is devoted to changes in composition brought about by cooking processes, as steaming and pressure cooking, boiling in water, baking, and cooking in fat (frying and roasting). Many of the changes are expressed graphically. The leaching action of the surrounding water was found to account for nearly all the losses of minerals and sugars incurred on boiling, the extent of loss varying directly with time of cooking and inversely with the size of the pieces; the volume of the cooking water did not greatly affect the losses. The addition of alkali when green vegetables are boiled also had little effect on the mineral losses. Practically, the authors point out, the waste incurred by throwing away the water in which vegetables have been boiled is surprisingly small, conservation of the water not usually serving to increase the total calcium, phosphorus and iron in a mixed diet by more than 3 per cent.

An excellent bibliography is appended.

*So You're Going to a Psychiatrist.* By Elizabeth I. Adamson, M.D. Cloth. Price, \$2.50. Pp. 263. New York: Thomas Y. Crowell Company, 1936.

Many attempts have been made to explain to interested lay persons the meaning of psychiatry and the purposes of psychotherapy. Most works are patently propaganda for so-called mental hygiene or the "Meyerian Legend." These books are usually simple in content and confusing in effect. Dr. Adamson has written an intelligent work concerning psychiatry from the psychoanalytic point of view. Her data are correct and well expressed. However, the material could be understood by few neurotic patients, owing first to their emotional blocking and secondly to the fact that psychoanalytic psychiatry requires considerable intelligence for its understanding. Why it is necessary to burden the lay mind, neurotic or potentially neurotic, with information about the theory with which the physician may work is a puzzle. In dealing with other organ systems it is unnecessary for the patient to know the physiology and pathology before undergoing treatment. Certainly the methods of treatment of, let us say, bowel distress differ as widely in theory and practice as do the methods of treatment of the neuroses. Actually the preliminary theoretical knowledge, usually garbled by the popular writer and profoundly misunderstood by the lay reader, serves to make psychotherapy more difficult. Dr. Adamson's book is one of the best popular works explaining psychoanalysis for the purpose of general information of intelligent persons but it should by no means be put into the hands of a patient who plans to consult a psychiatrist.

*The Endocrine Organs in Health and Disease, with an Historical Review.* By Sir Humphry Davy Rolleston, G.C.V.O., K.C.B., M.D., Honorary Fellow of St. John's College, Cambridge. Cloth. Price, \$13. Pp. 521, with 45 illustrations. New York & London: Oxford University Press, 1936.

The material included in this book is largely the result of a series of lectures on the history of the endocrine organs given by Rolleston before the Royal College of Physicians in London in 1933 and 1934. The Fitzpatrick lectures, as they are called, include four discussions but the supplemental material in the present book makes up a volume of fourteen chapters, including not only a history of endocrinology from the earliest times but also, through the historical approach, a fine summary of our present knowledge of this subject. Moreover, there are fine photographic plates of all the great contributors to this field and extensive citations from a vast bibliography indicating the scope of the author's reading. The biographic sketches throughout are well written and separated from the general text by a change in typography. This is a fundamental reference work in the field which it concerns and a valuable addition to any medical library. The index is so comprehensive and well organized that it deserves special mention.

*Pratique médico-chirurgicale.* Publiée sous la direction de A. Courvaire, A. Lemierre, et Ch. Lenormant, professeurs à la Faculté de médecine de Paris. Secrétaire général, André Rovina. Tome IX: Supplément. Third edition. Half-cloth. Price, 165 francs. Pp. 960, with 276 illustrations. Paris: Mosson & Cie, 1936.

This supplement to the eight volume series of *Pratique médico-chirurgicale* (1931) is intended to cover the advances of the last six years. This is done in most instances by short chapters but in some cases the entire article has been rewritten. The editors have exercised all possible care to avoid unproved theories or forms of practice merely because they are new and before their practical utility has become evaluated. Most prominent throughout the volume, the material of which is arranged alphabetically, are the chapters on advances in roentgenography of the various organs. Climatopathology and meteoropathology are treated rather comprehensively. There is so much in this "supplement" that is new and useful in the practice of medicine and surgery that the book may be recommended even to those French reading physicians as a review of medical progress, as the French see it, who do not possess the other volumes of this system of medical and surgical practice.

*A Century of Medicine in San Antonio: The Story of Medicine in Bexar County, Texas.* By Pat Ireland Nixon, M.D. Cloth. Price, \$4. Pp. 405, with 32 illustrations. San Antonio, Texas: The Author, 1936.

This volume was developed by its author primarily because of his own interest in the community in which he has for so many years resided. Much of the material that is contained in the book has already been presented in various ways to the physicians of San Antonio. The profits from this volume, if any, are to accrue to the library of the county medical society.

The territory concerned is one of the most romantic in the United States. Its history is full of lively incidents and the author of this volume has made available a great deal of this material in connection with the medical history of Bexar County. It will be remembered that San Antonio is the home of the Alamo and the volume logically begins with the period before the Alamo and then traces history chronologically since that period. The material is supplemented by anecdotes and extracts from diaries and also by some excellent pictures, presumably from the author's private collections.

It relates the purchase of a home for the medical society and the progress of medical organization and concludes with a forecast for the future. As a contribution to American medical history, this book represents the best type of personal investigation.

*The Principles of Bacteriology and Immunity.* By W. W. C. Topley, M.A., M.D., M.Sc., Professor of Bacteriology and Immunology, University of London, and G. S. Wilson, M.D., F.R.C.P., D.P.H., Professor of Bacteriology as Applied to Hygiene, University of London, London School of Hygiene and Tropical Medicine. Second edition. Cloth. Price, \$12. Pp. 1,645, with 276 illustrations. Baltimore: William Wood & Company, 1936.

This work was first published in 1929 and reprinted in 1931, 1932 and 1934. The new edition has witnessed extensive advances in the field of bacteriology and immunity, which the authors have observed and duly incorporated in their text. They call attention to the fact that they deal with infective diseases of animals rather more fully than in most medical works. Originally published in two volumes, the material is now published in a single volume which is somewhat unwieldy, but apparently the majority of the critics of the first edition felt that a one volume work was more usable than a two volume work. The book is extensive, profound, well annotated and unquestionably a useful textbook in the field that it concerns.

*Sammlung psychiatrischer und neurologischer Einzeldarstellungen.* Herausgegeben von Prof. Dr. A. Bostroem und Prof. Dr. J. Lange. Band XI: Die defektschizophrenen Krankheitsbilder: Ihre Einteilung in zwei klinisch und erblich verschieden Gruppen und in Unterformen vom Charakter der Systemkrankheiten. Von K. Leonhard, Oberarzt der Nervenklinik Frankfurt a. M. Pöper. Price, 8.70 marks. Pp. 131. Leipzig: Georg Thieme, 1936.

The author discusses the classification of schizophrenic forms ending with defect. He brings numerous clinical descriptions to substantiate an elaborate classification of defects. His point of view is essentially "biologic" in that he, like most German psychiatrists today, attempts to separate genetically linked groups within clinical entities. The work is purely descriptive and classificatory. It bears the stamp of the Kleist concept of organic system defect in the psychoses and ignores the recent advances of psychologic studies of schizophrenia.

siderable experience with this disease that remarkably prompt recoveries follow the intramuscular administration of the nucleotides. From a study of the myelocytic response, which in all essential respects parallels the reticulocyte response during recovery from anemia, it is difficult to escape a causal relationship between nucleotide therapy and renewed bone marrow activity. The experimental studies in animals strongly affirm the specificity of the granulopoietic stimulus inherent in the nucleotides. Intramuscular liver therapy may also be employed. Great care must be exercised in the differential diagnosis of leukopenic states to avoid attributing failures unjustly to treatment when the underlying mechanism may really be misjudged.

#### OVARIAN DYSFUNCTION TOGETHER WITH EMOTIONAL DISTURBANCE

*To the Editor:*—I am caring for a woman, aged 23, whose weight is 118 pounds (53.5 Kg.). She complains of weakness, infrequent sparse menstrual periods and peculiar epileptiform seizures. The seizures appear mostly during the night but occasionally appear in the day time preceding meals or following meals when she has had noodles or spaghetti. Those seizures which appear during the day are not preceded by an aura. She is aware of the fact that she has them and they usually do not last more than two or three minutes. During the time she is so affected there are perspiration, marked tremor, and inability to speak or breathe properly. This entire train of symptoms followed an appendectomy for acute appendicitis in 1932. They have been successively diagnosed as hysteria, nervous shock and petit mal epilepsy. Owing to the appearance of these seizures during the night, when she was hungry, or after meals that contained little carbohydrate (when noodles were substituted for potatoes in meals) a provisional diagnosis of spontaneous hypoglycemia was made and verified by blood sugar determinations. Fasting blood sugar was 60 mg. per hundred cubic centimeters. The dextrose tolerance test after 100 Gm. of dextrose was: thirty minutes later, 80 mg.; sixty minutes later, 100 mg.; two hours later, 70 mg.; four hours later, 70 mg. I should like to know just how this case should be treated. The physical examination is negative; other laboratory procedures, such as the Wassermann test, blood count and urinalysis, give normal results. The patient would rather not be subjected to exploratory operation for examination of the pancreas.

M.D., New York.

*ANSWER:*—The description of the seizures and the history of the case seem to argue against a diagnosis of petit mal epilepsy. It seems much more likely that this condition is in the nature of some emotional or functional disturbance associated with the ovarian dysfunction. There is no particular reason why hypoglycemia should follow a meal of noodles or spaghetti. These foods are made of wheat, which is 76 per cent carbohydrate. Therefore, unless the patient is allergic to wheat there is no reason why the disturbance should follow the ingestion of these foods. It would be advisable to repeat the dextrose tolerance tests. There are individuals who may have low fasting blood sugars, and there have been several cases of hyperinsulinism or hypoglycemia reported which on further checkup have been found to have a normal dextrose tolerance. In a report on this test there should be included the amount of dextrose given and the patient's weight and height at the time. Before extensive treatment is instituted there should certainly be at least one additional dextrose tolerance test. The blood sugar determinations must be done by a competent technician. In case of definite hypoglycemia, dextrose may be given in any of the desired forms every two hours between meals. A large amount should be taken before going to bed and immediately on arising. Additional dextrose must be provided before or during any severe muscular exertion.

#### SODIUM CHLORIDE INJECTIONS FOR VASCULAR OCCLUSION IN LIMBS

*To the Editor:*—Please give me instructions for the treatment of arterial occlusion in the lower extremities. It is not extreme and there is no gangrene; marked intermittent claudication occurs on walking any distance. I should like to try intravenous concentrated sodium chloride but want your recommendations and also the amount, frequency of use and concentration found best for intravenous use. Is sodium citrate better? Please omit name if published.

M.D., Wisconsin.

*ANSWER:*—If the patient is not over 60 years of age and if his heart and kidneys are sound, treatment by means of intravenous injections of sodium chloride solution offers a safe means of improving the circulation in the lower extremities. Sodium chloride is better than sodium citrate because it is less toxic. Five per cent sodium chloride solution is made up in freshly distilled water and immediately sterilized. If this precaution is not followed, bacteria will grow in the distilled water and later sterilization will result in a solution that contains foreign protein matter. If any chills or fever reaction follows the treatment, it is an indication that the solution has been improperly prepared. For the first treatment 150 cc. is given, and all subsequent injections are of 300 cc. Treatments are given

three times a week on alternate days for a few months, and the frequency of treatment is gradually reduced as the patient improves. The injections are given in the vein of the arm with the patient lying down and should take about ten minutes. Absolute cessation of smoking must be enforced. The feet should be protected from injury, and minor surgery of any kind should be avoided.

#### PERSISTENT RHEUMATIC INFECTION WITH HEART COMPLICATIONS

*To the Editor:*—A 17 year old, well developed, farmer lad during a cold in January developed pain over the left anterior portion of the chest, a continuous pricking sensation. There was a fever of 99 F., pulse 106, and blood pressure 155 systolic, 100 diastolic. Two weeks later during snow-blocked roads a brother gave me these symptoms: fever, sweating, joint pains, pain over the heart, tachycardia and palpitation at times and nosebleeds. My diagnosis was rheumatic fever with endocarditis and myocarditis. The urine was negative microscopically and macroscopically. I have treated him with large doses of sodium salicylate continuously up to the present time. In April an abscessed tooth was extracted and in May I removed his tonsils under local anesthesia. At the present time examination shows damage of the mitral valve (regurgitation and some stenosis). The systolic blood pressure varies between 130 and 140; the urine is normal; temperature is 98.8; some sweating occurs. He feels well, eats well and sleeps well. It is now about six and one-half months since the first signs of disease appeared and his pulse still remains between 120 and 130, of good quality and regular. There is no ankle edema, no cough, the heart is not enlarged and I find no evidence of pericardial involvement. What causes the continued rapid pulse or what hints could you suggest toward further investigation in this case? Please omit name.

M.D., Wisconsin.

*ANSWER:*—It seems quite certain that the patient is still suffering from acute rheumatic infection, even though the joint symptoms have subsided. His slight elevation of temperature, sweating and tachycardia all indicate persistent activity of the rheumatic process, which, it is known, can continue for many months or even a year or two, especially in childhood. There is undoubtedly rheumatic myocardial involvement, probably with some dilatation of the heart to account for the murmur at the cardiac apex suggestive of mitral stenosis, even though the heart does not seem to be enlarged. If he has had previous rheumatism he may actually have mitral stenosis, but until the present infection subsides it is impossible to say how much valvular deformity he now has, for dilatation of the heart in such a young person will produce the same murmurs caused by mitral valve deformity.

The patient should have further observation for persistent infection, a four hourly temperature chart should be kept, leukocyte counts should be made once or twice a week, and the blood sedimentation rate should be determined. If he continues to feel well and these tests are all negative, the infection may be considered to have subsided. Until such evidence is obtained, however, he should continue with rest treatment. No drugs are needed; in fact, the omission of salicylates may reveal more definite fever (masked recently by the drug). He should be afebrile for a fortnight at least while not on salicylate therapy before he is allowed out of bed.

#### OPTIMAL PERIOD OF FERTILITY

*To the Editor:*—A woman, aged 25, sterile of undetermined cause, desires pregnancy. She is receiving medical treatment and tubal inflation. When is the optimal time for conception? She has a twenty-eight day cycle, menstruation lasting six days. When do the "sterile" periods exist and are they absolute? Please omit name.

M.D., Canada.

*ANSWER:*—The sterile days in a twenty-eight day cycle are composed of the first nine days of the cycle (the count beginning with the first traces of the flow) and the last eleven days of the cycle. The division of time would be expressed by 9-8-11, indicating nine days of sterility, eight days of fertility and eleven days of sterility. Within the fertile period the optimal time for conception is the fourteenth day of the cycle, being the day on which ovulation occurs in a twenty-eight day cycle.

The menstrual histories of 2,000 women accurately recorded for periods ranging from eight months to several years and contained in an article published in *THE JOURNAL* Oct. 19, 1935, page 1241, indicate that no woman has an invariable cycle. Variations of one, two or more days will always be found in a written menstrual record of eight months or more. The optimal time for conception in a twenty-eight day cycle, as well as in a cycle of any other type, is shown graphically in chart 1 of this article.

Absolutism in physiologic laws is nonexistent. Chart 3 in the article referred to indicates that normal, healthy women, with regular menstrual histories (i. e., with variations of not more than eight or ten days) can employ the sterile periods with satisfaction.

did express an opinion contrary to that he gave at the first trial was not questioned. Except for his testimony, the evidence went no further than to indicate that, while earlier treatment might have been beneficial, it was a matter of speculation as to whether the failure to give it was the cause of the plaintiff's subsequent condition. This was a vital question in the case and it was within the province of the court to point out its importance and specifically to call to the attention of the jury the change in the testimony of the witness as affecting the weight which they should give to his changed opinion.

The plaintiff complained because the trial court failed specifically to charge the jury that although a physician is ordinarily not responsible for an error of judgment he cannot adopt a course of treatment which would be a breach of his duty to use due care, and that even though he has used his best judgment he may still be found guilty of malpractice if he has failed to perform one of the duties which he owes to his patient. The trial court repeatedly charged the jury that it was the duty of the defendant to exercise due care and skill required of a specialist in the field of obstetrics, and the charge made it abundantly clear that he would be absolved from a bona fide error in judgment only in case he exercised such care and skill. After reviewing the whole case, the Supreme Court of Errors was of the opinion that no prejudicial error was evidenced by the record and the judgment of the trial court for the defendant was affirmed.—*Green v. Stone (Conn.)*, 185 A. 72.

**Optometry: Corporate Practice of Optometry Illegal in Ohio.**—The Buhl Optical Company, a Delaware corporation, was granted authorization to engage in the manufacture and sale of optical goods and photographic supplies in Ohio. It operated stores in several cities of the state. Contending that the corporation was illegally engaged in the practice of optometry, the state on the relation of the attorney general instituted in the Supreme Court of Ohio an action in quo warrant against it.

Prior to April 1935 the corporation employed licensed optometrists to act as managers of its optical business and in connection therewith to practice optometry. For all of such services, whether as managers or as optometrists, they received a salary and commission paid by the corporation. Subsequent to the date named, the arrangement was changed by a written contract providing that, in consideration of the optometrist referring to the corporation patients desiring glasses on prescription and of the corporation referring to the optometrist all of its patrons desiring an examination of the eyes, the corporation leased to the optometrist certain office space in its place of business and permitted the optometrist to use certain equipment owned by the corporation for the examination of eyes. For examining eyes the optometrist agreed not to charge in excess of \$1, no part of which was to go to the corporation. The optometrist further promised to sell to the corporation, after the termination of the contract, all of his prescription files for \$1. Practically all patients who went to the optometrist were customers of the corporation and were attracted, to some extent, by advertisements inserted by the corporation in the daily newspapers. While customers might take the prescriptions given by the optometrist to any optician, spectacles were customarily obtained from the corporation, which sent the prescriptions to its home office at Pittsburgh, where the lenses were ground and mounted in frames.

A corporation, said the Supreme Court, may not directly or indirectly engage in the practice of optometry in Ohio. An incorporated optical company may lease an office or equipment to an optometrist and even carry his advertisements with its own. But while the optometrist is practicing his profession in such office and with such equipment, the corporation may not employ him in its optical business. If this course were permitted, the optometrist could bargain for and obtain such a high salary from his employer that he could afford to serve customers free of charge or for a nominal fee. In this way the amount of salary he could demand would be greatly augmented by attracting customers to the optical business through inexpensive optometric services. The optometrist would become a mere adjunct of the optical business, and the corporation in effect would be practicing optometry. The practice of the optometrist must be wholly separate from and independent of

the business of the optical company. Where the optometrist leases quarters or equipment, or both, from the optical company, the latter may receive prescriptions for eyeglasses from such optometrist the same as from any other. The optical company, however, may not lawfully exercise any control over the optometrist nor may it fill prescriptions issued by an optometrist legitimately employed by it. It may not advertise in such a way as to lead the public to believe that it does the work of the optometrist or do anything through an employee that amounts to the practice of optometry, even though such employee is an optometrist. The corporation may not enter into a contract with the optometrist by which the optometric work of the latter is regulated or controlled, in the prices to be charged, the customers to be served, or the manner of doing the work. Neither may the corporation retain nor acquire control over or ownership of or interest in any records, copies of prescriptions, or prescriptions of the optometrist.

A judgment was therefore entered against the corporation, ousting it from engaging directly or indirectly in the practice of optometry in Ohio.—*State ex rel. Bricker, Atty. Gen., v. Buhl Optical Co. (Ohio)*, 2 N. E. (2d) 601.

## Society Proceedings

### COMING MEETINGS

- Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association of Anatomists, Toronto, Ont., March 25-27. Dr. George W. Corner, 260 Crittenden Blvd., Rochester, N. Y., Secretary.
- American Association of Pathologists and Bacteriologists, Chicago, March 25-26. Dr. Howard T. Kaisner, 2085 Adelbert Road, Cleveland, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Pediatric Society, University, Va., April 29-May 1. Dr. Hush McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Gelling, 947 East 58th St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- District of Columbia, Medical Society of the, Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.
- Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.
- Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-29. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.
- New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
- Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
- South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
- Tennessee State Medical Association, Knoxville, April 13-15. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.
- Western Branch of American Public Health Association, Phoenix, Ariz., April 13-15. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.



ciated pigmentation resulting from a clumping of pigment cells (chromatophores) or from melanoblasts produced by stimulation of cells as the result of the local irritation.

While there will probably be some decrease in the pigmentation over a period of time, the possibility of residual pigmentation of a permanent character is not unlikely. Success in removal of this pigment will depend a great deal on the depth of the pigment cells in the skin. The use of the cautery, carbon dioxide snow or other superficial destructive measures may be necessary to secure complete eradication of the pigment after sufficient time has elapsed to allow for spontaneous involution.

#### EFFECTS OF ARSPHENAMINE IN CANCER

To the Editor:—Does the administration of arspenamine to a patient suffering from cancer of the gastro-intestinal tract, but not having syphilis, have a deleterious effect? That is, does it stimulate the growth and hasten the patient's death? I shall appreciate your giving me references on this subject. It seems that the literature is not very specific. Please omit name.

M.D., Ohio

ANSWER.—There seems to be no authentic evidence indicating that the administration of arspenamine to a patient suffering from gastro-intestinal cancer stimulates the growth or hastens death.

#### OPACITY OF CORNEA IN DOGS

To the Editor:—Recently there appeared in Queries and Minor Notes an inquiry by M.D., Pennsylvania, relative to opacity of the cornea in dogs. Unfortunately, no statement was made as to the age and breed of the animal and whether or not the animal was or had been suffering from any constitutional ailment. No mention was made of the presence or absence of vascularization and the extent, depth or form of the opacity. Primarily opacities of the cornea usually appear as leukoma in dogs. In most cases they apparently are noninflammatory and appear to arise spontaneously and are not related to trauma. They frequently disappear with treatment and will later recur. Vitamin A deficiency is not an etiologic factor in these cases. In a few cases the opacity results from an interstitial keratitis. Leukoma frequently accompanies an attack of distemper and it is comparatively resistant to treatment. However, inflammatory changes are absent in these cases, in contradistinction to ulcerative keratitis, which also occurs frequently in this disease.

It appears that breeds such as the Boston terrier, with protuberant eyes, are more commonly affected.

In spite of the fact that treatment has not been very successful, application of the following agents may greatly help to cause resolution of the opacity: massage with 5 per cent yellow mercuric oxide ointment three times a day; instillations of ethylmorphine hydrochloride or intramuscular injections of from 5 to 10 cc. daily of sterile milk and potassium iodide in 2 grain (0.13 Gm.) doses three times a day. While there is nothing new about this treatment, the results obtained amply justifies its usage. However, it is necessary to apply this treatment for weeks and months, as some of these cases take a long time to clear up.

The diet should consist of plenty of raw or cooked meat, milk, cereals and very little vegetables.

FRANK BLOOM, D.V.M., Flushing, L. I., N. Y.

#### BENZENE POISONING

To the Editor:—A case of benzene poisoning referred to in Queries and Minor Notes on page 2073 of the Dec. 19, 1936, issue of THE JOURNAL prompts me to communicate to you an observation made recently in a case of severe chronic benzene poisoning.

The patient, a worker engaged on the benzene plant of a gas works, showed symptoms like those of scurvy (hemorrhagic purpura, leukopenia, dental hemorrhagia, relative lymphocytosis). I therefore proceeded to the determination of his vitamin C deficiency with the help of the "saturation test," outlined by Harris and Ray (*Lancet* 1:71 [Jan. 12] 1935). Cevitamic acid was administered in daily doses of from 200 to 400 mg. intravenously and orally. To my amazement, 11.5 Gm. of cevitic acid (of which 6.3 Gm. was given intravenously) was necessary before saturation was attained, recognizable by excretion of the excess of cevitic acid in the urine. This quantity is equivalent to the maximum amounts of cevitic acid necessary, according to the literature, for covering vitamin C deficiency in cases of severe scurvy. After saturation was reached, the objective and subjective state of the patient had been greatly improved, but he still needed rather high amounts of cevitic acid to cover his daily requirements (after three weeks of normal diet 0.9 Gm. of cevitic acid was again necessary to "saturate" him). The relationship between benzene poisoning and vitamin C deficiency is being discussed in a paper which I have submitted to the *Zeitschrift für Vitaminforschung*. My experience has just been corroborated in the paper of Cathala, Bolgert and Grenet: *Scorbut chez un sujet soumis à une intoxication benzolique professionnelle* (*Bull. et mém. Soc. méd. d. hôp. de Paris* 52: 1648 [Dec 21] 1936), describing a similar case which was successfully treated with vitamin C in the form of high doses of lemon juice. According to guinea-pig tests carried out together with Dr. V. Demole of Basle, chronic benzene poisoning inhibits the normal storing of cevitic acid in the adrenals and liver and increases the demand for vitamin C. In cases of benzene poisoning it seems therefore worth while to keep in mind the possibility of vitamin C deficiency and eventually remedy it.

A. MEYER, M.D., Basle, Switzerland.

## Council on Medical Education and Hospitals

### BUSINESS MEETING HELD BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS IN CHICAGO FEB. 14, 1937

1. The meeting was called to order at 10:30 a. m. Those present included Drs. Ray Lyman Wilbur (chairman), Charles E. Humiston, Frederic A. Washburn, John H. Musser, Fred Moore, Reginald Fitz, Fred W. Rankin, William D. Cutter (secretary), Herman G. Weiskotten, Carl M. Peterson, Oswald N. Andersen and Mr. Homer F. Sangcr. Also present were Dr. Charles Gordon Heyd, President, and Dr. Olin West, Secretary of the American Medical Association.

2. It was resolved that the minutes of the business meeting of Oct. 11, 1936, be approved.

3. Concerning schools that do not offer a complete medical course, the following statement was prepared and approved:

#### SCHOOLS OF THE MEDICAL SCIENCES

Following the recent survey of the medical schools it was decided that, effective July 1, 1939, the Council will publish a list of schools which teach acceptably gross and microscopic anatomy, biochemistry, physiology, pharmacology, bacteriology and pathology, even though they do not offer a full course leading to a medical degree.

The acceptance of courses involving the use of clinical material shall be left to the discretion of the faculties which admit to advanced standing students transferring from approved schools of the medical sciences.

Surveys of the clinical courses and facilities will be made by the Council and reported to the individual medical schools upon request.

4. It was resolved that the American Board of Obstetrics and Gynecology be approved.

5. It was resolved that the American Board of Internal Medicine be approved.

6. It was voted to approve the lists of schools for clinical laboratory technicians recommended by the staff.

7. It was voted to approve the lists of hospitals and other institutions recommended by the staff.

8. It was resolved that the Council on Medical Education and Hospitals express to Dr. Herman G. Weiskotten of Syracuse and Rev. Alphonse M. Schwitalla, S.J., of St. Louis its profound appreciation of their invaluable service in connection with the appraisal of medical schools and the preparation of pattern maps, and the secretary was instructed to convey to these gentlemen an official acknowledgment of its indebtedness to them for so important a contribution to the success of the survey.

WILLIAM D. CUTTER, M.D., Secretary.

#### ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, Oct. 24, 1936:

#### Hospitals Approved for Intern Training

U. S. Naval Hospital, Mare Island, Calif.  
U. S. Naval Hospital, San Diego, Calif.  
Franklin Hospital, San Francisco.  
U. S. Naval Hospital, Washington, D. C.  
Broadlawn Polk County Public Hospital, Des Moines, Iowa.  
Providence Hospital, Kansas City, Kan.  
U. S. Naval Hospital, Chelsea, Mass.  
Leila Y. Post Montgomery Hospital, Battle Creek, Mich.  
St. Louis County Hospital, Clayton, Mo.  
Evangelical Covenant Hospital, Omaha.  
U. S. Naval Hospital, Brooklyn.  
Braddock General Hospital, Braddock, Pa.  
Nesbitt Memorial Hospital, Kingston, Pa.  
U. S. Naval Hospital, Philadelphia.  
Valley Hospital, Sewickley, Pa.  
Norfolk Naval Hospital, Portsmouth, Va.

#### Hospitals Approved for Residencies in Specialties

Grace Hospital, New Haven, Conn. Medicine and surgery.  
Mount Sinai Hospital, Chicago. Pathology.  
Ball Memorial Hospital, Muncie, Ind. Pathology.

cystic mastitis. Added to these are various conditions of the breast, so that when the patient asks of the doctor: Do you think I should have my breast removed to avoid possible danger in the future? the doctor is forced to answer in the affirmative. A well planned amputation, carefully performed with a preliminary full thickness nipple graft, will allow removal of all lumps and the salvaging of sufficient skin and fat to form an acceptable, normal looking breast. If an acceptable, non-functional cosmetic breast can be offered to patients who are procrastinating against breast surgery through fear of deformity until too late, another helping hand will be contributed in the fight on cancer.

### Canadian Public Health Journal, Toronto

27: 581-622 (Dec.) 1936

- Rôle of the Physician in Urban Sanitation. L. A. Pequegnat, Toronto.—p. 581.  
Adult Immune Serum in Measles Control. C. F. Blackler, Hamilton, Bermuda, West Indies.—p. 587.  
Some Aspects of Health Administration in Northern Ontario. H. McIntyre, Toronto.—p. 592.  
Duration of Schick Immunity. D. T. Fraser and K. F. Brandon, Toronto.—p. 597.  
Enteric Disease Problem in Ontario. R. P. Hardman, Toronto.—p. 600.  
Bacillary Dysentery in British Columbia. R. J. Gibbons, Vancouver, B. C.—p. 606.

### Florida Medical Association Journal, Jacksonville

23: 307-354 (Jan.) 1937

- Management of Peptic Ulcer. P. B. Welch, Miami.—p. 319.  
Some "High-Lights" in Tuberculosis. A. J. Logie, Chattahoochee.—p. 323.  
\*Dermatitis Venenata. J. L. Kirby-Smith, Jacksonville.—p. 326.  
Remarks on Urography and Cystoscopy. J. C. Davis, Quincy.—p. 328.  
Correction of Some Problems in State Medicine. H. A. Walker, Miami Beach.—p. 330.

**Dermatitis Venenata.**—Kirby-Smith divides his discussion of dermatitis venenata into forms due to chemicals, cosmetics and plants. He has found that in Florida ivy poison is of minor consideration but that there are some sixty-odd shrubs, plants and flowers producing skin irritations. Any oily or greasy preparation should not be used on acute dermatitis of plant origin. If available, an air-cooled ultraviolet ray treatment (full erythema dose) will bring about a prompt evolution. Alcoholic preparations with salicylic acid or aluminum acetate are recommended or continued very hot or very cold wet dressings of some mild antiseptic or astringent character, boric acid solution, black wash or saturated solution of sodium thiosulfate. After the termination of the inflammation, some simple emollient should be used for comfort.

### Journal of Bone and Joint Surgery, Boston

19: 1-278 (Jan.) 1937. Partial Index

- Tibia Vara: Osteochondrosis Deformans Tibiae. W. P. Blount, Milwaukee.—p. 1.  
New Operation for Hallux Valgus and Hallux Rigidus. G. R. Girdlestone, Oxford, England, and H. J. Spooner, Regina, Sask., Canada.—p. 30.  
\*Use of Bone Chips in Treatment of Localized Osteitis Fibrosa. E. Freund, Venice, Fla.—p. 36.  
Skeletal and Extraskeletal Tuberculous Lesions Associated with Joint Tuberculosis. G. A. Duncan, Norfolk, Va.—p. 64.  
Köhler's Disease of Tarsal Scaphoid: End-Result Study. M. G. Karp, Boston.—p. 84.  
Auscultation of Joints. A. Steindler, Iowa City.—p. 121.  
Tendinoplasty of Flexor Tendons of the Hand: Use of Tunica Vaginalis in Reconstructing Tendon Sheaths. C. L. Wilmoth, Denver.—p. 152.  
Arthrotomy for Internal Derangement of Knee. P. P. Swett, Hartford, Conn.—p. 157.  
Fractures and Dislocations of Cervical Spine: Part I. Fractures. S. M. Roberts, Boston.—p. 199.  
Myositis Ossificans Traumatica. R. F. Bowers, New York.—p. 215.  
Ununited Fractures Treated by Bone Drilling. E. R. Easton and P. V. Prewitt, New York.—p. 230.  
\*Method of Treating Fracture of Clavicle. G. W. Hawley, Bridgeport, Conn.—p. 232.  
Care of Feet After Unionectomy. L. J. Miltner, Peiping, China.—p. 235.  
Selection of Knots for Use with Traction-Suspension Apparatus. W. D. Davidson, Evansville, Ind.—p. 237.

**Bone Chips in Treatment of Osteitis Fibrosa.**—Freund treated seven cases of localized osteitis fibrosa by packing the curetted cavity with chips of bone obtained from the affected limb or, when necessary, from both tibias. The use of bone chips was found to be superior to simple scraping and the use of caustic substances. The cavity can be filled much more

easily with chips than with solid cortical bone grafts, and it seems also that the power of osteogenesis is greater with the use of chips. Giant-cell tumors are not so susceptible to this form of treatment, especially if they are in the more advanced stage and if too great a defect results after the curettage of the tumor tissue. Nevertheless, the author obtained a very good result in one case in which the entire lateral condyle was involved. Care should be taken to fill the defect with the chips as completely as possible. In too advanced cases or in recurrent cases of giant-cell tumor, resection with heavy, bridging, tibial grafts is preferable to the less radical procedures, such as curettage and the use of bone chips, and to the more radical ones, such as amputation and exarticulation.

**Method of Treating Fracture of Clavicle.**—For the last ten years, Hawley has used the following method for fractures of the clavicle: The patient, either standing or sitting on a stool, is requested to hold his head erect and to square his shoulders like a West Point cadet. The end of a strip of adhesive plaster is fastened to the skin in front of the head of the humerus. The opposite arm in abduction is pulled into hyperextension and used as a lever, while the adhesive plaster under strong tension is anchored to the opposite wall of the chest. This acts to pull the shoulder girdle back and to hold it securely. Several strips of plaster are applied in like manner, a double thickness of plaster being used for added strength. Then a cap of adhesive plaster is applied over the shoulder to anchor the anterior ends of the first plaster and to protect the site of fracture. For the first week the arm is carried in a sling, following which the patient is allowed to take the arm out of the sling for meals. The sling is discarded when healing is under way and confidence returns. The plaster is reapplied every week for three or four weeks, the same tension being used to hold the reduction.

### Journal Industrial Hygiene & Toxicology, Baltimore

19: 1-72 (Jan.) 1937

- Blood Pressure in Lead Poisoning: Note. L. Teleky, Vienna, Austria.—p. 1.  
Atmospheric Lead Contamination from High Temperature Lead Baths. B. D. Tebbens, Boston.—p. 6.  
Abnormal Air Conditions in Industry: Their Effects on Workers and Methods of Control. C. P. Yaglou, Boston.—p. 12.  
Petrographic Method of Dust Analysis. C. R. Williams, Boston.—p. 44.  
Dust Filtering Efficiency of Human Nose. F. J. Tourangeau and P. Drinker, Boston.—p. 53.  
Dust Hazards and Their Control in Ceramic Industry. T. C. Angus and D. Stewart, London, England.—p. 58.

### Journal of Nutrition, Philadelphia

13: 1-122 (Jan. 10) 1937

- Effect of Enteric-Coated Pancreatine on Fat and Protein Digestion of Depancreatized Dogs. W. A. Selle, with technical assistance of I. W. Moody, Galveston, Texas.—p. 15.  
Effectiveness of Orally Administered Diastase in Achylia Pancreatica (Dog). J. M. Beazell, C. R. Schmidt and A. C. Ivy, Chicago.—p. 29.  
\*Bilateral Symmetry of Skin Temperature. H. Freeman, F. E. Linder and R. F. Nickerson, Worcester, Mass.—p. 39.  
Improved Technique for Metabolism Studies in Preschool Children with Statistical Determination of Its Reliability. Jean E. Hawks, Marie Dye and Merle M. Bray, East Lansing, Mich.—p. 51.  
Iron Metabolism of Normal Young Women During Consecutive Menstrual Cycles. Ruth M. Leverton and Lydia J. Roberts, Chicago.—p. 65.  
Utilization of Energy Producing Nutrient and Protein as Affected by Sodium Deficiency. O. J. Kahlenberg, A. Black and E. B. Forbes, State College, Pa.—p. 97.  
Utilization of Hexoses by Excised Rat Tissues. M. Elizabeth Marsh, Rochester, N. Y.—p. 109.

**Bilateral Symmetry of Skin Temperature.**—As a part of a biologic analysis of adaptative functions in schizophrenia, Freeman and his colleagues studied the differences in skin temperature between the right and left sides in nine symmetrically located areas on the body surface of twenty normal and twenty schizophrenic individuals. Seven readings were made on each point at intervals of thirty minutes with the environmental temperature held at 75.2 F. and the relative humidity at 20 per cent. 1. In both normal and psychotic individuals the trunk on the left and the extremities on the right have the higher skin temperatures. 2. Individuals differ significantly from one another relative to the magnitude of the differences between the temperatures of symmetrically located areas. In this respect patients with schizophrenia differ from one another

## Book Notices

**Research in Dementia Praecox (Past Attainments, Present Trends and Future Possibilities).** By Nolan D. C. Lewis, M.D., Professor of Neurology, Columbia University. Cloth. Price, \$1.50. Pp. 320. New York: National Committee for Mental Hygiene, 1936.

The author spent a year in the service of the thirty-third degree Masons, investigating investigators of dementia praecox for the purpose of adequately distributing a large sum of money set aside by the Masonic order for research in dementia praecox. The fact that the majority of the sum available was allocated to the members of the advisory committee for the continuation of orthodox psychiatry, already languishing under their direction for some decades, might have been compensated for by this survey of existing research ventures in this country. The first chapter indicates the polarities of organic and psychologic points of view and pleads indirectly for a more unified concept of the problem. Then follow utterly useless correlations of the published works from many countries, classified into respective fields of science and variations of approach. There are then five chapters concerned respectively with clinical features, etiology, alterations in structure and structure function (whatever that means), differential diagnosis and therapy. A chapter of conclusions follows. Each chapter is followed by a lengthy bibliography, divided according to year of publication, obviously derived from the index without reading or digestion, as these titles show little correlation with the subject matter of the chapters. As one peruses the material in each chapter one is struck by the numerous quotations from authorities in the mental sciences expressed as *ex cathedra* pronouncements. However, there is little actual detail concerning what the book purports to present; namely, what American scientists are doing in the field of dementia praecox. In fact, one begins to wonder whether the author actually entered the laboratories of the scientists he visited or limited his investigations to conversations around the luncheon table. The sparsity of these details is not made up for by the inclusion of several of the author's own case abstracts. Certainly the nonclinical investigator could not understand what dementia praecox is from this book. In his short concluding chapter the author outlines what he considers is a plan of procedure in psychiatric research which is as vague as any plan not based on actual working knowledge of the needs of fundamental workers in the field. It indicates, for example, the need of money, the need for propaganda, and the need for scientists well controlled by committees of authorities acting as coordinators. There are no constructive ideas embodied in his plan. Lewis has had a splendid opportunity for learning what is going on in American psychiatry and plucking from the laboratories concerned with the technics of the basic sciences that which can be utilized or modified for the solution of the human plague dementia praecox. His book as a representation of his year's activity indicates the failure of his work and bodes ill for the future "circuit riders of psychiatry."

**Endocrinology in Modern Practice.** By William Wolf, M.D., M.S., Ph.D. Cloth. Price, \$10. Pp. 1,018, with 252 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

The current years have seen a crowded market for volumes devoted to endocrinology, the result, no doubt, of the tremendous stimulation of research that has occurred in this field. In his preface the author indicates the trepidation with which he undertook the production of this work and his desire to develop a volume primarily for the general practitioner. This volume includes special chapters devoted to each of the glands and then sections concerning various types of disorders recognized as glandular. Supplementing these special considerations is the second portion of the book, which is concerned with the various systems of the body and special medical groups so far as they are concerned with glandular disturbances. The final two divisions are devoted to endocrine diagnosis and endocrine preparations. The volume is illustrated with a considerable number of pictures derived from many different sources. Its organization follows the standard classification developed in Osler's textbook, and each of the chapters is supplemented by a tabular concentration or outline of what has gone before. In a field in which there is vast overenthusiasm and much

diffuse knowledge, the author provides an excellent summary. Obviously, most of the doubt in this field is concerned with the application of the knowledge to therapy. Here again the author has exercised admirable restraint in his recommendations. Another unusual feature of the book is the chapter on symptom diagnosis, which is an index by symptoms to each of the special considerations to be found in the volume. The book should be useful to all interested in the field, not so much for its primary contribution as for its value as an outline of our current knowledge.

**The Nutritive Value of Fruits, Vegetables and Nuts.** By R. A. McCance, E. M. Widdowson and L. R. B. Shackleton. Medical Research Council, Special Report Series, No. 213. Paper. Price, 2s. Pp. 107, with 26 illustrations. London: His Majesty's Stationery Office, 1936.

This is the third in a series of reports on the chemical composition of foods commonly eaten in Great Britain. Many of the methods used in the study of the carbohydrate content of foods (No. 135 in this series) and the chemistry of flesh foods and their losses in cooking (No. 187) were applicable to this study, but methods for the determination of carbohydrates, copper, total and phytin phosphorus, iron and potassium are briefly described and likewise certain modifications in the procedures for determining chlorine and sodium. Analyses are reported on forty-eight samples of fruit and on eighty-two of vegetables, with regard to total available carbohydrate, protein, fat, sodium, potassium, calcium, magnesium, iron, copper, phosphorus and chlorine. Nine varieties of nuts have been similarly analyzed, with the addition of figures for sucrose and starch separately and for "available" nonphytin phosphorus, on the assumption from previous work (McCance, R. A., and Widdowson, Elsie May: *Biochem. J.* 29:2694 [Dec.] 1935) that phytin phosphorus is not readily available in human nutrition and should be deducted from the total phosphorus.

To offset the disadvantages of analysis of a single sample of a given food, the sample was in each case an aliquot of several samples of the same food grown under different conditions but in the same season. These analyses make valuable additions to our data on a large number of foods. The available carbohydrate includes reducing sugars, sucrose and starch. Starch, protein and fat were determined on the alcohol-insoluble residue, and their sum, deducted from the total alcohol insoluble residue, is called "roughage." Thus the error in the method of the Official Agricultural Chemists of the United States inherent in calculating total carbohydrates "by difference" and determining crude fiber directly is in the case of fruits and vegetables largely transferred to the so-called roughage. In spite of these differences in procedure in the two countries the data for many of the foods compare as closely as could be expected with those of Atwater and Bryant (*Bull.* 28, U. S. Dept. of Agriculture) or later compilations of Chatfield and Adams (*Circular* 146, U. S. Dept. of Agriculture, 1931) for fresh vegetables and Chatfield and McLaughlin (*Circular* 50, U. S. Dept. of Agriculture, 1928) for fresh fruits. The error introduced by using the figure for carbohydrates "by difference" is usually well within the range of values for maximum and minimum on the same food. Thus twenty-nine samples of apples reported by Atwater and Bryant ranged from 8.8 to 21.3 per cent total carbohydrates by difference, averaging 14.2 per cent, with 1.0 per cent fiber, making available carbohydrate 13.2 per cent, while two types of English apples averaged from 9.6 to 12.2 per cent of available carbohydrate with 2.4 and 1.7 per cent of fiber respectively. These differences are so much less than the natural range of samples of the same food that, while it is certainly desirable to have such careful determinations of available carbohydrate, the results of calculation by either method are probably satisfactory for all purposes for which they can be applied. It seems difficult for many workers to realize the enormous variation in vegetable products. When precision is necessary, determinations must be made on every sample used.

In the case of nuts, there is a considerable portion of the total carbohydrate not present as starch or sugar but existing in the form of hemicelluloses, such as pentosans and galactans and cellulose. Morgan, Strauch and Blume (*J. Biol. Chem.* 85:885 [Jan.] 1930) found only 48 per cent of almond carbohydrate available and Neale (*J. Am. Dietet. A.* 2:73 1926), investigating peanut meal, found that only about 30 per cent of the carbohydrate estimated by difference was available, or 47 per

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into the gland. Small amounts of solution are deposited at three or four points, radially or fanwise. After two or three treatments to the body of the gland, the upper and lower portions of the gland are treated in an attempt to produce fibrosis in the region of the blood supply to the gland. Each time the point of the needle is changed, retraction on the plunger of the syringe is made in order to determine whether or not the point is in a blood vessel. Owing to the variability in the size and lobular thickness of the thyroid, extreme care must be used in making deep injections to prevent the formation of fibrosis on the posterior surface of the thyroid, which might involve the parathyroids and cause serious or troublesome complications. The author reports five typical cases from his series, and states that the solutions used will be reported in a subsequent article.

### New England Journal of Medicine, Boston

216: 43-88 (Jan. 14) 1937

Night Blindness Due to Vitamin A Deficiency: Consideration of Its Importance in Traffic Problems. H. Jeghers, Boston.—p. 51.

216: 89-140 (Jan. 21) 1937

Experimental Neurology in the Harvard Medical School: Chairman's Address. W. B. Cannon, Boston.—p. 89.

Recent Developments in Surgery of Sympathetic Nervous System. J. C. White, Boston.—p. 91.

Myasthenia Gravis. J. B. Ayer, Boston.—p. 95.

Experience with Oral Prostigmin Therapy in Myasthenia Gravis. R. S. Mitchell, Glens Falls, N. Y.—p. 96.

Cerebral Circulation. S. Cobb and H. S. Forbes, Boston.—p. 99.

Consideration of "Rhythm" as Measure for Birth Control. T. R. Goethals, Boston.—p. 104.

Control of Abortion. F. J. Taussig, St. Louis.—p. 109.

216: 141-192 (Jan. 28) 1937

\*Value of Sympathectomy in Treatment of Vascular Disease. R. H. Smithwick, Boston.—p. 141.

Border Lines of Knowledge in Present Day Psychiatry. G. Zilboorg, New York.—p. 151.

\*Dermatomyositis: Study of Three Cases. J. C. Turner, Boston.—p. 158.

Dangerous Dusts. J. B. Hawes 2d, Boston.—p. 162.

Precise Evaluation of Ultraviolet Therapy in Experimental Rickets. J. W. M. Bunker and R. S. Harris, Cambridge, Mass.—p. 165.

**Sympathectomy in Treatment of Vascular Disease.**—Smithwick discusses the results of sympathectomy in Raynaud's disease, thrombo-angiitis obliterans, angina pectoris and essential hypertension. The clinical results of sympathectomy vary a great deal, depending on which portion of the pathway is divided, and are far better if the preganglionic portion is interrupted. When a blood vessel is totally disconnected from the central nervous system, residual vascular spasm will appear after a short period (weeks) in response to cold, pain and emotion. The amount of residual spasm is more than twice as great when sympathectomy is accomplished by postganglionic section rather than by preganglionic section. Residual vascular spasm can be largely eliminated by denervation of the adrenals in animals and, presumably, also in man. The best and most lasting results of sympathectomy for vascular disease will be obtained by preganglionic section, with denervation of the adrenals if necessary. The operative results in Raynaud's disease are most striking early in the disease; that is, before marked local changes have taken place. The best results are obtained in the early and moderately advanced cases, the hands being constantly warm, dry and pink. Even in the advanced group the abolition of color change and the dryness produced make the result worth while, even though there may be only a slight elevation of surface temperature. In contrast to Raynaud's disease, thrombo-angiitis obliterans is primarily an obliterative vascular disease. In the early stages perhaps one case in ten will show a striking rise in surface temperature of the tips of the digits (from 10 to 20 degrees F.), when the sympathetic nerve supply is interrupted by peripheral nerve block, by paravertebral lumbar sympathetic block or by spinal anesthesia. Under such circumstances, lumbar sympathectomy is indicated and has been well worth while. It is rarely necessary to perform a dorsal sympathectomy in this disease. Peripheral nerve block, induced by crushing or by alcohol injection, which not only produces temporary anesthesia but also temporarily sympathectomizes the anesthetic area, has a wider field of application in the treatment of this disease. It should frequently be followed by lumbar sympathectomy after

the nerves regenerate. In the treatment of angina pectoris, as there are no white rami above the first thoracic ganglion, any pain pathways descending the cervical sympathetic trunk, as well as those carried by the direct thoracic cardiac nerves, can be interrupted in the upper dorsal levels, while cervical sympathectomy will fail to interrupt the painful impulses carried by the direct thoracic cardiac nerves. Complete sensory denervation of the heart can therefore be accomplished by excision of the upper four to six thoracic ganglions or by sectioning the rami between these ganglions and the corresponding intercostal nerves. Most patients with angina pectoris are not good subjects for an operation of this magnitude, and experience has shown that paravertebral alcohol injection is equally satisfactory and carries a negligible risk and very little disability. This has become the treatment of choice. Splanchnic resection for essential hypertension offers a high degree of symptomatic relief to patients suffering from this disease. When performed early in the disease, a high percentage of cases will obtain a material lowering of blood pressure level. Further observation is necessary to decide whether this will result in arrest or cure of the disease in the early stages and whether, even in the absence of blood pressure change, the course of the disease in its later stages is materially altered.

**Dermatomyositis.**—Against the possibility that a filtrable virus is the cause of the disease there is some determining evidence in one of Turner's patients in whom the disease recurred after complete remission for several years. Most virus infections after recovery confer a permanent immunity. The history of sensitivity to sunlight in two of the patients hinted at the possibility of a disturbance in porphyrin metabolism. The specimens of urine were always yellow, both before and after exposure to the sun, and no abnormality in porphyrin content could be detected spectroscopically. The skin lesions were unlike those of pellagra and there was no evidence of a dietary deficiency. The parenteral administration of crystalline preparations of vitamins B and C in moderately large dosage had no effect. Attention is called to the suggestion of Köster that perhaps the vascular system is the seat of the primary disturbance. In case 2 the albumin content of the subcutaneous edema fluid was almost precisely that of the blood serum. Since biopsy of muscle failed to demonstrate inflammatory or degenerative changes, it may be argued that the high edema fluid protein signified an abnormal vascular permeability independent of inflammation. However, it cannot be denied that inflammatory and degenerative changes do occur in many cases, and these factors no doubt then play an important part in the edema that is so characteristic of the disease.

### New Jersey Medical Society Journal, Trenton

34: 1-72 (Jan.) 1937

Occipitoposterior Position and Its Management. R. T. Potter, East Orange.—p. 7.

Conservative Treatment of Eclampsia: Study of 148 Cases. J. R. McCord, Atlanta, Ga.—p. 9.

Diagnosis of Hip Disabilities in Children. H. Taylor, East Orange.—p. 11.

Presentation of Cases Requiring Plastic Repair. L. A. Peck, Newark.—p. 15.

Diverticulitis of the Sigmoid. R. A. Schaaf, Newark.—p. 21.

Roentgen Diagnosis of Diverticulosis and Diverticulitis of Colon. C. F. Baker and W. J. Marquis, Newark.—p. 29.

Diagnosis of Duodenal Ulcer by Aired Compression Serial Roentgen Technic. M. Kraemer, Newark.—p. 37.

### New Orleans Medical and Surgical Journal

89: 333-402 (Jan.) 1937

Oration Commemorating the One Hundredth Anniversary of the Founding of the Army Medical Library, Washington. H. Rolleston, London, England.—p. 333.

Treatment of Acute Intestinal Obstruction. J. L. McGhee, Memphis, Tenn.—p. 339.

Use of Epidural Anesthesia in General Surgery. C. B. Odom, New Orleans.—p. 348.

Rôle of *Laetobacillus Acidophilus* in Treatment of Disorders of Digestive Tract. W. H. Pipes and W. L. Owen, Baton Rouge, La.—p. 355.

Diabetic Infections and Gangrene. M. Gardberg, New Orleans.—p. 362.

Modern Method for Localization and Treatment of Intra-Ocular Fertilin Bodies. M. E. Brown, New Orleans.—p. 369.

Traumatic Rupture of Papillary Muscles of Mitral Valve: Case Report. W. C. Payne, Pensacola, Fla., and H. H. Hardy Jr., New Orleans.—p. 373.

Greek Medicine. By Fred B. Lund, M.D. XVIII, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumpholtz, M.D. Cloth. Price, \$2. Pp. 161, with 7 illustrations. New York: Paul B. Hoeber, Inc., 1936.

This interesting analysis of the medicine of ancient Greece is, of course, based on such evidence as is available in the writings of Hippocrates and Galen and others of the period, and on such works as those of Neuburger and Garrison on the history of medicine. The biographic sketch of Galen is of exceeding interest. The author has been especially attracted to the philosophy underlying the medical practices of the ancients. The book contains numerous well chosen quotations from earlier writings and a few interesting illustrations.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Medical Practice Acts: Administration of Anesthetics by Nurses.**—Two practicing physicians, on behalf of themselves and all other physicians, filed a petition for an injunction to restrain the defendant nurse, employed by the defendant hospital, from administering general anesthetics in connection with operations. Such practice, it was contended, constituted a violation of the medical practice act of California. The trial court gave judgment for the defendants, and the plaintiffs appealed to the Supreme Court of California.

The findings, said the Supreme Court, show conclusively that everything that was done by the nurse in the present case, and by nurses generally, with respect to the administration of anesthetics, was and is done under the immediate direction and supervision of the operating surgeon and his assistants. Such method, said the court, seems to be the uniform practice in operating rooms. The court continued:

There was much testimony as to the recognized practice of permitting nurses to administer anesthetics and hypodermics. One of the plaintiffs' witnesses testified to what seems to be the established and uniformly accepted practice and procedure followed by surgeons and nurses, and that is that it is not diagnosing nor prescribing by the nurses within the meaning of the Medical Practice Act. We are led further to accept this practice and procedure as established when we consider the evidence of the many surgeons who supported the contention of the defendant nurse, and whose qualifications to testify concerning the practice of medicine in this community and elsewhere were established beyond dispute. That such practice is in accord with the generally accepted rule is borne out by the decided cases.

Furthermore, said the court, aside from the proposition that nurses in the surgery during the preparation for and progress of an operation are not diagnosing or prescribing within the meaning of the medical practice act, it is the legally established rule that they are carrying out the orders of the physicians to whose authority they are subject. The surgeon has the power, and therefore the duty, to direct a nurse in her actions during the operation.

The judgment of the trial court for the defendants was therefore affirmed.—*Chalmers-Francis et al. v. Nelson et al. (Calif.)*, 57 P. (2d) 1312.

**Evidence: Credibility of Professional Expert Witness.**—The plaintiffs, husband and wife, instituted suit against the defendant for damages, alleging that the defendant's agent, July 17, 1932, negligently caused a screen door to strike the wife violently on her abdomen and that this blow caused three miscarriages, one on Sept. 11, 1932, the second on Feb. 19, 1933, and a third on June 30, 1935. The trial court gave judgment for the plaintiffs, and the defendant appealed to the Supreme Court of Pennsylvania.

The wife's physician, testifying as her witness, stated that no one can tell with any degree of certainty what causes successive abortions such as the wife suffered. He was unable to specify the cause in this case. Another physician, who attended the wife at the hospital following her last abortion and who operated on her, was not called as a witness by the plaintiffs but was placed on the stand under subpoena by the defendant.

He stated that the wife's condition when he attended her was not caused by the injury three years previous thereto, and that in his opinion the abortion was brought on by an attack of "la grippe." In order to supply the deficiency in their proof as to the cause of the abortions, the plaintiffs called a "professional expert witness, who had been testifying in the courts of Allegheny county as an expert for thirty years." This witness had not attended the wife at any of the miscarriages and had not seen the hospital records. He testified, however, that in his opinion the successive abortions were due to the striking of the wife by the screen door. Concerning this witness, the Supreme Court of Pennsylvania quoted as follows from *Murphy v. Pennsylvania R. R. Co.*, 292 Pa. 213, 140 A. 867:

The professional expert, whose testimony we relate above, frequently appeared in court as a witness in personal injury cases, and the inference from his evidence is that he made the giving of testimony in such actions a business. One of the evils in the trial of personal injury cases is padding the claim with evidence of the professional medical expert. When considering a motion for a new trial, based on an excessive verdict, ordinarily but little weight should be given to such testimony.

After examining the evidence in the case, the Supreme Court was convinced that the verdict was excessive and that a new trial should have been granted, not alone because of the excessiveness of the verdict but because of the unsatisfying state of the evidence.—*Nickolls v. Personal Finance Co. (Pa.)*, 185 A. 286.

**Malpractice: Alleged Negligent Care After Childbirth.**—The defendant, an obstetrician, attended the patient during childbirth, Aug. 4, 1931. At the time of the delivery, the defendant made an incision in the plaintiff's perineum to prevent its rupture and sutured the incision after the delivery. The plaintiff claimed that shortly after she left the hospital she noticed a discharge of pus from the "sutured holes" and felt pain and that despite numerous telephone calls to the defendant he neglected to attend her until September 15, when, according to her contention, he told her that she was all right. Subsequently she went to another physician, who discovered a sinus in her perineum which developed into a fistula. Two operations were necessary before the plaintiff obtained relief. Suit was instituted against the defendant and a verdict for the plaintiff was set aside by the trial court. The plaintiff appealed to the Supreme Court of Errors, which upheld the action of the trial court. *Green v. Stone (Conn.)*, 176 A. 123; abstr. THE JOURNAL, Oct. 12, 1935, page 1217. A second trial ensued, resulting in judgment for the defendant, and the plaintiff again appealed to the Supreme Court of Errors of Connecticut.

The defendant contended that the plaintiff made no complaint to him after leaving the hospital. He examined her, he claimed, on September 14 and found a "dimple" at the bottom of the incision in the perineum and on October 9 he discovered and treated a superficial sinus in the perineum. If there was a sinus present before October 9, the defendant contended, his failure earlier to discover and treat it was not the cause of the pain, suffering and expense resulting from the two operations.

The basis of the claim in this suit, said the court, was that due care on the part of the defendant required that he immediately investigate the complaints which the plaintiff claimed to have made to him shortly after her return from the hospital, and that if he had done so he would have discovered the small superficial sinus, which could then have been cured if treated promptly. There was no other allegation of negligent conduct on the part of the defendant. Whether the plaintiff made any such complaints was a sharply contested issue and the trial court did not err in charging the jury that if they believed that no such complaints were made, then their verdict should be for the defendant. An expert witness for the plaintiff testified at the first trial that no one could tell whether the recognized treatment of a sinus, if early applied, could have cleared up the plaintiff's condition. On the second trial, this witness changed his opinion and testified that the sinus could probably have been cured if treated promptly. The trial court in the second trial commented pointedly on this change of opinion. The plaintiff contended that these comments conveyed to the jury a lack of confidence on the part of the court in the testimony of this witness, and that this was unjustified and highly prejudicial to the plaintiff. That the witness



to chronic catarrhal deafness, and, at the same time, to include the origin and distribution of the eighth nerve and its communications in the temporal bone for possible neural stimulation. How roentgen therapy brings about improvement in cases of chronic catarrhal deafness may always remain in the realm of controversy.

**Bilateral Spontaneous Pneumothorax in Apparently Healthy Individuals.**—Hasney and Baum describe a case of idiopathic spontaneous bilateral pneumothorax in an otherwise healthy young person and review the recent literature on the subject. In commenting on the case they are inclined to accept Rossel's theory of "same effect, same cause." There was not the slightest evidence of active pulmonary tuberculosis. The parahilar annular shadows seen on the roentgenogram taken after bilateral reexpansion are, in their opinion, due to bullae described by Schmincke. The bilateral spontaneous pneumothorax was of the alternating type. The first rupture occurred on the right side and the second on the left before the right lung had had the opportunity to reexpand completely. During the third attack the left side collapsed, but an adhesion between the two left pleural layers, which must have formed after the reexpansion following the second attack, prevented complete compression of the left lung. The pneumothorax on the right following the third attack must have been so small and the opening of the superficial bulla so minute that the patient did not notice any discomfort. It was detected only by accident during the last roentgen check-up. As to the treatment of their patient, the authors admit that bed rest and strapping of the chest alone do not guarantee against a further accidental collapse. It is safer to continue the pneumothorax, first on the right, artificially for a while until the x-ray observations show a thickened visceral pleura which, after reexpansion, will remain adherent to the parietal layer. The irritation by artificially insufflated air alone is sufficient, in their opinion, and they would surely apply artificial pneumothorax on the left also if another accident should happen. They do not recommend the use of irritating substances other than filtered air intrapleurally. The ideal procedure in pneumothorax is to keep the pleural sac dry.

### South Carolina Medical Assn. Journal, Greenville

33: 1-24 (Jan.) 1937

- The Opportunity of the Refractionist. C. W. Evatt, Charleston.—p. 1.
- Industrial Hygiene Activities in South Carolina. H. F. Wilson, Columbia.—p. 3.
- Prevention of Postoperative Pulmonary Complications. P. P. Vinson, Richmond, Va.—p. 5.
- Maternal and Child Health Work in South Carolina. R. W. Ball, Columbia.—p. 6.

### Surgery, Gynecology and Obstetrics, Chicago

64: 129-256 (Feb. 1) 1937

- Tumors of the Hand. M. L. Mason, Chicago.—p. 129.
- \*Arterectomy: Follow-Up Studies on Seventy-Eight Operations. R. Leriche, R. Fontaine and S. M. Dupertuis, Strasbourg, France.—p. 149.
- Clinical Use of Cyclopropane. U. H. Eversole, L. F. Sise and P. D. Woodbridge, Boston.—p. 156.
- Mechanism of Relief of Pain Immediately After Total Thyroidectomy for Angina Pectoris and Congestive Failure. A. A. Weinstein and H. E. Hoff, Boston.—p. 165.
- Persistence of Duodenal Ulcers After Suture of Acute Perforation. R. Lewisohn, New York.—p. 172.
- Study of Placenta Accreta. F. C. Irving and A. T. Hertig, Boston.—p. 178.
- \*Initiating Lesions of Renal Calculus. A. Randall, Philadelphia.—p. 201.
- Surgical Treatment of Carcinoma of Lung: Technic of Lobectomy and Pneumectomy. R. H. Overholt, Boston.—p. 209.
- \*Cruciate Ligament Injuries: Caused by Complete and Incomplete Dislocations; Early and Late Pathology, Symptoms and a Method of Repair. W. R. Cubbins, J. J. Callahan and C. S. Scuderi, Chicago.—p. 218.
- Salivary Calculi: Their Treatment by Catheterization and Dilatation of Duct. H. C. Ballon and D. H. Ballon, Montreal.—p. 226.
- Differential Diagnosis of Ectopic Gestation by Peritoneoscopy. R. B. Hope, Los Angeles.—p. 229.
- Treatment of Perforated Duodenal Ulcers. R. R. Graham, Toronto.—p. 235.
- Survey of Appendicitis in San Diego. H. G. Holder and J. T. Wells, San Diego, Calif.—p. 239.

**Arterectomy.**—Leriche and his associates selected sixty consecutive cases, in which seventy-eight arterectomies were performed. The patients were seen one year, the majority more than three years and a few up to ten years after operation. There were no fatalities or serious complications in this series.

In the arteriosclerotic type of arterial occlusion, 54.5 per cent of the patients were definitely relieved of symptoms for a period of years. The thrombo-angiitis group, in about the same number of operations, produced satisfactory results in only 35 per cent. Patients representing five operations failed to return for follow-up examination. Two failures occurred in supposed syphilitic occlusions and three embolic failures occurred in unfavorable cases in which operation was delayed and gangrene had already set in. Ordinarily, if a case of embolism is seen early, arterectomy probably combined with ganglionectomy holds a definite hope for saving a limb, often when embolectomy has failed. The authors' best results in traumatic cases were those in which a fibrosed arterial cord could be resected, with subsequent relief of pain, cyanosis and edema. Since lumbar sympathectomy carries a mortality of 4 per cent or more, arterectomy, with its minimal surgical risk, should be the operation of choice in a majority of cases. Subsequent treatments with a passive vascular exercise unit or heat, massage and exercises may supplement arterectomy to give a greater percentage of fine results. Arterectomy is indicated in localized arterial occlusion of the extremities caused by senile arteriosclerosis, trauma, freezing, after surgical ligation and in favorable cases of embolus and thrombo-angiitis obliterans.

**Initiating Lesions of Renal Calculus.**—In offering a hypothesis for the origin of stone, Randall formulated two postulates and they have presented the basis for a series of research problems in an effort to prove or disprove their accuracy: first, that an initiating lesion had to exist; second, that any such lesion should be sought for on the renal papillae or close by. It has been a matter of constant observation on roentgen examination that most small calculi are found in the region of the renal papillae. Small renal calculi whose clinical existence has been of short duration (as judged by the patient's history), closely studied with a hand lens, have invariably presented on one side a uniform crystalline growth, while the opposite surface has shown a facet indicative of mural attachment. On examination of the kidneys from 104 necropsies, twelve presented evidence of an unusual picture and a new pathologic lesion. This lesion may be described as follows: On the papilla, generally on its lateral wall or near its tip, is seen an area, which for lack of a better term the author has called a "milk patch." It may be anywhere from the tiniest possible dot to an area measuring from 2 to 3 mm. in diameter, sharply outlined or delicately stellate in appearance and of uniform consistency, though some have shown centers which appear as though the material forming the "milk patch" had been deposited in circles. In all specimens of this character there is every evidence to suggest that the lesion is under the surface of the covering epithelial cells. Microscopic sections of the lesion have shown a deposit of calcium, entirely devoid of any inflammatory evidence, as being laid down in the wall of the renal papilla and in a position which is, in its earliest manifestation, entirely below the surface of the cells covering the papilla. The area involved appears to suffer a definite fibrosis, with changes in the blood supply, and the first deposit of calcium occurs in the cells lining the tubules, which, in turn, show different stages of aseptic necrosis. The next, or second, stage in the development of a stone is exemplified in a kidney removed from the body of a 46 year old man who died of left pyopneumothorax and cardiac failure. Each papilla in this kidney, with one normal papilla as an exception, showed the characteristic "milk patch" deposit; but on the surface of one such "milk patch" could be seen a tiny black dot. This dot is no larger than a grain of pepper or a cinder in an eye, but it stands out in clear distinction to the other papillary lesions of the first variety. Serial sections cut through this tiny speck show that the calcium deposited in this area has lost its covering epithelium and exists as a raw, exposed surface of calcium, at the periphery of which the epithelium dips down to an aseptic ulcer edge. The next, or third, stage in the development of a stone was found in a kidney from the body of a 56 year old woman who died of a malignant ovarian tumor and general carcinomatosis. This showed two papillae with the characteristic "milk patches" and a third papilla with a definite crystal deposit on a similar "milk patch," but in this case the crystal deposit measured approximately 2 mm. in diameter. It was densely adherent to the underlying tissue and, when sectioned, presented a characteristic papillary calcium plaque, and inti-

## Current Medical Literature

### AMERICAN

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#### American Heart Journal, St. Louis

13:1-128 (Jan.) 1937

- Digital Arterioles of Normal and Hypertensive Individuals: Their Response to Intravenous Administration of Epinephrine, as Measured by Cutaneous Temperature. T. J. Fathcrree and G. E. Brown, Rochester, Minn.—p. 1.
- Incidence and Significance of Blood Vessels in Normal and Abnormal Heart Valves. J. T. Wearn and A. R. Moritz, with collaboration of A. S. Dowling, Grace E. Haskin, C. L. Hudson and E. S. Orgain, Cleveland.—p. 7.
- Concerning a New Concept of Genesis of Electrocardiogram. L. N. Katz, in collaboration with A. Bohning, I. Gutman, K. Jochim, II. Korey, F. Ocko and M. Robinow, Chicago.—p. 17.
- Heart Disease in Children: Rheumatic Group: I. Certain Aspects of Age at Onset and of Recurrences in 488 Cases of Juvenile Rheumatism Ushered in by Major Clinical Manifestations. I. R. Roth, Claire Lingg and Alice Whittemore, New York.—p. 36.
- Atrioventricular Rhythm With and Without Retrograde Block. A. Schott, London, England.—p. 61.
- \*Electrocardiogram During and After Emergence from Diabetic Coma. S. Bellet and W. W. Dyer, Philadelphia.—p. 72.
- Cardiac Syncope: Concerning Clinical Differentiation of Its Types. J. F. Borg and C. E. Johnson, St. Paul.—p. 88.
- Arteriovenous Ancurysm: Report of Case with Pronounced Electrocardiographic Changes. J. T. Quattlebaum, Columbia, S. C.—p. 95.

**The Electrocardiogram During Diabetic Coma.**—Certain observations suggested to Bellet and Dyer that rather marked and, on the whole, consistent alterations of the T waves and lengthening of the QT interval were present during certain stages of diabetic coma after the acidosis had been partially or completely controlled. This led to the observation of seventeen cases of diabetic coma and six cases of "precoma." Electrocardiographic changes were observed in every one of the cases studied by serial electrocardiograms during and on emergence from diabetic coma. The electrocardiographic changes of the coma cases were graded as severe in eight, moderate in six and slight in three; the electrocardiographic changes in the six precoma cases were similar, although less severe than were the changes of those patients who entered the hospital in coma. Only one showed severe electrocardiographic changes; four showed moderate and one slight changes. The chief alterations observed were lengthening of the QT interval, depression of the ST interval and inverted T waves. Alterations in the QRS complexes were infrequent. In all except three cases of the entire series of diabetic acidosis the electrocardiogram eventually returned to normal. The most abnormal electrocardiographic changes were observed not during coma but about twenty-four hours later when the patient was clinically improved and out of the acidotic state. Serial electrocardiographic studies may be an important method of gaging the severity of cardiac disturbance during and on emergence from diabetic coma.

#### American Journal of Ophthalmology, St. Louis

20:1-118 (Jan.) 1937

- Lectures on Cataract. R. E. Wright, Madras, India.—p. 1.
- Choroidal Tears. A. Hagedoorn, Amsterdam, Netherlands.—p. 13.
- Importance of Aniseikonia. E. Jackson, Denver.—p. 16.
- New Visual Acuity and Astigmatism Test Chart. C. E. Ferree and G. Rand, Baltimore.—p. 21.
- Comparison of Suprarenin Bitartrate and Cocaine Plus Euphthalmine as Mydriatics for Elderly Patients. L. T. Post, St. Louis.—p. 33.
- Dust Factor in the Production of Pterygium. T. J. Dimitry, New Orleans.—p. 40.
- Prevention of Ocular Complications in Tryparsamide Therapy. M. Fine and H. Barkan, San Francisco.—p. 45.
- Retrolbulbar Injections of Atropine in Arteriosclerotic Atrophy: Report of Case. F. C. Cordes, San Francisco.—p. 53.
- Retinal Angiospasm in Toxemia of Pregnancy and Hypertension. E. Selinger, Chicago.—p. 56.

### Archives of Ophthalmology, Chicago

17:1-206 (Jan.) 1937

- Clinical Problem of Allergy in Relation to Conjunctivitis and Iritis. A. C. Woods, Baltimore.—p. 1.
- Trachomatous Keratitis: Biomicroscopic Study of 280 Indian School Children. P. Thygeson, New York.—p. 18.
- Physics of Diathermic Coagulation in the Eye: Experimental Studies and Some Practical Notes on Operation. M. Klein, Budapest, Hungary.—p. 27.
- Ocular Signs of Thrombosis of Intraocular Venous Sinuses. F. B. Walsh, Baltimore.—p. 46.
- Second Group of Cases of Arachnoiditis. R. I. Lloyd, Brooklyn.—p. 66.
- Examination and Care of Eye in Relation to Lighting. C. E. Ferree and G. Rand, Baltimore.—p. 78.
- Growth in Mass and Volume of Human Lens in Postnatal Life. R. E. Scammon and M. B. Hesdorffer, Minneapolis.—p. 104.
- Opsonic Index for Uveal Pigment in Treated Patients. H. C. Henton, Baltimore.—p. 113.
- Is Trachoma a Rickettsial Disease? A. Busacca, São Paulo, Brazil; translated by P. Thygeson, New York.—p. 117.
- Metastatic Pneumococcal Uveoscleritis Following Pneumonia. J. H. Hulka, Long Island City, N. Y.—p. 127.

### Arch. of Physical Therapy, X-Ray, Radium, Chicago

18:1-64 (Jan.) 1937

- \*Conservative Method of Treatment of Trigeminal Neuralgia: Preliminary Report. B. Ulanski, Philadelphia.—p. 7.
- Lumbosacral Derangement and Its Manipulative Treatment. B. S. Troedsson, Bryn Mawr, Pa.—p. 10.
- Low Back Pain. W. I. Galland, New York.—p. 16.
- Fever Therapy. W. Bierman, New York.—p. 28.
- New Aid in Diagnosing Focal Infections of Dental Origin. J. L. Sherman, Huntington, N. Y.—p. 34.

#### Conservative Treatment of Trigeminal Neuralgia.

For the past ten years Ulanski has been using a certain form of electricity for the relief of pain in various nerve disorders. This form of electricity is a modification of the so-called rapid sinusoidal current. The rapid sinusoidal current is an alternating current, a voltage tracing of which would show as many positive and negative sines as there are cycles per second. Each positive phase is immediately succeeded by a negative phase of equal intensity; therefore the rapid sinusoidal current displays no polarity effects. This type of current possesses decided pain-relieving qualities. Favorable results obtained with it in sciatica and other forms of neuritis and neuralgia have suggested its application also for trigeminal neuralgia of both the major and minor forms. The author has treated cases in their incipience as well as those which have been previously treated by other methods. Of sixty-five cases treated there have been only nine failures. The period of relief varied from a few months to three or more years, with immediate response to repetition of treatment on the return of pain.

### California and Western Medicine, San Francisco

46:1-72 (Jan.) 1937

- Dengue-like Fever: Clinical Manifestations Recently Observed in the San Francisco Bay District. G. Cheney, San Francisco.—p. 8.
- Basal Metabolism: Determination of Zero Point in Normal Group in Southern California. J. M. Askey, Los Angeles.—p. 11.
- Mobile Right Colon: Clinical Consequences. L. Brooks, San Francisco.—p. 14.
- Congenital Occlusion of Small Intestine. J. H. Woolsey, Woodland.—p. 20.
- Sinus Diseases: Use of Roentgen Ray in Their Diagnoses. O. E. Ghrist, Glendale.—p. 24.
- \*Reconstruction of the Breast. H. L. Updegraff, Hollywood.—p. 28.
- The Feet in Young Childhood: Some Facts and Fallacies. E. F. Patton, Los Angeles.—p. 31.
- Peripheral Arteries: Their Importance in Industrial Practice. F. Pearl, San Francisco.—p. 35.

**Reconstruction of the Breast.**—Updegraff believes that surgery of the breast should always be undertaken for a very definite reason, either physical or mental, or the end results will not be acceptable to the patient. From the surgeon's standpoint there are three types of nonmalignant breast in considering reconstruction: 1. The moderately enlarged breast free from lumps that a simple mastopexy, without a lower keyhole incision in the skin flap or excision of the gland tissue, will rebuild. 2. The definitely enlarged breast needing a mastopexy, utilizing the keyhole incision and removing varying amounts of breast fat and tissue including an occasional lump. 3. The third type is the large nodular hypertrophic breast: for example, the painful lump in the breast occurring each period; also the polycystic fibromas and the breast of chronic

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Brain, London

59:395-520 (Dec.) 1936

- Pituitary Basophilism Associated with Basophil Carcinoma of Anterior Lobe of Pituitary Gland. H. Cohen and J. H. Dible.—p. 395.  
 Extrapyramidal Action from Cat's Cerebral Cortex: Motor and Inhibitory. Sarah S. Tower.—p. 408.  
 Observations on Histopathology of Cerebral Lesions in Disseminated Sclerosis. J. G. Greenfield and L. S. King.—p. 445.  
 Further Studies on Effect of Hypothalamic Lesions on Carbohydrate Metabolism. D. Cleveland and L. Davis.—p. 459.  
 Vestibular Phenomena of Central Origin: Experimental Study in Macacus Rhesus. A. Ferraro, S. E. Barrera and G. A. Blakeslee.—p. 466.  
 Studies on Existence of Paraphysis in Mammalian Embryos. K. H. Krabbe.—p. 483.  
 \*Periodic Somnolence and Morbid Hunger: New Syndrome. M. Levin.—p. 494.

**Periodic Somnolence and Morbid Hunger.**—Levin cites seven cases from the literature of what may be called "periodic somnolence-hunger," a syndrome characterized by attacks, usually lasting several days or weeks, in which the patient is excessively sleepy and hungry. Besides these cardinal symptoms, the attacks may be further marked by motor unrest and by irritability, difficulty in thinking, forgetfulness, incoherent speech and hallucinations. All these symptoms vanish in the intervals between attacks. The seven patients were all men, and in each the onset was in the second decade. In three the onset occurred soon after an acute illness (respectively, "grip," sore throat with fever and "influenza"). Fulton and others have shown that the frontal lobes contain centers which inhibit gastro-intestinal motility, their excision causing increased appetite, gastro-intestinal hypermotility and intussusception. These centers form part of the highest cerebral centers, more specifically, of the highest motor centers. The hypothesis is offered that "periodic somnolence-hunger" is due to excessive "inhibitability" or exhaustibility of the highest centers. The untimely and prolonged inhibition of these centers will explain the manifestations of the syndrome. Inhibition of the highest cerebral centers will explain the somnolence and the mental symptoms; inhibition of the centers described by Fulton, the hunger and the motor unrest. Excessive inhibitability of the highest centers is probably the result of some alteration of their component cells.

## British Journal of Radiology, London

10:1-72 (Jan.) 1937

- \*Calcified Intracranial Tuberculomas. J. P. Martin.—p. 5.  
 Survey of Fields of Radiation in Female Pelvis for Some Typical Distributions of Radium Used in Treatment. F. D'Abreu and T. E. Banks.—p. 19.  
 Diverticula of Duodenum. G. Friedlaender.—p. 26.  
 Significance of Time Factor in Determination of Quantitative Biologic Reaction to a Given Dose of Radiation. W. H. Love.—p. 38.  
 The Size of the Living Heart. J. H. Barrett.—p. 47.  
 Photographic Method of Comparing Intensities of X-Rays. H. L. Brose and E. H. Molesworth.—p. 55.  
 Carcinoma of the Breast. J. E. A. Lynham.—p. 60.

**Calcified Intracranial Tuberculomas.**—Martin states that calcified intracranial tuberculomas are usually discovered in patients who come under observation because of fits. They are not ordinarily associated with signs of intracranial pressure. The patients usually present evidence or history of tuberculosis elsewhere in the body. The age of the patients in the cases referred to ranged from 12 to 57 years. In the author's experience, calcified tuberculomas are usually situated in the cerebral hemispheres; they may, however, be situated under the tentorium. The majority of them lie near the surface of the brain. In a large proportion of cases, two or more such calcified lesions are present. They are very variable in size. By the time they are discovered by x-rays they are usually densely calcified. The shadows which they cast on the films are often very irregular, with a tendency to a lobulated appearance, and have a jagged or serrated outline. When calcification is not uniform throughout, it is most intense at the periphery or part of the periphery of a mass. For this reason the masses are sharply demarcated. These appearances correspond with the physical characters of extinct tuberculomas removed from the brain by

operation or at necropsy. The chief distinguishing features roentgenologically, from calcified tumors, are the sharp delimitation and very rough or jagged surfaces. The intensity of calcification may also serve as a guide in many cases.

## British Journal of Urology, London

8:319-446 (Dec.) 1936

- Some Observations on Decapsulation and Denervation of the Kidney. S. K. Sen.—p. 319.  
 Conservative Treatment of Carcinoma of Prostate. C. A. R. Nitch.—p. 329.  
 Observations on Formation and Prevention of Calculi. I. Snapper, W. M. Bendien and A. Polak.—p. 337.  
 Early Diagnosis and Radical Treatment of Carcinoma of the Prostate. E. L. Kcyes and R. S. Ferguson.—p. 346.

## British Medical Journal, London

2:1297-1344 (Dec. 26) 1936

- Prostatic Obstruction and Indications for Various Methods of Treatment. J. C. Ross.—p. 1297.  
 Tuberculosis of Lower Lobe. R. Viswanathan.—p. 1300.  
 Nervous Complications Following Treatment by Gold Salts. F. G. Lescher.—p. 1303.  
 Intestinal Tuberculosis Limited to Appendix. W. Pagel and E. Weichherz.—p. 1305.  
 \*Referred Pain and in Particular That Associated with Dysmenorrhea and Labor: Preliminary Report. G. W. Theobald.—p. 1307.  
 Pentothal Sodium Anesthesia. O. J. Murphy.—p. 1308.

**Referred Pain Associated with Dysmenorrhea and Labor.**—Theobald states that stimulation of the autonomic nerve endings in the cervix by silver nitrate causes a referred pain appreciated in the area of the skin supplied by branches of the first lumbar nerve. This pain may be abolished by local anesthesia. Dysmenorrhea is largely, if not entirely, a referred pain appreciated in the area of skin supplied by branches of the first lumbar nerve, and the pain may be abolished by local anesthesia. The pain in the lower part of the abdomen and the lateral backache of labor are manifestations of viscerosensory referred pain appreciated in the area of skin supplied by the first lumbar nerve. The sacral backache of labor is a pain referred from one somatic nerve to others of the same spinal segments. While it is too early to be dogmatic, there seems every reason to believe that a simple and safe technique can be evolved to render childbirth painless.

## East African Medical Journal, Nairobi

13:263-294 (Dec.) 1936

- Bilharzia Disease. K. W. Allen.—p. 264.  
 Twenty-Five Years of Tropical Medicine. R. Y. Stones.—p. 271.  
 Maternity and Child Welfare Work in Nyasaland. Janet Welch.—p. 282.

## Edinburgh Medical Journal

44:1-64 (Jan.) 1937

- Clinical Recollections and Reflections: IX. Conservative Treatment of Acute Infections. D. Wilkie.—p. 1.  
 The Doctor and the Public Happiness. Horder.—p. 10.  
 \*Study of Contractions of Nonpregnant Human Uterus. E. M. Robertson.—p. 20.  
 Experiments in Intestinal Obstruction: Role Played by Diminution of Effective Circulating Blood Volume in Acute Intestinal Obstruction. I. Aird.—p. 28.  
 Studies in Method and Standardization of Blood Examination: III. Hemoglobinometry by a Whole-Blood Method. W. F. Harvey.—p. 33.  
 Sarcomatosis in Fowls Following Weasel Bites, with Discussion on Tumor Formation in General. J. P. McGowan.—p. 37.  
 Studies on Carbohydrate Metabolism in Nervous and Mental Disorders: II. Comparison of Hyperglycemic Index and Choline Esterase Activity in Anxiety and Depressive States. H. Tod and M. S. Jones.—p. 46.

**Contractions of Nonpregnant Uterus.**—Robertson made use of the intra-uterine balloon method in determining the contractions of the nonpregnant uterus. He obtained twenty records of twelve women. Of sixteen records obtained in the second half of the menstrual cycle fourteen show not only spontaneous uterine activity but also good responses to solution of posterior pituitary. In eight of these fourteen instances endometrial specimens were obtained immediately after the termination of the recording, and seven of these specimens showed secretory changes in the glandular and stromal cells. Therefore in seven cases, at least, uterine activity was recorded in the presence of an active corpus luteum and not in the absence of luteal influence as would have been the case in an anovulatory cycle. In one instance the curves were atypical. In this case two recordings were taken on the twenty-second day of

more than do normal individuals. 3. From period to period the consistency of the magnitudes of the differences between the temperatures of the two sides is high, despite the fact that the levels of temperature may be varying. 4. The variation of the magnitude of the differences between the two sides within the individual for any particular period is small. In this respect also the schizophrenic patient shows less consistency between the temperatures of symmetrically located areas than does the normal subject. 5. The degree of bilateral symmetry of skin temperatures warrants the limitation of the analysis of such data to one side of the body.

### Journal of Pharmacology & Exper. Therap., Baltimore

59: 1-122 (Jan.) 1937

- Anesthesia and Liver Damage: I. Protective Action of Oxygen Against Necrotizing Effect of Certain Anesthetics on Liver. S. Goldschmidt, I. S. Ravdin and B. Lucké, Philadelphia.—p. 1.
- Experiments on Latency of Strophanthidin Emesis in Cats. M. Dresbach and A. P. Schafer, Albany, N. Y.—p. 15.
- Effect of Regular Injections of Acetylcholine on Choline-Esterase Activity of Serum. G. E. Hall and G. H. Ettinger, Toronto.—p. 29.
- \*Choline-Esterase Activity of Normal and Pathologic Human Serums. G. E. Hall and C. C. Lucas, Toronto.—p. 34.
- Pharmacodynamic Reactions of Intracerebral Sodium Isoamylthylbarbiturate (Sodium Amytal), Pyridine-Beta-Carbonic Acid Diethylamide (Coramine), Pentamethylenetetrazol (Metrazol), and Picrotoxin During Morphine-Sodium Iso-Amylethylbarbiturate Anesthesia. J. C. Rice and R. M. Isenberger, Kansas City, Mo.—p. 43.
- Estrogenic Activities of Some Synthetic Phenanthrene Compounds and Some Oxidation Products of Theolol. S. A. Thayer, D. W. MacCorquodale and E. A. Doisy, St. Louis.—p. 48.
- Study of Cobalt Color Reaction for Detection of Barbiturates. F. L. Kozelka and H. J. Tatum, Madison, Wis.—p. 54.
- Quantitative Study of Barbiturates in Cerebrospinal Fluid. F. L. Kozelka and H. J. Tatum, Madison, Wis.—p. 63.
- Influence of Age and Sex on Repeated Administration of Sodium Pentobarbital to Albino Rats. W. M. Moir, Charlottesville, Va.—p. 68.
- Effects of Methylaminomethyl Heptene (Octin) on Animal Uterus. J. B. Mitchell Jr., Memphis, Tenn.—p. 86.
- Effects of Temperature on Toxicity of Procaine for White Mice. R. F. Sievers and A. R. McIntyre, Omaha.—p. 90.
- Studies on Physiologic Effect of Diethylene Glycol: II. Toxicity and Fate. H. B. Haag and A. M. Ambrose, Richmond, Va.—p. 93.
- Toxic Potentialities of Continued Administration of Chlorate for Blood and Tissues. A. P. Richardson, San Francisco.—p. 101.
- Dihydroxyphenyl Ethanolamine (Arterenol) as Possible Sympathetic Hormone. R. L. Stehle and H. C. Ellsworth, Montreal.—p. 114.

**Choline-Esterase Activity of Serums.**—Hall and Lucas describe a micromodification of the continuous titration method for the determination of the rate of hydrolysis of acetylcholine by blood serum. The choline-esterase activity is defined in terms of initial velocity of the hydrolysis. The unit chosen is the amount of enzyme necessary to liberate 1 cc. of hundredth normal acetic acid in ten minutes at  $pH$  8 and 37.5 C. The choline-esterase activity of a large number of normal and pathologic human serums has been determined. The variation within the species is from 0.9 to 3.9 units per cubic centimeter, the mode being in the interval 2.4 to 2.6. Roughly, three fourths of the bloods examined had serum activities between 1.8 and 3.2. No correlation between the choline-esterase activity of the serum and age, sex, activity, diet, heart rate or blood pressure could be found in either the normal or the pathologic group. None of the clinical conditions studied produced any characteristic change in the activity of this serum enzyme.

### Laryngoscope, St. Louis

46: 899-968 (Dec.) 1936

- Diverticula of Esophagus: Review of Literature with Notes on Four Cases of Pulsion Diverticulum Operated by One Stage Technic (Modified Gaub-Jackson). J. A. Perrone, Pittsburgh.—p. 899.
- Dry Ice (Carbon Dioxide Ice) Burn of Throat. P. S. Stout, Philadelphia.—p. 922.
- Passive Masking as an Aid in Use of Audiometer. C. Firesone, Seattle.—p. 924.
- \*Toxic Labyrinthitis of Nasopharyngeal Origin. T. P. O'Connor, Chicago.—p. 926.
- New Instruments: I. Epistaxis Clamp: II. Double Tonsil Hemostat. H. D. Newkirk, Anaheim, Calif.—p. 931.
- Lingual Thyroid. L. T. Buckman, Wilkes-Barre, Pa.—p. 935.

**Toxic Labyrinthitis of Nasopharyngeal Origin.**—O'Connor proposes to establish the intoxication caused by nasopharyngitis as an etiologic factor in toxic labyrinthitis. Twenty-three cases have been studied which displayed the typical symptoms of true labyrinthine disturbance. In none of these patients could local lesions of the labyrinth, brain, middle

ear or mastoid be demonstrated; syphilis and poisoning were conclusively ruled out. A search for a focus of infection in every case revealed, in the absence of all other significant physical changes, active subacute or chronic nasopharyngitis. The inflammatory nature of the condition was confirmed by cultures of the nasopharynx in all cases, most of which produced a heavy growth of *Streptococcus viridans*. Treatment of the nasopharyngeal vault was followed by prompt relief of symptoms. The reason for this quick response is that absorption of toxin is immediately inhibited by treatment. In an infected nasopharynx the membrane is usually found to be covered by a thin layer of mucus with a consistency similar to that of mucilage. Removal of this sheet of mucus and contraction of the lymph follicles doubtless retard the absorption of toxin long before the infecting organisms are killed. Several treatments are usually necessary before the area is entirely cleared of inflammation.

### Medical Annals of District of Columbia, Washington

6: 1-28 (Jan.) 1937

- Development of Thought on Etiology of Pernicious Anemia. T. G. Klumpp, New Haven, Conn.—p. 1.
- Perforated Gastric and Duodenal Ulcers. H. C. Hull, Baltimore.—p. 6.
- Alcohol Injection of Lumbar Sympathetic Ganglions in Arteriosclerosis of Extremities. W. Y. Baker, Washington.—p. 9.
- Gonococemia with Endocarditis and Recovery: Report of Case. J. K. Cromer, Washington.—p. 15.

### Minnesota Medicine, St. Paul

20: 1-70 (Jan.) 1937

- Pneumonia in Minnesota: What Can Be Done About It? Lucy S. Heathman, Orianna McDaniel and A. J. Chesley, Minneapolis.—p. 1.
- Incidence of Pneumococcus Types in Minnesota. J. A. Layne and H. A. Reimann, Minneapolis.—p. 3.
- The New Insulin. R. M. Wilder, Rochester.—p. 6.
- Chordoma with Hitherto Unobserved Intraspinal Extension: Case. A. Schwyzer, St. Paul.—p. 15.
- Diverticulitis of Colon. R. E. Weible, Fargo, N. D.—p. 21.
- Benzedrine in Treatment of Narcolepsy. M. J. Shapiro, Minneapolis.—p. 28.
- Branchial Cysts. C. G. Ochsner, Wabasha.—p. 31.

### Missouri State Medical Assn. Journal, St. Louis

34: 33-72 (Feb.) 1937

- Importance of Bladder Function in Dealing with Infection. D. K. Rose, St. Louis.—p. 33.
- Lesions of Superior Mediastinum. I. H. Lockwood, F. C. Narr and C. E. Bell, Kansas City.—p. 37.
- Review of Some of the Incisions Used for Appendectomy with Description of an Additional One. E. V. Mastin, St. Louis.—p. 41.
- Ileocecal Segment. J. W. Larimore, St. Louis.—p. 48.
- \*Intrathyroid Therapy for Hyperthyroidism: Preliminary Report. F. M. Postlethwaite, Kansas City.—p. 53.
- Congenital Malaria. W. D. English, Cardwell.—p. 56.

**Intrathyroid Therapy for Hyperthyroidism.**—It occurred to Postlethwaite that, if he could produce fibrous tissue in the thyroid in hyperthyroidism, beneficial results would follow. The sclerosing solution produces the minimal amount of exudative reaction after its injection, is practically painless when injected, stimulates the growth of fibrous tissue, is nontoxic and produces no systemic reaction. Since one is dealing with an endocrine gland, each patient must have a complete examination from an endocrine standpoint. The most satisfactory results have been obtained in the cases in which the course of injections into the thyroid was followed by a course of supportive endocrine therapy. The interrelationship of the thyroid, the ovaries and the pituitary during a period of ovarian insufficiency or of pituitary hypertrophy is nothing more than an attempt to meet the demand of supply by inhibition or stimulation. If by producing fibrosis in the thyroid its activity is reduced and its output lessened, it is only reasonable to assume that the system must be aided by supportive endocrine therapy to bring about a proper endocrine balance with the glands that are cooperative with the thyroid: the pituitary and the gonads. Strict asepsis must be employed. The cricoid cartilage is located; from 0.5 to 1 cm. below the cricoid is normally found the isthmus of the thyroid, then at a point from 1.5 to 2 cm. laterally, with the needle (26 gage, five-eighths inch long) directed posteriorly, the body of the gland can be injected. After puncturing the skin, the needle is pushed downward to the platysma, which usually offers slight resistance. The needle is inserted its full length through the capsule of the thyroid

## Bulletin de l'Académie de Médecine, Paris

117: 53-84 (Jan. 12) 1937

Need for Union Between Central and Local Authorities for Regional Sanitation. Loir, Sanarens and Legagneux.—p. 60.  
Local Action of Estrogen on Breast of Male Guinea-Pig. J. C. Mussio-Fournier, A. Albricux and W. Buno.—p. 64.

\*Wakening Hygiene and Exercise. M. Boigey.—p. 67.  
Action of Lead and Copper Ions on Sarcomatous Fibroblasts in Culture. J. Verne and C. Sannicé.—p. 70.  
Hippocratic Origin of Word Hormone. F. Jayle.—p. 73.  
Respiratory Heart Curves Associated with Pneumocardiac Synchronism in the Dog. E. de Somer.—p. 77.

**Wakening Hygiene and Exercise.**—Boigey cites three cases of sudden death during the morning exercises and explains that exercises which are appropriate for younger persons should be specially adapted for people past the age of 50 years, notably those with organic or functional disorders. After that age it is not wise to get up rapidly from bed and it is dangerous to exercise in the dorsal posture and to raise the lower extremities: this movement produces the effect of a hydrostatic blow on the walls of the cerebral blood vessels. Dizziness and even fainting may result from it. These persons should perform their exercises in the upright position, assuming an attitude which is normal for them in their waking and working hours. Certain changes take place during sleep, such as slowing of the pulse and lowering of the blood pressure. At the moment of awakening there is a rise in blood pressure, a certain degree of congestion occurs in sinuses, and the circulation of the brain becomes stronger. Exercise at this time increases the cerebral congestion, which is not equilibrated by the constrictive action of a torpid vasomotility that needs time to recover its full activity. It is therefore important for these subjects to stay in bed long enough to allow the circulation to become normal again. Persons beyond 50 years of age and all those with hypertension should then dress to avoid sudden cooling of their bodies before proceeding with their exercise. They should avoid repeated lowering of the head below the level of the belt line. Forceful flexions and extensions of the thorax have a congestive effect on the brain, do not by any means improve the abdominal circulation and may even do harm to the intestine. The author thinks that these persons should exercise between 4 and 6 p. m., as at that time of day their organic temperature, muscular strength and general vitality are at their best. The exercises should be done without much effort and speed, because their main object is to conserve the suppleness of the muscles.

## Presse Médicale, Paris

44: 2113-2128 (Dec. 30) 1936

\*Attempt at Surgical Treatment of Lateral Syndrome of Medulla of Vascular Origin (Wallenberg's Syndrome) in Angina Pectoris. R. Leriche and Apfeel.—p. 2113.

Impairment of Certain Endocrine Glands in Course of Chronic Alcoholism: Pathogenic Interpretation. M. Villaret, L. Justin-Besançon, J. Delarue and H.-P. Klotz.—p. 2115.

Sign of Pathognomonic Detachment of Hydatid Pulmonary Cyst. Nguyen-Dinh-Hoang.—p. 2117.

**Angina Pectoris.**—Leriche and Apfeel treated a man who had been suffering for eighteen months from daily attacks of angina pectoris. The patient had diabetes and had been suffering for three months from Wallenberg's syndrome. The syndrome, the result of an obliteration of the inferior cerebellar artery, is characterized by a transient hemiplegia, hemianesthesia and pains on the side opposite the lesion. There were also atactic symptoms and a tendency to fall to one side. Added to this was paralysis of the muscles of deglutition, of the soft palate and of the vocal cords. After a stellate infiltration and in an attempt to bring about a favorable reaction on the medullary and the coronary circulation, they resected the stellate ganglion and the roots of the vertebral nerve. Two days after the operation the patient lost his bodily deviations and his ataxia. All his movements became easy, and no sign of cerebellar deficiency remained. At the end of three weeks the patient had a hyposystolic attack and most of his medullary symptoms reappeared and lasted for a few weeks. But he gradually recuperated and three months after the operation the angina, vertigo and diplopia as well as other cerebellar symptoms had completely vanished, except the painful anesthesia of the chest and the right lower extremity. After seven months the recuperation was still better, even in the right leg. Although

the future of such patients is uncertain, the fact remains that in this case the intervention surpassed all hope. This result shows that, in vascular syndromes of the brain with definite symptoms of irreversible deficiencies, a sympathectomy may be of great benefit. It is further certain that in their case first the stellate infiltration and then the stellectomy (roots of the vertebral nerve originating from the superior pole of the stellate ganglion) have considerably modified the outcome.

45: 41-56 (Jan. 9) 1937

\*Is Resection of Splanchnic Nerves Justified in Treatment of Permanent Essential Arterial Hypertension? H. Hermann and L. Sabadini.—p. 41.

Bacterioserologic Methods in Tracing of Persons Who Had Been the Cause of Puerperal Fever. J. Drbohlav.—p. 44.

**Resection of Splanchnic Nerves in Treatment of Hypertension.**—Hermann and Sabadini state that most of the methods advocated for the treatment of permanent essential hypertension are difficult of execution and for this reason they have limited themselves to reaction of the splanchnic and sympathetic nerves. Essential hypertension may be permanent or paroxysmal. Paroxysmal hypertension is often accompanied by a medullary adrenal tumor having the characteristics of a benign adenoma. This tumor is at times juxta-adrenal of a paraganglionic type. This is quite natural when the sympathetic origin of the adrenal medulla is considered. Both are derived from the ectoderm. The current surgical practice is complete adrenalectomy. Quite different is the case in permanent essential hypertension, in which the lesions are much less constant. The hypertrophic gland shows a medullary hyperplasia and increased hormone contents. It is much too hazardous to assail the gland directly. It is more advantageous to dry out the secretion either by denervation or by devascularization, or better still by resecting its secretory nerve, the splanchnic nerve. The latter method is superior because it cuts the vasoconstrictor nerves, thus producing vasodilatation. The most frequently employed method is the posterior, laterovertebral, subserous (subpleural or subperitoneal). It may be high central or low. Pende has recommended anesthesia of the nerve with procaine hydrochloride in hypertension crises, to be followed, in patients not fit to be operated on, by unilateral or bilateral alcoholization of the nerve. But the splanchnic nerve does not alone innervate the adrenal capsule. There are posterior filaments emanating from the terminal trifurcation of the nerve and from the adrenal ganglion. It also receives branches from the diaphragmatic, renal and solar plexuses. Besides, there are often anastomoses between the right and the left splanchnic nerves. All this shows a multiplicity of origins, but only in man. In the dog, every adrenal gland gets its secretory nerves solely from the homolateral splanchnic nerve. All these as well as the physiologic and clinical considerations lead the authors to the realization that the pathogenesis of permanent essential hypertension is not sufficiently known to justify conclusions as to its surgical treatment. The facts given by the authors seem to be in accord with certain therapeutic results. But in order to confirm them further, stricter scientific observations are suggested. In only a few cases has splanchnicectomy greatly improved a state of hypertension which has otherwise resisted all other treatment. They especially underscore the fact that the main body of the splanchnic nerve consists of centrifugal and centripetal conductors. On cutting them one interrupts not only the vasoconstrictor and adrenal secretory fibers but also the sensitive paths used by the reflexes originating in the abdominal viscera.

## Annali di Ostetricia e Ginecologia, Milan

58: 1647-1823 (Dec. 31) 1936. Partial Index

\*Behavior of Total Iron of Blood in Normal Pregnancy. S. C. Russo.—p. 1647.

Relation Between Thymus, Internal Genitalia and Hypophysis: Experiments. F. Matteace.—p. 1715.

Curves of Glycemia and Amino-Acidemia from Dextrose in Pregnancy. A. Fumarola.—p. 1735.

Plurineoplastic Association (Sarcoma and Fibromyoma) in Uterus: Case. F. Futsu Doneddu.—p. 1743.

**Total Iron of Blood in Normal Pregnancy.**—Russo states that the amount of total iron in the blood of normal pregnant women increases rapidly during the first two months of preg-



# New York State Journal of Medicine, New York 37: 119-230 (Jan. 15) 1937

- Lobar Pneumonia in Childhood: Five and a Half Year Clinical Survey at Municipal Hospital. S. L. Ellenberg and A. T. Martin, New York.—p. 119.
- Role of Allergy in Drug Eruptions. E. W. Abramowitz, New York.—p. 128.
- Conservative Treatment of Nasal Sinuses. II. Hays, New York.—p. 137.
- Rationale of Treatment of Urinary Infections. D. M. Davis, Philadelphia.—p. 145.
- Roenlogologic Consideration of Dysphagia of Esophageal Origin. J. M. Barnes, Buffalo.—p. 152.
- Coarctation of the Aorta: Report of Living Case. S. Gitlow, Bronx.—p. 155.
- Varicose Veins and Varicose Ulcers: Technic of Injection Treatment. H. J. Shelley, New York.—p. 159.
- Twelve Year Medical Survey of Large Commercial Organization. R. F. Carter, F. H. Westcott and A. W. Allen, New York.—p. 162.
- Mongolism Occurring in American Indians: Report of Three Cases. J. Sirkin, Newark.—p. 167.
- Bundle Branch Block: Diagnosis by Physical Signs. J. A. C. Gray, New York.—p. 169.
- Thermal Therapy in Chronic Disease. R. Kovacs, New York.—p. 174.

## Northwest Medicine, Seattle

36: 1-38 (Jan.) 1937

- Management of Eclampsia. F. H. Falls, Chicago.—p. 1.
- New Treatment for Trichomonas Vaginitis: Preliminary Report. F. B. Zener, Portland, Ore.—p. 7.
- Intratracheal Use of Iodized Oil: Its Therapeutic Value in Patients Suffering from Various Types of Bronchial Pathology. R. M. Balyeat, Oklahoma City.—p. 9.
- Atmospheric Causes of Allergy in Western Washington. P. Schonwald, Seattle.—p. 14.
- Intrathoracic Perineural Fibroblastoma. G. K. Smith and T. M. Joyce, Portland, Ore.—p. 18.
- Suppurative Diseases of Lungs: Their Diagnosis and Treatment. L. H. Clerf, Philadelphia.—p. 20.
- Treatment of Acute Osteomyelitis. A. O. Adams, Spokane, Wash.—p. 22.
- Diagnosis and Treatment of Anal Fissure. J. W. Mounsey, Spokane, Wash.—p. 24.
- Carcinoma of the Breast with Miliary Metastasis. C. P. Larson, Steilacoom, Wash.—p. 26.

**Treatment for Trichomonas Vaginitis.**—Zener found by experimentation and direct observation that an ointment containing 6.6 per cent vioform with a melting point slightly above body temperature (from 103 to 105 F.) would spread over the entire vaginal mucosa. Traces were present in the vagina after seventy-two hours. The ointment used is hygroscopic. As yet the ideal base for the ointment has not been found. The patients are treated on alternate days. No treatments are given during the menses, but the patient is instructed to douche twice daily with 2 quarts of warm 25 per cent saline solution. When the vagina is thoroughly cleaned, one-half ounce of the ointment, containing 0.75 Gm. of vioform, is instilled high in the vaginal vault. A large glass syringe with a long nozzle is used for this purpose. The patient is instructed not to take douches, except as directed during her menses. Since this method of treatment has been adopted, thirty-eight cases of trichomonas vaginitis have been treated. Nine patients have passed through four menstrual periods without recurrence, nine through three, nine through two and eleven patients are under treatment with definite improvement.

## Psychiatric Quarterly, Utica, N. Y.

11: 1-176 (Jan.) 1937

- Alzheimer's Disease: Clinicopathologic Report of One Case. G. A. Jervis, New York.—p. 5.
- Polycythemia in the Course of Neuropsychiatric Conditions. (Mesodiencephalic Origin of Polycythemia?) A. Ferraro and W. D. Sherwood, New York.—p. 19.
- Encephalography. R. R. Steen, New York; A. P. Evans and Mabel R. Matthews, Kings Park, N. Y.—p. 34.
- Graphocatharsis in Schizophrenia: Report of Case. P. Milici, Kings Park, N. Y.—p. 44.
- Studies in Obsessive Ruminative Tension States: II. Exploration of Psychoneurotic Psychotic Borderland. L. F. Woolley, Towson, Md.—p. 74.
- Recurrences of Psychosis with Psychopathic Personality and Psychosis with Mental Deficiency: "A Study of Prison Psychoses." S. C. Karlan, Dannemora, N. Y.—p. 94.
- Mortality Among Patients with Epileptic Psychoses. B. Malzberg, Albany, N. Y.—p. 104.
- Technical Approaches Used in Study and Treatment of Emotional Problems in Children: Part II. Using a Knife Under Certain Definite Conditions. J. Louise Despert, New York.—p. 111.
- Hereditary and Environmental Factors in Causation of Dementia Praecox and Manic-Depressive Psychoses. H. M. Pollock, B. Malzberg and R. G. Fuller, Albany, N. Y.—p. 131.

# Puerto Rico J. Pub. Health & Trop. Med., San Juan 12: 169-294 (Dec.) 1936

- Some Polymastigote and Hypermastigote Flagellates from Puerto Rican Termites. G. N. Calkins, San Juan.—p. 169.
- Studies on BCG: I. Pathogenicity of BCG. R. Thompson and E. Koppisch, San Juan.—p. 209.
- Id.: II. Vaccination of Guinea-Pigs. R. Thompson and E. Koppisch, San Juan.—p. 216.
- Rubino's Reaction in Leprosy. M. F. Pimentel Imbert, San Juan.—p. 257.
- \*Hematologic Studies on Malaria in Puerto Rico: Report of One Hundred Cases. R. Rodríguez Molina and J. Oliver González, San Juan.—p. 267.

**Hematologic Studies on Malaria in Puerto Rico.**—Rodríguez Molina and Oliver González performed hematologic studies on 100 individuals suffering from malaria, 83 per cent of whom presented the chronic and 17 per cent the acute type of case. Though 70 per cent of cases gave red cell counts below four million per cubic millimeter, only 10 per cent showed hemoglobins below 10.2 Gm. (70 per cent); the degree of anemia for the entire group was considered slight, the mean red cell count being 3.95 million and the mean hemoglobin 12.3 Gm. (85 per cent). Examination of stained smears did not show much evidence of active blood formation. A macrocytic anemia was found in 34 per cent of the patients, normocytic anemia in 37, simple microcytic anemia in 16 and hypochromic anemia in 13 per cent. Characteristic leukopenia was detected in only thirty-five cases. Schilling hemograms showed a degenerative shift in the granular leukocytes. No remarkable changes were observed in the platelets or in the sedimentation rate of the red corpuscles. Racial or acquired resistance to the disease and a high animal protein content in the dietary of the population studied are believed to be important factors responsible for the slight degree of anemia encountered. It is inferred from this study that the blood picture in malaria in Puerto Rico is not in itself of diagnostic value apart from the finding of the causative organism.

## Radiology, Syracuse, N. Y.

28: 1-130 (Jan.) 1937

- \*Treatment of Selected Cases of Chronic Catarrhal Deafness by X-Rays. F. W. O'Brien, Boston.—p. 1.
- Pituitary and Associated Hormone Factors in Cranial Growth and Differentiation in White Rat: Roentgenologic Study. H. Mortimer, Montreal.—p. 5.
- Serial Roentgen Examinations of Chest in University Students: Results of Single Film Studies in Students with Positive Mantoux Reaction. E. A. Pohle, L. W. Paul and S. R. Beatty, Madison, Wis.—p. 40.
- \*Bilateral Spontaneous Idiopathic Pneumothorax in Apparently Healthy Individuals: Review of Recent Literature and Presentation of Case. F. A. Hasney, West Orange, N. J., and F. Baum, Newark, N. J.—p. 47.
- Rare Developmental Abnormality of the Atlas. W. S. Lawrence and W. D. Anderson, Memphis, Tenn.—p. 55.
- X-Ray Diffraction Studies of Globular Proteins: I. Egg Albumin. G. L. Clark and J. H. Shenk, Urbana, Ill.—p. 58.
- Idiosyncrasy, Hypersensitiveness and Dose Intolerance. I. S. Trostler, Chicago.—p. 68.
- Surgical Anatomy of Abdomen: Roentgenologic Study. S. Brown and A. Fine, Cincinnati.—p. 73.

**Treatment of Chronic Catarrhal Deafness.**—From 1929 to 1935 inclusive O'Brien treated 140 patients by roentgen irradiation: seventy-three were improved as to hearing and tinnitus; the condition in sixty-five was unchanged and it was made worse in two. Of the improved group, sixty-seven had nine treatments to each ear and six received only eight treatments; nine treatments have been designated as the acceptable course or cycle. Accepting a cycle of nine treatments as the optimum, approximately 78 per cent who received it were benefited. No patient has been followed less than a year, the majority for more than three years and some as long as five years. The much abused tonsil did not seem to play a direct part in the beneficial outcome of irradiation of these cases. The x-ray factors employed were 145 kilovolts, 5 milliamperes, 0.25 mm. of copper and 1 mm. of aluminum filter at a distance of 50 cm. over a field 15 by 15 cm.; the exposure lasted five minutes, about 90 roentgens in air being given to each ear-field at one sitting and repeated at weekly intervals for nine treatments. A large field with the hypotenuse of the two right-angles extending from the nares to the mastoid tip was chosen deliberately to include the nasopharynx, the course of the eustachian tube and the mastoid and ear structures because of the accepted relationship of lymphadenoid tissue and infection

and a pleural reaction with formation of exudates or transudates on the contralateral side. The authors give the sign the name of both discoverers: Koranyi-Grocco's sign.

### Deutsche Zeitschrift für Chirurgie, Berlin

248:147-410 (Dec. 28) 1936. Partial Index

- Malignant Tumors of the Ureter. H. Kümmell.—p. 147.  
Unusual Pyocyanus Infection of Urinary Passages with New Stone Formation Following Pyelolithotomy. E. Roedelius.—p. 167.  
\*Operative Treatment of Puerperal Sepsis. T. Heynemann.—p. 198.  
Bleeding into Musculature in Case of Hemophilia. T. Fahr.—p. 208.  
Early Treatment of Separation of Epiphysis of Femoral Head in Adolescence. C. Mau.—p. 214.  
\*Effect of Cod Liver Oil Dressings. H. Kümmell and W. Jensen.—p. 238.

**Operative Treatment of Puerperal Sepsis.**—According to Heynemann, the main consideration in the treatment of puerperal sepsis is the removal of the septic focus through exposure and drainage or through extirpation of a suppurating organ. The localization of such foci constitutes the real problem in the treatment of puerperal sepsis. Vein ligation is seldom indicated. It is to be considered only in cases in which sepsis is of thrombophlebitic origin. The operation of vein ligation is technically not difficult. The difficulty lies in the uncertainty of its indications. Hysterectomy is not indicated in the treatment of sepsis. The only exceptions to this rule are the gas bacillus infection of the uterine musculature and, occasionally, an infected myoma or abscess of the uterine wall in the course of the puerperium. These complications, however, are unusual. Hysterectomy is likewise to be considered in certain cases of life threatening hemorrhages developing in the course of a febrile puerperium or due to retained placental tissue.

**Effect of Cod Liver Oil Dressings.**—Kümmell and Jensen state that wounds treated with cod liver oil ointment heal more quickly. Wounds irrigated with cod liver oil ointment likewise displayed an increased tendency to healing. The favorable effect was evident at a distance away from the irrigated area. The authors found in their experiments that the cod liver oil alone did not exhibit a necrolytic effect. However, necrolysis was definitely increased in the presence of pus. They did not observe any effect of cod liver oil dressings on the growth of bacteria in rabbits. The effect of the cod liver oil on the toxicity of pus was quite evident in animal experiment from the fact that the mortality was reduced 30 per cent.

### Klinische Wochenschrift, Berlin

16:1-40 (Jan. 2) 1937. Partial Index

- \*Cystine Disease During Early Childhood. H. Beumer and W. Wepler.—p. 8.  
Determination and Significance of Elimination of Vitamin C in Urine. K. Wachholder and P. Hamel.—p. 10.  
Vitamin B<sub>2</sub> (Lactoflavin) and Suffocation of Isolated Frog Heart. S. Dietrich and E. Pendl.—p. 13.  
Method of Measurement of Erythrocytes. W. Lieberherr.—p. 17.  
Interesting Case of Allergic Hepatopathy. P. von Vègh.—p. 19.  
Auscultatory Gap in Measurement of Blood Pressure. H. Siedek.—p. 21.

**Cystine Disease During Early Childhood.**—Beumer and Wepler direct attention to extensive cystine deposits in the organs during early childhood, pointing out that this condition was first described in 1903 and again in 1924. The condition was never correctly diagnosed during life, but the author thinks that a knowledge of the characteristic clinical picture ought to make this possible. He reports the case of a child that came under his observation first at the age of 2 months on account of otitis media. At that time the development of the child seemed normal, but at the age of 10 months the child was in a condition of severe atrophy although it had been breast fed for nine months. The constant loss of weight had begun after an attack of measles. The child was kept under clinical observation for four months, but there was practically no change, except a slight increase in weight, which was lost again almost immediately after the child left the hospital. The urine always contained albumin and sugar. On the basis of the clinical aspects, the case was diagnosed as renal diabetes and renal dwarfism. The child died at the age of 18 months and the necropsy corroborated the clinical assumption of renal disease. Examination of spleen, liver, kidneys and thymus

revealed large masses of a substance that was identified as cystine. The histologic changes were severest in the kidneys. A comparison of this case with those reported in the literature reveals considerable similarity. Following a discussion of recent observations on the cystine metabolism, the authors assume that the renal disease is the result of the nephrotoxic action of cystine.

16:73-112 (Jan. 16) 1937. Partial Index

- Nephropathic Action of Cystine and Cysteine. H. Beumer and R. Hükel.—p. 78.  
\*Gonadotropic Action of Extracts of Adrenal Cortex. F. Hoffmann.—p. 79.  
Vitamin C Content of Human and Cow's Milk in Summer. Anna-Eva Correns.—p. 81.  
\*Significance of "Thoracic" Lead for Electrocardiographic Detection of Myocardial Lesions. F. Kisch.—p. 83.  
Pancreas and Sodium Chloride Exchange. D. Adlersberg and M. Wachstein.—p. 85.  
Action of Vitamin A on Ovary of Puberal Age. H. Fasold.—p. 90.  
Minimal Sediment of Blood and Its Relation to Number and Hemoglobin Content of Erythrocytes. F. Frimberger.—p. 90.

**Gonadotropic Action of Extracts of Adrenal Cortex.**—Hoffmann describes animal tests which prove that the adrenal cortex contains a gonadotropic substance which differs from the surviving hormone of the cortex by its insolubility in lipid solvents and which thus can be differentiated from the surviving hormone. This gonadotropic substance stimulates the ovaries, as is indicated by an enlargement of the organ and by an increased follicular maturation with luteinization of the theca interna. If the gonadotropic substance of the cortex is given together with small doses of the gonadotropic substance of the anterior hypophysis, the enlargement of the ovaries is more pronounced and corpora lutea are formed. Thus the action of the gonadotropic substance of the adrenal cortex corresponds largely to the well known actions of the gonadotropic substance of the anterior hypophysis. Regarding the mode of action of the gonadotropic substance of the adrenal cortex, the author says that the rapidity of the action seems to indicate a direct stimulation of the gonads; he considers an indirect action by way of the anterior pituitary unlikely, although the definite proof for this has yet to be furnished by suitable tests on hypophysectomized animals.

**Thoracic Lead in Detection of Cardiac Lesions.**—Kisch demonstrates that the thoracic lead "from the left leg to the region of absolute cardiac dullness" may disclose the presence of a myocardial lesion in cases in which the leads from the extremities as well as the clinical symptoms fail to indicate such a defect.

### Medizinische Welt, Berlin

11:37-70 (Jan. 9) 1937. Partial Index

- Circulatory Disturbances of Hyperthyroidism and Hypothyroidism. H. Curschmann.—p. 37.  
\*Results of Determination of Diameter of Erythrocytes in Patients with Huntington's Chorea. F. von der Mark.—p. 41.  
Treatment of Fractures of Leg in Home Practice. R. Poelchen.—p. 44.  
Question of Abuse of Medicaments to Induce Sleep. H. Schubert.—p. 47.  
Technic of Obliteration of Varicose Veins. F. Jaeger.—p. 50.  
\*Alimentary Dilatation of Aorta. S. Kreuzfuchs.—p. 52.  
Experiences with Combined Administration of Calcium and Quinine in Obstetrics. P. Busch.—p. 52.

**Diameter of Erythrocytes in Huntington's Chorea.**—Von der Mark examined twenty-four cases of Huntington's chorea and detected an enlarged erythrocytic diameter in twenty-one. The author points out that this high incidence of an enlarged erythrocytic diameter suggests the possibility of a connection between Huntington's chorea and hepatic impairment. However, the literature reports only one case with indications of such a connection. The author states further than the enlargement of the erythrocytic diameter in Huntington's chorea might suggest a connection with an impairment of the bone marrow. On the other hand, he thinks that it might merely be a concurrence and not a relationship.

**Alimentary Dilatation of Aorta.**—In studies on the width of the aorta, Kreuzfuchs observed considerable degrees of dilatation in obese persons beyond the age of 35. He found that the development of the musculature causes no dilatation of the aorta; on the contrary, in athletes he often noticed a comparatively narrow aorta. However, fat tissues have a decided influence on the width of the aorta. In view of the fact that the

mately adherent to it and growing from it was the large crystalline calculus. On this calcium plaque a secondary deposit of a definitely different chemical character has been formed; that is, a definite undermining of the edge of the calcium plaque by crystalline deposits and growth of stone. This strongly suggests that, as the stone grows, it gradually encases the calcium plaque by undermining its edges, and, when the stone breaks free, the plaque is torn from its papillary bed and goes away with the calculus. It is the author's belief that, as the secondary deposit, or true calculus, grows, crystallization at the edges of the original plaque gradually undermine the plaque and that the calculus, when it gains its freedom, does so by tearing out the plaque from the wall of the papilla.

**Cruciate Ligament Injuries.**—Cubbins and his co-workers summarize their cases of dislocations of the knee joint in which there have been ruptures of one or both cruciate ligaments. They have had nine cases of double, four of anterior and two of posterior cruciate ligament injuries. In two cases of complete unreduced dislocations of the knee joint the limbs were shortened and recurved, with a total loss of the use of the limbs. After reduction, the tibial head could be carried in any direction around the femoral condyles and any type of dislocation could be reproduced. In three patients with complete rupture of all the ligaments of the knee joint observed immediately following the injury there was a total loss of function, marked swelling, discoloration and exquisite tenderness over the entire joint. Of these six completely dislocated knee joints there have been four excellent recoveries, one fair and one untreated, a failure. In four cases of old dislocations of the knee joint diagnosed as ruptured cruciate ligaments of the knee, the symptoms were loss of stability or function, the limb breaking down anteriorly or wobbling in a lateral direction; pain or tenderness not marked; either a slight or a negative amount of fluid; no stiffness or limitation; marked passive mobility at all times; very extensive mobility when the patient is put under anesthesia—almost  $2\frac{1}{2}$  inches of motion in the anteroposterior direction—and a lateral or medial deviation of the extended leg of from 30 to 50 degrees. The authors have observed no trace of the injured cruciate ligaments remaining in any of the injured joints operated on three months or more after the injury has been sustained, either in the single or in the double type of cruciate ligament injury. In none of the four cases of complete rupture of the cruciate ligaments were the menisci injured or displaced. In the two old injuries to the posterior cruciates both menisci were normal. There were no detached pieces of cartilage, bone or ligament in the joint cavity of any old case. In only one case was there a lesion in the cartilage of the femoral condyles. The ability of the knee joint to stabilize itself if immobilized is remarkable. In their new operative procedure the authors make the limb bloodless with a Martin band and a tourniquet on the upper portion of the thigh. An incision 13 inches long is used. It extends from 10 inches up the thigh down and around the head of the fibula; then a strip of fascia lata 1 inch wide is removed and dissected down to where it has a loose attachment on the lateral condyle of the femur. Another strip posterior to it and of about the same width is then dissected from its base down to where it curves forward and is attached to the head of the tibia. The knee joint itself is then opened. The incision extends down through the skin, through the lateral portion of the vastus medialis, through the fascia and synovia of the knee joint, until the suprapatellar space is exposed, and then down on the head of the tibia for a distance of 3 inches. As this incision is made it can be carried in through the synovial membrane and periosteum of the femur above the condyle about  $2\frac{1}{2}$  inches, and the periosteum and synovia elevated to a width of about three-fourths inch. On the head of the tibia a like incision is made down through the periosteum, and the periosteum is dissected up about three-fourths inch. Holes are drilled in these condyles for the placement of the new ligaments, which are twisted slightly. Curved alligator forceps can be passed outward through this lateral condyle to grasp the new ligament and pull it through into the knee joint. The new posterior ligament is carried through the fascia, covering the head of the fibula so that it will have a firm point of fixation, and pushed up beneath the lateral head of the gastrocnemius, the peroneal nerve and the popliteus tendon, through the posterior capsule into the knee joint. It is grasped with forceps as it

comes through into the joint, pulled forward and, with alligator forceps, pulled up through the medial condyle of the femur. The new anterior cruciate is now pulled down through the head of the tibia, the ligaments are drawn so that they are firm but not tight, with the limb flexed at an angle of from 25 to 35 degrees, and then they are sutured into their osteoperiosteal beds. The wound in the lateral surface of the thigh and leg is closed with clips. In closing the anterior wound, one should pick up and ligate any vessels with open mouths. Then the capsule is closed with continuous catgut suture, one from below up, and one from above down, a space being left between. The hemorrhage that will certainly follow this procedure can escape through the opening in this capsule, and the skin is closed loosely with clips so that there will be no accumulation of fluid in the knee joint. In the two operations for the repair of the posterior cruciate ligament the same method has been used as just detailed for the posterior cruciate.

### Tennessee State Medical Assn. Journal, Nashville

30: 1-40 (Jan.) 1937

Enuresis. W. E. Van Order, Chattanooga.—p. 1.

Subcutaneous Oxygen Therapy. W. Yeiser, Columbia.—p. 5.

### United States Naval Med. Bulletin, Washington, D. C.

35: 1-156 (Jan.) 1937

Trend of Venereal Disease in the United States Fleet. K. C. Melhorn.—p. 1.

Human Yaws. C. S. Butler.—p. 6.

Present Day Concepts of Endocrinology. P. F. Dickens and O. J. Brown.—p. 8.

Active Immunization Against Tetanus with Tetanus Toxoid. W. W. Hall.—p. 33.

The Navy and Appendicitis. L. W. Johnson and H. R. Boone.—p. 41.

The Specialist versus the Naval Surgeon. G. F. Cottle.—p. 52.

Aviation Medicine. J. W. Vann.—p. 55.

Evaluation of Modified Schafer Method of Artificial Respiration. F. S. Johnson, J. A. Hawkins and O. D. Yarbrough.—p. 60.

Use of Oxygen in Treatment of Compressed Air Illness. A. R. Behnke and L. A. Shaw.—p. 61.

Pathologic Fractures. F. H. Bowman.—p. 73.

### Wisconsin Medical Journal, Madison

36: 1-72 (Jan.) 1937

Nephritis: Phases of Renal Edema. F. D. Murphy, Milwaukee.—p. 17.

Id.: Nephritis from the Standpoint of the Insurance Companies. D. E. W. Wenstrand and R. W. Benton, Milwaukee.—p. 26.

Id.: Use of Cyanates in Treatment of Hypertension. M. H. Barker, Chicago.—p. 28.

Ambulant Treatment of Hernia. A. F. Bratrud, Minneapolis.—p. 34.

### Yale Journal of Biology and Medicine, New Haven

9: 199-286 (Jan.) 1937

Ercole Lelli and His Ecorché. H. Cushing, New Haven, Conn.—p. 199.

\*Pathways and Production of Pain. J. B. Hamilton, New Haven, Conn.—p. 215.

Congenital Atresia of Aortic Orifice. J. C. McNeerney, New Haven, Conn.—p. 229.

Nature of Eclampsia. J. P. Peters, New Haven, Conn.—p. 233.

Bio-Electric Potential Gradients in the Chick. H. S. Burr and C. I. Hovland, New Haven, Conn.—p. 247.

Passive Immunity Experiments in Mouse Typhoid. W. M. Hale, New Haven, Conn.—p. 259.

Historical Note on Capillaries, with Citations from an Early American Text. Isabella H. Perry, New Haven, Conn.—p. 265.

Studies of Apexes of Teeth: Correlation of Bacteriologic, Roentgenologic and Gross Anatomic Findings in Human Necropsies: Part I. Review of Literature: Methods Used. L. W. Burket, New Haven, Conn.—p. 271.

**Pathways and Production of Pain.**—Hamilton believes that the most adequate of existent theories regarding the production of pain is that of Lewis, which supposes the accumulation in the tissues of a pain substance produced by metabolism. However excited, impulses follow pain fibers, which pass from the viscera through sympathetic trunks but not through the vagus nerve. They are known to result in referred pain. Referred pain, sweating, hyperalgesia and temperature changes are valuable indexes in localizing visceral lesions, in recognizing psychotic cases and in exposing malingering. Pain may also be conveyed from the parietal mesenteries in a manner indistinguishable from visceral pain. In the limbs, individual pain fibers are periarterial for only short distances before passing from blood vessels to nerve trunks. The ideal surgical site for the certain removal of these pathways is at the sympathetic ganglions or posterior nerve roots, since the fibers tend to be more scattered whenever they are peripheral and central to the ganglions.

lation tissue of the focus, with subsequent rarefaction of the surrounding spongy tissue. The two latter phenomena are accompanied by softening processes (appearance of leukocytes within the old caseosis and autolytic dissolution) of the "primary" foci. Tuberculosis of the tubular bones and joints in children after 5 years of age is mostly due to progressive development or reactivation of different primary osseous foci. The exacerbation of such foci in the adult state probably constitutes the basis of osteo-articular tuberculous disturbances (trochanteritis, coxitis) in this age. The cause of such exacerbations of the primary foci remains unknown.

### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81: 237-444 (Jan. 23) 1937. Partial Index

- Rare Case of Carcinoma of Pancreas. P. Ruitinga.—p. 241.  
Carbon Dioxide Content of Blood of Right Side of Heart in Case of Simple Communication Between Cardiac Ventricles. P. Govaerts and J. Lequime.—p. 260.  
\*Relation Between Hypophysis on the One Hand and Function of Stomach and Bone Marrow on the Other. I. Snapper.—p. 265.  
Connection Between Hemolysis and Coagulation. F. L. J. Jordan.—p. 321.  
\*Diabetes Mellitus and Exophthalmic Goiter. M. Labbé.—p. 324.  
\*Bacteremia and Bacterial Localization. J. van der Hoeden.—p. 337.  
Life Expectancy of Persons Who Had Pulmonary Tuberculosis. J. Siegenbeek van Heukelom.—p. 346.  
\*Fever Therapy of Intractable Neuralgias. D. Klinkert.—p. 380.

#### Relation of Hypophysis to Stomach and Bone Marrow.

—In five patients with signs of insufficiency of the anterior pituitary, Snapper observed a complete gastric achylia. In one patient the gastric achylia produced a completely developed pernicious anemia and in another a hyperchromic blood picture. In the other three patients the blood showed no abnormalities, but there were more or less severe signs of systemic disease of the spinal cord. The author thinks that a connection may be assumed between insufficiency of the anterior pituitary and gastric achylia, which later may cause changes in the blood or lesions of the spinal cord.

**Diabetes Mellitus and Exophthalmic Goiter.**—Labbé directs attention to the concurrence of exophthalmic goiter and diabetes mellitus. After reviewing the literature on this problem, citing among others several of his own earlier reports, he points out that the association of the two diseases is of a frequency that cannot be explained as mere coincidence and must be regarded as the result of an endocrine relationship. Usually the exophthalmic goiter appears first and the diabetes develops later; however, in exceptional cases the diabetes may appear first. The simultaneous appearance of the two diseases suggested a thyroid diabetes, dependent on a disturbance in the thyroid glycoregulation and differing from the ordinary pancreatic diabetes. Observations on the therapy of such cases indicate that the treatment of the thyroid disease reduces the severity of the diabetes but does not cure it, doubtless because it counteracts only the hyperthyroid glycoregulatory disorder but not the pancreatic insufficiency.

**Bacteremia and Bacterial Localization.**—Van der Hoeden describes five cases in which, by local trauma, organisms pre-existing in the damaged region were carried into the blood stream. Endocarditis lenta was caused by *Streptococcus viridans* after tooth extraction; paratyphoid developed after cholecystectomy; *Bacillus proteus* bacteremia resulted from operation in infected tissue; fever and rigor were caused by streptococci after catheterism, and another case of *proteus* bacteremia occurred after wound treatment. Further, the author cites cases of bacterial localization; for instance, *Streptococcus viridans* on congenitally defective aortic cusps, tubercle bacilli after mechanical trauma, and pneumococci at the site of injection after pneumonia. The author concludes that these clinical observations provide more insight into the mechanism of bacterial infections and demonstrate the risk of even minor interventions.

**Fever Therapy of Intractable Neuralgias.**—Klinkert reports a number of cases of refractory neuralgia which he cured by means of fever therapy. He induced the fever with a preparation consisting of the proteins of nonpathogenic bacteria. He thinks that the cure was brought about by the acceleration of the blood and lymph stream during the artificial fever. He recommends artificial fever therapy for such cases of neuralgia in which physical methods are unsuccessful or cannot be employed for social reasons.

### Finska Läkarsällskapets Handlingar, Helsingfors

79: 933-1027 (Nov.) 1936

- \*Possibilities of Diagnosing Recent Primary Tuberculous Focus in Lung: Comparative Clinical-Pathologic Study. I. Wallgren.—p. 933.  
\*Contribution to Knowledge of Relation Between Rickets and Mental Deficiency. T. Brander.—p. 957.  
Contribution to Knowledge of Relation Between Enlarged Tonsils and Mental Deficiency. T. Brander.—p. 969.  
Acute Ulcer of Vulva: Three Cases. B. A. Johansson.—p. 982.  
Occurrence of "Dowicid" Eruption in Finland and Possibilities of Preventing Its Occurrence. H. Groth.—p. 991.  
\*Biologic Action of Roentgen Rays on *Bacterium Coli*. E. Unonius.—p. 999.

**Recent Primary Tuberculous Focus in Lung.**—Wallgren says that Verse's investigations together with Rossle's and his personal observations indicate that the noncalcified primary focus in the lung is not generally demonstrable in the roentgenogram, even though the focus may be the size of a hazelnut. In most cases of recent infection with pulmonary tuberculosis a primary focus is present, but it does not absorb enough roentgen rays to become visible. In forty-one student nurses the tuberculin test was negative at the start of training. When in the course of their hospital work the reaction became positive, roentgen examination was made; in only one case was a shadow in the lung parenchyma demonstrated which might be due to a primary focus; in two there were shadows of doubtful origin, in thirty-eight the results were negative. Three other cases are described in which recent tuberculous foci in the lungs were confirmed at necropsy but had not been demonstrable roentgenologically during life.

**Relation Between Rickets and Mental Deficiency.**—From somatic and psychologic examination of 375 premature children ranging in age from 7 to 15 years, Brander found that in the group with graver traces of earlier rickets there was greater frequency of feeble-mindedness, cases bordering on feeble-mindedness and ordinary stupidity, while the number of normal and talented children was correspondingly less. Since the defects in intelligence were of relatively mild degree, he concludes that rickets can hardly be of practical significance in the etiology of oligophrenia. There was no evidence for or against rickets as leading to lasting mental deficiency of milder degree, but both rickets and defective mental development might have the same cause, as, for example, premature birth. It seems to the author fairly certain that mental deficiency in itself is something which promotes the origin of rickets.

**Biologic Action of Roentgen Rays on *Colion Bacillus*.**—Surface cultures of colon bacillus were irradiated with hard rays in a dose of 500 or with soft rays in a dose of 2,000 roentgens. New cultures were again made from the mature colonies and the same dose was again given. This procedure was repeated until the bacteria in the experiment with hard rays had received ten doses and those in the experiment with soft rays twenty doses. On examination of the irradiated bacteria, Unonius found no change with regard to grape, milk and cane sugar, mannite and salicin, formation of indole, agglutinability, movement and  $pH$  tolerance.

### Hospitaltidende, Copenhagen

79: 1337-1356 (Dec. 22) 1936

- \*Cause of Fog Catastrophe in Meuse Valley in December 1930. K. Roholm.—p. 1337.  
Bronchial Asthma: Additional Fatal Case. J. V. Jørgensen.—p. 1350.

**Cause of Fog Catastrophe in Meuse Valley in 1930.**—Roholm describes this mysterious fog catastrophe near Liège, Belgium, which caused several thousand cases of disease and sixty deaths. He reviews acute and chronic fluorine intoxication and analyzes the details of the catastrophe, showing that there was probably an acute fluorine intoxication. He asserts that, of the twenty-seven factories in the region, fifteen belonged to branches of industry which either use raw materials containing fluorine (superphosphate factories, zinc works) or add fluorine combinations to raw materials (steel work, iron foundries, glass works) with the possibility of giving off gaseous fluorine combinations ( $SiF_4$ ,  $HF$ ) in the smoke from the chimneys. Special climatic and topographic conditions played a part in the development of the catastrophe. Since the toxicity of fluorine combinations is considerable and well known in industry, factories that give off gaseous fluorine combinations should be required effectively to remove these substances from the chimney smoke.

two successive cycles and on both occasions, although there was marked spontaneous activity, no rise of muscle tone or increase in the contractions resulted from the injection of solution of posterior pituitary. No clue to the cause of this refractoriness was revealed either by palpation of the pelvic organs or by microscopic examination of the endometrium. In another instance, although the menstrual dates placed the day of the observation of the uterine behavior as the seventeenth of the cycle, and it was known that the intermenstrual periods usually lasted less than twenty-eight days, the endometrium was proliferative in type and not, as was expected, secretory. This case demonstrates well the importance of endometrial examination as a means of obtaining collateral evidence of ovarian function, especially as regards the recognition of an anovulatory cycle.

### Lancet, London

2: 1445-1502 (Dec. 19) 1936

- Lobectomy in Bronchiectasis. W. H. C. Romanis and T. H. Scollors.—p. 1445.  
Determining Infectivity of Bacteria for Their Host, with Especial Reference to Pathogen-Selective Culture. M. Solis-Cohen.—p. 1447.  
Clinical Aspects of Outbreak of Typhoid Fever. S. W. Smith.—p. 1450.  
Surgery of Hematemesis in Chronic Peptic Ulcer. M. J. Smyth and F. d'Abreu.—p. 1453.  
Treatment of Glomerulonephritis by Antigen. H. B. Day.—p. 1456.  
\*Chronic Leukopenic Lymphadenosis Complicated by Tuberculosis. F. P. Weber and A. Schlüter.—p. 1459.  
Cardiovascular Effects of Benzedrine. E. W. Anderson and W. C. M. Scott.—p. 1461.

**Lymphadenosis Complicated by Tuberculosis.**—In the case of chronic lymphadenosis that Weber and Schlüter report the permanence of the leukopenia and granulocytopenia was a striking clinical feature. In the twenty-seven differential leukocyte counts taken at the hospital during the patient's life the average percentage of lymphocytes was 81, while the total leukocyte count averaged 3,407. After the patient's death the typical interacinous lymphocytic infiltration of the liver seen by microscopic examination, as in cases of lymphatic leukemia, was by itself sufficient to prove the correctness of the lymphadenosis explanation of the clinical features. But the miliary tuberculous process at the end was not suspected before the postmortem examination. The presence of some latent, quiescent tuberculous focus may have tended to make the lymphadenosis one of the aleukemic kind and hindered its active progress, though afterward an acute miliary resuscitation of the tuberculous process caused the death of the patient.

### Medical Journal of Australia, Sydney

2: 805-838 (Dec. 12) 1936

- Fractures of Lower Part of the Leg. I. B. Jose and A. L. Dawkins.—p. 805.  
Some Observations on Diagnosis and Prognosis in General Medicine. L. E. Hurley.—p. 808.  
Modern Treatment of Squint and Prevention of Blindness. J. B. Hamilton.—p. 815.  
Operation of Cerebral Decompression as Practiced by the Natives of New Britain Fifty Years Ago. I. I. Brodsky.—p. 817.  
Colorimetric Determination of Creatinine in Urine and Blood with 3, 5-Dinitrobenzoic Acid. A. Bolliger.—p. 818.  
Improving Efficiency of Mechanically Rectified X-Ray Generators. C. E. Eddy.—p. 821.

### South African Medical Journal, Cape Town

10: 823-850 (Dec. 26) 1936

- Fifty Years Ago or So. D. C. Watt.—p. 825.  
Some Biologic Aspects of Aviation. E. Jold.—p. 830.  
Head Injuries in General Practice. L. S. Williams.—p. 833.  
\*Treatment of Pneumonia When Artificial Pneumothorax Cannot Be Employed. I. Kaplan.—p. 835.  
The Registration of Medical Specialists. E. L. Ferguson.—p. 838.

**Treatment of Pneumonia.**—Kaplan's technic consists in strapping the chest with an elastic adhesive bandage applied from the normal side across the front of the chest and around the affected side to the back. The necessary stretch is applied to the bandage until the patient feels relief of pain in breathing. The distal end is then attached to the normal side. The best procedure is to apply the upper band high up into the axilla. The lower band is applied in the same manner but incorporates the eighth, ninth and tenth ribs and upper portion of the rectus muscle. The majority of patients complain of abdominal pain due to the added strain exerted on the extraordinary muscles of respiration when coughing. A third band is applied midway

between the first two or over any painful area of the affected side. When both lungs are affected the strapping is applied to form a complete hoop. Relief is obtained instantaneously. The agitated clenching of teeth and anxious expression is replaced by peaceful, painless respirations. The pulse improves and the patient is able to rest. The extremities are wrapped in elastic crape bandages in order to assist in combating the capillary dilatation. In this manner the circulating volume of blood is increased and thereby tends to stave off heart failure. Whenever the temperature is above 102 F., four-hourly doses of from 0.25 to 1 Gm. of quinine urea in 5 cc. of distilled water is administered. This is continued until three doses have been given. Potassium iodine and creosote are both excellent drugs. Potassium iodine acts as a bactericide and liquefies the tenacious secretions which increase the coughing. Creosote is antiseptic and diminishes secretions by allaying irritation. Digitalis in pneumonia uncomplicated by heart disease is contraindicated. Ten cases are described in which the foregoing treatment has proved successful.

### Quart. Bull., Health Org., League of Nations, Geneva

Special Number: 571-746 (Nov.) 1936

- Comparisons, as Regards Unit Value, Between Original International Insulin Standard and Proposed New Standard. J. M. Hershey and A. H. Lacey.—p. 589.  
Assay of Crystalline Insulin by Mouse-Convulsion Method. H. A. Procter and J. G. G. Garden.—p. 599.  
Assay of International Crystalline Insulin Standard by Mouse Method. D. A. Scott.—p. 607.  
Comparison of Proposed Crystalline Standard with Present International Insulin Standard. Kathleen Culhane Latbury.—p. 610.  
Comparison of Proposed New International (Crystalline) Standard Insulin with Current International Standard. J. W. Trevan.—p. 622.  
Comparison of Crystalline Insulin Preparation Designed for New International Standard with the Old International Standard Insulin of 1924. A. M. Hemmingsen and M. Weitz.—p. 625.  
Comparison of the Old International Insulin Standard with the New Crystalline Standard (Rabbit Method). G. B. Walden.—p. 629.  
Evaluation of the New International Standard Insulin by the Rabbit and Mouse Methods of Assay. H. P. Marks and C. Pak.—p. 631.  
New Insulin Standard, and Redefinition of Unit in Relation Thereto. Report of the International Conference of Experts to the Permanent Commission on Biologic Standardization.—p. 656.  
\*Proposed International Standard for Gas Gangrene Antitoxin (Histolyticus). C. Jensen.—p. 659.  
Memorandum Concerning an International Standard for Gas Gangrene Antitoxin (Histolyticus). L. E. Wallum and G. C. Reymann.—p. 690.  
Memorandum Concerning a Proposed International Diphtheria Antitoxin Standard for Use in Flocculation Test. C. Jensen.—p. 695.  
Memorandum Concerning Titration of Tetanus Antitoxin: Progress Report. C. Jensen.—p. 702.  
Antipoliomyelitis Convalescent Serum: Preliminary Report on Proposed International Standard Antipoliomyelitis Convalescent Serum. T. Madsen and C. Jensen.—p. 708.  
Report on International Biologic Standards Maintained at the National Institute for Medical Research, Hampstead, London, on Behalf of the Health Organisation of the League of Nations. P. Hartley.—p. 713.  
Report on International Biologic Standards Maintained at the Statens Serum Institut, Copenhagen, Denmark, on Behalf of the Health Organisation of the League of Nations. C. Jensen.—p. 728.  
Simple Laboratory Method for Desiccation of Serum and Other Protein Solutions. P. Hartley.—p. 735.

**Proposed Standard for Gas Gangrene Antitoxin (Histolyticus).**—For the purpose of the international enquiry, according to Jensen, a dry histolyticus antitoxin prepared by the Statens Serum Institut in a glycerol solution containing 20 provisional units per cubic centimeter was distributed, together with a preparation of histolyticus antitoxin of unstated potency, the experts concerned being invited to determine the potency of the latter preparation in terms of the provisional unit suggested. To facilitate the work, a preparation of dry stable histolyticus toxin was supplied to all participants. The conclusions drawn are that gas gangrene antitoxin (histolyticus) can be assayed with a high degree of accuracy, that dry, stable preparations of gas gangrene antitoxin (histolyticus) can be prepared and assayed in terms of an accepted standard preparation, and that accurately standardized solutions can be prepared which are suitable for purposes of biologic assay. It is recommended that the Permanent Commission on Biological Standardisation should accept the dry stable preparation of gas gangrene antitoxin (histolyticus) prepared at the Statens Serum Institut, Copenhagen, as the international standard for this antitoxin, and that the commission should define a unit, in terms of this standard preparation, for adoption for international use.



**Operation and Result.**—December 4 a typical acoustic tumor was totally removed (fig. 2). A unilateral cerebellar approach was used. The tumor weighed 13.6 Gm. The patient made an uneventful recovery and has remained well. There have been no subsequent dizzy attacks to Oct. 1, 1936.

**CASE 3.—History.**—M. McG., a man, aged 55, admitted Nov. 17 and discharged Dec. 1, 1935, complained of pain in the back of the head, dizziness and vomiting. The diagnosis was angioma with a large cyst filling the left cerebellopontile

The cyst extended as far forward as the fifth nerve, which was pushed against the brain stem. A solid mural angioma, the size of a hazel nut (fig. 3), located to the left tonsil of the cerebellum, was completely excised. The patient made an uneventful recovery and has been well to date. When seen in July 1936 there had been no postoperative attack of dizziness.

**CASE 4.—History.**—M. G. M., a girl, aged 15 years, admitted Nov. 5 and discharged Nov. 24, 1934, complained of dizziness, nausea, vomiting, tinnitus and deafness in the right ear. The diagnosis was Ménière's disease caused by strangulation of the right auditory nerve by an arterial loop (fig. 4).

The family history was negative. The past history was negative except for otitis media in the left ear in infancy.

Ten and one-half years before, when the patient was 4½ years of age, she had her first attack of nausea and vomiting and is said to have been unconscious for several minutes. There were no associated clonic movements, although she is said to have been rigid. Nausea, vomiting and headache persisted for several days. Within several months she had three similar attacks but was well between them. A routine examination disclosed that she was totally deaf in the right ear.

Nine years before the present admission I explored the cerebellar region, thinking she probably had a cerebellar tumor, and found what appeared to be vascular irregularities in both lateral recesses. Three months later she had a similar attack lasting several days. During the next year and a half she was quite well and her parents thought she had entirely recovered. However, during the next two years she had many spells of vertigo, tinnitus, nausea and vomiting that lasted for days and even weeks. Vertigo was the most distressing symptom. Then followed another free interval of one year without attacks. Again the attacks of vertigo recurred, but without stupor or loss of consciousness. There then followed another period of freedom lasting more than a year and a half, but again the attacks returned a year ago. There were periods of constant vertigo interspersed with short attacks, which came at frequent intervals. These attacks were described as follows: Preceding the onset of vertigo by several hours or even several days there was increasingly loud tinnitus in both ears; she would then become progressively deaf in the left ear (the right being totally deaf since childhood) so that her mother would have to shout to her in order to make her hear at all. She then complained of her skin being sensitive, especially over both sides of her face, and her arms and legs tingled. These premonitory symptoms were invariably followed by vertigo, which was usually accompanied by vomiting and extreme nausea. Objects danced and rotated, but in which direction

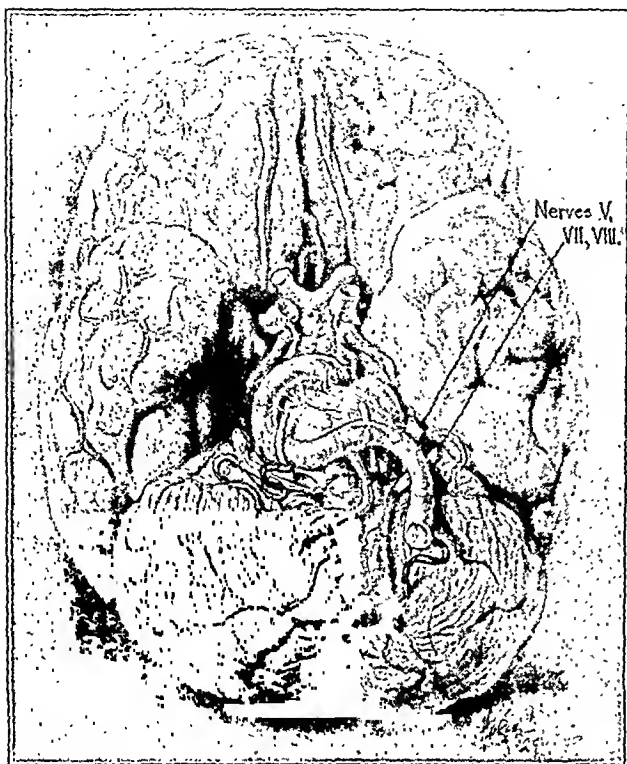


Fig. 1.—Aneurysm of the basilar artery pressing on the eighth nerve and causing Ménière's disease.

angle. The family and past histories were negative. Four years before, the patient had a sudden attack of severe vertigo in which objects rotated constantly. The attack, which lasted an hour, was accompanied by vomiting and he had to lie down. There was neither tinnitus nor loss of hearing. After the attack he felt perfectly well again until a second similar one four months later. Immediately following the second attack he was able to go to work. A third attack occurred three years later. During August 1935 severe intermittent pain developed in the occipital region, more on the left side. About this time diminution in the hearing of the left ear was first noticed. But little hearing now remained. There had been intermittent tinnitus (noise like a cricket) in the left ear. During the past several weeks he had had attacks of vomiting without nausea; he had been so unsteady on his feet that his friends have commented on his staggering gait. Six months ago he gave up work because he was fearful of falling. He has lost 30 pounds (13.6 Kg.) during the past six months.

**Examination.**—The patient was undernourished and looked ill. The positive changes were bilateral papilledema of 3 diopters in each eye, horizontal nystagmus to the left, staggering gait, and positive Romberg sign with falling to the left. The deep reflexes increased on both sides. Hearing in the left ear was markedly reduced and normal on the right. The caloric test was negative on both sides.

The diagnosis was tumor in the left cerebellopontile angle. **Operation and Result.**—November 19, a unilateral cerebellar approach was made on the left side. A large bulging cyst filled the cerebellopontile angle. A tremendous amount of cystic fluid was evacuated when the cystic lining was removed. One could then see the excavated glistening white brain stem. All the nerves in the angle stood out clearly. The eighth nerve ran directly through the cyst and was definitely elongated.

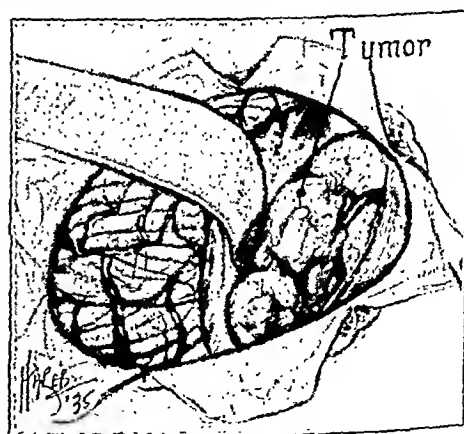


Fig. 2.—Acoustic tumor causing typical Ménière attacks.

she was unable to say. During the attacks she would lie perfectly still, usually keeping her eyes open. Her vision was blurred at times but there was no diplopia. There was generalized headache throughout the seizure. As the attacks subsided the tinnitus decreased and her hearing improved. Many of the seizures occurred at night, causing her to awaken. She would frequently dream of falling. The tinnitus was apparently about equal in the two ears and was described as a roaring sound. She had never fallen in an attack, because there was ample warning that one was developing. Because of the fre-

nancy from the normal figure of 47 mg. per hundred cubic centimeters of blood to 49 mg. and decreases slowly after the second month to reach 42.5 mg. by the ninth month. Immediately after delivery and during the puerperium, the amount of total iron in the blood increases again to normal figures. Coincidentally with the increase of iron during the first two months there is diminution of the number of erythrocytes and of the amount of hemoglobin in the blood, which continues slowly after the third month of pregnancy and reaches the lower figures by the ninth month. The diminution of the amount of total iron in the blood which takes place during the last six months of pregnancy is not proportional to that of the number of erythrocytes and the amount of hemoglobin during the same period of pregnancy. In the course of normal pregnancy the amount of total iron in the blood diminishes, but that of relative iron increases. The relative iron increase is due to the presence of iron in transit and other types of iron, not combined with hemoglobin, in the blood. This statement is proved by the fact that the ratios iron:hemoglobin and iron:erythrocytes are increased.

### Policlinico, Rome

44: 1-60 (Jan. 15) 1937. Surgical Section

- Primary Atrophy of Kidney Without Hydronephrosis Following Ureteral Ligation: Experiments. F. De Victoris-Medori.—p. 1.  
Volkman's Ischemic Contracture: Surgical Treatment. G. Montemartini.—p. 12.  
Embolism of Pulmonary Artery and of Arteries of Limbs. V. Palumbo.—p. 19.  
\*Biliary Peritonitis Without Perforation of Biliary Tract. G. Scoppetta.—p. 39.

**Biliary Peritonitis Without Perforation.**—Scoppetta says that the pathologic picture of biliary peritonitis without perforation of the gallbladder or of a segment of the biliary tract is that of acute peritonitis. There is acute abdominal pain all over the abdomen, especially located in the right iliac fossa. There is also contracture of the abdominal wall, especially of the right side, and general symptoms of an acute abdominal condition. The diagnosis of biliary peritonitis is difficult. The treatment is surgical and necessarily immediate. The selection of the operation is governed by the condition of the patient. In general, the operation of choice is cholecystectomy. Frequently the condition coexists with calculosis. In rare cases it develops in persons who had cholecystectomy performed. The bile or bile fluid in varying amount and of varying quality, and containing pancreatic ferments, is found free in the peritoneum. Examination of the gallbladder removed by cholecystectomy shows that the structure is enlarged, edematous and with thinned walls, especially at the fundus. The thinness seems to be near perforation. On macroscopic examination the mucous membrane is frequently found to be hemorrhagic and ulcerated. Microscopic examination shows absence of the epithelium of the mucosa, fibromuscular destruction and infiltration, formation of microscopic abscesses, changes in the blood vessels and inflammation and necrosis of the walls of the gallbladder, most intense at the areas of thinness of the structure. Macroscopic changes can be observed also in the omentum, the pancreas and certain intestinal segments. The author reviews the various theories on the pathogenesis of biliary peritonitis without perforation and reports a case in which the patient recovered after cholecystectomy. The general picture of the disease and the macroscopic and histologic signs of the removed gallbladder of the author's case corresponded to those previously described.

### Lisboa Médica

13: 767-866 (Dec.) 1936

- Intra-Arterial Injections in Hematogenic Infections of Kidney. R. Dos Santos.—p. 767.  
\*Hemoleukocytic Picture and Sedimentation Speed in Diagnosis of Tuberculosis of Children. C. Ferreira, S. Nunes and P. Leite.—p. 771.  
Examination of Gastric Secretion: Critical Study of Methods. J. H. Casção de Aciães and C. Trincão.—p. 809.

**Leukocyte Hemograms and Sedimentation Speed in Infantile Tuberculosis.**—Ferreira and his collaborators studied the leukocyte hemograms and the sedimentation speed of the erythrocytes in children suffering from different forms of tuberculosis in evolution. A general model of a hemogram of changes of the leukocytes in tuberculosis in children cannot be made because the changes are different in all cases. There

is leukocytosis and neutrophilia in nearly all cases and a deviation of the ratio of segmented and nonsegmented neutrophils in all cases. Monocytes are of no diagnostic value because of their irregular behavior. The sedimentation speed is increased in the blood of tuberculous children. This increase depends on a diminished resistance of the patient and is not related to the localization and phase of evolution of tuberculosis. According to the authors, leukocyte hemograms and the sedimentation speed are complementary procedures to the tests commonly used in diagnosis of tuberculosis in children. Their value is that of orientation and the results have to be verified by those of clinical and roentgen examinations of the patient as well as by laboratory tests.

### Prensa Médica Argentina, Buenos Aires

24: 123-176 (Jan. 20) 1937. Partial Index

- \*Question of Importance of Cutaneous Sensitivity to Gold Salts in Pulmonary Tuberculosis. A. A. Raimondi and W. D'Amato.—p. 123.  
Bronchiectasis and Septic Foci. J. J. Beretervide and A. Caruso.—p. 128.  
Thoracoplasty: Instruments. R. Finochietto.—p. 134.  
Encephalopathy in Child: Case. J. R. Mendilaharsu and G. A. Schiavone.—p. 138.  
Leukemic Retinitis: Case. E. Adrogué and J. Tettamanti.—p. 152.

**Test of Cutaneous Sensitivity to Gold Salts in Pulmonary Tuberculosis.**—Raimondi and D'Amato state that in 1935 Chiucini and Aradas tested the cutaneous sensitivity to gold salts as a guide to indication for gold treatment in pulmonary tuberculosis. The test consisted in the subcutaneous injection of 0.1 cc. of a 1 per thousand solution of a gold preparation (phosphocrysol). A positive reaction showed the appearance of an area of more or less intense redness around the point of injection. The reaction developed shortly after performance of the injection and was sometimes associated with fever. The red spot lasted for a few days and then disappeared. According to the originators of the test, a positive reaction showed intolerance to gold treatment and, when tolerated, the results of the treatment on pulmonary tuberculosis were unsatisfactory, while a negative reaction indicated good tolerance and good response of the patient to gold treatment. Raimondi and D'Amato made the test on a group of patients suffering from different forms of pulmonary tuberculosis for verification of the value of the test. They found that 50 per cent of the persons with negative reactions presented intolerance to the treatment and 69 per cent of those with positive reactions had good tolerance. The results of the treatment have nothing to do with the reactions, positive or negative. They depend on the form and evolutionary phase of the pulmonary tuberculosis. The authors state that the test of cutaneous sensitivity is of no use as a guide to indications for gold treatment in pulmonary tuberculosis.

### Revista de Tuberculosis del Uruguay, Montevideo

5: 517-672 (No. 5) 1936. Partial Index

- Section of Adhesions (Jacobaeus) in Inefficient Pneumothorax in Child. P. Cantonnet Blanchi, H. Lieutier and H. Cantonnet Blanchi.—p. 534.  
Neuritis of Median Nerve in Course of Gold Salts Treatment in Pulmonary Tuberculosis: Case. F. D. Gomez.—p. 563.  
Pulmonary Tuberculosis and Syphilis. F. D. Gomez and A. R. Ginés.—p. 581.  
Intravenous Injections of Sodium Benzoate in Pulmonary Suppuration. E. D. Anaya and E. de Boni.—p. 594.  
\*Semeiologic Value of Grocco Triangle. R. A. Piaggio Blanco, C. Sayagués Laso and R. A. Caimi.—p. 606.

**Semeiologic Value of Grocco's Sign.**—Piaggio Blanco and his collaborators state that Grocco's sign in pleurisy is rare (a frequency of 6.5 per cent of the cases). It appears only in certain cases of abundant pleurisy. Fluid is obtained by puncturing the area of dullness, whereas one fails to obtain any by puncturing the corresponding area in which there is no dullness. This fact and the results of an injection of 0.05 Gm. of methylene blue at the area of contralateral dullness after removal of fluid show that the appearance of Grocco's sign is due to contralateral presence of exudative or transudative pleuritis. Other pathogenic theories on the significance of Grocco's sign are erroneous. The simultaneous appearance of pleurisy and of Grocco's sign in cases in which the latter makes its appearance is the result of simultaneous development in the posterior costomediastinal culdesacs of pleurisy on one side

The physical and neurologic examinations were negative except for marked loss of hearing in the left ear. At operation, November 10, a large arterial loop lying in the cisterna lateralis rested directly on the eighth nerve, about the middle of its intracranial curve. Because the hearing was practically entirely lost, the nerve was totally divided. The postoperative course was uneventful.

CASE 7.—M. B., a woman, aged 50, admitted Nov. 20 and discharged Dec. 1, 1936, complained of dizziness. The diagnosis was Ménière's disease due to an arterial contact with the eighth nerve (fig. 6).

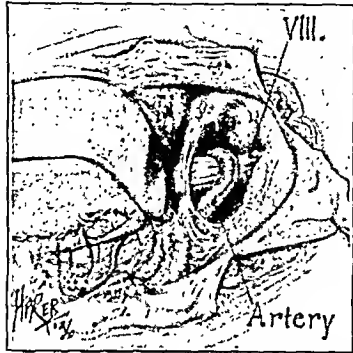


Fig. 4.—Artery encircling and strangling the auditory nerve. There was complete deafness and total loss of vestibular response, but still there was enough function remaining in the nerve to cause the Ménière attacks.

The family and past histories were negative.

The patient was well until nine years before admission, when she noticed a roaring in the left ear. This had persisted, growing more intense with time. Two months after the onset of the roaring she noticed deafness in the left ear; this had also gradually progressed. Ten weeks before admission she noticed some unsteadiness of gait. There was some

dizziness induced by moving the head, but only on one occasion did objects rotate.

Physical and neurologic examinations were negative except for an almost total loss of hearing in the left ear and a slight coarse nystagmus to the left. At operation, November 21, subtotal section of the left auditory nerve was done. A large artery in the lateral cistern passed between the seventh and eighth nerves, definitely lifting the auditory nerve upward and definitely pressing the seventh nerve downward and forward. The postoperative course was uneventful.

CASE 8.—One of the most convincing observations concerning the causative lesions of Ménière's disease was an incidental finding on the auditory nerve during an operation for trigeminal neuralgia in which the cerebellar approach was used and in which the auditory nerve is always in full view. It was noted that an exceptionally large internal auditory artery lay on the outer surface of the auditory nerve; it ran longitudinally and covered over half of the surface that is ordinarily in full view (fig. 7). The comment was made at the time that this was a most striking lesion not to have induced Ménière's attacks. No history of dizzy attacks had been elicited before operation. On the following day when fully out of the effects of the anesthesia the patient was questioned about dizzy attacks in the past. She, a well nourished woman, a lawyer, aged 45, said that she had never had any. Five days later a typical severe Ménière's attack suddenly developed and lasted for two days. There was neither deafness nor tinnitus. A month after leaving the hospital and before returning to her home in the West, the patient called to see me. In the interim she had written her physician concerning our inquiries of earlier attacks of dizziness. Her physician reminded her that several years before she had sought relief for similar attacks of dizziness. These the patient had entirely forgotten, even when questioned about them, but recalled them after her physician's reminder.

#### COMMENTS ON LESIONS IN MÉNIÈRE'S DISEASE

**Tumors.**—Of the relationship of actual tumors in the cerebellopontile angle to the causation of Ménière's attacks, little need be said. As a matter of fact, in not a few case records of acoustic tumors one can find a story of perfectly characteristic Ménière's attacks. As far back as 1888, Sharkey<sup>3</sup> of England noted that the attacks in his case of proved acoustic tumor were

like those of Ménière's disease. In Murri's<sup>4</sup> case (1897) the attacks were also noted as being of this character. In an article on Ménière's disease, Frankl-Hochwart in 1898 called attention to several reports of tumors in this region with attacks of this character but wasn't convinced that the effect of the tumor on the eighth nerve was responsible for the attacks because injury to contiguous parts of the brain by the tumor was too widespread. He added "whether isolated disease of the auditory nerve can give rise to Ménière's attacks is questionable," for no known case has been reported.

It has always been my impression that dizzy attacks with acoustic tumors were very uncommon. I think this is the general impression. In his monograph on acoustic tumors Cushing<sup>5</sup> says that in only one instance was the history of dizzy attacks such as to suggest the diagnosis of Ménière's disease. However, a review of his case reports shows that in at least seven of the twenty-nine cases, i. e., nearly 25 per cent, there was a history of attacks of dizziness of this character, and in others the notation is entered that there was dizziness.

Although I have made no careful study of my series of acoustic tumors they have been abstracted up to 1930, and from a series of eighty-four cases up to that time sixty-four have a history of dizziness and dizzy attacks, fifteen are recorded as having had none, and in five dizziness is not mentioned. From the seventy-nine cases with an entry on this subject almost eighty per cent gave a history of dizziness. What proportion of these had real recurring sudden attacks of dizziness like those of Ménière's disease, I do not know. In many cases the dizziness is brought on by turning the head or by quick movements, and while the dizziness of the two types is doubtless fundamentally the same in origin, nevertheless the subjective expression is much more violent in the typical Ménière attacks.

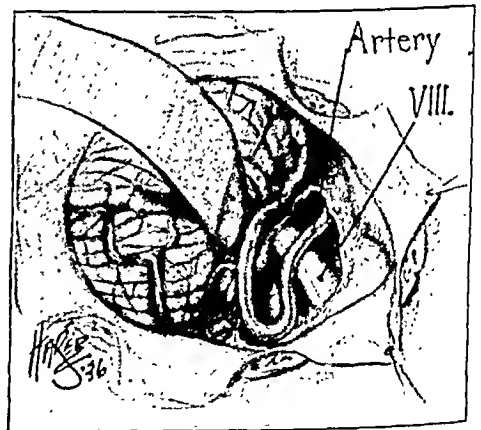


Fig. 5.—Arterial loop falling on the outer surface of the auditory nerve.

The reason for the general erroneous belief that dizzy attacks are uncommon with acoustic tumors can be explained by the fact that dizziness is but a minor part in a group of severe signs and symptoms that are usually adequate enough to make the diagnosis. Then too the onset of dizzy attacks usually occurs among the earlier symptoms and is later lost when the function of the nerve is abolished by the growth of the tumor.

4. Murri, A.: Upon Diagnosis of Tumors of the Cerebellum, *Lancet* 1: 292, 1897.  
5. Cushing, Harvey: *Tumors of the Nervus Acusticus*, Philadelphia: W. B. Saunders Company, 1917.

3. Sharkey, S.: A Fatal Case of Tumor of the Left Auditory Nerve, *Brain* 2: 97, 1888.

aortic dilatation in obese persons might be of an alimentary origin, the author designates it as alimentary dilatation of the aorta. He further directs attention to an alimentary component, particularly an excessive intake of cholesterol, in the pathogenesis of carcinoma and says that abnormal widths of the aorta are also quite frequent in carcinoma.

### Monatsschrift für Psychiatrie und Neurologie, Berlin

94: 237-300 (Dec.) 1936

- Migraine in Children and Young Persons. R. Hecker.—p. 237.  
Studies on Action of Short Waves on Cerebrospinal Fluid, Particularly on Blood-Cerebrospinal Barrier. K. Ilau.—p. 254.  
\*Improved Method of Demonstration of Morphine in Urine. C. A. Meier and W. Schlienz.—p. 266.  
Experimental Psychology and Kretschmer's Constitutional Types. J. P. Braat.—p. 273.

**Demonstration of Morphine in Urine.**—The method described by Meier and Schlienz precipitates the morphine in the urine by means of sodium hydroxide plus sodium bicarbonate. The extraction of the free morphine base is effected by shaking with hot chloroform. Then the extract is concentrated and the residue is dried. Following fractionated vacuum sublimation, the morphine is demonstrated in the different fractions by means of Froehde's and of Marquis's reagents. The authors give a tabular report of the results they obtained with this method.

### Wiener Archiv für innere Medizin, Vienna

29: 321-484 (Dec. 30) 1936. Partial Index

- Unusual Case of Systemic Disease of Lymphatic Apparatus. K. Fellingner and R. Klima.—p. 321.  
Primary Pulmonary Cancer. L. Berkesy.—p. 331.  
\*Observations on Action of Cevitamic Acid in Croupous Pneumonia. A. Hochwald.—p. 353.  
Clinical and Experimental Investigations on Behavior and Significance of Thyrotropic Hormone in Blood. K. Fellingner.—p. 375.  
\*Action of Magnesium on Automatic Ventricular Rhythm in Digitalis Intoxication. C. Bloch and A. Pick.—p. 435.

**Action of Cevitamic Acid in Pneumonia.**—After reviewing the literature on the antiallergic action of vitamin C and on the allergic mechanism involved in pneumonia, Hochwald describes the observations he made in the therapeutic use of vitamin C in cases of pneumonia. He reports twelve case histories but admits that the majority of the cases were so-called one-day pneumonias in which a spontaneous retrogression cannot be definitely excluded. He gained the impression that, if cevitamic acid is given early and in large doses, it exerts a therapeutic action on the pneumonia which becomes manifest in an improvement of the general condition (prostration, dyspnea and so on), quicker reduction of fever, earlier disappearance of the local symptoms and normalization of the leukocytic blood picture and, in some cases, of the urine. After the second day of the disease the cases are no longer suited for the cevitamic acid therapy. Moreover, the treatment may fail, even if it is administered before this term.

**Action of Magnesium on Automatic Ventricular Rhythm.**—Bloch and Pick reproduce and discuss electrocardiographic records of the modification by magnesium of the automatic stimulus formation. They demonstrate how the automatism that develops in the auricular fibrillation resulting from digitalis intoxication can be influenced. In summarizing their observations they point out that, in a patient with total ventricular arrhythmia resulting from auricular fibrillation, moderate doses of strophanthin and digitalis have a toxic effect and lead to the appearance of a subordinate pacemaker. The impulses originating in this pacemaker appear as series of regular automatic beats, only exceptionally as occasional automatisms, and take the place of the series of the super-ordinated fibrillation rhythm slightly bradycardized and regularized by digitalis. Pressure on the carotid of the left side, by inhibiting the conduction, favors the appearance of automatism, the series being noticeably prolonged. On the basis of reports in the literature the authors decided to treat this automatic heterotopism resulting from digitalis intoxication with magnesium sulfate. They found that the intravenous injection of a 20 per cent solution of magnesium sulfate checks the automatism and that there appears a slightly retarded and less regular transmission of fibrillation impulses. The retardation of the irregular fibrillation rhythm indicates an inhibition of the atrioventricular conduction by the magnesium sulfate. However, this effect of the magnesium sulfate is only temporary, its

duration being proportionate to the quantity injected (5 cc. acts five minutes, 15 cc. acts fifteen minutes). But even after the drastic action of magnesium sulfate has subsided, there still remains some effect in that automatism is no longer so pronounced.

### Wiener klinische Wochenschrift, Vienna

50: 83-114 (Jan. 22) 1937. Partial Index

- Antihormones. J. Bauer, E. Kunewilder and F. Schächter.—p. 83.  
\*Pathogenesis of Multiple Sclerosis. B. Dattner.—p. 87.  
New Remedy to Reduce Maceration of Skin in Water Bed. W. M. Kreiner and R. Neurauter.—p. 92.  
Bürger-Winiwarter's Syndrome, Angiosclerosis, Nicotine and Syphilis. J. R. Dreyfus.—p. 93.  
Cancer Mortality in Vienna not Decreasing but Increasing. E. Fürth.—p. 96.

**Pathogenesis of Multiple Sclerosis.**—Dattner discusses the present status of the knowledge on the pathogenesis of multiple sclerosis, pointing out that it is not definitely known as yet. He cites various theories and describes his own studies on the problem. He admits that there is a bewildering mass of factors and observations, the organization of which is extremely difficult. First there is the fact that in the great majority of cases of multiple sclerosis there exist hematic changes which can be demonstrated by means of the complement fixation reaction for tuberculosis but also by means of an alcoholic cerebrospinal extract, so that it can hardly be regarded as specific. Then it has been shown that, in the blood of patients with multiple sclerosis, there are lipolytic substances and higher diastase values, factors which indicate hepatic impairment. Further, it has been demonstrated that the blood coagulation of patients with multiple sclerosis is considerably prolonged and more unstable than in normal persons, which apparently likewise indicates hepatic impairment, perhaps a disturbance in the fat metabolism. The systematic investigation of the gastric secretion of patients with multiple sclerosis revealed anacidity or hypacidity in a considerable percentage of the cases but also cases with hyperacidity; that is, conditions similar to those which have been observed in pellagra and beriberi. Moreover, in a considerable number of patients hematic changes were observed which were on the borderline of hyperchromic or hypochromic anemia. Finally, the symptomatology as well as the clinical course indicated many similarities with such avitaminoses as pellagra, beriberi and scurvy. The author shows that all these observations give rise to questions that cannot be answered on the basis of the present status of knowledge. At any rate, he considers the careful analysis of individual cases in the various directions as an aid to obtain a better insight into the pathogenesis of multiple sclerosis.

### Vrachebnoe Delo, Kharkov

19: 739-826 (No. 9) 1936. Partial Index

- \*Pathologic Anatomy of Initial Forms of Osteo-Articular Tuberculosis in Children. W. G. Stefko.—p. 755.  
Mechanism of Disorders of Carbohydrate Metabolism in Pulmonary and Experimental Tuberculosis. A. E. Rabukhin.—p. 767.  
Alimentary Ketonemia in Different Forms of Pulmonary Tuberculosis. B. S. Bunina and A. B. Silberstein.—p. 771.  
Mineral Metabolism in Tuberculous Children. P. D. Ivait'skaya.—p. 773.  
Apical Tuberculosis. B. M. Khmel'nitskiy.—p. 775.  
Differential Diagnosis of Small Nodular Form of Pneumoconiosis and Tuberculosis. I. I. Moshkovskiy.—p. 787.

**Osteo-Articular Tuberculosis in Children.**—Stefko states that in tubular bones of children and adults one may observe isolated "primary" tuberculous foci that develop by the hematogenous route from tuberculous foci in the lungs or in the lymph nodes during the stage of primary infection. Such foci have been found by him in 80 per cent of the cases showing disease of bones and joints. According to their structure and origin, he distinguishes five forms of isolated foci: (1) intra-osseous perivascular, (2) lacunar (fibroid caseous), (3) fibro-caseous (Volkman and Kornev), (4) calcified and (5) capsular (bursal) foci. These foci appear chiefly in childhood (during the ages of 3 and 4 years) and may remain in a latent state for an indefinite time, accompanied by slight clinical syndromes or without manifestations. For the most part they cannot be revealed by x-ray investigation. When exacerbation of such foci takes place, one may observe (1) the appearance of new and smaller foci (osseous reinfections), (2) opening into the joint capsule or joint cavity and (3) development of proliferative processes in the form of intra-osseous growths of granu-

dizzy attacks. Such a large internal auditory artery attracted my attention in the first case of Ménière's disease that came to me for operation and before section of the nerve was known to be effective. The artery was so large that I thought it responsible for deafness and dizziness. The artery was clipped and the nerve left undisturbed. No appreciable benefit resulted; later the nerve was divided. It might appear on superficial consideration of this case that the absence of any beneficial effect from division of the artery would mean that the artery could not be responsible for the Ménière syndrome. In fact, it seemed so to me at the time. However, it is now known that a nerve once damaged still remains a potential source of subsequent attacks of Ménière's disease, just as a cerebral defect following the removal of a brain tumor or other lesion does not prevent subsequent attacks of epilepsy; they may indeed be less, but even this is not necessarily true. The epileptic attacks continue because the upper motor neuron is permanently damaged, and any imperfection of these tracts is for all time a potential source of convulsions.

However, it is only fair to add that the large ophthalmic artery passes through the optic foramen alongside the optic nerve and is not thought to be the cause of any trouble. But perhaps it too may be responsible for some of the losses of vision for which causes are unknown.

The five large arteries reported here do not represent the positive results from the entire series but only from the past year's experience, excepting the first case, in which operation was done two years ago and which in itself clinched the pathologic relationship. The actual percentage of large compressing arteries in this line is therefore approximately 10 per cent. But in addition there are many such vascular trunks that are less obtrusive but are only of smaller size. It is, of course, always difficult to tell with any degree of certainty where the large effective vessels end and the smaller noneffective ones begin. For this reason I have confined the pathologic presentation to the lesions that would appear to be unequivocal. If those of somewhat lesser size are added, the percentage of effective vascular lesions would probably be in the neighborhood of from 30 to 40. Even this leaves approximately two thirds in which no demonstrable cause can be seen at operation and far more than there is reason to believe could be filled in from the unexposed portions of the auditory nerve. Moreover, it is known that probably from 8 to 10 per cent of the total number of cases of Ménière's disease are bilateral, and these could not be explained on bilateral lesions along the auditory nerve. The only conceivable cause of bilateral cases must be some intrinsic lesion of the auditory vestibular pathways in the brain stem. If an intrinsic lesion causes the bilateral cases, there is doubtless a similar explanation for many of the unilateral cases. It is not my purpose, therefore, to suggest that the gross lesions here described account for more than a fraction—perhaps one third—of the cases. Since these arteries have always been in contact with the nerve, the reader may wonder why the attacks of dizziness, deafness or tinnitus come so late in life. It is, I think, because the arteries become more rigid with age. In case 4 the arterial noose had produced its effect since birth. The thought has also arisen that possibly venous contacts, such as one seen along the sensory root of the trigeminal nerve (branches of the large petrosal vein) may

also be responsible for Ménière's disease. But I have never seen a vein along the intracranial course of the auditory nerve.

McKenzie<sup>10</sup> has also been independently impressed with the significance of the arterial loops along the auditory nerve. During the discussion of my paper on bilateral Ménière's disease at a meeting of the American Neurological Society in 1935, when case 4 with the strangled nerve from an arterial noose was presented, McKenzie noted that in six of his last fourteen operations an abnormally situated anterior inferior cerebellar artery has "passed through or was lying upon the nerve."

#### OTHER LESIONS REPORTED IN THE LITERATURE ON MÉNIÈRE'S DISEASE

Wittmaack<sup>11</sup> found concretions in the ductus cochlearis of two patients who had had Ménière's disease. In one of these cases there was also a minute neuroma in the cochlea. It was his belief that the concretions had wrought "pressure" changes in the vestibular canals, much as closure of the canals of Schlemm results in glaucoma. Just<sup>12</sup> includes a reference (which I have been unable to obtain) by Zange, who found a small hematoma in the brain stem near one of the nuclei of the auditory nerve; the vestibular canals and cochlea showed no gross abnormality.

#### PATHOLOGY

A few years ago I brought certain evidence to prove that the attacks of Ménière's disease were analogous to those of trigeminal neuralgia and epilepsy and that only a lesion in the higher sensory or motor neuron could induce any of these attacks. It is therefore my belief that only lesions of the sensory root of the auditory nerve (its vestibular division) can cause Ménière's disease, and consequently lesions in the semicircular canals such as concretions would not be a cause. However, although I do not believe that concretions in the cochlear aqueduct can cause recurring attacks of dizziness and loss of hearing, I am not able to make a categorical denial that they may do so. The effects of irritative or occlusive concretions in this channel are not yet known. It would be difficult, however, to understand how an occlusion in the ductus cochlearis could affect the semicircular canals, which, although connected through the ductus endolymphaticus, should nevertheless be entirely independent of any secondary effect from an obstruction. Of the theory of Portmann<sup>13</sup> and Aboulker,<sup>14</sup> who conceive that pressure effects are transferred from the cisterna lateralis through the ductus endolymphaticus, one can be quite positive. That pressure in the lateral cistern does not in any way affect the semicircular canals or organ of Corti is easily shown by the entire absence of effect from the great numbers of brain tumors that are known always to produce a rise of pressure in the lateral cistern, and never is there any pathologic effect on hearing or vestibular function. Such a conception is purely a fanciful theory without any anatomic background whatever. Nor has there been in a single operative exposure of the lateral

10. McKenzie, K. G.: Intracranial Division of the Vestibular Portion of the Auditory Nerve for Ménière's Disease, *Canad. M. A. J.* 34:367 (April) 1936.

11. Wittmaack, K.: Ueber den tonus der zinnen- und steelen des quemenobres, *Arch. f. Ohren-, Nasen- u. Kehlkopfh.* 124:177 (Jan) 1930.

12. Just, H.: Ueber die Aetiologie und Therapie des Ménièreschen Krankheits, *Ztschr. f. Hals-, Nasen- u. Ohrenh.* 35:171, 1934.

13. Portmann, G.: Le traitement chirurgical des vertiges par l'ouverture du sac endolymphatique, *Presse méd.* 34:1635 (Dec. 29) 1926.

14. Aboulker, H.: Pathogenesis and Surgical Treatment of Ménière's Disease, *Presse méd.* 35:1412 (Nov. 19) 1927.



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## **PATHOLOGIC CHANGES IN MÉNIÈRE'S DISEASE**

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BALTIMORE

In previous reports I have shown that Ménière's disease and pseudo-Ménière's disease could be cured by section of the auditory nerve or equally well of the vestibular branch alone. The series of operations has now reached 170 in 160 patients, ten being bilateral. There has been no death and, except for four early facial palsies, no after-effects in the unilateral cases. There are few diseases so easily diagnosed and so perfectly curable.

Like trigeminal neuralgia the cure of Ménière's disease has antedated the disclosure of its underlying cause. Since the disturbances (chiefly recurring attacks of dizziness in which objects rotate) do not in themselves produce death, pathologic material is exceedingly scarce. Ménière's original description of "a serosanguineous exudate" in the semicircular canals<sup>1</sup> was not from a case of Ménière's disease as was supposed but from a case of acute purulent labyrinthitis—an acute infectious disease having no clinical resemblance whatever to Ménière's disease. Ménière's efforts to associate the pathologic picture with Ménière's disease shows that even in his own mind the syndrome was none too sharply defined. The absence of necropsy material throws the burden of pathologic disclosures on conditions found at operation. From this source a series of gross lesions is offered as the unequivocal cause of Ménière's disease. In another group of cases, representing perhaps 30 per cent of the whole series, it is believed that the gross lesion is also demonstrable; but for the present at least these changes are merely mentioned but are not presented as being unequivocally the cause. However, it is only with the small series of absolutely positive causes that this paper is concerned.

**CASE 1** (first reported in my first paper<sup>2</sup> on Ménière's disease.) *History*.—A. L., a woman, aged 63, admitted Nov. 22 and died Dec. 2, 1927, was rather feeble and was seen in consultation with Dr. Leslie N. Gay of Baltimore. Her first symptoms were gradually progressive deafness and tinnitus of the left ear (the right ear was almost deaf from an old infection during childhood). One year later, suddenly and without warning, she was seized with a terrific attack of dizziness during which there were nausea and repeated vomiting. The room seemed to jump around, the bed to tilt up and the walls to move in every direction. There was no definite

revolving sensation. The attack lasted about thirty minutes. Brief spells of much the same character occurred almost daily. Any quick movement would induce dizziness. The deafness varied greatly from time to time. Tinnitus was constant in the left ear. Her eyesight became so poor that she could not read. She never had headaches. The systolic blood pressure varied greatly during Dr. Gay's observations over a period of several months. Usually it ran from 160 to 190 but had been as low as 110. Her hands and feet were swollen at times, even when in bed; at other times the swelling was absent.

One month before operation her symptoms became much more severe. Roaring was nearly always present throughout the head and was often referred to both ears. The hearing became much worse. Her gait was unsteady and uncertain. The left corneal reflex was diminished.

Caloric response on the affected side was normal. Irrigations started mild attacks of dizziness and nausea.

The audiometer test showed 63.5 per cent loss of hearing in the right ear (old deafness) and 65 per cent loss in the left (affected side).

*Operation*.—November 22, the left auditory nerve was totally divided. An aneurysm was found under the eighth nerve. It was traced downward and was continuous with the vertebral artery. Two days after operation, the old noises returned. One week later it was noted that she could not lie on the left side (the nerve was cut on this side) for any length of time because nausea and vomiting would start, but dizziness had not been present since operation. The patient's condition became slowly worse and the noises became unbearable. She was unable to stand. Three weeks later the left vertebral artery was tied in the neck. At the same operation the right vertebral artery was exposed and momentarily compressed between the blades of the forceps; death resulted apparently simultaneously and instantly—the quickest death I have ever seen. Immediate release of the forceps was unavailing. The aneurysm is shown in figure 1.

**CASE 2**.—*History*.—K. B. D., a woman, aged 47, admitted Dec. 3 and discharged Dec. 24, 1935, complained of blurred vision, staggering gait and dizzy attacks. The diagnosis was acoustic tumor on the right. The family and past histories were negative.

Three years before admission to the hospital the patient was suddenly seized with a feeling of fullness in the right ear; this sensation soon disappeared and has never recurred. Severe headaches and blurring of vision began one year before admission. The headaches came nearly every day and lasted for several hours. Shortly afterward attacks of vertigo developed; with these there was rotation of objects. A roaring noise persisted in the left ear; it was not influenced by the vertigo. Nine months before admission she fell unconscious and remained so for several hours. On awakening, the left side of the face was numb and the face distorted. Staggering gait next developed. All the symptoms have been gradually progressive.

During the dizzy attacks the room and everything in it would spin around. She was forced to lie down immediately.

*Examination*.—Except for numbness of the face on the contralateral side, all signs indicated a tumor in the right cerebellopontile angle. The Romberg sign was positive and she fell in every direction. Hearing was totally lost in the right ear and was normal in the left. There was spontaneous nystagmus to the left. Irrigation of the ears with cold water produced no effect on either side.

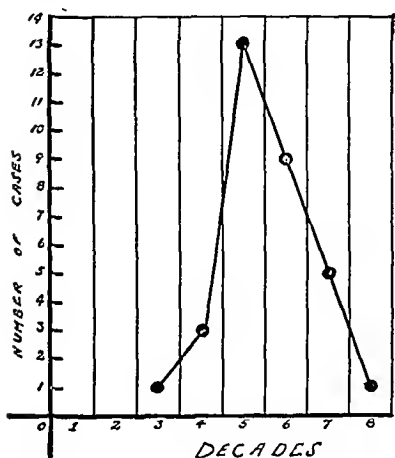
1. In many textbooks the statement is erroneously made that an actual hemorrhage was present. His pathologic description in 1861 of course antedated the knowledge that diseases were caused by bacteria and, therefore, it was not known that bloody exudate was merely the product of an infection.

2. Dandy, W. E.: Ménière's Disease: Its Diagnosis and a Method of Treatment. *Arch. Surg.* 16:1127 (June) 1928.

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anaerobic and grows very readily on the ordinary abundant growth with turbidity, slimy sediment and pellicle formation. On agar plates the colonies appear within from twenty-four to forty-eight hours as round, raised, slimy, gray colonies, which string out when drawn up with a wire loop.

A great advance was made in the study of this organism with its biologic classification by Julianelle<sup>9</sup> in 1926. He classifies the strains by the immunologic reactions of agglutination; precipitin reaction and passive protection against infection into three specific types designated as A, B and C. These three types comprise the great majority of strains noted clinically, the remainder being included in a heterogeneous group designated as X. Miss Georgia Cooper<sup>10</sup> of the Department of Health of New York City succeeded in further isolating two distinct types from this last group, which she designated as D and E, and it appears likely that still more types will be isolated in the future. Biologically this organism has many points in common with the pneumococcus. The distinctions in type were shown by Julianelle to depend on the presence of a



Age incidence of Friedländer's pneumonia.

specific carbohydrate in the capsular material, slightly different for each of the types, which constitutes the soluble specific substance excreted in the urine in infections with this organism. As with other organisms, both S (smooth) and R (rough) strains are found. The S strains produce capsules, are type specific and are highly virulent. Immunization with S organisms induces the formation of antibodies which agglutinate specifically and protect mice against infection by organisms of the same type. The R strains produce no capsule and no soluble specific substance and are not pathogenic. They are serologically undifferentiated from one another and react only with the species antibodies. Decapsulation of the S cells by heat and acid chemically converts a type-reacting S organism into a species-reacting R organism.

In 1921 Toenniessen<sup>11</sup> noted that Friedländer's bacillus when grown in symbiosis with *Bacillus vulgatus* loses its capsule as the result of the enzyme action of the latter organism, but he apparently had no interest in applying this discovery to the problems of experimental or clinical immunity. It is of interest, however, to note that following the work of Toenniessen, Dubos and his co-workers<sup>12</sup> in 1931 isolated another enzyme that experimentally is capable of protecting mice and

monkeys against infection with type III pneumococcus, an organism whose capsule has a close chemical resemblance to that of Friedländer's bacillus.<sup>13</sup>

#### EPIDEMIOLOGY

The Friedländer bacillus is a fairly common cause of infection of the biliary and the genito-urinary tract and has also been found as the etiologic factor in pericarditis, meningitis and septicemia. It is found as a normal inhabitant of the upper respiratory tract in a small percentage of normal persons, the incidence varying, according to different investigators, from less than 1 per cent<sup>10</sup> to more than 4 per cent.<sup>14</sup> Hence its pathogenicity is questioned, it being considered by some as merely a secondary invader. This objection, however, does not appear to be valid, as the pneumococcus, streptococcus and other organisms are found as saprophytes in the upper respiratory tract but may on occasion cause pulmonary disease.

The relationship between carriers and cases of Friedländer's pneumonia has not received the study that a similar relationship in the case of the pneumococcus has had. It is appropriate to record in this connection the instance of a resident physician<sup>15</sup> who, following contact with a case of Friedländer type A pneumonia, developed a severe pharyngitis from which this organism was isolated in pure culture and made a complete recovery without contracting pulmonary disease. Ferguson and Tower<sup>16</sup> report the occurrence of Friedländer's pneumonia in twin infants, one contracting the disease five days after the other. As in pneumococcal pneumonia, there is no conclusive information regarding the incubation period except that it is probably short. Webster<sup>17</sup> observed in a spontaneous epidemic of Friedländer's pneumonia among mice that the incubation period was forty-eight hours. He further helped to clarify the rôle of carriers experimentally by noting that, when a few carriers were placed in contact with healthy mice, some of these mice died in five days, while from 50 to 70 per cent died within two weeks of the disease.

#### INCIDENCE

The incidence of Friedländer's pneumonia is variously stated by different authors as from 0.5 per cent<sup>18</sup> to more than 5 per cent<sup>19</sup> of all cases of pneumonia. In this series, among 5,000 cases of pneumonia reviewed, thirty-two were found to be due to the Friedländer bacillus, an incidence of approximately 0.6 per cent. This estimate is unquestionably low for reasons already stated. It is perhaps significant that during the seasons 1933-1934 and 1934-1935 when all the pneumonia cases in the Fourth Medical Division were carefully studied clinically and bacteriologically by me with this in mind, twelve cases were found among approximately 300 cases of pneumonia of all types, an incidence of 4 per cent.

Unlike pneumococcal pneumonia, this disease seems to occur almost exclusively in late middle age. The

9. Julianelle, L. A.: A Biological Classification of Encapsulated Pneumoniae (Friedländer's Bacillus). *J. Exper. Med.* 44: 113 (July), 683 (Nov.), 735 (Dec.) 1926; The Distribution of Friedländer's Bacilli of Different Types. *J. Exper. Med.* 52: 539 (Oct.) 1930.

10. Personal communication to the author.

11. Toenniessen, E.: Untersuchungen über die Kapsel (Gummihülle) der pathogenen Bakterien. *Centralbl. f. Bakt. I abt., orig.* 85: 228, 1921.

12. Avery, O. T., and Dubos, R.: The Protective Action of a Specific Enzyme Against Type III Pneumococcus Infection in Mice. *J. Exper. Med.* 54: 73 (July) 1931. Francis, Thomas; Terrell, E. E.; Dubos, R., and Avery, O. T.: Experimental Type III Pneumococcus Pneumonia in Monkeys. *J. Exper. Med.* 59: 641 (May) 1934.

13. Goebel, W. F.: The Soluble Specific Substance of Friedländer's Bacillus. *J. Biol. Chem.* 74: 619 (Sept.) 1927.

14. Etienne, G.: Le pneumobacille de Friedländer: son rôle en pathologie. *Arch. de méd. exper.* 7: 124, 1895.

15. Kalkstein, Menasch: Personal communication to the author.

16. Ferguson, J. A., and Tower, A. A.: Pneumonia in Infants Due to *Bacillus Mucosus-Capsulatus*. *Am. J. Dis. Child.* 46: 59 (July) 1933.

17. Webster, L. T.: The Mode of Spread of a Friedländer Bacillus. *Like Respiratory Infection of Mice*. *J. Exper. Med.* 47: 685 (May) 1928.

18. Cecil, R. L.; Baldwin, H. S., and Larsen, N. P.: Lobar Pneumonia: A Clinical and Pathological Study of Two Thousand Typical Cases. *Arch. Int. Med.* 40: 253 (Sept.) 1927. Belk, W. P.: Pulmonary Infections by Friedländer's Bacillus. *J. Infect. Dis.* 38: 115 (Feb.) 1926.

19. Weichselbaum, Howard, W. T.: The Importance of *Bacillus Mucosus-Capsulatus* (Bacillus of Friedländer) as the Cause of Acute and Chronic Infections. *Philadelphia M. J.* 1: 336, 1898.

quency and severity of these attacks she had been unable to attend school; she had been tutored at home and was exceedingly bright. Her mother said she had been clumsy with her hands and that her gait had been awkward between the attacks.

**Examination.**—The physical examination was entirely negative. The Romberg sign was questionably positive, the gait practically normal. There was slight unsteadiness, probably because the patient had been in bed so long. The right ear was stone deaf; the caloric test gave no response in this ear. Hearing in the left ear was quite normal and the caloric response was normal. The remaining neurologic examination was negative.

Although I have never seen Ménière's attacks at such an early age, there could scarcely be a doubt that the attacks were of this type. It is interesting that the very early seizures were not associated with the dizziness, which came somewhat later. Since she was totally deaf and had no caloric response in the right ear, I could not believe that this ear could have any bearing on the attacks; and since the hearing always diminished in the left ear (the good ear) before the attacks, the left ear was thought to be responsible for her seizures.

**Operation and Result.**—Accordingly, November 6 the vestibular branch of the left auditory nerve was divided, the cochlear branch being left intact. There was one definite anatomic abnormality, but its character was not such that one could assume any connection with her attacks. The outer wall of the lateral cistern was some distance external to the auditory nerve, whereas normally this arachnoid membrane runs along and is attached to it. When the angle was exposed, one could see the white eighth nerve in the depths of the cisterna lateralis. This is merely mentioned as one of a series of congenital abnormalities.

During the following three days the patient was quite miserable and felt nauseated, but there were no definite complaints. On the fourth day she was quite ill and tinnitus appeared in both ears; the hearing began to diminish and her mother predicted that an attack was coming. Her skin was so sensitive that even the weight of the bed covers caused her distress. This had been a positive sign that an attack was coming. In the afternoon she awoke suddenly, following a dream in which she was falling; she screamed that an attack of vertigo was coming. Her extremities were rigid and she stared straight ahead. This attack lasted a few moments but was quickly followed by six others of similar character; there was neither vomiting nor headache; objects whirled about the room. There could be no doubt that the patient was having her original attacks and that section of the nerve had failed to produce any benefit. Two possibilities occurred as explanations of the failure: (1) perhaps, in our eagerness to save the hearing in the only functioning ear, the vestibular fibers had not been totally divided; (2) possibly the seemingly dead right auditory nerve might yet have a bearing on these attacks. It was finally decided to divide the seemingly functionless right auditory nerve. This was done November 11. The arachnoid was attached to the eighth nerve, as it normally is, but in contrast to the condition described on the other side. A striking observation was an arterial loop totally encircling and tightly strangling the eighth nerve as if it were in a noose. It surrounded the nerve just mesial to the acoustic foramen. The artery was fairly large and the nerve was so short that its division was somewhat difficult. Two little branches of the artery coursed toward the acoustic foramen and were thrombosed and divided. The arterial loop was then gently pushed mesially, giving just enough free nerve to permit its section near the acoustic foramen. There was no doubt in our minds that this arterial loop was causing the deafness and, as the subsequent course of events appeared to indicate, it was doubtless the cause of her attacks. Although she was fairly prostrated by the attacks antedating the operation, and doubtless, too, by the mental reaction of the unsuccessful operative procedure on the left side, she rapidly improved mentally and physically and left the hospital eleven days later.

It is now two years since the operation and at no time has there been the slightest suggestion of her earlier attacks; there has been no dizziness on turning the head and no diplopia. The hearing on the left side remains normal. For several months there was difficulty in walking, particularly with the eyes shut; even with the eyes open she at first staggered markedly, but there has been steady improvement in this respect until now she walks quite well. She has also had the customary blurring of objects when walking or moving, but this too has greatly improved.

**CASE 5.—History.**—H. K., a girl, aged 15 years, admitted Sept. 29 and discharged Oct. 10, 1936, complained of dizzy attacks. The diagnosis was Ménière's disease. The family and past histories were negative.

For the past four years the patient had noticed some deafness in the left ear. A year before admission, dizzy attacks began; these lasted about twenty minutes and came on without warning and without apparent cause. On several occasions she had fallen, usually to the left side. There had been no nausea or vomiting. There had been some tinnitus in the left ear.

**Examination.**—Except for almost complete loss of hearing and a very mild response to the caloric test in the left ear, there were no neurologic changes.

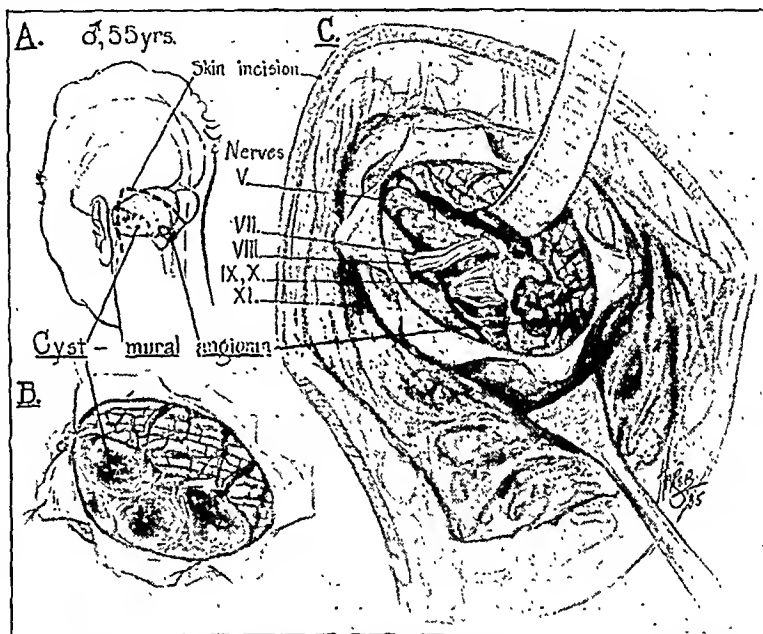


Fig. 3.—Cyst with intracystic papilloma in the left cerebellopontine angle. This caused Ménière's attacks by compression of the eighth nerve.

**Operation and Result.**—September 30 the left vestibular nerve was totally divided. There was a small artery encircling the nerve just at the point where it passes under and is attached to the cerebellum. The artery was closely bound to the outer surface of the nerve over its entire width. The patient has been well to date (Dec. 1, 1936).

**CASE 6.—M. L.,** a woman, aged 46, admitted Nov. 9 and discharged Nov. 21, 1936, complained of attacks of dizziness. The diagnosis was Ménière's disease caused by a vascular loop lying on the auditory nerve (fig. 5). The family and past histories were negative.

The patient had perfectly typical attacks of dizziness for the past five years; each attack would last from two to five hours. They would come on an average of once a month until the past six months; since then they had occurred almost weekly. There had been progressive deafness in the left ear since the onset of her attacks. There had also been tinnitus in this ear. In some attacks there had been nausea and vomiting. After her operation, and without knowing what had been done, her cousin volunteered that she had been deaf in the left ear since childhood. She was subsequently asked about this and denied it and gave evidence of the fact that her hearing had been very carefully tested before she was given a position with the telephone company.

DISTRIBUTION OF PULMONARY LESION

The anatomic character of the pulmonary involvement appeared from physical examination and from fluoroscopy to be lobar in twenty-seven cases (84 per cent) and patchy or lobular in four (16 per cent). Moreover it was not uncommon for a lobar consolidation of one lobe to be followed by a bronchopneumonic involvement of another. It is worthy of mention that only in approximately half the cases in which there was lobar involvement were the physical signs those of frank consolidation. In the remainder there was merely dulness and suppressed breath and voice sounds with a few râles, bronchial breathing being absent even when the consolidation was well advanced, as demonstrated by fluoroscopy or necropsy. This phenomenon may be due to the filling of the smaller bronchi with mucinous exudate, thus preventing passage of air through them. As seen from table 1, the commonest lobes to be involved were the right lower lobe and the right upper lobe, there being four cases of each. Involvement of more than one lobe was very frequent, occurring in eighteen cases (65.2 per cent). Upper lobe involvement was more common than is usually seen in other forms of pneumonia, occurring in six cases (18.7 per cent), and in conjunction with involvement of other lobes in thirteen other cases (40.6 per cent), a total of nineteen cases (59.3 per cent).

THE SPUTUM

One of the most distinctive features of this disease is the character of the sputum. This is usually a thick mixture of blood and mucus, brick red, and so homogeneous as to appear as if the blood and the mucus had been whipped together into a uniform emulsion. In appearance it resembles chocolate pudding, though of a redder hue. This character of sputum was noted at some stage of the disease in twenty-five of the cases (78 per cent). The quantity varies, sometimes being scant, at other times copious. If pulmonary edema supervenes it may become thin, pink and frothy, and if

TABLE 1.—Lobes Involved

Lobes Involved	No. of Cases
• Left upper lobe.....	2
Left lower lobe.....	3
Left upper lobe and left lower lobe.....	3
Right upper lobe.....	4
Right middle lobe.....	1
Right lower lobe.....	4
Right upper lobe and right middle lobe.....	3
Right lower lobe and right middle lobe.....	3
Right upper lobe, right middle lobe and right lower lobe.....	5
Right lower lobe and left lower lobe.....	2
Right upper lobe and left upper lobe.....	1
Right upper lobe, left upper lobe and right lower lobe..	1
Total.....	32

abscess formation occurs it may occasionally, though not usually, become foul. A direct smear of the sputum stained by Gram's method will usually show a predominance of large gram-negative bacilli with a refractive zone around them representing the capsule. If the sputum is injected into the peritoneal cavity of a mouse, as is done in routine sputum typing, it is digested much more rapidly than the usual pneumonic sputum, probably owing to the fact that it is already emulsified. Within two to three hours a drop of peritoneal exudate, obtained through a capillary pipet by the method of Sabin,<sup>23</sup> shows a pure growth of Friedländer's bacillus.

The organism causes a septicemia in the mouse, the animal usually dying in from eight to twenty-four hours; the bacillus can then be recovered in the heart's blood. A simpler method perhaps is to streak a drop of sputum on an agar plate and incubate it for from twenty-four to forty-eight hours. The characteristic slimy gray colonies will then be noted on the plate. It seems important to differentiate the gross character of the sputum from that seen in other pulmonary diseases because, once this fact is properly appreciated, it becomes possible to suspect the diagnosis from this

TABLE 2.—Relation of Bacteremia to Mortality

Total number of cases.....	32
Deaths.....	31
Mortality rate (approximate percentage).....	97%
Number of cases in which blood culture was taken.....	27
Number of cases presenting bacteremia.....	19
(a) Minimal bacteremia.....	6
(b) Mild bacteremia.....	9
(c) Marked bacteremia.....	4
Number of fatal cases with bacteremia.....	19
Mortality rate.....	100%
Number of cases in which blood culture was sterile.....	8
Number of fatal cases in which blood culture was sterile.....	7
Mortality rate.....	87.5%

feature alone. The sputum may be confused chiefly with that from a pneumococcic pneumonia or from a tuberculous patient with hemoptysis. The ordinary "pneumonic" sputum, however, is the color of prune juice and is more viscid and ropy, resembling taffy rather than an emulsion. That of hemoptysis is either pure blood or the bloody streaking of a mucopurulent sputum. It is imperative to examine a smear stained by Gram's method, which will usually confirm or disprove the suspicion of Friedländer's pneumonia before the sputum typing is completed. The latter procedure should not be omitted, however, as it constitutes more certain proof.

In ten of the cases an attempt was made to differentiate further the type of Friedländer's bacillus obtained from the sputum by agglutination tests and by the Neufeld reaction, and in each case a type A organism was found. This predominance of the type A organism in pneumonia is in agreement with the observations of Julianelle<sup>9</sup> and Cooper,<sup>10</sup> who estimate its incidence as 75 per cent and 95 per cent respectively. In this series it was found to the exclusion of all other types.

LUNG CULTURE

Lung puncture with the aspiration and culture of lung juice was resorted to as a diagnostic measure in ten cases. In each the Friedländer bacillus was found, and in eight of the ten the organism was typed and found to belong to group A. Moreover, in six additional cases lung culture at autopsy disclosed the Friedländer bacillus. These cases are cited though comprising only half of the group because of the uniform discovery of the infecting organism in pure culture in the lung juice or the lung tissue. The value of this finding is further enhanced by the fact that in no instance in which the attempt was made was there failure to find the Friedländer bacillus, nor was it associated in any case with other organisms.

BACTEREMIA

The incidence of bacteremia in this series is summarized in table 2. Blood cultures were taken in twenty-seven cases, nineteen (73 per cent) showing positive cultures, all of which ended fatally. In six cases in which the organism was typed it was found

23. Sabin, A. B.: The Microscopic Agglutination Test in Pneumonia, J. Infect. Dis. 46: 469 (June) 1930.

Doubtless if this phase of the illness should be investigated with greater care, the actual number of cases with clear-cut Ménière's attacks would be much greater.

From my entire series of cases of Ménière's disease an actual tumor has never been disclosed unless, in addition to the dizzy attacks, there were other signs and symptoms indicating the tumor's existence. So striking has been the absence of tumors in such a large

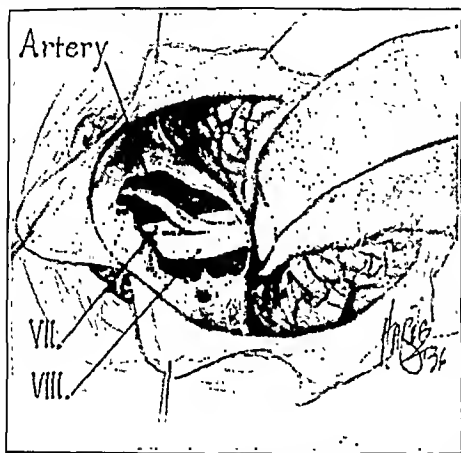


Fig. 6.—Large artery passing between the seventh and eighth nerves and causing elevation of the latter.

group of cases that I have acquired a feeling of confidence in excluding tumors, even though the objective changes of Ménière's disease and early acoustic tumors are precisely alike. And yet if the third patient in this series (case 3) had been seen at any time during the first three and one-half years of his illness, or the second patient (case 2) during the first two years, it is very doubtful whether the tumor would have been suspected.

That Frankl-Hochwart's<sup>7</sup> objection that pressure of the tumor on other parts of the nervous system and not involvement of the auditory nerve may be responsible for the seizures can now be answered in the negative, for section of the eighth nerve always permanently abolishes the attacks.

That tiny tumors may exist in those parts of the auditory nerve which are undisclosed at operation is, of course, always a possibility. Recently Hardy and Crowe<sup>8</sup> reported a series of six cases of this type, discovered at necropsy during a routine study of serial sections of 250 temporal bones. Because of their minute size all had been missed in the gross inspections at autopsy. In addition there had been ten angiomatous masses in the vestibular division of the nerve—a total therefore of sixteen small tumors; i. e., approximately 6 per cent of a series of cases taken at random and not chosen because of symptoms referable to the auditory tract. Of the six cases in which there were tumors (excluding the angiomatous network in the nerves) it is noted in three that there was no history of vertigo, and in the remaining three no history of the patient was obtained. As all these patients died of other causes,

the past histories may well have missed<sup>9</sup> dizzy attacks had they occurred. The significance of this series of cases lies in the fact that so many gross lesions may exist in the auditory nerve and still escape detection.

**Arterial Causes.**—Evidence that arterial contacts with the bare sensory root of the trigeminal nerve in the posterior cranial fossa were responsible for most cases of trigeminal neuralgia was presented by me in 1933. Subsequent experiences since that time have strongly fortified that impression. The thought that similar lesions might account for Ménière's disease was a natural outgrowth of these disclosures. It has been much more difficult to reach this conclusion because in so many cases there is no obvious gross vascular anomaly, although it must be realized that only approximately half of the total length of the auditory nerve is seen at operation. The eight cases here presented are, however, so outspoken that argument would appear to be unnecessary. Not the least impressive is case 8, in which the dizzy spells were predicted from just such a vascular anomaly as was seen on and largely obscuring the outer surface of the eighth nerve during an operation for trigeminal neuralgia. It is only fair to add, however, that an identical vascular anomaly has since been seen in another patient, and no history of attacks of dizziness could be subsequently elicited. The absence of disturbances from such a lesion is probably less significant than their presence, just as one may have no symptoms from gallstones for a long time at least. But, given the symptoms and the gallstones, the causal relationship is clear.

Only five other vascular lesions on the auditory nerve have been chosen, two in which arterial loops have seemingly strangled the auditory nerves, and three in which a large looping artery, free in the cisterna lateralis, has lain on the nerve. The vascular variations in the region of the auditory nerve are such that one has difficulty in establishing the normal. Not the least surprising is that an internal auditory artery is so

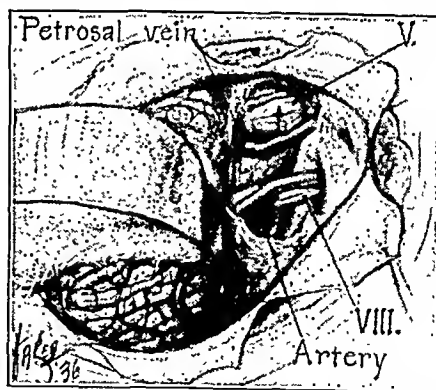


Fig. 7.—Large internal auditory artery covering the auditory nerve. This was found during an operation for trigeminal neuralgia. It was later learned that the patient had bad Ménière attacks.

infrequently found and when found is of such tiny caliber. Small arteries under, over, in front of, behind or actually in the nerve are not such as to excite the impression of any causal relationship, but when the artery is more than half the size of the nerve and is directly on the nerve it is difficult to believe that the artery is not affecting the hearing and producing the

6. Dandy, W. E.: Certain Functions of the Roots and Ganglia of the Cranial Sensory Nerves, *Arch. Neurol. & Psychiat.* 27: 22 (Jan.) 1932; Concerning the Cause of Trigeminal Neuralgia, *Am. J. Surg.* 24: 447 (May) 1934; Ménière's Disease: Symptoms, Objective Findings and Treatment in Forty-Two Cases, *Arch. Otolaryng.* 20: 1 (July) 1934; The Treatment of Bilateral Ménière's Disease and Pseudo-Ménière's Disease, *Tr. Am. Neurol. A.* 61: 128, 1935.  
7. Frankl-Hochwart: Des ménièresche Symptomkomplex, in *Nothnagel, H.: Spezielle Pathologie und Therapie* 11: 1 (part 2) 1898.  
8. Hardy, Mary, and Crowe, S. J.: Early Asymptomatic Acoustic Tumors, *Arch. Surg.* 32: 292 (Feb., pt. 2) 1936.

9. In the only case from this hospital there was not a word about the presence or absence of dizziness; the note concerning the absence of this symptom was obtained from his wife in response to a letter from Dr. Crowe.



tion,<sup>25</sup> but to my knowledge this is the first instance of such a superinfection of the blood stream in Friedländer's pneumonia. To complete the list of complications, delirium occurred in eleven cases and tympanites in three.

In addition, in a few cases, associated conditions were present which did not appear in any way related to the pneumonia. There was one instance of each of the following: duodenal ulcer, cholelithiasis, hypertrophied prostate and nephrolithiasis with cystic kidneys and two instances of cirrhosis of the liver. Several other patients were admitted to the hospital for some other condition and developed pneumonia as a complication: one man admitted for food poisoning developed pneumonia five days after admission and died. One patient developed this fatal pneumonia following a Caldwell-Luc operation for a purulent antrum, and one as a complication of a severe arsenical hepatitis (case 10). Another patient was admitted for chronic nephritis and asthma and later succumbed to Friedländer's pneumonia.

#### TREATMENT

The treatment did not differ greatly from that employed as a routine in pneumonia. It was mainly supportive and symptomatic, consisting of bed rest,

TABLE 3.—Results in Five Cases Treated with Specific Serum

	Day of Disease Started	Day of Serum Given	Total Serum U./Cc., Total Units	Blood Culture Before Serum	Blood Culture After Serum	Agglutinins Before Serum	Agglutinins After Serum	Day of Death
Case 1	5th	20	16,000	6 colonies	6 colonies	Absent	Absent	5th
Case 2	5th	110	88,000	30 colonies	30 colonies	Absent	Absent	6th
Case 3	4th	400	320,000	Sterile	5 colonies	Absent	Present	6th
Case 4	5th	230	184,000	Growth in broth	110 colonies	Absent	Present	8th
Case 5	2d	70	56,000	Sterile	Not taken	Not done	Not done	3d

liquid diet, high fluid intake and enemas as required. When indicated, circulatory stimulants, intravenous dextrose and whisky were given. Oxygen, either in a tent or by nasal catheter, was employed to combat cyanosis and dyspnea. Symptoms such as distention or delirium were treated in the usual manner as they arose. Pleural effusions were sufficient in quantity only in one instance to require thoracentesis. In the two cases complicated by empyema a thoracotomy was done in one two days before death, and in the other the empyema was not diagnosed during life. When meningitis occurred it was treated by daily spinal punctures and sedatives.

Specific horse serum<sup>26</sup> for type A Friedländer's pneumonia was employed in five cases. The results are summarized in table 3. All five cases ended fatally, three of them within twenty-four hours after treatment was started. In only two cases was an adequate quantity of serum administered. While it obviously did not alter the ultimate outcome, it is of interest to

determine whether there was any effect on the immunologic progress of the disease. From the table it would seem that there was no inhibiting effect on the bacteremia. In two instances in which the agglutinins for the infecting organism were at first absent in the blood stream, they appeared after the administration of serum; in two instances they did not. The appearance of the agglutinins in the former cases cannot with certainty be accredited to the serum therapy, because another patient in this series who received no serum developed agglutinins spontaneously on the fifth day. The lack of success with the serum in these cases is not a fair criterion of its value. It would be of distinct advantage to observe its effect in a larger group, particularly in early cases with larger amounts of serum. The failure of the serum may be due in part, as in the case of the type III pneumococcus, to the peculiarly thick, slimy capsule of the organism. In that event further experimental investigation along the lines suggested by the work of Toennissen<sup>11</sup> and Dubos and Avery<sup>12</sup> might be fruitful.

#### PATHOLOGY

The scope of this article does not permit any detailed discussion of the pathologic changes. Eighteen of the thirty-one fatal cases came to autopsy. Suffice it to say that in general the involved lobe or lobes appear voluminous, heavy and consolidated, the degree of consolidation varying with the stage of the disease. The color of the consolidated lung varies from chocolate brown to gray. The cut surface appears smooth and mottled but not granular, as in pneumonia due to the pneumococcus, and is covered by a characteristic viscid, abundant, mucinous exudate which sticks to the knife. The lung as a rule is softer and very frequently has areas of necrosis with abscess formation. The latter condition was well marked in six of the cases. Moreover, when it was not noted grossly it was common to find necrosis and destruction of the alveolar walls microscopically. The exudate filling the alveolae varies in character, consisting in most cases of a mixture of polymorphonuclear cells and large mononuclear cells with a few red blood cells. The percentage of monocytes varies; in some cases they are the predominant cell in the exudate. Cultures of the lung, if the autopsy is done shortly after death, yield the Friedländer bacillus, and on microscopic section the organisms can be seen in large numbers as gram-negative encapsulated rods lying in the cells or free in the alveoli.

#### DISCUSSION OF LITERATURE

Following the reports of Friedländer,<sup>1</sup> Fraenkel<sup>2</sup> and Weichselbaum,<sup>3</sup> scattered cases of this condition were recorded. Among the earliest clinical reports was that of Etienne,<sup>14</sup> who observed two fatal cases. He asserted that this form of pneumonia was usually patchy or pseudolobular and emphasized the gravity of the prognosis. Beco<sup>27</sup> in 1899 recorded the first case of bacteremia occurring in a Friedländer bacillus pneumonia. Further reports appeared, among them those of Thiroloix,<sup>28</sup> Smith,<sup>29</sup> Howard<sup>10</sup> and Kokawa,<sup>30</sup> which in the main presented the disease as an acute fulminating pneumonia occurring in adults, generally bronchopneumonic in distribution, with alcoholism and

25. Solomon, Saul, and Curphey, T. J.: Streptococcus Septicemia Complicating Pneumococcal Lobar Pneumonia, J. A. M. A. 108:187 (Jan. 16) 1937.

26. The serum employed contains 800 units per cubic centimeter (one unit being ten times the amount that will protect a mouse against a fatal dose of antigen) and was obtained from the New York Health Department through the courtesy of Dr. William H. Park and Miss Georgia Cooper.

27. Beco, L.: Recherches sur la fréquence de septicémies au cours des infections pulmonaires. Rev. de méd. 10:461, 1897.

28. Thiroloix, M.: Pneumonie due au bacille de Friedländer. Bull. Soc. anat. de Paris 72:152, 1897.

29. Smith, W. H.: A Case of Lobular Pneumonia Due to Bacillus Mucosus-Capsulatus, J. Boston Soc. M. Sc. 2:174, 1897.

30. Kokawa, I.: Zur pathologischen Anatomie der Kapselbazillen Pneumoniae, Deutsches Arch. f. klin. Med. 80:39, 1904.

cisternae in this series any abnormal finding and certainly there has been nothing suggestive of a localized meningitis, which is almost an impossible conception.

## SUMMARY

1. Two tumors and one aneurysm of the basilar artery are known to have caused Ménière's disease.

2. A series of five large arterial loops (from the anterior inferior cerebellar artery) in the lateral cisternae are, I believe, equally positive lesions in the production of Ménière's disease. They act by strangling or compressing the auditory nerve.

3. From the cases which came to operation during the past year about 10 per cent showed contacts from large arteries. In addition there are many vessels of smaller size that doubtless produce the same effect.

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## PRIMARY FRIEDLÄNDER PNEUMONIA

## REPORT OF THIRTY-TWO CASES

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Carl Friedländer<sup>1</sup> in 1882 described an organism which he found at necropsy in several cases of croupous pneumonia. He expressed the view that it was the chief etiologic agent of lobar pneumonia, thus precipitating a controversy which was not settled for many years. It is now generally agreed that Friedländer's observations were correct but that his deductions were too sweeping and based on insufficient data. For, soon after this, Talamon,<sup>2</sup> Fraenkel<sup>3</sup> and Sternberg<sup>4</sup> showed conclusively that the common cause of lobar pneumonia was *Diplococcus lanceolatus* or pneumococcus. It was their view that the organism described by Friedländer was not a true cause of pneumonia at all but merely a secondary invader. This swing of opinion regarding the pathogenicity of Friedländer's bacillus appears to have been as extreme and erroneous as Friedländer's original conclusions. Weichselbaum<sup>5</sup> approximated more closely to the truth as the result of a study of a larger number of cases. He confirmed the rôle of the pneumococcus as the usual cause of lobar pneumonia but added that in a small though definite percentage of cases the Friedländer bacillus was the etiologic agent. Reports from numerous sources have accumulated since that time to support this view, and at present the evidence in favor of it appears convincing. Nevertheless considerable doubt has been expressed by some investigators as to the actual significance of this organism in pneumonia.

The purpose of this report is to present additional evidence concerning the relationship between the Friedländer bacillus and certain cases of pneumonia and to determine whether there exists a characteristic clinical entity which distinguishes them from the usual cases of

pneumonia or other pulmonary conditions. It may perhaps also serve to call the attention of clinicians to a disease which, though not rare, has received scant attention in the literature. Thirty-two cases are presented which, aside from the report of Zander,<sup>6</sup> is the largest series thus far reported. That there is need for such a study is further evidenced by a review of the incomplete and frequently misleading information in the textbooks that deal with the subject.

## MATERIAL OF STUDY

Approximately half of this series of cases were observed and studied by me mainly during the course of an investigation into the therapeutic value of certain antipneumococcus serums.<sup>7</sup> With the permission of the directors of the First, Second, Third and Fourth Medical Divisions of Bellevue Hospital, to whom I am indebted, a search was made of the pneumonia records<sup>8</sup> as far back as 1920, yielding a number which brought the total up to forty-two. Of these, thirty-two were acute and ten were chronic cases of Friedländer's bacillus infection of the lung. The latter are not included in the present report, since they form a distinct group, having a totally different clinical course, and it is hoped that they will be reported separately at a later date. A large number of other cases were excluded from this series in which Friedländer's bacillus was found in association with other organisms such as the pneumococcus, streptococcus or tubercle bacillus, as it is intended here to present only cases in which there is sufficient clinical and bacteriologic evidence to warrant the conclusion that they are true cases of primary pneumonia caused by Friedländer's bacillus alone. Owing to the fact that pneumonia records in the past have been classified and filed anatomically and not etiologically, the task of discovering instances of this special type has been exceptionally difficult. There seems little doubt that this group by no means represents all the cases occurring in Bellevue Hospital in the past fifteen years both for the foregoing reason and also because it is probable that a large number escaped clinical recognition. This form of pneumonia is much commoner than is generally realized, and if certain distinguishing features are kept in mind the diagnosis can be readily suspected and quickly confirmed. This is of importance not only because the prognosis is much more serious than in pneumonia due to other organisms but also because it makes unnecessary the use of antipneumococcus serum, and because a widespread early recognition would greatly enhance the efforts to find an effective treatment.

## BACTERIOLOGY

The causal organism is the Friedländer bacillus, which is sometimes designated as the pneumobacillus or bacillus mucosus-capsulatus. It is a gram-negative rod, varying in length from 0.5 to 5 microns, and is approximately half that width; hence it may either be very long or almost coccoid. It is nonmotile and non-spore forming and is characterized by a thick, well developed capsule, which can be demonstrated by the ordinary Gram stain. It is aerobic and facultative

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The author received advice and encouragement from Dr. Theodore J. Curphey during this investigation, was given assistance by Dr. E. A. Greenspon of Montreal in correcting the manuscript, and received technical assistance from Miss Katherine Bleckerman.

1. Friedländer, Carl: Ueber die Schizomyceten bei der acuten fibrösen Pneumonie, Virchow's Arch. f. path. Anat. 87: 319, 1882.

2. Talamon, D.: Coccus de la pneumonie, Bull. Soc. anat. de Paris 7: 475, 1883.

3. Fraenkel, A.: Weitere Beiträge zur Lehre von den Mikroccoen der genuinen fibrösen Pneumonie, Ztschr. f. klin. Med. 2: 437, 1886.

4. Sternberg, Y. M.: The Pneumonia-Coccus of Friedländer, Am. J. M. Sc. 90: 106 and 435, 1885.

5. Weichselbaum, A.: Ueber die Aetiologie der acuten Lungen- und Rippenfellentzündungen, Med. Jahrb. 1: 483, 1886.

6. Zander, A.: Ausgedehnte Endemie von Lungenentzündungen durch Infektion mit Friedländer'schen: Pneumobazillen unter Zivilarbeitern, Deutsche med. Wchnschr. 45: 1180, 1919.

7. Curphey, T. J., and Baruch, H. B.: A Practical Method for the Immunization of Horses by Type Specific Pneumococcal Pleural Exudates, Proc. Soc. Exper. Biol. & Med. 26: 687 (May) 1929.

8. Miss Sylvia Barteau, record librarian of Bellevue Hospital, was helpful in obtaining these records.

While the number of cases in which this was done is few, the uniformity of the results enhances the value of the data. Moreover, in the great majority of cases in which bacteremia was present, this was not terminal or agonal but was present at the height of the disease. Furthermore, in nearly all the cases the Friedländer bacillus was isolated without difficulty from the sputum or lung juice or both when the case first came under observation, usually early in the disease.

As far as could be ascertained, in none of this series was the Friedländer bacillus a secondary invader entering a lung that was already the site of pneumonia due to another organism. This is attested by the fact that in only two instances (cases 3 and 4) was another organism found associated with the Friedländer bacillus, and adequate data are presented in the protocols of these two cases to show that the primary cause of the pneumonia was Friedländer's bacillus and that the other organisms were either mouth contaminants or secondary invaders.

#### REPORT OF CASES

The following are the protocols of ten representative cases that illustrate the main features described in the text of this report:

**CASE 1.**—A white man, aged 63, while sleeping in an empty warehouse was awakened at 4 a. m. by a chill followed by sharp pain in the left side of the chest when breathing. He coughed and raised a thick bloody, mucoid sputum. He was admitted to the hospital on the third day of the disease, appearing undernourished, pale, cyanotic, dyspneic, and critically ill. Fluoroscopy showed lobar consolidation of the left upper lobe, though the physical signs were limited to dulness and muffled breath sounds over this area. The sputum was a thick, homogeneous, brick-red emulsion of blood and mucus. A smear stained by Gram's method showed numerous polymorphonuclear cells and many bacteria, the predominating organism being large gram-negative encapsulated rods. Examination of a concentrated sample of sputum showed no tubercle bacilli. Mouse inoculation yielded a pure culture of Friedländer bacillus type A from the peritoneal cavity and the heart's blood of the mouse, and this was repeated on the following day with the same result. A lung puncture on the fourth day of illness showed Friedländer's bacillus type A. A blood culture on the same day was sterile, but on the following day there were six colonies of *B. Friedländer* type A per cubic centimeter of blood. Agglutinins against the infecting organism were absent throughout the illness. The white blood cells on the fourth day numbered 5,100 with 75 per cent polymorphonuclears, of which 62 were immature forms, 15 per cent lymphocytes, 9 per cent monocytes and 1 per cent basophils. On the fifth day the white cells numbered 2,100, with 84 per cent polymorphonuclears, of which 80 were immature forms, 10 per cent lymphocytes, 4 per cent monocytes and 2 per cent basophils.

The illness ran a rapid and virulent course, though the temperature remained persistently below 102 F., and on the fourth day pulmonary edema developed. On the fifth day specific anti-Friedländer serum was obtained and administered, although the patient was moribund, and he received only 20 cc. of serum. He soon relapsed into pulmonary edema and died on the fifth day.

Necropsy showed consolidation of the left upper lobe in a stage of gray hepatization, the lung weighing 1,850 Gm. On the cut surface of the lung was a sticky, slimy exudate which stuck to the knife. Culture of the consolidated lung showed Friedländer's bacillus type A. The unconsolidated parts of the lungs were congested and edematous and there were a few scattered patches of consolidation in both lower lobes. Microscopically, in the consolidated lobe, the alveolar walls were necrotic in areas, and the alveoli were distended with an exudate consisting of polymorphonuclear cells, mononuclear cells, degenerated red cells and gram-negative bacilli. The spleen was enlarged and congested. The gallbladder was small and contracted, containing a few stones. Culture of the bile showed only *Bacillus coli*.

**CASE 2.**—A white man, aged 58, stated that illness began suddenly with chills and fever, sharp pains in the right side of the chest, vomiting and diarrhea. He coughed and raised bloody sputum. He was admitted on the fourth day of illness appearing acutely ill, dyspneic, cyanotic and slightly jaundiced, with a temperature of 105.6, pulse 100 and respiration rate 30. There were signs of consolidation of the right upper lobe. The sputum was thick, mucoid and brick red, and a direct smear showed the presence of gram-negative encapsulated rods. Sputum typing by the rapid Sabin<sup>23</sup> method yielded a pure culture of Friedländer's bacillus type A in two hours, and this was later confirmed by a culture of the heart's blood of the mouse. A lung puncture done a few hours after admission showed Friedländer's bacillus type A. The blood cultures on the fourth and fifth days were sterile, but on the sixth day there were 4 colonies of Friedländer's bacillus type A per cubic centimeter of blood. Serum agglutinins were absent on admission but appeared on the fifth day following serum therapy and persisted till death. The urine showed the presence of albumin and granular casts, but stool and urine cultures were negative for Friedländer's bacillus. The white cells on admission were 2,200, with 48 per cent polymorphonuclears, of which 46 were immature forms, with 21 per cent monocytes, 30 per cent lymphocytes and 1 per cent basophils. On the fifth day the white cells numbered 2,300, with 79 per cent polymorphonuclears, of which 67 were immature, with 4 per cent monocytes and 17 per cent lymphocytes. The jaundice increased and shortly before death the icteric index reached 50.

Serum administration was begun a few hours after admission, the patient receiving a total of 400 cc. of serum intravenously within forty-eight hours. At the same time pneumothorax treatment was employed, it being felt that in so hopeless a disease the patient's welfare would not be jeopardized; a total of 800 cc. of air was given. The clinical course was characteristically rapid and fatal. On the sixth day pulmonary edema and tympanites developed, followed by the appearance of petechiae in the conjunctiva, death occurring soon after. Permission for necropsy was refused.

**CASE 3.**—A white man, aged 54, stated that illness began the day before admission with a vomiting spell, followed by sharp pain in the right side of the chest, chills, fever and cough with rusty sputum. The patient was cyanotic, dyspneic and acutely ill on admission, with a temperature of 102 F. Physical examination and fluoroscopy revealed a lobar consolidation of the right middle lobe. The sputum on admission was thick brown and viscid, and when it was typed a pure growth of Friedländer's bacillus was found. When this was repeated ten days later, however, the peritoneal washings showed Friedländer's bacillus and *Streptococcus viridans*, but from the heart's blood of the mouse a pure culture of Friedländer's bacillus was obtained.

Cultures of the patient's blood resulted in some unusual observations. On the third day of illness the blood culture was sterile, but on the fourth and fifth days the broths showed the presence of Friedländer's bacillus, the agar plates having no growth. On the sixth day there were six colonies of Friedländer's bacillus per cubic centimeter of blood, together with one colony of pneumococcus type I. On the seventh day again there was only Friedländer's bacillus, one colony per cubic centimeter of blood. On the eighth day there were two colonies of Friedländer's bacillus per cubic centimeter of blood and two colonies of diphtheroids per cubic centimeter of blood. On the ninth day the plates were sterile but the broth showed Friedländer's bacillus and a diphtheroid. The culture was sterile on the tenth day, while on the eleventh day the broth showed a growth of *Streptococcus viridans*. Thereafter on the twelfth and thirteenth day the cultures were sterile. Serum agglutinins for the Friedländer bacillus were about throughout, but for the pneumococcus type I they were present for a brief time on the fourth and fifth day. The white cell count on admission was 9,200, with 95 per cent polymorphonuclears, of which 81 were immature forms and 5 per cent were lymphocytes. Serial counts showed fluctuations with a general tendency to increase in leukocytosis, and on the day of death the count reached 23,300, with 98 per cent polymorphonuclears, of which 91 were immature forms and 2 per cent lymphocytes. The temperature ranged between 100 and 104 F. with wide diurnal swings, and the patient showed alternating peri-

age in this group ranged from 25 to 75 years, the mean being 48.7 years. Examination of the accompanying chart reveals that twenty-two (68.7 per cent) of the patients were either in the fifth or the sixth decade of life. This finding coincides with that noted by other authors. It is rare in children, although a few cases have been reported.<sup>20</sup> According to Dr. Charles Hendee Smith,<sup>10</sup> director of the Children's Medical Division of Bellevue Hospital, only one questionable case has been noted in his service among approximately 2,000 typed pneumonia cases in the past eight years.

There were twenty-eight males and four females in the group, a ratio of seven to one. This marked preponderance of males is only partly explained by the greater number of males admitted to the hospital; it must in large measure be due to other factors, such as exposure and increased opportunity for contact. Twenty-nine of the patients were white and three were Negroes, but it is probable that the foregoing disparity in incidence may be due to some extent to the fact that acutely ill Negroes are generally hospitalized in their own district, chiefly in Harlem and Lincoln hospitals.

#### PREDISPOSING FACTORS

That certain predisposing factors play a rôle seems very likely. Cold and exposure appear to be contributory and were noted in fifteen of the case histories (47 per cent). The pronounced seasonal incidence is additional evidence for this opinion, twenty-one (65.6 per cent) of the cases occurring in the six months from November to April inclusive, as compared with only eleven cases for the remaining six months. This is at variance with the observations of Bhatnagar and Singh,<sup>21</sup> who in a small series of cases report a preponderant incidence during the hot summer months. Alcoholism has come under suspicion as a predisposing factor more particularly in this than in other forms of pneumonia. Support is lent to this view by the fact that in seventeen cases there was a history of chronic alcoholism, an incidence of approximately 53 per cent. Malnutrition and other debilitating factors were noted in fifteen cases (47 per cent). It would be wrong to suppose, however, that this disease is restricted to any economic stratum.

It seems of value also to inquire regarding the rôle of antecedent respiratory disease. Six patients had had pneumonia previously, eight others gave a history of chronic bronchitis or pleurisy, and eight suffered from chronic infections of the upper respiratory tract, including several in whom an infection of the upper respiratory tract immediately preceded the pneumonia. The latter fact is noteworthy in view of the occasional discovery of the Friedländer bacillus in the upper respiratory tract and raises the question whether the pneumonia might not be secondary to a descending infection. In this connection it was noted that the majority of the patients had foci of infection in the upper respiratory tract such as dental caries, pharyngitis or diseased tonsils and sinuses, though these were not cultured.

Occupation apparently plays little part in predisposing to this disease, as a great variety of trades and vocations were represented, including laborers, sales-

men, bartenders and housewives. Three of the patients were miners and showed evidence of silicosis as well as pneumonia.

#### CLINICAL COURSE

Friedländer's pneumonia usually begins abruptly, this type of onset being noted in twenty-four (75 per cent) of the cases. In the remainder there were prodromes such as general malaise, anorexia and infection of the upper respiratory tract preceding the onset of the pneumonia. The disease was ushered in by a chill in twenty instances (62.5 per cent), and there was sharp pleuritic pain in twenty-seven cases (85 per cent). Cough, generally productive, was an initial symptom in twenty-six cases (81 per cent), being associated in a striking manner with hemoptysis in twenty-four instances (75 per cent). Gastro-intestinal symptoms such as vomiting and diarrhea were initial symptoms in nine cases (28 per cent), and systemic manifestations such as general malaise, fever, aches and pains occurred practically invariably with the onset. The day of disease on admission to the hospital varied from the first to the thirteenth day, the average being between the third and the fourth day, in those cases in which the pneumonia developed prior to admission. Four of the patients were admitted for other conditions, pneumonia developing while they were in the hospital.

Clinically the patients appeared acutely ill, dyspneic and cyanotic, so that it was not difficult to surmise that they were suffering from pneumonia. Herpes was uncommon but not as rare as some authors believe. Schlapper<sup>22</sup> for example states that herpes, which is the rule in pneumococcic pneumonia, has not yet been described in this disease. It occurred in four cases of this series (12.5 per cent), all of which were fatal; this is in contrast to the favorable prognostic significance that herpes is said to have in pneumococcic pneumonia. Jaundice occurred in seven cases (approximately 22 per cent), all of which were fatal. Herpes and jaundice did not occur together in any case. Petechiae were noted on the mucous membranes or skin in three fatal cases, occurring in each at a time when bacteremia was present.

The temperature was variable, ranging from 100 to 106 F., and in one case complicated by meningitis it reached as high as 109 F., which is not rare in terminal meningitis. Usually it was somewhat irregular, with moderate fluctuations in twenty of the thirty-two cases. In the remaining twelve the temperature was totally irregular with marked diurnal variations, usually because of some complication such as abscess formation, empyema or meningitis. In the one case in which recovery occurred the fall was by crisis on the tenth day. Etienne<sup>14</sup> and Belk<sup>18</sup> emphasize the fact that in Friedländer's pneumonia in spite of the fact that the patients appear desperately ill, the fever rarely rises above 102 F. This feature was noted in sixteen cases (50 per cent) and, though it is not as constant a finding as Etienne and Belk believe, nevertheless it is much commoner than in pneumococcic pneumonia.

The clinical course was generally fulminating. Thirty-one of the thirty-two patients died, a mortality rate of approximately 97 per cent. Death occurred from the second to the sixteenth day, the average day of death being between the sixth and the seventh day of illness, fatal termination being usually preceded by pulmonary edema.

20. Etienne,<sup>14</sup> Ferguson and Tower.<sup>15</sup> Comba, C.: Setticiemia de bacillo del Friedländer in un neonato, le sperimentale, Archivio di Biologia 50: 112, 1896.

21. Bhatnagar, S. S., and Singh, K.: Bacteriological Studies in Acute Lobar Pneumonia Due to *Pneumococcus* and *B. Pneumoniae* Friedländer, Indian J. M. Research 23: 337 (Oct.) 1935.

22. Schlapper, K.: Ueber Friedländer-Pneumonien, Beitr. z. Klin. d. Tuberk. 78: 741, 1931.

At necropsy the right lung weighed 1,800 Gm. Consolidation was limited to the lower part of the right upper lobe, the entire right middle lobe and the upper part of the right lower lobe. The consolidated areas appeared reddish gray, and a sticky, slimy, brown exudate was present on the cut surface. There was a thin, yellow effusion of about 300 cc. in the right pleural cavity. Culture of the effusion and the lung at autopsy showed pure growth of Friedländer's bacillus type A. The spleen weighed 95 Gm. and appeared normal, but culture of it also showed Friedländer's bacillus type A. The liver weighed 2,800 Gm. and was fatty, but the biliary tracts appeared normal. Culture of the bile and contents of the kidney pelvis were sterile. No other abnormalities were noted.

CASE 9.—A white man, aged 43, an unemployed miner, was homeless and slept outdoors. The next day he had severe pains in the chest, cough with bloody sputum, and diarrhea. On admission on the third day he appeared emaciated, acutely ill, dyspneic and cyanotic. There was clubbing of the fingers and congestion of the pharynx. Physical signs were doubtful, but fluoroscopy showed consolidation of the right upper and middle lobes. The sputum was characteristic, appearing thick, mucoid and bloody, and a direct smear showed large gram-negative encapsulated rods. Sputum typing showed Friedländer's bacillus type A, and this was confirmed by lung puncture. Repeated examinations of the sputum showed no tubercle bacilli. The blood culture on admission showed growth in the broths of Friedländer's bacillus type A. On the fourth day there were ten colonies per cubic centimeter of blood, and on the fifth day this increased to 110 colonies. The white count on the third day was 18,800, with 96 per cent polymorphonuclears and 4 per cent lymphocytes. On the fifth day the count fell to 4,600, with 90 per cent polymorphonuclears, of which 62 were immature forms, 7 per cent monocytes and 3 per cent lymphocytes.

The temperature was irregular, ranging from 99 to 102. Specific serum was started a few hours after admission, a total of 230 cc. being given in three days. Agglutinins against the infecting organism, which were absent on admission, appeared in the patient's blood on the fifth day and persisted till death. There was no apparent effect, however, on the downhill progress of the patient. Herpes appeared on the fourth day, and consolidation spread to involve the entire right lung. Death occurred on the sixth day.

At necropsy the entire right lung was consolidated, weighing 3,720 Gm. The right lower lobe was solid, mottled and covered with a thick, sticky brown exudate, which on culture showed Friedländer's bacillus type A. There was liquefaction necrosis of the entire right upper and middle lobes, with a peculiar odor resembling hydrogen sulfide. The left lung was congested. The spleen was also congested and soft, weighing 150 Gm. No other abnormalities were noted.

CASE 10.—A Negress, aged 54, during the course of treatment with arphenamine, developed jaundice, pruritus and vomiting. On admission she appeared acutely ill, lethargic and jaundiced, with a temperature of 102.6. The skin was dry and scaly, and the pharynx was congested and membranous. The lungs were clear on admission, save for decreased resonance at the right base. The diagnosis on admission was toxic hepatitis (arsenical).

Five days after admission the patient complained of pain in the right side of the chest and there were signs of frank consolidation of the right lower lobe. She coughed and raised a thick, mucoid, bloody sputum, smear of which showed large gram-negative encapsulated rods. A sputum typing showed Friedländer's bacillus type A, and this was confirmed by lung puncture. The blood culture was sterile. The white count shortly after admission was 6,300, with 62 per cent polymorphonuclears, 24 per cent lymphocytes and 14 per cent monocytes. The day after the onset of pneumonia the white count was 5,100, with 81 per cent polymorphonuclears, of which 21 were immature forms, 10 per cent lymphocytes, 8 per cent monocytes and 1 per cent eosinophils. The temperature was irregular, ranging from 101 to 104. The clinical course following the onset of pneumonia was fulminating. Consolidation spread to the left lower lobe, and death occurred on the third day of the pneumonia.

At necropsy there was consolidation of the right lower lobe and the left lower lobe. The cut surface of each of these involved lobes appeared grayish brown and soft, being covered

by a slimy, brown, mucoid exudate. Culture of the right lower lobe showed Friedländer's bacillus type A. At the right apex there was a small obsolete tuberculous focus. The remainder of both lungs was edematous and congested. The liver weighed 2,000 Gm. and was soft, friable and fatty. Ascites was present, there being approximately 400 cc. of amber fluid in the peritoneal cavity. No other pathologic changes of note were observed.

#### SUMMARY AND CONCLUSIONS

1. In twenty-seven of thirty-two cases of primary Friedländer's pneumonia (84 per cent) the involvement was lobar; in the remainder it was bronchopneumonic. As in other pneumonias, certain predisposing factors play a rôle, such as exposure, malnutrition, debility, alcoholism and antecedent diseases of the upper respiratory tract. The onset is generally acute with chill, fever, cough and pleuritic pain. Clinically, the patients appear acutely ill, dyspneic and cyanotic, and there is a fulminating course.

2. This study reveals certain features which serve to distinguish Friedländer's pneumonia from other forms:

(a) It occurs in the later decades, the average age being 48.7 years.

(b) There is a marked preponderance of males over females, the ratio being 7 to 1.

(c) Hemoptysis is a frequent symptom with the onset (75 per cent).

(d) Herpes is not common (12.5 per cent); jaundice is rather frequent (22 per cent).

(e) In approximately half the cases the frank clinical signs of consolidation are absent when symptomatology suggests it and roentgenograms, fluoroscopy or necropsy confirms it.

(f) The temperature is less regular and low grade pyrexia is much more common than in pneumococcal pneumonia.

(g) There is frequently involvement of the upper lobe. This occurred alone or in conjunction with lower or middle lobe involvement in nineteen cases (59.4 per cent). Involvement of more than one lobe is very frequent. It was noted in eighteen cases (56 per cent).

(h) The gross character of the sputum is that of a brick red, homogeneous emulsion of blood and mucus, in contrast to the ropy, rusty sputum of pneumococcal pneumonia. A direct smear of the sputum stained by Gram's method will usually show a predominance of large gram-negative bacilli with a refractive zone around them representing the capsule. Mouse inoculation will invariably confirm the diagnosis. The character of the sputum is pathognomonic and has hitherto not been described in detail.

(i) The Friedländer bacillus is found in pure culture in the sputum, in lung juice and frequently in the blood culture.

(j) Leukopenia with a "shift to the left" in the Schilling index and monocytosis are frequent.

(k) The mortality rate is very high (97 per cent in this series). Death occurs at an earlier stage in this disease than in pneumococcal pneumonia, the average day of death being between the sixth and seventh days. Death may be attributed to general toxemia and marked pulmonary necrosis, with local vascular changes and pulmonary edema.

(l) Bacteremia is more frequent (73 per cent) but is quantitatively less intense. The mortality rate is apparently little affected by the absence of bacteremia.

(m) Gross abscess formation is the most frequent complication. Empyema and meningitis are less common, and Friedländer's bacillus can be readily cultured from the pus and spinal fluid in these cases.



to belong to group A. The day of onset of bacteremia as far as could be ascertained varied from the second to the ninth, the average being between the fourth and the fifth day of illness. Of the eight patients who had sterile blood cultures, seven died, a mortality rate of approximately 87.5 per cent. This high mortality in cases without bacteremia is surprising and contrasts sharply with the low mortality rate in corresponding groups of pneumococcic pneumonia.

A further analysis of the degree of bacteremia yields some surprising information. Of the nineteen cases presenting positive blood cultures, in six there was growth only in the broth, the agar plates being sterile; in nine cases there were less than 50 colonies per cubic centimeter of blood; in two the number of colonies ranged around 100 per cubic centimeter of blood, and in the remaining two cases the colonies were innumerable. In other words, in fifteen of the nineteen bacteremic cases (79 per cent) the blood stream invasion was minimal or mild.

Two salient facts appear in considering these data. First, the high mortality rate (87.5 per cent) in the nonbacteremic group; second, the mild degree of blood stream invasion in the bacteremic group. It seems logical to assume from the foregoing that, in pneumonia due to Friedländer's bacillus, bacteremia apparently does not play the major rôle in the cause of death. This is in contrast to pneumococcic pneumonia, in which the mortality rate varies directly as the incidence and severity of bacteremia. The cause of death in Friedländer's pneumonia is obscure in the absence of complications. It cannot be ascribed to bacteremia or to cardiac failure, as far as can be determined. In the cases that were studied with this in mind, the heart action appeared good throughout. The pulse pressure was well maintained and there was no abnormal rise in venous pressure even when the patient was moribund and showed pulmonary edema. It is a fair assumption that death is due in large part to a severe general toxemia combined with intense pulmonary reaction to the organism, resulting in local necrosis and local vascular changes with resulting pulmonary edema.

#### BLOOD CELL CHANGES

White cell counts were done in twenty-four cases, in fourteen cases serial counts being obtained. The total white counts ranged from 1,800 to 31,800. In six cases (25 per cent) the white count never exceeded 6,000, and in nine others it ranged between 6,000 and 12,000. In six it ranged between 12,000 and 20,000 and only in three did it ever exceed 20,000. Thus it is seen that in fifteen cases (63 per cent) there was an absolute or a relative leukopenia. It should be remembered that these figures deal with the highest white count reached in the given cases. It might be added that there were in addition five other cases in which the count at some time went below 6,000, and four more in which the count at some time went below 12,000. Thus there was a total of eleven cases (45.8 per cent) with absolute leukopenia at some stage of the disease. It seems likely that if serial white counts had been done as a routine the proportion might have been still higher.

It is of interest to note the effect of complications on the total number of white cells. In two cases of empyema the count reached 12,000 and 30,500 respectively. In six cases of abscess formation the highest counts were 18,800, 18,700, 31,800, 12,000, 9,000 and 6,600 respectively. In one case complicated by meningitis the white cells numbered 15,200. In another the count was 3,800 before the onset of meningitis, no count being taken after this event, which was terminal.

These observations lend support to the view that in uncomplicated cases of Friedländer's pneumonia there is a tendency to an absolute or a relative leukopenia. It is noteworthy that there was a distinct leukocytosis (22,700 white cells) in the only case in which recovery occurred. In fourteen cases in which serial observations were made in the course of the disease, in eight the total count showed a tendency to rise, in four to fall, and in two to remain stationary.

An analysis of the differential white counts shows that the polymorphonuclear leukocytes ranged from 48 to 98 per cent with immature forms constituting from 31 to 91 per cent of the total white cells. The monocytes ranged from 0 to 34 per cent of the white cells. There were in all ten cases (42 per cent) presenting monocytes exceeding 4 per cent of the total count, including five cases in which they exceeded 8 per cent. In general the blood picture was that of an increase in the polymorphonuclear leukocytes, with usually a high percentage of immature forms. In 42 per cent of the cases there was an increase in the circulating monocytes, but only in 21 per cent was this of a marked degree.

The red cells were as a rule within normal limits, although in some cases there was a moderate secondary anemia. There did not, however, appear to be any increasing anemia indicative, for example, of a hemolytic action of the Friedländer bacillus.

#### COMPLICATIONS

Complications in this series were as a rule limited to the chest. In six cases there was a gross necrosis of the lung tissue, with sloughing and cavitation. This appeared as early as the fifth day in one instance, although Apelt<sup>24</sup> and Belk<sup>25</sup> each report a case in which abscess formation was noted on the fourth day. In the remaining cases of this series the pulmonary necrosis occurred as far as could be determined on the eighth, ninth, tenth and eleventh days respectively. Usually the diagnosis was made at necropsy, as foul sputum was observed in only two cases. Hence as only approximately half the patients who died came to autopsy it is reasonable to assume that this was a more common occurrence than these figures indicate. Empyema was noted in two cases, the Friedländer bacillus being isolated in pure culture from the pus in both instances. Pleural effusion occurred in six cases, though in only two was it marked (greater than 400 cc.). A purulent Friedländer bacillus pericarditis was noted in one case at necropsy, this condition not having been diagnosed during life.

Meningitis occurred in three cases, all ending fatally and in each, cultures from the spinal fluid yielded the Friedländer bacillus. The character of the spinal fluid is described in the protocol of case 4. Secondary infection with other organisms was noted in one case (case 3) in which two days after the recovery of the Friedländer bacillus in the sputum and blood the blood culture showed pneumococcus type I and diphtheroids in addition to the Friedländer bacillus. This was followed later by invasion of the blood with *Streptococcus viridans*. That this can occur in pneumococcic pneumonia was pointed out in a previous communica-

24. Apelt, F.: Ueber die durch den *Bacillus pneumoniae*: "Friedländer" hervorgerufene Pneumonie, München. med. Wchnschr. 55: 833, 1908.

because of anuria for four days. In August 1935 the right kidney had been removed by Dr. Harvard H. Crabtree for tuberculosis.

Dec. 31, 1935, fever and signs of pneumonia developed. The pneumonia was of moderate severity, involving the left lower lobe and later the right upper lobe. His temperature reached 102.6 F. He perspired so profusely that the bed clothing had to be changed several times a day. He took such fluids as

The morning urine was cloudy and contained a small amount of pus, and an infection of the kidney was feared. However, the specimens usually became clear during the day. He was given 80 grains (5.2 Gm.) of methenamine daily by mouth. His temperature was 100 F. at its height each day during the first two weeks. On each occasion when he received 20 per cent salt solution a marked chill followed from forty-five minutes to an hour after the injection.

TABLE 2.—Diet and Urinalyses in Case 2

Date, 1936	Diet					Urinalyses							Comment
	Carbohydrate, Gm.	Protein, Gm.	Fat, Gm.	Calories	Calculated Nitrogen from Diet, Gm.	24 Hour Amount	Nitrogen, Gm.	Chloride, Gm.	Specific Gravity	Albumin	Sugar, per Cent	Sediment	
Jan. 6	113	..	...	452	...	.....	....	....	.....	.....	...	.....	Arrived at 4 p. m.
7	254	21	29	1,443	3.3	270	....	....	1.018	st/vst	Trace	8-10 casts 6-8 R.B.C. 2-4 W.B.C.	
8	236	49	111	2,139	7.1	1,290	....	....	1.018	st/st	0.5	R.B.C. 10-12 W.B.C. 1-3 R.B.C. 2-3 W.B.C. Occ. W.B.C. 1-3 R.B.C.	
									1.014	vst/vst	0.3		
									1.016	st/vst	0		
9	244	31	63	1,307	4.84	1,550*	7.1	7.0	.....	.....	Trace	.....	12 hour amount
10*	254	43	90	1,198	6.87	3,000	14.6	12.6	.....	.....	Trace	.....	Weighted after 1/10
11	288	51	103	2,283	8.16	3,090	16.3	12.1	.....	.....	Trace	.....	
12	298	60	99	2,323	9.6	3,030	16.6	10.6	.....	.....	0	.....	
13	207	50	103	1,935*	8	2,496	14.3	8.2	.....	.....	0	.....	Probably could not have taken more by mouth
14	341	70	141	2,904	11.2	2,940	15.1	8.2	.....	.....	0	.....	
15	281	60	88	2,156	9.6	2,640	16.3	7.9	.....	.....	0	.....	
100 Gm. dextrose intravenously													
16	375	68	121	2,861	10.8	2,820	14.6	9.3	.....	.....	0.3	.....	
17	243	77	142	2,558*	12.3	1,930	18.6	10.4	.....	.....	0	.....	He clenched his teeth and would not take more, but he vomited only once after coughing spell
18	197	53	93	1,801	0.28	2,820	16.8	9.3	.....	.....	0	.....	
19	198	59	01	1,847	0.28	2,250	13.2	5.2	.....	.....	0	.....	
20	200	55	129	2,181	8.8	2,040	12.2	4.9	.....	.....	Trace	.....	
21	262	67	136	2,520	10.7	2,040	10.2	5.5	.....	.....	Trace	.....	
22	253	91	157	2,640	14.5	2,520	12.2	7.6	.....	.....	0	.....	
23	273	69	143	2,605	11.04	2,640	11.0	7.7	.....	.....	0	.....	
24	353	68	71	2,463	10.8	3,060	13.0	9.5	.....	.....	0	.....	
25	...	...	...	.....	.....	2,400	10.8	8.2	.....	.....	0	.....	
26	...	...	...	.....	.....	3,270	14.8	12.1	.....	.....	0	.....	
27	...	...	...	.....	.....	2,580	15.8	9.6	.....	.....	Trace	.....	
28	...	...	...	.....	.....	2,280	10.7	10.9	.....	.....	Trace	.....	
29	...	...	...	.....	.....	2,550	10.2	8.7	.....	.....	Trace	.....	

\* Explained in last column.

St = slight trace, vst = very slight trace.

fruit juices, coffee, tea and water very freely, up to 5,250 cc. a day. Suddenly on the third day he became anuric and at the time of his admission to the Deaconess Hospital no urine had been obtained for four days, with the exception of one-half ounce (15 cc.) on one occasion.

On admission the blood pressure was 100 systolic, 60 diastolic. The pulse was regular and the rate was 84. The skin was not very dry, although the tongue was dry, and he was somewhat delirious. Cheyne-Stokes respiration developed. The

TABLE 3.—Red Cells and Plasma Protein Values for Case 2

Date	Red Blood Corpuscles			Plasma Protein, per Cent
	Millions	Individual Cell Volume	Hematocrit, per Cent	
Jan. 7	4.43	$7.4 \times 10^{-11}$	33	5.4
9	...	.....	33	5.5
10	...	.....	33	6.3
13	...	.....	..	6.1
18	3.78	.....	.....	.....

blood sugar was 0.13 per cent. Table 1 summarizes the analyses of the nonprotein nitrogen of the blood and of the plasma chloride.

The fall in blood nitrogen and the rise in plasma chloride was accompanied by a diuresis. At 8 p. m., January 7, about fourteen hours after admission, 9 ounces (270 cc.) of urine was obtained by catheter. January 8, 30 ounces (900 cc.) was obtained, and the next day 90 ounces (2,700 cc.) was obtained. From that time on recovery was uneventful, although his mental condition did not become entirely clear until January 12, when the blood pressure was 148 systolic, 88 diastolic. He weighed 148 pounds (67 Kg.) net January 20; 148 pounds (67.6 Kg.) January 24 and 151 pounds (68.5 Kg.) January 27.

In tables 2 and 3 are shown data for the concentration of protein in the blood plasma, the red cell count and the course of the urinary nitrogen and chloride during recovery.

According to a report from his family physician, the patient was in good condition Dec. 25, 1936.

## COMMENT

Comparison may be made between this group of patients in whom anuria was promptly relieved by the intravenous use of hypertonic salt solution with those having heat cramps, studied by Talbott.<sup>2</sup> Under conditions of extreme muscular exertion, high temperature and extreme sweating, Talbott found a reduction of inorganic base in the patient's serum, chiefly in the sodium fraction, and a reduction of the acids, chiefly in the chloride fraction. This decrease in the serum electrolytes he considered the principal causative mechanism in the production of heat cramps. The critical time at which muscle cramps occur he considered to be a matter of individual susceptibility. The patients showed high degrees of concentration of the protein of the serum and hemoglobin of the blood, which decreased under treatment. The nonprotein nitrogen content of the serum was usually increased and in one case was 106 mg. per hundred cubic centimeters. None of the cases presented anuria. Possibly men engaged in such work would have sounder hearts and kidneys than those of an older group not capable of engaging in such occupations. The fact that nitrogen retention occurred.

2. Talbott, J. H.: Heat Cramps, *Medicine* 14: 323 (Sept.) 1935.

exposure as important predisposing factors. Apelt<sup>24</sup> in 1908 reported seven deaths, the average age of the patients being 50 years; among this group there were two cases of lung abscess.

Sisson and Thompson<sup>31</sup> in 1915 reviewed the entire literature on the subject and concluded that only thirty-three cases could be strictly accepted as genuine examples of primary Friedländer's pneumonia. To this number they added four of their own. One case ran a chronic course with recovery after empyema with Friedländer's bacillus had developed. The other three patients died within the first week, in one instance death occurring thirty-two hours after the onset. This is one of the most fulminating cases on record, being second only to one reported by Fremmel, Henrichsen and Sweaney,<sup>32</sup> in which death occurred in six hours.

In 1919 there appeared a paper by Zander,<sup>9</sup> reporting an outbreak in a labor camp in Germany during the World War. This article is discussed in some detail here mainly because of the large number of cases, a total greater than that in the entire remaining literature. There were 411 cases with 144 deaths, a mortality rate of only 35 per cent, which Zander strangely enough states is extremely high, though all other authors agree that the usual mortality rate is over 90 per cent. The average age of his group was 25 years. The pneumonia began in the lower lobes and at first was lobar, later becoming bronchopneumonic in distribution, Zander states. The duration of fever averaged 9.5 days, and empyema occurred in twenty cases. In addition, the author goes on to say, a number of the cases "developed into pulmonary tuberculosis."

A critical analysis of this series raises grave doubts as to whether they were true cases of Friedländer's pneumonia. There is no mention of sputum typing, blood cultures or agglutination tests, and there is no record of any necropsies on the fatal cases which might have afforded valuable confirmatory evidence. Moreover, the mild clinical course and low mortality rate distinguish these cases from all other instances of Friedländer's pneumonia reported either before or since.

Among the more important contributions is that of Belk,<sup>18</sup> who in 1926 reported eighteen cases, all of which were fatal. Half of his group may be regarded as true instances of primary Friedländer's pneumonia, the remainder being cases of mixed infection. The temperature was generally irregular and seldom higher than 102 F. Abscess formation was common, in one case occurring as early as the fourth day of illness. Belk conveniently classified his cases into three groups: terminal lobular pneumonia, primary lobar pneumonia and chronic suppurative pneumonia. Stengel, Kornblum and Collins<sup>33</sup> in 1928 reported three cases, paying particular attention to the x-ray appearance of the pulmonary lesions.

Ferguson and Tower<sup>16</sup> in 1933 reported the occurrence of Friedländer's pneumonia in two infants aged 7 months, an exceedingly rare occurrence at this age. Only two other cases have been reported in children, one by Etienne<sup>14</sup> and one by Comba.<sup>20</sup> Olcott<sup>34</sup> in

1933 reported six fatal cases, calling attention to the frequency of leukopenia and monocytosis and also discussing the pathology. Stoichita and Jonnesco,<sup>35</sup> in 1933 observed a fatal lung abscess due to the Friedländer bacillus occurring two days after tonsillectomy.

Abrami and Worms<sup>36</sup> in 1930 reported a case in which recovery occurred following the administration of intravenous injections of acriflavine. They also quote a case of Chirie's with Friedländer's bacillus bacteremia which was cured apparently by colloidal gold treatment, and one of Pic and Durand that was cured with vaccine therapy. However, any conclusions regarding the foregoing therapeutic agents are unwarranted both because of the paucity of the cases and because of the fact that instances of spontaneous recovery are well known to occur.

As stated previously, the rôle of the Friedländer bacillus in pneumonia is still disputed. It is contended by some that this organism, when present in cases of pneumonia, is merely a secondary invader. This view is strongly championed by Baehr, Schwartzman and Greenspan<sup>37</sup> in a recent communication. They maintain that the organism is concerned chiefly with infections of the biliary system, the genito-urinary system and perforative lesions of the intestinal tract. When encountered in pneumonia they believe it is seldom, if ever, the primary cause of infection but that it is either a secondary invader or has reached the lung from the intestinal tract, the bile passages or the urinary tract by way of the blood stream or by direct extension. These authors state further that "the error in the original publication of Friedländer and in most of the subsequent publications can be ascribed to the fact that the bacteriological observations were only made post mortem. Preagonal and postmortem invasion of the blood stream is common, the organism invading the body from the intestinal tract in common with other organisms of the intestinal flora, and therefore often reaching the lungs which are the site of disease due to other bacteria."

A critical study of the present series of cases leads me to believe that this conception is in the main untenable. As stated previously, while it is admitted that the Friedländer bacillus is occasionally found as a secondary invader in pneumonia, nevertheless sufficient evidence has been adduced to warrant the assertion that this organism is by no means a rare cause of primary pneumonia. If Friedländer's pneumonia is a metastatic manifestation of an infection with this organism elsewhere in the body, it is reasonable to expect that invasion of the blood stream precedes its localization in the lung. Yet in seven cases the organism was found in the sputum, this being confirmed by lung puncture in four cases from one to eight days before it was found in the blood stream. In still six other cases the bacillus was found in the sputum or lung puncture or both, while the blood cultures remained sterile throughout the illness. Moreover, biliary, genito-urinary or intestinal lesions were noted in only four cases. In two of these four cases, and in four others in which cultures of the renal pelvis and gallbladder contents were taken at necropsy, Friedländer's organisms were not found.

31. Sisson, W. B., and Thompson, C. B.: *Friedländer Bacillus Pneumonia with Report of Cases*, Am. J. M. Sc. 150: 713 (Nov.) 1915.

32. Fremmel, F.; Henrichsen, K. J., and Sweaney, H. C.: *Pulmonary Infections by the Friedländer's Bacillus*, Ann. Int. Med. 5: 885-94 (Jan.) 1932.

33. Stengel, A.; Kornblum, K., and Collins, L. H., Jr.: *Friedländer's Pneumonia*, Tr. A. Am. Physicians 43: 326, 1928.

34. Olcott, C. T.: *Pneumonia Due to Friedländer's Bacillus*, Arch. Path. 16: 471 (Oct.) 1933.

35. Stoichita, N. N., and Jonnesco, D.: *Abscès au poulmon et septicémie à pneumobacilles de Friedländer*, Arch. méd-chir. de l'app. respir. 8: 534, 1933.

36. Abrami, P., and Worms, R.: *Septicémie à pneumobacilles de Friedländer avec localisation pulmonaire*, Bull. et mém. Soc. méd. d. hôp. de Paris 54: 479 (March 31) 1930.

37. Baehr, G.; Schwartzman, Gregory, and Greenspan, E. B.: *The Rôle of Bacillus Friedländer in Infections*, Tr. A. Am. Physicians 48: 353, 1933.

few weeks involved his hands, head, face, abdomen and chest. These were portions of the body never before involved. Also the character of the lesions changed. Some were more "heaped up." Others were noticeably red in spots or else "weaped" serous fluid. A few seemed to contain pus.

Malaise and sensations of chilliness and weakness accompanied these skin changes and forced the patient to bed. Within a few weeks arthritic manifestations appeared, rapidly spread-

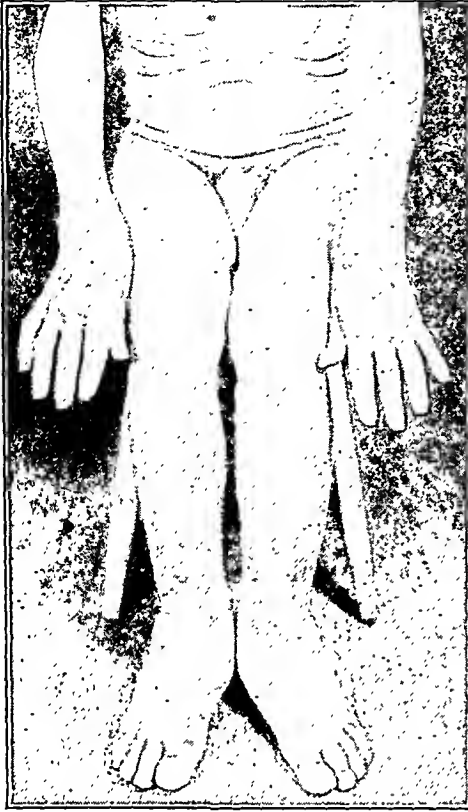


Fig. 1.—Appearance during the second week of treatment. Some of the skin lesions had already cleared. The arthritic swelling of the hands, knees and ankles is striking. Several typical psoriasiform lesions can be seen on the legs.

ing to involve the knees, ankles, elbows, wrists and bones of the hands. These joints became swollen, painful and limited in motion. The patient remained bedridden. A low grade fever was noted. Because of the failure to improve at home, the patient was referred to the hospital.

**Examination.**—The patient was poorly nourished, was in obvious distress, and was unable to walk or stand without support. The following significant facts were noted: The lower teeth were carious, with the gums spongy and infected. The tonsils were atrophic. The blood pressure was 138 systolic, 74 diastolic. Pulse and respirations were normal. The heart and lungs were normal.

The cervical, axillary, epitrochlear and inguinal lymph nodes were palpable, firm, pea sized and not tender. The prostate was small, not tender and firm. The genitalia were normal.

The knees, ankles, elbows, wrists and bones of the hands were involved. Each joint was swollen, tender and slightly warm to the touch. Mobility was limited and painful. A slight sensation of crepitation was noticed when some of the joints were forcibly moved. Slight muscular atrophy was present about the more severely involved joints (fig. 1). There was some edema of the feet.

Except for the face, palms and soles, most of the body was covered with psoriasiform lesions. The nails of the fingers and toes were involved. The lesions consisted of confluent circular or oval patches of silvery wrinkled scales with elevated edges. Erythematous areas were prominent about some lesions. On the hands and feet were a few atypical heaped up crusted lesions, looking somewhat pustular. No moist lesions were present.

The temperature varied from 97.6 to 99.4 F. Weekly urine and renal function tests were consistently normal. White blood

counts varied from 7,000 to 12,000. The hemoglobin on admission was 64 per cent (Sahli), the red blood count 3,500,000 and the differential count normal. The blood nonprotein nitrogen was 32 mg. per hundred cubic centimeters, with the uric acid 2.2 mg. The total blood protein was 5.5 Gm. per hundred cubic centimeters, with the albumin fraction 2.5 Gm. and the globulin fraction 3 Gm. The sedimentation rate by the modified Westergren method was increased to four times the normal rate. The blood Kahn and Hinton tests were negative. Blood calcium was 10.3 mg. per hundred cubic centimeters, while the phosphorus was 4.6 mg. A Schwartz-McNeil test for gonococcal infection was negative, as was a skin test with gonococcus filtrate. Eight blood cultures were negative.

Roentgenograms revealed a normal heart and chest plate, normal sinus plates and carious lower teeth. Films of the joints showed periarticular swelling, encroachment on the joint space and slight destruction and atrophic changes of the bone (fig. 2). They were interpreted as being consistent with rheumatoid arthritis. An electrocardiogram was normal.

**Course.**—For six weeks various measures directed against the arthritis were tried without success. During this time, little attention or treatment had been directed to the skin lesions. Following the establishment of the diagnosis of psoriatic arthritis and the appreciation of the statement in the literature<sup>3</sup> that the arthritis often subsided if the skin lesions were treated, it was decided to drop all measures directed to the joints and treat only the psoriasiform lesions. The crude coal tar ointment and ultraviolet regimen as outlined by Goeckerman<sup>4</sup> was followed. A 1 per cent ointment was applied to the lesions at night. Each morning the patient was exposed to ultraviolet radiations of gradually increasing intensity and duration. After five weeks of this therapy the skin lesions had practically disappeared.

About the fourth week of this regimen a definite improvement was noticed in the arthritic manifestations. Within two

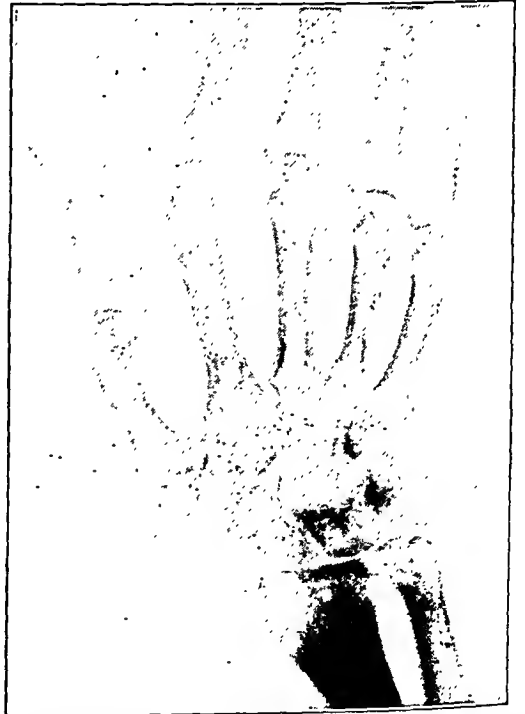


Fig. 2.—Right hand. Arthritic changes are especially marked in the carpal bones and phalanges. Narrowing of the joint space, atrophy of bone and slight destructive changes can be seen.

weeks after the skin lesions cleared, the arthritis had subsided to such a degree that the patient became ambulatory. The swelling of the joints, tenderness on palpation and spontaneous pain entirely disappeared. A slight stiffness remained on motion.

3. Lotze, H.: Psoriasis and Arthropathia Psoriatica, *Dermat. Wehrschr.* 96: 389-394 (March) 1933. Hench.

4. Goeckerman, W. H.: Treatment of Psoriasis: Continued Observations on Use of Crude Coal Tar and Ultraviolet Light, *Arch. Dermat. & Syph.* 24: 446-450 (Sept.) 1931.

ods of clinical improvement and exacerbation, finally dying on the thirteenth day. Necropsy was not performed.

CASE 4.—A white man, aged 59, stated that illness began with sharp pain in the right side of the chest followed by cough and bloody sputum. The past history was irrelevant except for the fact that he had been a miner of hard coal for many years and was addicted to alcohol. He was admitted on the third day appearing acutely ill, dyspneic and cyanotic, with a temperature of 104, pulse 130 and respiration rate 40. The pharynx was congested. There were dullness, decreased breath sounds and a few moist râles over the right lower lobe, and the diagnosis of right lower lobe pneumonia was made from fluoroscopy. The sputum was thick, mucoid and brown, and sputum typing showed Friedländer's bacillus type A and a few type VI pneumococci. Culture of the heart's blood of the mouse revealed Friedländer's bacillus type A in pure culture. The case was considered Friedländer's pneumonia because, in addition, Friedländer's bacillus type A was found in pure culture in the lung juice obtained by lung puncture on the day of admission.

The blood culture on admission showed two colonies of Friedländer's bacillus type A per cubic centimeter of blood. On the fourth day there were approximately thirty colonies per cubic centimeter of blood and on the fifth day the colonies were innumerable. Agglutinins for Friedländer's bacillus, which were absent on the third and fourth days, appeared in the patient's blood spontaneously on the fifth day. Agglutinins for pneumococcus type VI were persistently absent. The white blood cells on the third day numbered 3,250, with 88 per cent polymorphonuclears, of which 80 were immature forms, 4 per cent monocytes and 8 per cent lymphocytes. On the fourth day the white cells numbered 3,800, with 90 per cent polymorphonuclears, of which 80 were immature forms and 10 per cent lymphocytes. The patient appeared extremely toxic throughout his course and jaundice developed, the icteric index reaching 40. The temperature remained between 103 and 104. On the fifth day he showed signs of meningitis and pulmonary edema developed, death occurring soon after. A spinal tap done immediately after death yielded a turbid, faintly yellow fluid, which contained approximately 800 cells per cubic centimeter, chiefly polymorphonuclear leukocytes and gram-negative bacilli. The sugar was decreased, albumin and globulin were increased, and culture of the spinal fluid showed Friedländer's bacillus type A.

Necropsy showed lobar pneumonia of the right lower lobe. The cut surface was a brownish red and was covered with a slimy, thick exudate. Culture of the lung showed Friedländer's bacillus type A. A small fibropurulent exudate was found in the right side of the chest. A few small areas of lobular consolidation were noted in the left lower lobe. The spleen appeared enlarged, soft and mushy. The brain was not examined.

CASE 5.—A white man, aged 54, following exposure to cold, complained of severe pain in the right side of the chest on breathing, cough and bloody expectoration, weakness, nausea, vomiting and constipation. On admission on the seventh day he appeared dyspneic, cyanotic and acutely ill. Labial herpes was present. He coughed considerably, raising a thick red sputum which, when typed, yielded Friedländer's bacillus. There was consolidation of the right upper and right lower lobes. Blood cultures were not taken. The white blood count on admission was 4,800, with 64 per cent polymorphonuclears, 34 per cent monocytes and 2 per cent lymphocytes. On the eleventh day the count reached 12,800, with 85 per cent polymorphonuclears, 8 per cent monocytes and 7 per cent lymphocytes. The temperature was fairly regular, ranging from 100 to 102, and the clinical course was rapidly downhill, tympanitis and delirium developing and death occurring on the eleventh day.

Necropsy disclosed a pyopneumothorax with a bronchopleural fistula in the right side of the chest which contained 1,500 cc. of purulent blood stained fluid, culture showing Friedländer's bacillus. The right upper lobe was consolidated and of a deep brown. It contained three yellow necrotic areas in the upper portion and a cavity of 8 cm. in diameter at the base of the upper lobe partly full of a dirty necrotic material and communicating through a perforation with the pleural space. The right lower lobe was consolidated and the right middle lobe was edematous and congested. The cut surface was brownish red and solid and was covered with a thick, brown, sticky exudate. Microscopic sections of the lung tissue stained by

Gram's method showed gram-negative encapsulated bacilli (Friedländer's bacillus). No other pathologic changes were noted.

CASE 6.—An obese white man, aged 53, whose illness began with chills and fever and sharp pain in the left side of the chest followed by cough with brown sputum, was admitted on the fifth day appearing acutely ill and dyspneic, with a temperature of 102.4. The pharynx was congested. There were dullness and numerous moist râles in the entire left lung, with bronchial breathing in the lower half. The sputum was mucoid, slimy and bloody. A smear stained by Gram's method showed a large number of gram-negative encapsulated rods. The sputum was injected into a mouse and one and one-half hours later the peritoneal juice was aspirated, showing a pure culture of Friedländer's bacillus. A blood culture taken on this day showed thirty colonies of Friedländer's bacillus type A. A lung puncture also yielded Friedländer's bacillus type A. The white blood count was 7,700 with 90 per cent polymorphonuclears, of which 85 were immature forms, 4 per cent lymphocytes and 6 per cent monocytes. Agglutinins for the infecting organisms were absent in the patient's blood.

Serum treatment was started two hours after admission and the patient received a total of 110 cc. of serum intravenously. The clinical course was fulminating, delirium and pulmonary edema setting in. Death occurred on the sixth day, less than twenty-four hours after admission. Necropsy showed a consolidation of the entire left lung, which weighed 1,800 Gm. and appeared reddish gray and solid. The cut surface was moist and red and was covered with a gray, mucoid slime. In the left pleural cavity 400 cc. of a thin, brownish red fluid was found which on culture showed Friedländer's bacillus type A. The right lung weighed 800 Gm. and was congested and edematous. Several peptic ulcers were noted in the stomach and duodenum. The spleen weighed 325 Gm. and appeared soft and congested. The liver weighed 2,800 Gm. and appeared fatty. Cultures of the bile and kidney pelvis were sterile. There were no other pathologic changes of note.

CASE 7.—A white man, aged 48, whose illness began with a severe chill, cough and scanty bloody sputum, weakness and sharp pain in the right side of the chest, was admitted on the third day of illness appearing acutely ill, dyspneic and cyanotic, with frank signs of consolidation of the right upper lobe.

Direct smear of the sputum showed a great predominance of gram-negative encapsulated bacilli, and sputum typing showed Friedländer's bacillus. The blood culture was sterile on admission and was not repeated. The white count on admission was 22,700, with 85 per cent polymorphonuclears, 8 per cent lymphocytes, 6 per cent monocytes and 1 per cent eosinophils. The urine showed a trace of albumin and a few hyaline casts. The temperature ranged from 98 to 104, with wide variations. The patient responded favorably to supportive treatment and nursing care, no serum being employed. Crisis occurred on the tenth day, and the lungs were practically clear on the thirteenth day. The patient was discharged as cured on the fifteenth day.

CASE 8.—A Negro, aged 45, had been drinking excessively for four days and the following morning was awakened by a sharp pain in the right side of the chest, fever and cough, with the production of thick, yellow phlegm. Soon after he had a hemoptysis of a cupful of blood. He was admitted on the first day of illness appearing acutely ill, dyspneic and apprehensive. There were dullness, suppressed breath sounds and moist râles throughout the right lung, and fluoroscopy showed consolidation of most of the right lung.

The sputum was characteristically mucoid and bloody and when typed showed Friedländer's bacillus type A. This was confirmed by culture of the lung juice. The blood culture on the morning of the second day of the disease showed thirty-six colonies of Friedländer's bacillus type A. By the afternoon this had increased to 128 colonies. Agglutinins against the invading organism were never present in the patient's blood. The white cells on admission numbered 12,750, with 77 per cent polymorphonuclears, of which 73 were immature forms, 17 per cent lymphocytes, 4 per cent monocytes, 1 per cent eosinophils and 1 per cent basophils. The red cells numbered 5,300,000 with 90 per cent hemoglobin. The temperature was irregular, varying from 101 to 103 and the clinical course was rapidly downhill. He became delirious and pulmonary edema developed, death occurring on the third day.



short interval (from days to weeks) following a change in the form of the psoriasis. The skin lesions become erythematous, atypically distributed, increased in extent and/or pustular.<sup>17</sup> The arthritis is usually polyarticular and involves both small and large joints. Severe symmetrical involvement of the terminal joints of the fingers and toes has been commented on as common and characteristic.<sup>18</sup> This may occur whether or not the other joints of the fingers and toes are involved.<sup>2</sup> There is also a striking parallelism between the severity of the skin and joint manifestations.

Psoriatic arthritis lasts from weeks to months but may in rare cases persist permanently. The skin lesions usually subside either spontaneously or after appropriate therapy, followed in a few weeks by recession of the arthritic symptoms.

The syndrome may be repeated several times, at yearly or longer intervals. A characteristic feature in most cases is the marked return of joint function after the first or first few attacks. However, permanent joint damage may follow repeated or long standing attacks of this syndrome.

The joint lesions are not characteristic and may resemble either rheumatoid arthritis or osteo-arthritis. The changes vary from slight periarticular swelling to actual destructive lesions. Garrod<sup>19</sup> noted that intermittent hydrarthrosis might occur. A typical joint is swollen, tender and warm to touch and with painful and limited mobility. Ankylosis is rare at the start but may occur later. Zellner<sup>17</sup> believes that the roentgen picture varies and is not characteristic. Narrowing of the joint space, periarticular swelling and slight bone atrophy are common in the early phase. After repeated or long standing attacks, hazy outline of the bone, roughening of the articular surface, destructive changes and occasionally hypertrophic reactions which cause ankylosis may appear.

The severe cases may be ushered in with chills, fever and leukocytosis.<sup>10</sup> Occasionally there may be a generalized adenopathy (secondary to widespread skin involvement). During the onset the patient may be extremely prostrated and forced to bed. If the joint manifestations are severe, prolonged bed rest becomes necessary. Fever is rarely significant after the onset.<sup>17</sup> Laboratory data are equivocal and not distinctive.<sup>17</sup> Bacteriologic study of both skin and blood are nonconclusive. The age in twenty-two case reports studied varied from 30 to 62, averaging 49. Males were afflicted in about 16 per cent of the cases.

#### COMMENT

The pathogenesis of the development of this syndrome is not certain. Adamson<sup>20</sup> and others attempted to show that keratoderma blennorrhagica was a form of psoriasis arthropathica with pustular lesions. This naturally raised the question of the relationship between these two conditions and gonorrheal infection. However, Downing<sup>21</sup> from a study of the literature, was able to conclude that keratoderma blennorrhagica was a distinct clinical entity, definitely related to gonorrheal infection and entirely unrelated to pustular psoriasis

with arthropathy. The presence of active urethritis, history of gonorrhea and a positive Schwartz-McNeil test will enable one to diagnose keratoderma blennorrhagica even though the skin and joint manifestations of the two are quite similar.

Leary<sup>8</sup> feels that there are two possible explanations for psoriatic arthritis. "The arthritis may be due to focal infection, with the psoriatic lesions in themselves acting as foci for the infection in the joints, or it may be due to toxic products absorbed from the lesions." The commonly reported association of pustular psoriasis and arthritis seems to support the focal infection theory. However, Ebert<sup>10</sup> has shown that all attempts to demonstrate a causal organism in pustular psoriasis have failed. In addition, there have been many cases of arthropathia psoriatica reported<sup>15</sup> in which the lesions were not pustular. The parallelism between the severity of the skin and joint lesions seems to support the theory that the arthritis is due to toxic products absorbed from the skin lesions.

Hunt<sup>22</sup> advanced for psoriatic arthropathica the allergic mechanism which Clausen's work suggests exists in the production of rheumatic-like nodules among animals sensitized to streptococci and in rheumatic fever. This theory explains the occurrence of sterile pustular lesions in psoriasis on an allergic basis rather than a direct bacterial infection. According to this theory the exacerbation of the psoriasis and the coincident arthritis can be explained on an allergic mechanism. Hunt<sup>22</sup> feels that trauma, disturbances of the sympathetic nervous system, exhausting conditions, pregnancy, parturition, lactation and the menopause may influence the onset of an eruption of psoriasis. Garrod<sup>19</sup> noted that trauma and menstrual disturbance seemed to influence his cases of psoriatic arthritis.

The rapidity with which the arthritis subsides and the amount of joint function regained are rarely seen in rheumatoid arthritis or osteo-arthritis. They are not specific for this syndrome, since Hench<sup>23</sup> pointed out that similar remissions of joint manifestations occur in rheumatic fever, intermittent hydrops, periarticular fibrositis, gouty arthritis, and arthritis associated with ulcerative colitis, bacillary dysentery and hemophilia. It thus seems that the pathogenesis of this syndrome is still to be settled.

Treatment of psoriatic arthropathica should be directed chiefly to the skin lesions. In addition, bed rest, proper diet and supportive therapy are desirable. Physical therapy is of value when the arthritis begins to subside. Although any standard treatment for psoriasis can be used, the method described by Goeckerman<sup>4</sup> has yielded good results. Early treatment favors the return of good joint function.<sup>24</sup>

22. Hunt, E.: Pustular Psoriasis with Arthritis, *Proc. Roy. Soc. Med.* 25: 1034 (May) 1932.

23. Hench, P. S.: Diagnosis of Gout and Gouty Arthritis, *J. A. M. A.* 107: 533 (Aug. 15) 1936.

24. Since this article was submitted for publication, two papers dealing with this subject have appeared. H. Shlionsky and F. G. Blake (*Ann. Int. Med.* 10: 537 [Oct.] 1936) report an instance of arthritis psoriatica. The American Association for the Study and Control of Rheumatic Diseases in its third rheumatism review (*Ann. Int. Med.* 10: 867 [Dec.] 1936) discusses this subject and briefly reviews its present status in the general classification of arthritis.

17. Zellner, Eugen: Arthropathia Psoriatica und Arthritis bei Psoriasis, *Wien. Arch. f. inn. Med.* 15: 435 (July) 1928.

18. Brocq, Louis: Quelques réflexions sur l'étiologie du psoriasis à propos des récents publications américaines, *Ann. de dermat. et de syph.* 1: 156-183, 1910.

19. Garrod, A. E., and Evans, G.: Arthropathia Psoriatica, *Quart. J. Med.* 17: 171 (Jan.) 1924.

20. Adamson, H. G.: Keratoderma Blennorrhagica: Is It a Form of Psoriasis? *Brit. J. Dermat. & Syph.* 32: 183 (Jan.) 1920.

21. Downing, J. G.: Keratoderma Blennorrhagicum, *J. A. M. A.* 102: 829 (March 17) 1934.

An Extraordinary Capacity for Friendship.—Whatever may be said of Sir William Osler in days to come, of his high position in medicine, of his gifts and versatility—to his contemporaries, love of his fellow man, utter unselfishness, and an extraordinary capacity for friendship will always remain the characteristics which overshadow all else.—Cushing, *Harvey: Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

(n) At necropsy the involved lobes have a characteristic appearance, marked chiefly by some degree of softening and necrosis of the lung with the presence of a characteristic, dirty slimy exudate on the cut surface. Culture of the lung, if the necropsy is performed soon after death, yields the Friedländer bacillus and on microscopic section the organisms can be seen as gram-negative encapsulated rods lying in the cells or free in the alveoli.

3. When an attempt was made to type the bacillus isolated from the sputum, lung juice or blood of the patient, a type A organism was found to the exclusion of all other types.

4. Specific antiserum was used in five cases. Treatment appears to be unsatisfactory, though further trial in a larger series is indicated before any conclusions can be drawn.

5. I take issue with the opinion expressed by Baehr and his co-workers<sup>37</sup> that the Friedländer bacillus is a secondary invader in pneumonia and have cited evidence to refute this view.

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## THE INTRAVENOUS ADMINISTRATION OF HYPERTONIC SALT SOLUTION FOR ANURIA

IN PATIENTS WITH ONE KIDNEY

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The development of anuria is always an emergency, but its occurrence in patients who have previously lost a kidney seems hopeless. The causes of anuria are varied, but it is important to remember that, in certain cases of anuria in which great loss of body fluid and diminished concentration of plasma chloride have followed vomiting, excessive sweating or diarrhea without adequate intake of fluid, treatment by the intravenous administration of salt solution has given surprisingly good results. The explanation of this type of anuria is not clear. The presence of fever and infection suggests that the anuria occurred because of abnormal kidney function. However, in the cases of two children previously described,<sup>1</sup> except for temporary renal irritation from diabetic acidosis in one little girl, no evidence of renal disturbance occurred. In none of these cases has medical shock been a factor. The relief produced promptly by the use of hypertonic salt solution, especially in such juvenile cases without evident infection, leaves the impression that the disturbance in kidney function is in some way directly traceable to the abnormal distribution of water and electrolytes in the blood and tissues. The following two cases are reported as illustrations:

### REPORT OF CASES

CASE 1.—*Impaction of ureteral calculus, vomiting and anuria.* A minister, aged 41, admitted to the Deaconess Hospital May 23, 1930, complained that two weeks previously he had had severe pain in the left flank with anuria for twenty-four hours, followed by hematuria for forty-eight hours, which gradually improved. In 1935 the right kidney had been removed because of multiple calculi, a strangulated ureter and infection.

From the George F. Baker Clinic, New England Deaconess Hospital. 1. Root, H. F., and Henson, P. P.: Postoperative Suppression of Urine Relieved by the Intravenous Injection of Hypertonic Salt Solution. J. A. M. A. 97: 540 (Aug. 22) 1931. Root, H. F.: Anuria Following Diabetic Coma Relieved by Hypertonic Salt Solution, *ibid.* 103: 482 (Aug. 18) 1934.

The admission specimen of urine contained a very slight trace of albumin, no sugar and no diacetic acid, no casts and from 20 to 30 red blood cells and occasional white blood cells per high power field. The phenolsulfonphthalein test showed a 50 per cent excretion of the dye in two hours and ten minutes, and 600 cc. of urine was obtained. The nonprotein nitrogen was 27 mg. per hundred cubic centimeters of blood.

X-ray examination of the urinary tract showed a small stone in the ureter about 4 inches (10 cm.) above the bladder. May 26, cystoscopy was done by Dr. Harvard H. Crabtree. Catheters were passed into the left ureter, but those of all sizes encountered an obstruction about 4 inches above the bladder. Only a few drops of urine were obtained through the catheter.

May 29, attempts to remove the stone through the cystoscope resulted in pulling the stone down to a point about 1½ inches (3.7 cm.) above the ureteral orifices. During these attempts small fragments of stone were obtained. The left ureteral orifice was then split open with scissors, and the ureteral catheter did not pass the stone to allow drainage of the kidney. Following this procedure the patient began to vomit and ceased to pass urine. During the next two days he vomited repeatedly, and by the evening of May 30 his condition was precarious. The temperature had risen to 102 F. and the blood nonprotein nitrogen was 59 mg. per hundred cubic centimeters. It seemed doubtful whether he could stand a major operation to remove the stone directly from the ureter.

Analysis of the plasma chloride showed a value of 430 mg. per hundred cubic centimeters. It seemed possible, therefore, that two conditions were to be reckoned with. In the first place, probably edema around the stone had resulted in complete occlusion of the ureter; the vomiting resulting from this obstruction had produced loss of body fluid and electrolytes. The reduction in plasma chloride represented a reduction in total base. Imminent failure of renal function seemed due in part to back pressure from the obstruction and in part to infection. It seemed possible that the use of hypertonic salt solution intravenously might accomplish two results:

1. It might reduce the edema about the stone so that it could be passed.

2. It might induce urinary secretion by raising the concentration of plasma chloride.

TABLE 1.—*Intravenous Medication and Blood Analyses in Case 2*

Date, 1936	Nonprotein Nitrogen, Mg. per 100 Cc.	Plasma Chloride, Mg. per 100 Cc.	Intravenous Treatment		Total NaCl, Gm.
			Salt Solution	Dextrose Solution	
Jan. 6	161	340	150 cc. 10% solution intravenously	500 cc. 10% solution in saline	15.5
7	198	467	35 cc. 20% solution int.	1,000 cc. 10% solution in saline	8.8
8	...	...	50 cc. 20% solution int.	1,000 cc. 10% solution	11.8
9	173	484	.....	1,000 cc. 10% solution	0.9
10	168	429	.....	1,000 cc. 10% solution	0.9
11	128	554	.....	1,000 cc. 10% solution	0.9
13	93	515			
15	94	455			
17	75	512			
20	66	512			
25	56				
29	40	550			

Accordingly a solution of 60 cc. of 10 per cent sodium chloride solution was prepared and given intravenously. Within two hours, 200 cc. of urine was obtained and the next day the small calculus was passed. The patient made an uneventful recovery, although the temperature continued elevated for the next ten days, which seemed to be due to a mild infection of the urinary tract. In July 1936 he was in excellent condition and has been seen at intervals regularly since.

CASE 2.—*Pneumonia, excessive sweating and anuria.* A business man, aged 59, entered the Deaconess Hospital Jan. 6, 1936,

blood after administration of the drug but a marked increase in those prepared from rabbit's blood under the same conditions, certain irregularities and difficulty experienced with the method would make it unwise to report at present the results obtained. All the figures for blood concentrations in this paper represent free sulfonamide.

EXPERIMENTS ON DOGS

A number of blood and urine determinations have been performed on dogs after administration of the

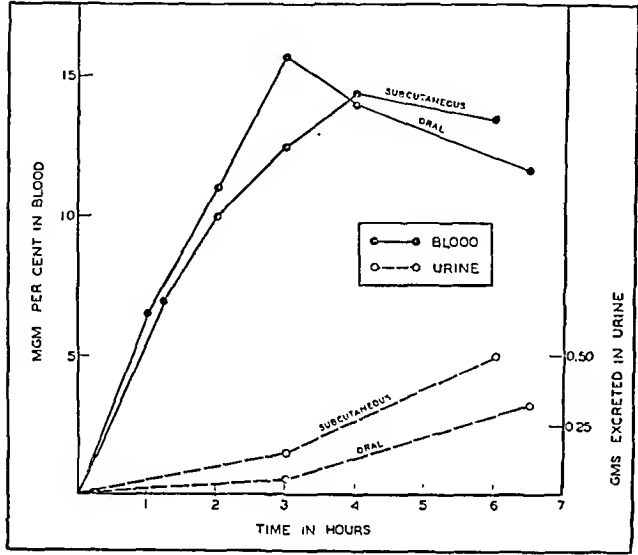


Chart 1.—Comparison of subcutaneous injection (1.25 per cent solution) and oral administration on blood concentration and urinary excretion of 2.04 Gm. (0.1 Gm. per kilogram) of para-aminobenzenesulfonamide given to dog D.

sulfonamide by mouth, subcutaneously or intravenously. The substance is apparently absorbed and excreted rapidly and in most instances can be almost

TABLE 1.—Excretion of p-Aminobenzenesulfonamide in Dogs After Oral Administration

Animal No.	Weight, Kg.	Dose, Gm. per Kg.	Per Cent Excreted in Urine in	
			24 Hours	48 Hours
P 1.....	8.4	0.20	93	95
P 1.....	8.2	0.10	88	91
P 1.....	6.8	0.08	74	78
P 1.....	6.7	0.05	70	94
P 2.....	8.9	0.20	88	90
P 2.....	8.5	0.10	74	78
P 3.....	10.7	0.10	81	
P 3.....	10.2	0.10	90	
D.....	20.8	0.10	60	

completely accounted for by direct determinations on urine. No evidence of the substance being changed in passing through the dog's organism has been obtained. The unchanged material has been isolated from the urine and identified. In table 1 are presented figures for the amount of sulfonamide excreted in the urine in twenty-four and in forty-eight hours after administration of different doses by mouth. In charts 1 and 2 are given curves of the blood concentrations and urinary excretion in the same animal after administration of the same dose successively by mouth and subcutaneously or by mouth and intravenously. It is evident that subcutaneous administration of the substance does not lead to a higher blood concentration than when given by mouth; in fact, the curve of blood

concentration is somewhat lower than in the case of oral administration while the excretion of the substance is slightly more rapid. This experiment has been done three times with essentially the same result. An examination of the curves for blood concentration after intravenous injection shows that shortly after the injection only a small fraction of the substance remains in the blood stream. Only another small fraction is accounted for by the urinary excretion after the injection. Obviously, the substance passes readily from the blood into the tissues; indeed, calculations indicate that it is distributed in about 60 to 80 per cent of the body weight in different dogs. A comparison of the blood concentration and urinary excretion after oral administration with those resulting after intravenous injection

TABLE 2.—Excretion of p-Aminobenzenesulfonamide in Rabbits

Rabbit No.	Dose, Gm. per Kg.	Total Excretion in Urine in per Cent of Amount Given In			
		24 Hours		48 Hours	
		Free	Total	Free	Total
R 12.....	0.1	8	63	8	73
R 13.....	0.1	9	70	9	78
R 11.....	1.0	16	67	17	82
R 4.....	1.0	32	67	43	93

suggests nearly complete absorption from the intestinal tract within three to five hours. The rapidity of absorption was checked by actual determination of the amount of drug remaining in the intestinal tract some hours after oral administration.

Three dogs, weighing from 10 to 13 Kg., were given 0.1 Gm. per kilogram of para-aminobenzenesulfonamide in gelatin capsules by mouth. Exactly four hours later the animals were killed and the stomach and intestinal tract dissected out and

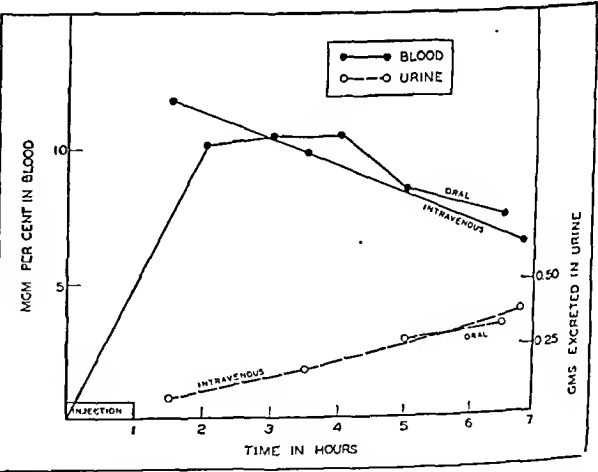


Chart 2.—Comparison of intravenous injection (1.25 per cent solution) and oral administration on blood concentration and urinary excretion of 1.10 Gm. (0.1 Gm. per kilogram) of para-aminobenzenesulfonamide given to dog P 3.

washed through with several liters of warm distilled water. These washings were measured and analyzed for sulfonamide. The analyses showed that 99.4, 99.2 and 77.5 per cent of the dose had disappeared (been absorbed) from the intestinal tract. The dog having the smallest absorption was heavily infested with worms.

EXPERIMENTS ON RABBITS

The amount of this substance excreted in the urine of rabbits after administration by mouth is found to be considerably less than in the case of dogs (table 2). If,

however, suggests that the loss of electrolytes had a direct effect on kidney function.

Loss of sodium and chloride by sweating or vomiting probably will not cause anuria unless the kidneys also are damaged. Heller and Smirk<sup>3</sup> demonstrated in rats a water diuresis in the presence of depleted body fluid. Darrow and Yannet<sup>4</sup> have shown a similar phenomenon in the dog. However, in neither instance was so great a reduction in the plasma chloride obtained as was noted in the 6-year old boy described by Root and Henson.<sup>1</sup> In this boy, with no demonstrable renal lesion, a plasma chloride value of 270 mg. occurred. The use of physiologic solution of sodium chloride as well as dextrose failed to produce diuresis, whereas 10 per cent saline solution caused immediate diuresis. It seems clear that cases do occur in which the use of hypertonic saline solution succeeds where physiologic solution of sodium chloride fails.

It would be desirable to estimate the chloride deficit in the body fluids in such cases. It seems that a quantitative relationship may exist between the degree of depletion of chloride and the amount of salt solution required to bring about diuresis. Thus in the 6 year old boy both physiologic solution of sodium chloride and dextrose solution had been given subcutaneously in large amounts without producing urination; when, however, 60 cc. of 10 per cent salt solution was given intravenously, recovery was complete. In this case, a rough calculation of the chloride deficit was based on the boy's weight, the estimated volume of extracellular fluid and the diminution of chloride content in the plasma.

For this purpose data should also be available for (1) changes in body weight during treatment, (2) serum protein estimations, and (3) the salt solution intake. Laviertes, Bourdillon and Klinghoffer<sup>5</sup> estimated the volume of extracellular fluid, using the method of intravenous injections of sucrose, sodium sulfate and sodium thiocyanate. They found in normal subjects that it makes up about 20 per cent of body weight. However, in subjects with advanced renal insufficiency the volume was extremely high, making up from 30 to 43 per cent of the weight. These values probably indicated "an extreme degree of wastage with replacement by interstitial fluid."

In case 2 the low hematocrit reading (table 3) for cell volume suggests that the volume of extracellular

did serve, however, to set an upper limit of the requirement, and despite acknowledged inaccuracies in such calculations a figure is obtained which gives the clinician some idea as to how much salt may be necessary for results.

#### CONCLUSIONS

1. Anuria may develop in patients who have only one kidney, with infection of mild degree, especially if a loss of base and chloride occurs as a result of vomiting or sweating or diarrhea.

2. The intravenous administration of salt solution in sufficient quantity may give relief even after ninety-six hours of anuria.

3. Hypertonic salt solution may be necessary. The use of solutions more concentrated than 10 per cent may cause a chill and is contraindicated.

4. The administration of salt in the form of liquid, such as broth, or as salt tablets, is to be borne in mind in cases in which water and chloride are being lost during excessive sweating, diarrhea or vomiting.

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### ARTHROPATHIA PSORIATICA

#### REPORT OF CASE AND DISCUSSION OF THE PATHOGENESIS, DIAGNOSIS AND TREATMENT

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In 1933 the American Association for the Control of Rheumatism,<sup>1</sup> in reviewing the recent literature on the subject of rheumatism and arthritis, said "Psoriatic arthritis has been neglected in the English and American literature." Again in 1934 this committee<sup>2</sup> made a similar statement. Because of the paucity of recorded data on this subject, it is our purpose to report a case of psoriatic arthritis and to review briefly the pertinent literature.

#### REPORT OF CASE

**History.**—A white man, aged 54, native born, a janitor, entered the Fifth Medical Service of the Boston City Hospital July 16, 1935, with the chief complaint of "skin trouble" and "painful joints."

The patient reported that he had always enjoyed good health. There was no history of gonorrhea and syphilis. Psoriasis had been present for eighteen years. Lesions were constantly present about his elbows and knees. During the winter months the lesions would spread to involve his arms, legs and lower part of the back, followed in April or May by a recession to the quiescent state. There had never been any joint symptoms. This cycle had repeated itself year after year with great regularity. During this time no other change had occurred in the character of the psoriasiform lesions. The family and social history were irrelevant.

**Present Illness.**—From December 1934 to February 1935 the skin lesions had undergone the usual winter change. In March 1935 the patient noticed that the skin lesions, rather than receding as they had always done before, began to spread and in a

TABLE 4.—Calculation of Chloride Deficit

Body weight (148 pounds) × 25 per cent = 37 pounds or 16.8 Kg. of fluid	
Normal plasma chloride (lower limit).....	560 mg. per 100 cc.
Observed plasma chloride.....	340 mg.
Deficit plasma chloride.....	220 mg. per 100 cc.
16.8 Kg. of extracellular fluid would have a deficit of $16.8 \times 220 \times 10 =$	
36.9 Gm.	

fluid might be relatively increased, as in cases presenting advanced renal failure. If, however, one assumes that extracellular fluid forms 25 per cent of body weight and that the chloride of the plasma is of the same concentration as the chloride in the other body fluids, one may make the calculations given in table 4.

Actually no such amount was needed to produce diuresis. In case 2, anuria ceased after the administration of 24.3 Gm. of sodium chloride. The calculation

3. Heller, H., and Smirk, F. H.: *J. Physiol.* 78:1 (Sept.) 1932, cited by Talbott.

4. Darrow, D. C., and Yannet, H.: *J. Clin. Investigation* 15:419 (July) 1936.

5. Laviertes, P. H.; Bourdillon, J., and Klinghoffer, K. A.: *J. Clin. Investigation* 16:261 (May) 1936.

From the Fifth (Boston University) Medical Service, Boston City Hospital and the Medical Department, Boston University School of Medicine.

1. Hench, P. S.; Bauer, Walter; Fletcher, A. A.; Ghrist, David; Hall, Francis, and White, T. P.: *The Present Status of the Problem of "Rheumatism"; A Review of Recent American and English Literature on "Rheumatism and Arthritis."* Ann. Int. Med. 8: 1315-1374 (April), 1495-1555 (May), 1556-1580 (June) 1935.

2. Hench, P. S.; Bauer, Walter; Fletcher, A. A.; Ghrist, David; Hall, Francis, and White, T. P.: *The Present Status of the Problem of "Rheumatism" and Arthritis: A Review of American and English Literature for 1934.* Ann. Int. Med. 9: 883-982 (Jan.) 1936.

## PRESENCE IN SPINAL FLUID

Preliminary determinations indicate that the sulfonamide is present in plasma in slightly (about 10 per cent) higher concentration than in whole blood. Experiments on anesthetized dogs show that it is present in saliva and pancreatic juice in slightly lower concentration than in blood: it is also present in bile, but so far quantitative determinations of the amount

TABLE 3.—*Excretion and Blood Concentration of p-Aminobenzenesulfonamide During Continuous Administration in Patients with Normal Renal Function*

Patient	Date 1937	Daily Dosage in Gm.	Excreted in Urine in Gm.		Blood, Mg. per 100 Cc.
			Free	Total	
1. 27 yrs.; 51.0 Kg.; streptococcal cystitis; drug started Jan. 21, 1937; four daily doses; sodium bicarbonate 12 Gm. daily, beginning January 24	21	4.5	0.04	1.55	7.2
	22	4.8	1.20	2.20	11.0
	23	3.6	1.22	1.70	10.4
	24	3.6	1.66	3.63	
	25	3.6	1.83	3.90	8.4
	26	3.6	2.00	3.75	10.8
	27	3.6	2.42	3.26	
	28	3.6	2.72	4.32	
	29	0.0	1.00	1.74	3.3
	30	0.0	0.34	0.67	
2. 20 yrs.; 42.6 Kg.; subacute bacterial endocarditis; drug started Dec. 8, 1936; 5.4 Gm. daily divided into six doses; blood concentration in mg. per 100 cc.; December 19, 17.7; December 21, 18.2; December 23, 19.7; December 29, 17.3; Jan. 4, 1937, 10; sodium bicarbonate 5.4 Gm. daily beginning January 13	5	5.4	4.25	4.50	14.9
	6	5.4	2.08	2.86	
	7	0.9	2.32	2.50	5.5
	8	0.0	0.46	0.77	
	9	0.0	0.15	0.25	0.1
	10	5.4			
	11	5.4	0.81	1.17	10.8
	12	5.4	1.75	2.83	
	13	5.4	2.82	4.20	18.6
	14	5.4	3.36	6.10	
3. 17 yrs.; 47.5 Kg.; subacute bacterial endocarditis; drug started Dec. 16, 1936; 6 Gm. daily divided into six daily doses; blood concentration in mg. per 100 cc.; December 28, 16.9	6	6.0	3.60	4.55	
	7	6.0	3.80	4.46	15.7
	8	6.0	3.60	4.92	
4. 24 yrs.; 46 Kg.; subacute bacterial endocarditis; drug started Dec. 2, 1936; 5.4 Gm. daily divided into six daily doses; blood concentration in mg. per 100 cc.; Dec. 28, 1936, 14.2	6	5.4	3.10	4.55	
	7	5.4	3.88	4.40	11.6
	8	5.4	3.22	4.82	
5. 20 yrs.; 54 Kg.; normal; drug started Jan. 11, 1937	11	1.8	0.26	0.55	
	12	3.0	0.52	1.22	3.5
	13	0.0	0.08	1.84	6.1
	14	0.0	....	....	1.5

present have not been successfully accomplished. Experiments show that it readily enters the cerebrospinal fluid and is there present in a slightly lower concentration than in the blood.

The passage of the sulfonamide into the spinal fluid has been investigated on account of the experimental results indicating its value in meningococcal infections.<sup>6</sup> Chart 4 gives data on concentrations in the blood and cerebrospinal fluid obtained by cisternal puncture of a dog after administration of the substance by mouth.

In three patients after administration of the drug we have had the opportunity of examining spinal fluid (obtained by lumbar puncture); in one, in whom no blood sample was obtained, the spinal fluid had 4.6 mg. per hundred cubic centimeters after the patient had received 0.06 Gm. per kilogram daily of sulfonamide for seven days. This is probably only slightly lower than the concentration expected in the blood from the dosage given. The second patient received 0.09 Gm. per kilogram in one dose, and spinal fluid four hours later had a concentration of 2 mg. per hundred cubic centimeters, blood taken at the same time containing 5

mg. and one hour earlier 4 mg. In the third instance, 0.057 Gm. per kilogram was given in one dose, and spinal fluid at five hours contained 3 mg. per hundred cubic centimeters, blood at four hours contained 6.5 mg. and one hour after lumbar puncture 5 mg. One would expect a greater lag in the lumbar fluid than in the cisternal.

It may incidentally be mentioned that in one instance in an empyema fluid, from a patient with hemolytic streptococcal pneumonia treated with 2.4 Gm. of sulfonamide daily, we found 3.5 mg. per hundred cubic centimeters of the drug. Fluid from a pleural effusion of another patient, who was receiving from 0.10 to 0.12 Gm. per kilogram of sulfonamide daily, contained 11 mg. per hundred cubic centimeters.

## COMMENT

The determination of the concentration of para-aminobenzenesulfonamide present in blood in patients undergoing treatment with the drug is important from many aspects. Concentrations between 1:5,000 and 1:10,000 can be attained and maintained in blood. Further studies on streptococci in vitro such as those already reported,<sup>7</sup> as well as in vivo experiments in infected animals, will be necessary before the mechanism of the action of the drug is finally elucidated. For such studies a knowledge of the concentrations that are found in patients undergoing treatment is essential.

Experiments on mice infected with  $\beta$ -hemolytic streptococci demonstrate that the maximum curative effect of para-aminobenzenesulfonamide is exerted by maintaining a high concentration of this substance in blood and tissues for several days.<sup>8</sup> We can safely assume that the concentration of the drug in the tissues is dependent on the concentration in the blood. From

TABLE 4.—*Excretion and Blood Concentration of p-Aminobenzenesulfonamide During Continuous Administration in Patients with Impaired Renal Function*

Patient	Date	Total Dosage in Gm.	Excreted in Urine in Gm.		Blood, Mg. per 100 Cc.
			Free	Total	
6. 16 yrs.; 55 Kg.; streptococcal pyelonephritis; Dec. 30, 1936, blood urea, 120 mg. per 100 cc. and Jan. 17, 1937, phenol red excretion, 12%; drug started Dec. 31, 1936, in four daily doses; blood shows large amounts of hydrolyzable material; urine excretion followed until January 18, when a total of 0.06 Gm. was still present	Dec. 31	3.6	0.19	0.28	
	Jan. 1	2.4	0.18	0.61	6.9
	2	2.4	0.40	0.90	
	3	1.2	0.43	0.94	
	4	1.8	0.34	0.77	8.0
	5	1.8	0.45	0.89	11.4
	6	0.0	0.23	0.46	10.4
	7	0.0	0.32	0.53	
	8	0.0	0.34	0.91	
	9	0.0	0.17	0.51	
7. 18 yrs.; 54.5 Kg.; staphylococcal bacteremia with embolic nephritis; nonprotein nitrogen, 102 mg. per 100 cc.; urea clearance, 17%; drug started Jan. 4, 1937, divided into six daily doses	10	0.0	0.14	0.23	5.1
	Jan. 4	2.7	0.14	0.22	7.5
	5	1.8	0.27	0.73	
	6	2.4			
	7	2.4	....	....	12.7
	8	1.8	0.22	0.44	11.6

the data of our experiments we can conclude that the concentration in the blood from a single dose will depend on (1) the dose per unit of body weight, (2) the rate and completeness of absorption from the intestinal tract, (3) the distribution ratio of the drug in the body (relative amount of active tissue to tissues like

6. Proom, H.: The Therapeutic Action of p-Aminobenzenesulfonamide in Meningococcal Infection of Mice, *Lancet* 1: 16, 1937. Buttle, Gray and Stephenson.<sup>2</sup>

7. Long, P. H., and Bliss, Eleanor: Para-Aminobenzenesulfonamide and Its Derivatives, *J. A. M. A.* 108: 34 (Jan. 2) 1937. Colebrook, Leonard, Buttle, G. A. H., and O'Meara, R. A. O.: The Mode of Action of Para-Aminobenzenesulfonamide and Protosil in Hemolytic Streptococcal Infection, *Lancet* 2: 1323 (Dec. 5) 1936.  
8. Colebrook, Leonard, and Kenny, Meave: Treatment of Human Puerperal Infections and Experimental Infections in Mice with Protosil, *Lancet* 1: 1279 (June 6) 1936. Buttle, Gray and Stephenson.<sup>2</sup> Long and Bliss.<sup>7</sup>



After observation for a short period, the patient was discharged Nov. 16, 1935, again able to be active (fig. 3). Before discharge the secondary anemia, sedimentation rate and total protein returned to normal.

This case was typical of the cases described in the literature. Dermatologists who saw the patient agreed with the diagnosis of psoriasis. The skin lesions on the body were typical. A few lesions about the hands and feet suggested pustular psoriasis. However, the skin lesions may have changed during the few months before we saw the patient.

Although not responding to measures directed primarily to the joints, the arthritis healed promptly after the skin lesions disappeared. The carious teeth evidently played no important rôle, since they were not touched until the joints subsided.

#### COMMENT

Arthropathica psoriatica (psoriasis arthropathica) as a distinct clinical entity has been of particular interest since Alibert<sup>5</sup> in 1822 recognized the occurrence of joint pains in psoriasis. Bazin<sup>6</sup> in 1860 distinguished between psoriasis with arthritis and without arthritis and applied the term psoriasis arthritica to the former variety. Adrian<sup>7</sup> reviewed the subject in 1903 and did much to establish this syndrome as a clinical entity. Since then several contributions have appeared yearly, mainly in the foreign literature. A fairly intensive search of the available literature disclosed but a few reports from this country.

Since cases are so rarely reported, the syndrome is probably an unfamiliar one. The only statement as to the incidence in this country is made by O'Leary,<sup>8</sup> who saw eight instances of this syndrome among 1,400 cases of psoriasis. However, only one of these was reported in detail.<sup>9</sup> The comparative rarity of this combination of two such common diseases as arthritis and psoriasis has been commented on by O'Leary,<sup>8</sup> who further remarked that "this syndrome was the foremost exception to the dictum of Hebra: 'Psoriasis is a disease of healthy people.'"

Probably this syndrome has failed to receive attention in this country mainly because of its dual manifestations, causing interest in it to be divided between two distinct specialties.

Even a brief survey of case history reports from dermatologic papers dealing with psoriasis substantiates the validity of this statement. Several have excellent descriptions of the arthritic manifestations of arthropathica psoriatica, but only rarely can this syndrome be judged to be present from the title of the paper.

For example, Ebert<sup>10</sup> observed a woman of 31 who exhibited a polyarthritis which became manifest and subsided simultaneously with the appearance and subsidence of a pustular exacerbation of a long standing psoriasiform eruption. Of particular interest was Graham's<sup>11</sup> patient, a man aged 53, who over a period of five years had three exacerbations of generalized pustular psoriasis, each attack lasting several months and accompanied by pain and swelling of the joints of the feet, ankles and wrists. The arthritic manifestations disappeared when the pustular lesions cleared. The common scaly type of psoriasis persisted between the pustular exacerbations. Similar instances of arthri-

tis were noted in cases of psoriasis reported by Barker,<sup>12</sup> DeWolf<sup>13</sup> and Rostenberg.<sup>14</sup>

Most of these dermatologic reports were instances of pustular psoriasis superimposed on the common scaly form of psoriasis. This means little, since the usual forms of psoriasis are rarely the subject of case reports at present. However, arthritis was not present in every case of pustular psoriasis found reported.

While the descriptions of the skin lesions in these articles are excellent, the data on the arthritic manifestations are too limited to be of much value to the internist.

A somewhat comparable situation exists when instances of psoriatic arthropathy are reported by internists.<sup>15</sup> Here much attention is devoted to the description of the arthritis and relatively little to the skin lesions.



Fig. 3.—Condition shortly before discharge. Skin is free from lesions and tan from the ultraviolet therapy. Diminution in the swelling of the knees, wrists and ankles is noticeable.

All this indicates that the dermatologists tend to ignore the arthritis, while the internists pay little attention to the skin lesions. What is greatly needed is a study of a series of such cases combining the observations of both the dermatologists and the internists.

#### DIAGNOSIS

The diagnosis of true arthropathica psoriatica depends mainly on the close relationship which the exacerbation and subsidence of the skin and joint manifestations bear to each other.<sup>16</sup>

The common scaly form of psoriasis was usually present for many years, during which time there was no arthritis. Joint manifestations commonly appear a

5. Alibert, quoted by O'Leary.<sup>8</sup>

6. Bazin, quoted by Garrod.<sup>10</sup>

7. Adrian, Carl: Ueber Arthropathia psoriatica, Mitt. a. d. Grenzgeb. d. Med. u. Chir. 11: 237-263, 1903.

8. O'Leary, P. A.: Arthropathia Psoriatica, Proc. Staff Meet., Mayo Clin. 2: 90 (April 27) 1927.

9. Hench, P. S.: Arthropathia Psoriatica, Proc. Staff Meet., Mayo Clin. 2: 89 (April 27) 1927.

10. Ebert, M. H.: A Psoriasiform Eruption with Pustular Exacerbations, Arch. Dermat. & Syph. 27: 933 (June) 1933.

11. Graham, T. N.: Generalized Pustular Psoriasis: Report of a Case, Arch. Dermat. & Syph. 32: 208-217 (Aug.) 1935.

12. Barker, H. W.: Acrodermatitis Continua vel Perstans und Psoriasis Pustulosa, Brit. J. Dermat. 42: 500 (Nov.) 1930.

13. DeWolf, H. F.: Pustular Psoriasis with Arthritis of the Fingers, Arch. Dermat. & Syph. 26: 587 (Sept.) 1932.

14. Rostenberg, Adolph: Psoriasis Arthropathica, Arch. Dermat. & Syph. 26: 580 (Sept.) 1932.

15. Garrod and Evans.<sup>10</sup> Zellner.<sup>17</sup>

16. Hench.<sup>9</sup> Garrod and Evans.<sup>10</sup> Zellner.<sup>17</sup>

during the pains. She will not sleep during any pains with the first dose, but after receiving the second dose, i. e., a total of 9 grains (0.6 Gm.) she will frequently sleep while having a uterine contraction and awaken only when the pain is especially severe. Not all patients react as well as this. About one out of every ten patients becomes more irritable and nervous than before. She will try to get out of bed, will say that the capsules do not help her one bit, and will yell and carry on considerably during the pain. With those patients, after having had six capsules of pentobarbital, I give enough chloroform with each pain to relieve the pain completely. After the patient has had chloroform with about fifteen to twenty pains, the latter quiet down. I then stop the chloroform and do not start it again until the perineal stage, except occasionally when it may be necessary throughout the second stage. If labor lasts more than six hours after the second dose of pentobarbital, I give two more capsules; and if the pains are not strong enough, I give 5 or 10 grains of quinine along with the pentobarbital.

The patients' reactions seem to be nearly always favorable. Those who have had babies before always

solution of posterior pituitary when the os is fully dilated and the head is low. Then by being given a little more chloroform the patient is delivered while asleep.

With breech and forceps deliveries the patient is kept in a seminarcois with pentobarbital until ready for delivery. I find that breech and forceps babies are always in much better condition after the use of pentobarbital than after pantopon and scopolamine. It almost never takes longer than five minutes to establish respiration in the infant. All that I ever find necessary is to aspirate the mucus with a catheter and, perhaps, a little mouth to mouth artificial respiration with a little gauze over the baby's mouth. For a breech or forceps delivery in the home the patient is put crosswise on the bed or on the dining room table. Ether is always used in place of chloroform and I get the husband and two extra women to help. Before starting ether we close the drafts on the stove and set all lamps up high to avoid explosions or fires. A flashlight is used if perineal repair is needed. One woman gives the ether while the husband and the other woman each hold a leg. I have to supervise the anesthetist, who perhaps never gave an anesthetic before; at the same time I must complete the delivery.

In compiling this report I checked over the last 200 consecutive deliveries, covering a period of nearly two years, and feel that they are a fair representation of rural obstetrics. The following facts were noted in this group:

There were no maternal deaths. As a matter of fact, I have never had a maternal death in the eleven years that I have been in rural practice, with nearly a thousand deliveries.

There were four infant deaths, which, I believe, cannot be laid to the pentobarbital but probably would have taken place regardless of the choice of drug.

The cases in this series may be classified as in the accompanying table.

REPORTS OF INFANT DEATHS

CASE 1.—M. B., a primipara with edema and a blood pressure of 180 systolic, 110 diastolic, was given castor oil and quinine ten days previously. Labor did not start, but toxemia improved. The bag of waters ruptured spontaneously at 6 a. m. Quinine 20 grains (1.3 Gm.) was given in 5 grain (0.3 Gm.) doses in the morning; the pains started at noon. Pentobarbital 6 grains (0.4 Gm.) was given at 1 p. m. The first stage lasted three and one-half hours, the second stage one hour. There was a normal delivery. The baby weighed 7 pounds (3,175 Gm.). There was no pulsation of the cord at birth. The baby was blue; no heart beat was felt. After one hour the baby could breathe alone. Ten hours after birth the baby became cyanotic and had convulsions. Oxygen was given but the baby died fourteen hours after birth.

CASE 2.—Q. M., a secundipara, whose first pregnancy resulted in a stillbirth, was eight months pregnant. Labor started at 1:30 a. m. Pentobarbital 6 grains was given at 5 a. m. After five hours of labor a 4¾ pound (2,154 Gm.) baby was born. The baby seemed well but was found dead in its crib four hours after birth. Blood sugar was normal and the Wassermann reaction of the mother was negative.

CASE 3.—F. A., a tertipara, whose previous pregnancy had occurred thirteen years before, gave birth to a 6½ pound (2,948 Gm.) baby after labor lasting twenty-three hours in the first stage and an hour and a quarter in the second stage. Seven capsules of pentobarbital 1½ grains (0.1 Gm.) was given; also 20 grains of quinine and 1 cc. of solution of posterior pituitary were given. Apparently the baby was all right at birth but several hours later it expelled a little blood from the nose and died suddenly. The patient was delivered again normally with a live baby twelve months after this labor.

Classification of Cases

Multipara .....	139
Primipara .....	61
Home deliveries .....	164
Hospital or maternity home.....	36
Normal deliveries .....	170
Forceps .....	14
Breech .....	8
Cesarean .....	7
Version (transverse; prolapse aim).....	1
Occiput posterior when delivered.....	1
Presentations:	
Vertex .....	190
Breech .....	8
Transverse .....	1
Face .....	1
Abnormal cases:	
Preeclamptic toxemias .....	5
Placenta praevia .....	2
Spina bifida .....	1 (lived 10 months)
Twins .....	2
Stillbirths .....	1 (seven months pregnancy; macerated and partly decomposed fetus)
Baby died within two weeks.....	4
Gross infant mortality.....	2.5 per cent

say that the capsules are the most wonderful thing that could be. Occasionally a primipara will be a little disappointed because she did not get as much relief as she expected. I usually find that she has been talking to some other woman who had a baby before and had praised the capsules a little too highly. These cases, however, are rare.

There is hardly ever a trained nurse in attendance, so the husband or a neighbor woman is instructed to watch the patient so that she doesn't fall out of bed or try to get up. All normal deliveries are made in beds, and because the beds found in these homes are usually low there is not much danger if the patient should happen to fall out.

Chloroform is used in the second stage of labor with all normal deliveries. Ether is not safe, because the average farmhouse has a stove burning and one or two lamps lighted. Nitrous oxide is too cumbersome, inconvenient and expensive. The rural physician gets only \$25 for the average delivery, which includes antepartum care. After the patient has had pentobarbital she does not require very much anesthetic for the second stage of labor. Either the husband or the neighbor woman gives the chloroform, a little with each pain. If the chloroform slows up the pains too much the patient, if she is a primipara, is given 0.5 cc. of

## PARA-AMINOBENZENESULFONAMIDE

ABSORPTION AND EXCRETION: METHOD OF  
DETERMINATION IN URINE AND BLOOD

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The increasing use of para-aminobenzenesulfonamide in the treatment of streptococcal infections has prompted us to report the results which we have obtained on the absorption and excretion of this drug. Although these results offer by no means a complete and finished study of the subject, the obvious application of certain of our observations to the therapeutic use of the drug and the simple method that has been devised for determining the substance in blood and urine would appear to justify a presentation of our preliminary results at this time.

## METHOD OF ANALYSIS

The method for analysis of blood and urine (as well as certain other body fluids) is based on diazotization of the aminobenzenesulfonamide with nitrous acid, and coupling the resulting diazo compound in acid solution with dimethyl- $\alpha$ -naphthylamine to produce a purplish red azo dye which can easily be estimated by colorimetric comparison. This reaction depends on the presence of an amino group substituted in the benzene ring and will estimate any compound to which the sulfonamide is changed in the organism and in which the amino group is intact. This color reaction is exceedingly delicate, being detectable in a solution of the sulfonamide of 1 part in 20 million parts of water.

For the determination of para-aminobenzenesulfonamide in blood and urine, the following reagents are necessary:

1. Tenth normal hydrochloric acid.
2. Sodium nitrite 0.1 per cent (freshly prepared).
3. Ethyl alcohol (95 per cent).
4. Dimethyl- $\alpha$ -naphthylamine, 1 cc. to 100 cc. of alcohol.
5. A standard solution of para-aminobenzenesulfonamide, 200 mg. per liter. From this solution standard solutions containing 1.0, 0.5 and 0.2 mg. per hundred cubic centimeters can be prepared. The standard solution appears to keep unchanged for several months if kept in the icebox.

Urine is diluted so that the diluted solution contains from 0.5 to 1.5 mg. per hundred cubic centimeters of sulfonamide.<sup>1</sup> Ten cc. of this diluted urine is measured into a small flask and 2 cc. of hydrochloric acid, 1 cc.

This investigation has been aided by a grant from the Josiah Macy Jr. Foundation.

Drs. Emerson and Cutting are Fellows in Experimental Therapeutics and Medicine.

The Winthrop-Chemical Company furnished the para-aminobenzenesulfonamide used in this investigation.

From the Department of Pharmacology and Experimental Therapeutics, Johns Hopkins University School of Medicine.

Dr. Perrin H. Long cooperated in the studies on patients. He has been conducting the treatment on these patients, and has generously aided our investigation in every way possible.

1. With the amounts of sulfonamide administered to patients we have found dilutions of 1:50, 1:100 or 1:200 to be satisfactory. We have not used concentrations greater than a 1:50 dilution, as in strongly buffered urine the amount of hydrochloric acid used may not be sufficient and substances of the urine may interfere with color development. Normal urines and a dozen urines obtained from patients with various diseases gave negative tests with the reagents in 1:10 and 1:50 dilutions. Dog or rabbit urine may give a faintly positive test in a 1:50 dilution but the amount of normal urinary constituent giving the reaction can be neglected here. It is essential to use all glass cups in the colorimetric comparison, as the ordinary cup with detachable glass bottom may give inconsistent and erroneous results. On one occasion the use of flasks in which chloride determinations had been carried out resulted in inconsistent results. It appears that mere traces of metallic salts may cause difficulty in accurate colorimetric comparison.

of sodium nitrite, 5 cc. of alcohol and 1 cc. of dimethyl- $\alpha$ -naphthylamine are successively added. The flask is shaken after the addition of each reagent. Ten cc. of an appropriate standard is similarly treated. After a few minutes standing, the solutions are compared in the colorimeter. Just after the dimethyl- $\alpha$ -naphthylamine has been added the solutions may not match exactly, while after too long standing an orange tint occurs in the diluted urine which gives low readings. Readings are usually taken from five to ten minutes after the addition of the reagents. The color developed in standard solutions in pure water appears to remain unchanged for several hours.

For blood, the following procedure is used: One volume of blood is run slowly with shaking into 9 volumes of alcohol, and the flask is stoppered and allowed to stand ten minutes or longer. The mixture is now filtered and 10 cc. of the filtrate measured into a small flask. Five cc. of water, 2 cc. of hydrochloric acid, 1 cc. of sodium nitrite and 1 cc. of dimethyl- $\alpha$ -naphthylamine are successively added. The colored solution is slightly turbid but after standing five minutes can be filtered and the clear filtrate used for colorimetric comparison. An appropriate standard is prepared at the same time by adding 1 cc. of a standard solution of the sulfonamide to 9 cc. of alcohol and treating this solution as described for the blood filtrate. Color comparison is best made about fifteen or twenty minutes after the reagents have been added. Since only 92 per cent of the sulfonamide is recovered from blood by this procedure, the final result is divided by 0.92 to obtain the correct concentration in blood. Subsequently we have found that if the dimethyl- $\alpha$ -naphthylamine is added about three minutes after the sodium nitrite a more intense color is obtained and the recovery is practically 100 per cent.

The accuracy of this method has been checked on pure solutions of sulfonamide, on normal urine and on urines containing sulfonamide to which more sulfonamide has been added, and on normal dog and human blood after the addition of sulfonamide. Duplicate determinations usually check within 2 or 3 per cent.

In the rabbit and the human subject, this compound is partly excreted in the urine as a conjugated compound which does not give the color reaction directly, owing to a blocking of the amino group. The para-aminobenzenesulfonamide can be obtained from this compound by hydrolysis with dilute hydrochloric acid. To determine this conjugated compound in urine, we have heated equal volumes (usually 1 cc.) of urine and normal hydrochloric acid in a test tube (25 by 200 mm.) covered by a small beaker in boiling water for thirty minutes. The solution is cooled and, after the addition of 1 drop of 0.1 per cent phenolphthalein, neutralized with 2 normal sodium hydroxide. After dilution to appropriate volume, the determination is performed as described for urine. Samples of urine heated with 1 or 3 normal hydrochloric acid for thirty, forty-five and sixty minutes yield identical values for the conjugated compound, and subjecting a solution of sulfonamide of known strength to acid hydrolysis results in no loss as determined by the colorimetric method. This would indicate that the method is accurate for determining the hydrolyzable material in urine.

Blood filtrates have been hydrolyzed by adding to 10 cc. of the filtrate, 2 cc. of 0.5 normal hydrochloric acid, evaporating the alcohol by immersing in boiling water and heating for thirty minutes. While the use of this method gives no increase in filtrates from dog's

# EFFICIENCY OF FLAVORING AGENTS IN DISGUISSING THE BITTER TASTE OF ALKALOIDS

The group of tests for determining the efficiency of flavoring agents in disguising the bitter taste of alkaloids was made by adding 0.1 per cent quinine bisulfate to the various flavoring agents. This produced a bitter taste sufficiently intense so that it was not completely masked by any of the flavoring agents and corresponded to a greater degree of bitterness than is produced by a

TABLE 2.—Order of Preference of Flavoring Agents in Disguising (a) Ammonium Chloride and (b) Tincture of Digitalis

Efficiency in Disguising Ammonium Chloride		Efficiency in Disguising Tincture of Digitalis	
Flavoring Agent	Score, %	Flavoring Agent	Score, %
Syrup of Cinnamon.....	64	Syrup of Raspberry, N. F. VI.	83
Syrup of Orange.....	61	Syrup of Prepared Cacao, N. F. VI.....	77
Compound Syrup of Sarsaparilla.....	58	Aromatic Syrup of Eriodictyon.....	73
Aromatic Syrup of Eriodictyon.....	54	Syrup of Cherry, N. F. VI.....	60
Syrup of Citric Acid.....	50	Syrup of Citric Acid.....	60
Syrup of Cherry, N. F. VI.....	47	Tincture of Vanilla 20 per cent in Syrup.....	59
Syrup of Cocoa, N. F. V.....	42	Syrup of Orange.....	57
Syrup of Wild Cherry.....	41	Syrup of Wild Cherry.....	54
Syrup of Raspberry, N. F. VI.	40	Aromatic Elixir.....	32
Elixir of Licorice.....	35	Iso-Alcoholic Elixir (high).....	24
Syrup of Prepared Cacao, N. F. VI.....	34	Iso-Alcoholic Elixir (50-50).....	24
Aromatic Elixir.....	23	Iso-Alcoholic Elixir (low).....	14
Syrup of Licorice.....	11	Tincture of Vanilla 10 per cent in Syrup.....	10

solution of codeine sulfate containing 30 mg. (one-half grain) to the teaspoonful. The results obtained over the four year period are summarized in table 1.

Particularly worthy of note are the very satisfactory results obtained with the new Syrup of Raspberry (Syrupus Rubi Idaei) N. F. VI, which should make a most useful flavoring agent for disguising the taste of bitter drugs.

Aromatic Syrup of Eriodictyon (Syrupus Eriodictyi Aromaticus), although not well liked as a flavoring agent (35 per cent), is highly effective in disguising the bitter taste (73 per cent) and, being moderately effective also in covering the saline taste (54 per cent), is well adapted to disguising mixtures of codeine sulfate and ammonium chloride.

It is also interesting to note that the efficiency of the new Syrup of Prepared Cacao (which differs from the old Syrup of Cocoa, N. F. V, in containing oil of theobroma, starch and twenty-five times more tincture of vanilla), while moderately effective in disguising the bitter taste (67 per cent), appears to be decidedly inferior to the older preparation, which over three years obtained an average score of 81 per cent.

The remainder of the flavoring agents studied for their ability to disguise the bitter taste appear to be decidedly inferior to the syrups of raspberry, eriodictyon and cacao.

# EFFICIENCY OF FLAVORING AGENTS IN DISGUISSING THE SALINE TASTE

In the group of tests for determining the efficiency of flavoring agents in disguising the saline taste, ammonium chloride was added to the various flavoring agents in a concentration of 8 per cent. This gives a preparation containing 0.4 Gm. (6 grains) of ammonium chloride per teaspoonful. The results obtained in this series of tests are shown in table 2.

Here it will be observed that most of those flavoring agents which were found to be highly effective in disguising the bitter taste are relatively ineffective in masking the taste of salty drugs.

Those flavoring agents which have proved to be most effective in disguising the salty and burning taste of ammonium chloride are the syrups of cinnamon, orange, sarsaparilla, eriodictyon and citric acid.

As a further test of the efficiency of the four flavoring agents found most effective in disguising the saline taste, a comparison has been made of their efficiency in disguising sodium bromide with that of the official Elixir of Sodium Bromide, N. F., in which Aromatic Elixir is used as the vehicle. All preparations contained the same amount of sodium bromide as the official elixir; namely 17.5 per cent.

The results obtained in these tests in comparison with those obtained in disguising 8 per cent ammonium chloride are shown in table 3.

It is of interest to note from these results that the flavoring agents maintain the same relative positions in point of efficiency in disguising both ammonium chloride and sodium bromide and that all these flavoring agents are from two to three times more effective in disguising the taste of sodium bromide than is the official elixir.

# EFFICIENCY OF FLAVORING AGENTS IN DISGUISSING THE TASTE OF TINCTURE OF DIGITALIS

In making tests to determine the efficiency of flavoring agents in disguising the taste of tincture of digitalis, tincture of digitalis was added to the various flavoring agents in a concentration of 10 per cent. This makes a preparation containing approximately 0.5 cc. of tincture of digitalis per teaspoonful. The results obtained in this group of tests are shown in table 2.

The syrups of raspberry, cacao and eriodictyon appear to be the most effective agents in disguising the disagreeable taste of tincture of digitalis. Less effective are the syrups of cherry, citric acid, orange and wild cherry.

TABLE 3.—Comparative Efficiency of Flavoring Agents in Disguising Ammonium Chloride and Sodium Bromide

Flavoring Agent	Percentage Efficiency in Disguising	
	8% Ammonium Chloride	17.5% Sodium Bromide
Syrup of Cinnamon.....	64	66
Syrup of Orange.....	61	64
Compound Syrup of Sarsaparilla.....	58	52
Aromatic Syrup of Eriodictyon.....	54	47
Aromatic Elixir.....	23	..
Elixir of Sodium Bromide.....	..	23

TABLE 4.—All-Round Efficiency of the Various Flavoring Agents

Flavoring Agent		Flavoring Agent	
Score, %		Score, %	
Syrup of Cocoa, N. F. V.....	71	Syrup of Orange.....	48
Syrup of Prepared Cacao, N. F. VI..	67	Syrup of Citric Acid.....	47
Syrup of Raspberry, N. F. VI.....	68	Syrup of Cinnamon.....	46
Compound Syrup of Eriodictyon.....	59	Syrup of Wild Cherry.....	35
Syrup of Cherry, N. F. VI.....	52	Elixir of Licorice.....	32
Compound Syrup of Sarsaparilla...	48	Aromatic Elixir.....	27

# ALL-ROUND EFFICIENCY OF FLAVORING AGENTS

If equal weight is given to each of the four characteristics that have been studied, an average figure may be obtained which is a measure of the all-around efficiency for routine use of the various flavoring agents. The average values so obtained are shown in table 4.

It appears from this table that the syrups of prepared cacao, raspberry and eriodictyon are the "all-purpose" flavoring agents of choice, with the syrups of

however, the rabbit's urine is heated with dilute hydrochloric acid, a very great increase in the amount of sulfonamide is noted. Evidently the rabbit excretes the substance partly in the form of a conjugated derivative in which the amino group is blocked. This conjugated compound has been isolated from the urine of rabbits receiving 1 Gm. per kilogram of para-aminobenzenesulfonamide and identified as para-acetylaminobenzenesulfonamide.<sup>2</sup> Dr. Perrin H. Long tested its effect on  $\beta$ -hemolytic streptococcal infections in mice

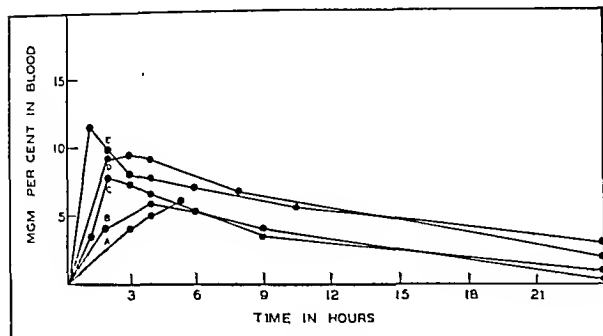


Chart 3.—Blood concentration curves of five patients following oral administration of a single dose of para-aminobenzenesulfonamide. A, 4.8 Gm. (0.09 Gm. per kilogram); B, 3 Gm. (0.05 Gm. per kilogram); C, 3.6 Gm. (0.05 Gm. per kilogram); D, 4.8 Gm. (0.06 Gm. per kilogram); E, 4.5 Gm. (0.06 Gm. per kilogram).

and found it almost inactive. Buttle, Gray and Stephenson<sup>3</sup> state that the acetyl derivative is much less active than the sulfonamide itself, while Fournau, Tréfouël, Nitti and Bovet<sup>4</sup> simply state that this derivative is active. Table 2 gives the excretion of free and total (free and easily hydrolyzable conjugated compound) in experiments on rabbits with a moderate and very large dose by mouth.

#### PATIENTS TREATED WITH SULFONAMIDE

The human subject excretes the drug partly unchanged and partly in conjugated form.<sup>5</sup> This conjugated form is mainly, if not entirely, para-acetylaminobenzenesulfonamide, which has been isolated from the urine of patients receiving the para-aminobenzenesulfonamide. In chart 3 are given blood concentration curves on individuals after administration of a single large dose by mouth. The five blood concentration curves given in chart 3 appear to indicate that differences in the rate of absorption of the drug occur in human individuals. Curves B, C and D resemble closely the curves obtained in experiments on normal dogs; curve A indicates quite slow absorption, while curve E suggests extremely rapid passage of the substance into the body from the intestinal tract. At the end of twenty-four hours patients D and E show appreciable amounts of the substance still present in the body, while B and C show less than 1 mg. per hundred cubic centimeters in the blood. Patient D had definite signs of kidney impairment, and E had

just recovered from a pneumonia. It is possible that para-aminobenzenesulfonamide may be a more delicate test of kidney function than substances now in use.

In certain patients undergoing prolonged treatment with para-aminobenzenesulfonamide administered in divided doses throughout the day, we have followed the urinary excretion and blood level for several days. Table 3 gives the essential data. The bloods were taken one-half hour before administration of a dose.

An examination of this table shows that in administering a given daily amount of the drug in divided doses it takes from two to three days to establish equilibrium between the amount ingested and the amount excreted; after equilibrium is established it takes about the same time (from two to three days) to free the organism of the drug. When the body is in equilibrium in respect to the drug, one can frequently account for almost 100 per cent of the daily dose ingested by the total excretion of the sulfonamide in free and conjugated form. It is possible that under certain conditions a small amount is excreted in the urine in some other form or eliminated through some other channel than the kidneys. The blood concentration can be maintained fairly constant for a long time. In the first four patients in table 3 the daily excretion amounts to 0.07 to 0.12 Gm. per kilogram. To excrete this amount, blood concentrations of from 11 to 16 mg. per hundred cubic centimeters are required.

Since the sulfonamide is so rapidly excreted by the kidney, one might expect with impaired renal function that smaller doses would suffice to raise the blood concentration to any given level and that after stopping administration of the drug a much longer time would be required to clear the body of the substance. This has indeed been found to be the case in two instances that we have studied (table 4). In the first patient a blood concentration of 11 mg. per hundred cubic centimeters resulted in the excretion of only about 0.016 Gm. per

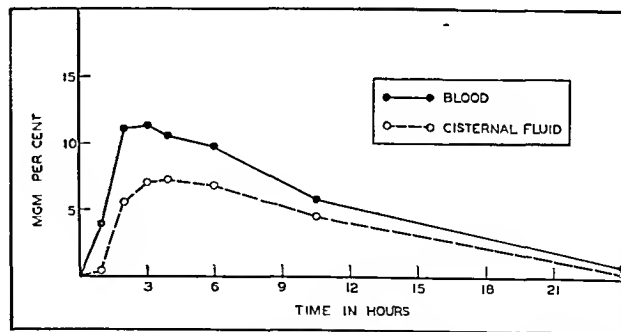


Chart 4.—Comparison of concentrations in blood and cisternal fluid in dog P 6 after administration of 0.1 Gm. per kilogram of para-aminobenzenesulfonamide by mouth.

kilogram; five days after the drug was discontinued, a large amount was still present in the body as shown by the blood level of 5.1 mg. per hundred cubic centimeters, and even twelve days after withdrawal the sulfonamide was still being excreted in small amounts, mainly in a conjugated form. The less complete data on the second patient also indicate the effect of impaired renal function. Of course, the few cases that we have studied justify only tentative conclusions with regard to the effect of impaired renal function in the excretion of the drug. Different types of renal insufficiency will have to be investigated before final conclusions are drawn.

2. Marshall, E. K., Jr.; Cutting, W. C., and Emerson, Kendall, Jr.: Acetylation of Para-Aminobenzenesulfonamide in the Animal Organism, *Science* 85: 202 (Feb. 19) 1937.

3. Buttle, G. A. H.; Gray, W. H., and Stephenson, Dora: Protection of Mice Against Streptococcal and Other Infections by *p*-Aminobenzenesulfonamide and Related Substances, *Lancet* 1:1286 (June 6) 1936.

4. Fournau, E.; Tréfouël, J.; Tréfouël, J. (Mme.); Nitti, F., and Bovet, D.: Chimiothérapie des infections streptococciques par les dérivés du *p*-aminophénylsulfamide, *Compt. rend. Soc. de biol.* 122: 258 (No. 18) 1936.

5. As this paper was being submitted for publication, we received the January 23 issue of the *Lancet* containing an article by A. T. Fuller entitled "Is *p*-Aminobenzenesulfonamide is excreted in the urine in both free and conjugated forms." Active Agent in Prontosil



ning of our studies we used an antigen forwarded to us from the Cleveland City Hospital through the courtesy of Dr. W. H. Connor. Later the antigens were prepared at the Hooper Foundation. From one of our patients we were able to collect sufficient pus for the preparation of a satisfactory antigen, which we have used consistently since April 1936. Other antigens have been prepared from later cases. In the preparation of the antigen we followed closely the directions given by Frei in 1925. The pus was secured by aspiration from unbroken fluctuant buboes. If it proved to be bacteriologically sterile, it was diluted 1:6 in sterile saline solution and the virus killed by heating the diluted pus to 60 C. for two hours on one day and for one hour on the following day. No chemical preservatives were added to the antigen used for diagnostic purposes. Such additions may cause misleading nonspecific reactions in some individuals. Antigens so prepared provide excellent mediums for the multiplication of bacteria; consequently the greatest care must be exercised in its use to prevent contamination. Whenever the sterility of an antigen previously used is not definitely known, it should be recultured before further use. Antigen containing bacteria should not be resterilized but must be discarded. Reactions simulating positive Frei tests may be obtained in normal individuals with contaminated antigen. We recommend the use of small bottles with rubber caps containing about 0.2 cc. of antigen, 0.1 cc. to be used on the suspected patient and 0.1 cc. on a control. If only a part of the contents of such an ampule is used, the rest should be discarded.

Any antigen must be tested for its specificity and potency in proved cases and in a sufficient number of controls. Whether or not small amounts of blood contained in the pus removed will interfere with the specificity of the antigen will become evident from these tests. If properly kept in an icebox, antigens remain effective for a period of from one to two years. It is necessary, of course, to check the specificity and sterility of the antigen from time to time. When an unknown antigen is used it is necessary to run a control in a patient not suspected of the disease.

*Frei Test.*—In performing the test, 0.1 cc. of the antigen is injected intracutaneously, preferably on the flexor surface of the forearm. The positive reaction is a delayed one. A red papule appears about twenty-four hours after injection and increases in size up to forty-eight or even seventy-two hours. We usually do the final reading after forty-eight hours, noting the diameter in millimeters of the red papule and of the surrounding erythematous halo, if present. In the series described in this article we have considered the reaction positive if the diameter of the papule was 6 mm. or more. Reactions smaller than this, or different in character and yet suggestive, have been designated as questionable. As in other tests, especially the Wassermann reaction, questionable reactions must be checked and interpreted on the basis of available clinical and historical data. No satisfactory standardization of the antigen has yet been devised. Quantitative (amount of virus) and qualitative ("types" or "strains") differences probably play an important rôle, to be investigated in the future. Differences in the intensity of the reaction to several different antigens on the same patient are not uncommon. In our experience, however, cases proved positive with one antigen have practically always been positive with other reliable antigens.

The specificity of the Frei test is well established, as is evident in this report. Positive reactions should, if possible, be confirmed by the use of other known antigens. We have followed this routine when circumstances permitted.

The positive test gives evidence of an acquired specific allergy, which in most instances continues throughout the life of the patient. Consequently a positive test does not necessarily indicate the presence of a recently acquired active infection. Old completely healed infections may eventually give positive reactions. Negative reactions may be seen in cases in which the specific allergy has not yet developed or in those in which the reaction is suppressed by factors known to lower the allergy in other infections. It is stated that syphilis may prevent a positive reaction to the Frei antigen.

It is known that the clinical manifestations of lymphogranuloma inguinale may be transient, or so insignificant that they pass unnoticed. For this reason we feel justified in assuming a previous infection in persons giving a positive test, regardless of the absence of a clinical history of the disease. The Frei test, properly performed and controlled, is much more reliable than the observation or memory of the individual involved.

Antigen prepared from pus secured from a clinical suspect may be assumed to contain the virus of lymphogranuloma inguinale, provided it gives positive reactions in known positive cases. Conversely, negative reactions with the same antigen indicate the absence of the virus. Positive reactions with such an antigen in the patient from whom it was secured are of no diagnostic value, since the same reaction may be obtained in the presence of other infections, such as chancroid, for example. The demonstration in proved cases of the antigenicity of pus or ground material from a diseased gland of a suspected individual is of paramount importance if the Frei test proves negative. A good example of this was described in England by Stannus. Apparently a syphilitic infection prevented development of a specific allergy to the Frei antigen in his patient, yet the virus could be demonstrated in the pus obtained from an inguinal gland by its power to elicit positive Frei tests in proved cases and by the successful transmission of the virus to susceptible animals by intracerebral inoculation.

We have attempted to transmit the virus from some of our cases to groups of mice, and, in one instance, to a monkey. We were not able to obtain enough passages of the virus in our cases to use this as diagnostic evidence of the disease. We believe that the strain of mice used was insufficiently susceptible to the virus of lymphogranuloma inguinale to make these attempts of clinical importance. Mice were successfully infected at the Hooper Foundation from two known cases of lymphogranuloma inguinale before these studies were initiated.

#### CASES PRESENTING ONLY INGUINAL MANIFESTATIONS

During the past four years, twenty-three patients have been observed in the San Francisco Hospital in whom it was possible to make a positive diagnosis of inguinal adenitis due to the virus of lymphogranuloma inguinale. There were twenty-one males and two females in this group.

Aspirated material from the swollen glands in twenty-one of these patients showed an absence of

bone and fat, which probably do not absorb much of the substance), (4) the efficiency of the kidneys in excreting the drug, and (5) the amount of the drug present in the body in conjugated form (inactive). From our limited data it would appear that 1 and 4 are the most important of these factors for the human subject. When the drug is given in small doses every few hours for several days, the efficiency of the renal function of the individual will be the important factor determining the concentration in the blood.

On dogs our blood concentration and excretion studies indicate nearly complete absorption in about four hours. Direct determination of the absorption in four hours shows that it is complete or nearly so. Since the blood concentration curves in the human subject after a single dose by mouth usually resemble those obtained with dogs, we can conclude that absorption is in most instances complete or nearly complete in man in about four hours. For this reason, if the daily dose is to be divided in order to attempt to maintain a nearly uniform concentration in blood and tissues, a four hour interval between doses would appear to be indicated. If it is desired to reach quickly a high blood concentration and maintain it, a large single dose (e. g., 0.05 Gm. per kilogram) could be given and followed after six to eight hours by the usual dose every four hours. From our studies of absorption of the drug when given by subcutaneous injection as compared to oral administration, no advantage is gained by injection in attaining the desired concentration in the blood. When possible, oral administration would appear to be indicated.

The finding of the drug in spinal fluid obtained by cisternal or lumbar puncture in only slightly lower concentration than in blood within a few hours of administration by mouth suggests that the drug may be given by mouth when its presence in the cerebrospinal fluid is desired.

#### SUMMARY

1. A method has been devised for determining para-aminobenzenesulfonamide in blood and urine. A conjugated form excreted in urine can be determined after hydrolysis with dilute hydrochloric acid.

2. In the dog, the substance appears to be excreted unchanged in the urine, while in the rabbit large amounts are excreted in a conjugated form. In man, the substance is excreted in both the free and the conjugated forms.

3. Absorption from the gastro-intestinal tract is rapid, being usually complete or nearly complete in about four hours.

4. In dogs, the concentration in the blood does not mount more quickly or attain a higher level with subcutaneous administration than with oral.

5. In patients, when large amounts are administered daily in divided doses nearly 100 per cent may be recovered from the urine when equilibrium between intake and output is established. It takes from two to three days to establish this equilibrium and the same time to free the body of the drug after it is discontinued.

6. In patients with impaired renal function, the sulfonamide appears to be excreted more slowly. Until more data are available it should be given with care in all cases of renal insufficiency.

7. After oral administration, the sulfonamide is found to be present in the cerebrospinal fluid in a somewhat lower concentration than in blood.

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## PENTOBARBITAL-SODIUM ANALGESIA IN OBSTETRICS IN THE HOME

REPORT ON 200 CASES

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When I first started the practice of obstetrics after leaving the Evanston Hospital about eleven years ago, pantopon (a mixture of opium and alkaloids) and scopolamine were being used for analgesia, as was taught when I interned at that time. It was the method of choice for about eight years, or until about three years ago, when I changed to pentobarbital, which I have been using ever since. When using pantopon and scopolamine I made a lot of friends among new mothers who previously had not had any relief of pain during labor; but at the same time I had a number of babies that were slow to breathe and quite cyanotic. It was always with a great deal of anxiety that I gave the second hypodermic of scopolamine and pantopon, for often I would have to work a half hour or more to get the baby to breathe properly.

There is an entirely different type of practice in the country from that in the city. Richland Center, Wis., is a strictly rural community. It has only 4,000 inhabitants and the nearest physicians are about 15 miles away, the nearest cities about 70 miles, so I frequently go from 20 to 30 miles on a call. Although there is available a splendid hospital of fifty beds, the average obstetric patient cannot afford the \$45 necessary for ten days at the hospital and prefers to stay at home. Another thing that one has had to contend with since the depression is the scarcity of telephones, about one farmer out of ten having a telephone. The country physician does not want his obstetric patients to call him too soon, and when he goes he wants to get through as soon as is absolutely safe for the mother and baby. My experience has been that scopolamine and pantopon will slow up labor considerably, while pentobarbital does not seem to affect the length of labor very noticeably.

I have my patients come to the office once every three weeks for urine examination and a check on weight and blood pressure, and they are instructed to notify me as soon as labor starts. This is so that I will be available immediately, if needed. Then, if the patient is a multipara she is to call again when the pains occur every five to seven minutes and are regular; and if she is a primipara she is to let me know when the pains are less than every five minutes and are hurting considerably. Those who live far away are instructed to call much earlier than those living near by. At the second call I go to the patient and give her four capsules of pentobarbital (6 grains, or 0.4 Gm.). If she is a multipara and is progressing rapidly, I start chloroform as soon as the os is fully dilated. If the os is not fully dilated in forty-five minutes I give two more  $1\frac{1}{2}$  grain (0.1 Gm.) capsules of pentobarbital if the pains are still acute. Primiparas are given two more capsules in about one to two hours, depending on the severity of the pains. With most of the cases this is the total amount of pentobarbital given.

In from fifteen to thirty minutes after the first dose of pentobarbital the patient begins to get relief, which seems to reach its maximum effect in less than an hour. The first thing that one notices is that the patient drops off to sleep between pains and will cooperate better

of Dr. E. A. Levin) was positive. The antigen prepared from this patient gave a positive test in a case of chancroid with typical ulcers from which Ducrey's bacilli had been demonstrated but negative reactions in proved cases of lymphogranuloma inguinale. Subsequently we have used this antigen for demonstrating the specific allergy produced by the causative agent of chancroid as described by Cole and Levin<sup>8</sup> and have found it highly satisfactory in the differential diagnosis of lymphogranuloma inguinale and chancroid.

TABLE 1.—Cases Studied with Frei Test and the Chancroid Antigen

Frei	Chancroid	Cases
+	0	9
+	+	2
0	+	5
+	?	1
?	?	2

TABLE 2.—Results of Survey

		Total	Negative	Positive	Questionable
White	Men	262	245	8	9
	Women	107	107	0	0
Total		369	352	8	9
Negroes	Men	7	5	1	1
	Women	7	6	0	1
Total		14	11	1	2
Mexican	Men	5	4	1	0
	Women	4	4	0	0
Total		9	8	1	0
Filipino	Men	2	2	0	0
	Women	1	1	0	0
Total		3	3	0	0
Puerto Rican	Men	1	0	1	0
	Women	2	2	0	0
Total		3	2	1	0
Chinese	Men	2	2	0	0
	Women	2	2	0	0
Total		4	4	0	0
Japanese	Men	2	2	0	0
	Women	1	1	0	0
Total		3	3	0	0
Totals		405	383	11	11
Percentages			94.6	2.7	2.7

TABLE 3.—Venereal and Nonvenereal Groups

	Total	Positive	Negative	Questionable
Venereal	105	22 (21%)	82 (78%)	1 (1%)
Nonvenereal	190	4 (2.1%)	180 (94.7%)	6 (3.2%)
Total	295	26 (8.9%)	262 (88.8%)	7 (2.4%)

Similar to the positive skin reaction in lymphogranuloma inguinale, a positive test to a chancroid antigen gives evidence of a specific allergy produced by a previous infection with the bacillus of Ducrey.

Table 1 includes all the cases studied with both the Frei test and the chancroid antigen since April 1936. In many of these patients the venereal infection occurred from ten to thirty years ago.

#### FREI TESTS IN A SURVEY OF 700 ADULTS

The results of a general survey of 405 adult patients (281 males and 124 females) in the general wards of the San Francisco Hospital are shown in table 2.

8. Cole, H. N., and Levin, E. A.: Intradermal Reaction for Chancroids with Chancroidal Bubo Pus, J. A. M. A. 105:2040 (Dec. 21) 1935.

Patients investigated because of clinical evidence of lymphogranuloma inguinale were not included in this table. Many of the patients in this series in whom positive or questionable reactions were obtained were found on careful questioning to have had one or another clinical manifestation suggestive of the disease at some time during their adult lives. Unfortunately, some of the patients tested were dismissed from the hospital before they could be questioned carefully.

The incidence of this disease as seen in California demonstrates the occurrence in an almost exclusively white population as compared to most reports in this country that deal with a large Negro population.

Through the courtesy of Medical Director R. H. Creel a large group of male patients at the Marine Hospital in San Francisco were also tested with antigen prepared from our cases. In only 295 of those tested was it possible to obtain a proper reading after forty-eight hours. Many of the positive cases in this series had been previously tested because of clinical evidence of lymphogranuloma inguinale. Table 3 divides the material into two groups. The first group includes patients tested who had been admitted to the hospital for the treatment of venereal disease. The second group includes patients taken at random from other wards in the hospital, not including the venereal ward. The difference in the number of positive reactions obtained in these two groups is striking. The high incidence of positive reactions of patients suffering with other venereal diseases would indicate that lymphogranuloma inguinale is often associated with them.

#### COMMENT

A study of the material presented here leaves little doubt that lymphogranuloma inguinale is a much more common disease in California than has been formerly recognized. Although the number of cases reported here is small and can give only an approximation of the existing conditions, the importance of the disease as a menace to public health cannot be denied. The preponderance of this disease in the Negro race in those sections of the country with a large Negro population is striking. In California, as in many European countries, the preponderance of cases is found among the white population, probably due to the fact that the Negro race is not so much in evidence here. It has been suggested that most of the white males with clinical lymphogranuloma inguinale give a history of sexual contact with Negroes. Our experience would indicate that this assumption is not entirely true. The disease in the white race, at least in this part of the country, occurs most frequently independent of contact with Negroes. Its high incidence in those people subject to frequent sexual contact with sources of venereal infection, regardless of race, would indicate that the infection is more dependent on sexual hygiene than on racial susceptibility.

The relative frequency of positive Frei reactions in patients with no clinical manifestations of the disease and with no history of a previous active lesion cannot be emphasized too strongly. How easily the disease may be transmitted by other means than by sexual intercourse is not known. Many extragenital, primary lesions have been reported in the literature. Undoubtedly many more have been unrecognized and undiagnosed. We feel that the primary lesion may often accompany the initial infection with any of the other venereal diseases and thus go unrecognized. For this

CASE 4.—R. S., a tertipara, eight months pregnant, had preeclamptic toxemia. There was marginal placenta praevia with breech. There was dilatation of two fingerbreadths. Pentobarbital  $4\frac{1}{2}$  grains (0.3 Gm.) was given. Hemorrhage was severe. The cervix was dilated manually sufficient to bring down a foot. Breech extraction was accomplished and resulted in a 6 pound (2,722 Gm.) baby. Resuscitation was difficult, and the baby died suddenly four and one-half hours after birth.

## THE COMPARATIVE EFFICIENCY OF THE COMMONLY USED FLAVOR- ING AGENTS

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The choice of flavoring agents by the physician for the purpose of disguising the unpleasant taste of various drugs appears to rest largely on an arbitrary basis. All too frequently personal experience with flavoring agents is limited to a few random trials in tasting on the part of the individual physician with the cooperation of a friendly pharmacist.

Fantus<sup>1</sup> has recently advocated the use of a number of new flavoring agents as being superior to some of the older preparations in common use.

With the purpose in view of extending the meager information available with regard to the relative efficiency of the flavoring agents in common use, a group study has been carried on since 1933 with the students of the medical, dental and nursing classes at the University of Minnesota Medical School as part of the laboratory exercises in pharmacology.

The particular points which we have sought to determine in these studies employing relatively large numbers of individuals are which of the commonly used flavoring agents (1) appeal most strongly to the majority of individuals when considered from the standpoint of flavor alone, (2) are most effective in disguising the bitter taste of alkaloids and other bitter drugs, (3) are most effective in covering the saline taste of such drugs as ammonium chloride and sodium bromide, and (4) are most effective in disguising the unpleasant taste of tincture of digitalis.

### METHODS EMPLOYED

The flavoring agents, whether used alone or after the addition of drugs to be tested, were studied in most cases in groups of four flavors at one time, as a larger number of specimens could not be satisfactorily judged and placed in their respective order of efficiency. All preparations were identified only by number or letter. The order of testing the specimens on the part of the students was entirely at random. Each year changes were made in the grouping of the flavors and also in their relative order.

The students were instructed to taste each of the four preparations in turn, rinsing the mouth with water after each, repeating the tasting as necessary, and to decide his or her own order of preference for the taste of the four preparations being tested.

The most effective preparations have been tested on more than 600 individuals. The flavoring agent ranking last in any group was tested for one year only (from 125 to 150 tests). Those flavoring agents which have

been newly admitted to the recent revisions of the United States Pharmacopeia and National Formulary have, of necessity, been tested during the present year only (approximately 175 tests).

The results were tabulated and scored on the basis of 3 points for first choice, 2 for second choice, 1 point for third choice and no credit for fourth choice. The results were then expressed as a percentage of a perfect first choice. Thus a flavoring agent obtaining a score of 75 per cent or more may be considered highly effective, a score in the range of from 50 to 65 per cent indicates a second grade flavoring agent, a score in the range of from 35 to 50 per cent denotes a third grade flavoring agent, and those flavoring agents obtaining a score of less than 35 per cent can be considered practically worthless so far as the preferences of the majority of individuals are concerned.

The reliability of the tests has been checked in a variety of ways. Analysis of the results in groups of from 30 to 35 students (i. e., the number of students making the tests on any one day) shows that even in these small groups the results are consistent from group to group within  $\pm 5$  per cent of the mean values for the class. A check of sixteen groups from the

TABLE 1.—Order of Preference of Flavoring Agents Alone and With the Addition of an Alkaloid

Preference for Flavor Alone		Efficiency in Disguising Bitter Taste	
Flavoring Agent	Score, %	Flavoring Agent	Score, %
Syrup of Cocoa, N. F. V.....	91	Syrup of Cocoa, N. F. V.....	81
Syrup of Prepared Cacao, N. F. VI.....	88	Syrup of Raspberry, N. F. VI	77
Syrup of Raspberry, N. F. VI.	71	Aromatic Syrup of Eriodic- tyon.....	73
Syrup of Orange.....	53	Syrup of Prepared Cacao, N. F. VI	67
Syrup of Cherry, N. F. VI.....	51	Syrup	43
Compound Syrup of Sarsapa- rilla.....	43	Syrup	41
Syrup of Citric Acid.....	46	Com rilla.....	39
Aromatic Syrup of Eriodic- tyon.....	35	Syrup of Citric Acid.....	35
Elixir of Licorice.....	33	Elixir of Licorice.....	27
Syrup of Cinnamon.....	32	Aromatic Elixir.....	27
Syrup of Wild Cherry.....	29	Syrup of Orange.....	21
Aromatic Elixir.....	27	Syrup of Wild Cherry.....	14
Syrup of Licorice.....	26	Syrup of Licorice.....	12

1936 classes shows an average of  $\pm 4.2$  per cent. Comparison of the results obtained by different classes in each of the four years also shows the results to be consistent within  $\pm 5$  per cent in spite of changes in the grouping of the flavors. A check of twenty-four class results over the four year period shows an average of  $\pm 3.9$  per cent.

### GROUP PREFERENCE FOR VARIOUS FLAVORS

The results obtained in the tests for group preference for the taste of the flavoring agents purely as pleasant tasting vehicles are shown in table 1. It is apparent from an inspection of this table that the flavors which appeal most strongly to the majority of individuals are those of chocolate, the fruit flavors of raspberry, orange, lemon and cherry, and the root beer flavor of sarsaparilla.

It does not necessarily follow that those flavoring agents which are preferred as flavors will be efficient in disguising all or any types of disagreeable tastes of drugs, yet an inspection of the tables shows that all these preferred flavoring agents rank high in efficiency in disguising at least one type of unpleasant taste. It is likewise strikingly noticeable that most of the flavoring agents which rate poorly from the standpoint of preference are usually among those which have proved to be least efficient in disguising unpleasant tastes.

From the Department of Pharmacology, University of Minnesota Medical School.  
1. Fantus, Bernard: *Advances in Therapeutic Technic*, J. A. M. A. 105: 877 (Sept. 14) 1935.

subcutaneous injection of an adequate dose of prostigmin, from 0.5 to 3 mg. The benefit lasts about five to six hours and therefore treatment is given three times a day. As Boothby<sup>11</sup> has emphasized, however, prostigmin medication may be followed by a stage of mental depression and increased weakness developing after the immediate improvement. It is too new a therapy adequately to compare its efficacy with that of ephedrine or aminoacetic acid (glycine).

Since treatment is chronic, oral medication was greatly to be desired. The first report of oral therapy of myasthenia gravis was that of Everts.<sup>6</sup> It was at once apparent that he was using oral doses as high as from ten to thirty times the subcutaneous dose; namely, 30 mg. three times a day. He noted no ill effects in his two patients. It seemed that prostigmin given orally was either poorly absorbed or largely destroyed in the intestinal tract, and therefore large doses were needed. Everts concluded that the drug in the dose he recommended was safe, did not cause gastro-intestinal or other untoward symptoms, and could be used for indefinite periods. One could infer that in order to obtain the gastro-intestinal actions which are known to occur after the hypodermic use of the drug even larger oral doses than those effective in myasthenia gravis might be necessary. With physostigmine, on the other hand, the oral dose is but slightly larger than the parenteral.

On the basis of this report, the manufacturers now supply oral tablets of prostigmin containing 15 mg. each, and the dose recommended on the package for myasthenia gravis is two tablets three times a day. Even larger amounts have been used.

#### PERSONAL EXPERIENCE

One of us (L. S. G.) was engaged in some ergographic and dynamometric experiments to study the effects of prostigmin on skeletal muscle strength and fatigue and was himself serving as a subject. To obtain sufficient drug by the hypodermic route, as it is marketed in 1 cc. ampules containing but 0.5 mg., it was necessary to take a volume of the solution subcutaneously which was both inconvenient and painful. Oral medication was therefore used.<sup>12</sup>

The marked potency of oral physostigmine in small doses made it seem unwise to take the recommended large doses of prostigmin without first trying smaller amounts. Consequently a single one-half tablet dose (7.5 mg.) was taken. When no effects on the heart rate, saliva, pupil or intestine were noted, this dose was gradually increased at intervals (from four days to a week) sufficiently long to rule out all chance of cumulative action. When two tablets (30 mg.) were taken the experimenter noted nothing except a drop in his pulse rate from 73 to 65 per minute. There was no increased peristalsis, miosis, salivation, urinary urgency, muscular twitchings or other evidence of stimulation of "cholinergic" nerve endings. It was therefore concluded that the observation of lack of side effects by Everts was a correct one and that the drug was relatively safe when given orally. L. S. G. took this 30 mg. dose on two occasions several days apart with the results noted, and another subject (A. R.) took this dose on one occasion and noted nothing except a transient slowing of the pulse from 72 to 66 per minute. Atropine was kept at hand to antagonize any

unpleasant symptoms, but these did not occur. As these doses gave no conclusive results on the tests of muscular function examined and also resulted in practically no evidence of parasympathetic activity, it was decided to increase the dose to three tablets after a suitable rest interval (one week). This amount did not seem excessive because of the results noted with two thirds of this dose and the lack of ill effects after the prolonged use of 30 mg. three times daily for months by myasthenic patients. Accordingly, the two subjects mentioned each took a single oral dose of 45 mg. of prostigmin three hours after lunch. The subsequent alarming and unpleasant experience suffered by one of them forms the basis for the warning in this report.

#### REPORT OF CASE

L. S. G. is a perfectly healthy young adult of 74 Kg. whose past history is unimportant. Three hours after a modest lunch, 45 mg. of prostigmin was taken in a single oral dose. During the previous hour, control hand grip readings on a double dynamometer had been recorded once every fifteen minutes and were continued at this interval after taking the drug. This test took only a few seconds, and the remainder of the time was spent reading.

At 2:45 p. m., prostigmin 45 mg. was taken orally. The heart rate was 78 per minute; the pupils were from 4 to 5 mm. in diameter.

At 3:15 the pulse rate was 65. The pupils were normal. There were no symptoms of any sort.

At 4 o'clock there was moderate salivation; the pulse rate was 63.

At 4:30 the last dynamometer reading was made. Salivation<sup>13</sup> was now diminishing. Atropine was not taken, as there were no symptoms to combat. The pupils remained unchanged; the pulse rate was 65.

At 5:15 the symptomless period continued; vision was not impaired; work with a microscope was done with ease.

At 5:30, while the patient was briskly walking home, a matter of ten minutes, sudden excess nasal secretion occurred and lasted for several minutes. Other than this and the slight salivation, nothing untoward was observed.

At 5:45, on arriving home, and three hours after taking the drug, the patient noted excess motor activity in the form of marked restlessness and weaving movements.

At 5:48 there was a sudden moderate desire to defecate; no colic occurred. On the way to the bathroom, the patient suddenly became quite ill and felt "tremulous" all over but was able to call for aid. Within the next few seconds there occurred, in the following order, a distressing feeling of rapid fluttering referred by the subject to the abdomen, diaphragm and thorax, difficulty in breathing, severe giddiness, faintness, and fear of impending death.

At 5:49 the patient was put to bed. He noted that his hands and feet felt like ice, and his wife corroborated the fact that they were very cold and covered with a cold clammy sweat. The face was quite bloodless. The patient was rapidly becoming more and more ill, and respiration was sighing and labored. Atropine was not available. Medical assistance was called. The patient remained conscious throughout and observed his symptoms as closely as possible. A clock on the dresser and a picture in the far room could be seen clearly, so that vision was not yet impaired. No pain was experienced at any time.

At 5:52, coincident with a second exacerbation of the sickening sensation of rapid fluttering in the abdomen and lower part of the thorax, faintness, difficult breathing and a feeling of impending catastrophe, there occurred for the first time twitching of the skeletal muscles starting in the legs and arms and spreading to the intercostal muscles, trunk, neck and face muscles. These twitchings became more widespread, rapid and severe but did not cause pain. The pulse was taken and found to be regular, 75 to the minute, but of very low tension. Faint-

11. Boothby, W. M.: Myasthenia Gravis: Eighth Report, Tr. A. Am. Physicians 51: 188-198, 1936.

12. Prostigmin tablets were kindly supplied through the courtesy of the Hoffmann-La Roche Company.

13. Salivation had been noted also by the second subject (A. R.), whose pulse had fallen from 70 to 63 per minute. At this time subject A. R. had slight colic, which was relieved after the passage of a loose stool. He had given 1/100 grain (0.00065 Gm.) of atropine sulfate by mouth and had no more symptoms except for some slight muscle twitchings of the throat later in the evening.



cherry, sarsaparilla, orange, citric acid and cinnamon offering little advantage over one another as second grade flavoring agents. The syrups of wild cherry and licorice and aromatic elixir are the least efficient flavoring and disguising agents.

#### SUMMARY

A group of commonly used flavoring agents has been tested on approximately 600 individuals to determine their relative efficiency in disguising various types of disagreeable tastes.

Considered purely as pleasant tasting vehicles the syrups of prepared cacao and raspberry are the flavors of choice of the largest percentage of individuals. Second choices are the syrups of orange, cherry, sarsaparilla and citric acid.

The syrups of raspberry, eriodictyon and prepared cacao are the flavors of choice in disguising the taste of bitter drugs such as alkaloids.

The syrups of cinnamon, orange and sarsaparilla are the most effective agents in disguising the salty taste of such drugs as ammonium chloride and sodium bromide.

The syrups of raspberry and prepared cacao are the flavors of choice in disguising the taste of tincture of digitalis.

The most efficient "all-purpose" flavoring agents of the group studied are the syrups of prepared cacao and raspberry.

### INCIDENCE OF LYMPHOGRANULOMA INGUINALE IN SAN FRANCISCO

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AND

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Lymphogranuloma inguinale has become recognized throughout the civilized world as a relatively common disease. Numerous articles on this subject have been published in North American medical journals during the past year, remarkably few, however, from the western part of the United States.

The object of this paper is primarily to stress the incidence of lymphogranuloma inguinale in California. We hope that, through the stimulation of a general interest in this disease in California, sufficient material will become available to facilitate a more thorough study of its clinical manifestations, treatment and prevention. If the opinion of European authorities is to be accepted, we are confronted with a widespread, extremely chronic and devastating disease which is eventually fatal in its termination. With our present knowledge, the only means of control of the disease lies in the field of preventive medicine. Published reports would indicate that the disease is becoming more and more prevalent throughout the civilized world; consequently its recognition and prevention in California are immediate issues of paramount importance.

The term "lymphogranuloma inguinale" used in this article is a poor descriptive name for the disease. We have continued its use since it is the term accepted by the American Medical Association and the Health Organization of the League of Nations.

A review of the extensive foreign and domestic literature on this subject has been purposely omitted here. Detailed information dealing extensively with the historical, clinical, epidemiologic and experimental features of lymphogranuloma inguinale may be found in excellent monographs published by Hellerström,<sup>1</sup> Stannus<sup>2</sup> and Wassén.<sup>3</sup>

In 1934 Templeton and Smith<sup>4</sup> reported one of the early cases of lymphogranuloma inguinale seen in California. They did not mention an article published by Hoffman<sup>5</sup> in 1933 in which he reports eleven cases. Eight of Hoffman's patients contracted their infection in California. In 1935 Novy<sup>6</sup> published the report of a case that originated in northern California. In his article he mentions thirteen cases observed by Stewart at the Marine Hospital in San Francisco and three additional cases seen elsewhere in California. Stewart's patients acquired their infection, with one exception, in foreign ports. Hoffman in a discussion of Novy's article classified the thirty-five cases seen since March 1933 in the urologic service of the Los Angeles County Hospital as follows: twenty-seven males, eight females, sixteen Americans (white), ten Mexicans, seven Negroes, two Filipinos; source of infection: Los Angeles County twenty-seven, Texas four, Mexico one, Minnesota one, Philippine Islands one and unknown one. Diepenbrock, McGinnis, Yoell and Morgan<sup>7</sup> reported two infections contracted in northern California.

This account includes all the information that we were able to gather from the literature on the occurrence of this disease in California. Other publications may have escaped our attention. Needless to say, a great many cases have been properly recognized but not reported; e. g., those from the Marine Hospital in San Francisco, where the Frei test has been in use since 1934. There are close to sixty proved cases on record at that hospital alone. In San Francisco, antigen for Frei tests has been available at the Hooper Foundation during the past three years. Many of the clinics and private hospitals have used the antigen intermittently for a considerable period. To our knowledge, however, there has been no systematic survey of this disease in northern California. Our material consists of forty-six proved cases of lymphogranuloma inguinale with clinical manifestations of the disease, together with a preliminary account of a survey comprising a group of 700 persons in San Francisco. The clinical and pathologic features of lymphogranuloma inguinale and the rectal manifestations of this disease have been considered by us elsewhere.

#### DIAGNOSIS, ESPECIALLY BY MEANS OF THE FREI TEST

The Frei test plays the most important rôle in the diagnosis of lymphogranuloma inguinale. In the begin-

1. Hellerström, S.: Contribution to Knowledge of Lymphogranuloma Inguinale, *Acta dermat.-venereol.*, supp. 1, 1929.
2. Stannus, H. S.: A Sixth Venereal Disease: Climatic Bubo, Lymphogranuloma Inguinale, Esthiomene, Chronic Ulcer and Elephantiasis of the Genital Region, Inflammatory Stricture of the Rectum, *Ann. Surg.* 61: 1, 1933.
3. Wassén, E.: Studies of Lymphogranuloma Inguinale from Etiological and Immunological Points of View, *Acta path. et microbiol. Scand.*, 1935, supp. 23.
4. Templeton, H. F., and Smith, D.: Lymphogranuloma Inguinale, *California & West. Med.* 41: 42 (July) 1934.
5. Hoffman, E. F.: Lymphopathia Venereum or Lymphogranuloma Inguinale: Review of Literature and Report of Eleven Cases, *Urol. & Cutan. Rev.* 37: 786 (Nov.) 1933.
6. Novy, F. G., Jr.: Lymphogranuloma Inguinale: Report of Case Originating in Northern California, *California & West. Med.* 42: 149 (March) 1935.
7. Diepenbrock, A. B.; McGinnis, J. J.; Yoell, R. A., and Morgan, J. W.: Lymphopathia Venereum, *California & West. Med.* 42: 176 (March) 1935.

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each bout of intestinal activity was followed in a few seconds by definite accentuation of skeletal muscle twitchings.

It is also of interest that those muscles which are most involved in myasthenia gravis—eyelids, extraocular muscles and face, lip, tongue, throat and neck muscles—still contracted after other muscle groups had ceased and were most painful during the following forty-eight hours.

The persistence of consciousness during physostigmine poisoning was also noted in this case. The spasm of accommodation and the miosis were quite typical. Oddly enough, no lacrimation was observed, although the sudden short spell of nasal discharge may in reality have been due to tears. The pulse, slow in proportion to the degree of shock and evidently low blood pressure, was characteristic of this type of poisoning.

Atropine is a specific physiologic antagonist, and the relief it brought in this case is clear. It was more effective on parasympathetically innervated organs than on the skeletal muscles. Indeed, no parasympathetic innervation of voluntary muscle has ever been proved, and some workers doubt whether atropine directly overcomes physostigmine-induced muscle tremors. The iris was relaxed before the bowel. The later return of mild symptoms was undoubtedly due to the wearing off of atropine action and indicates that prostigmin was still acting eight hours after ingestion.

The considerable caution observed in testing out smaller amounts before taking a 45 mg. dose of prostigmin has been recited in some detail, and it should be repeated here that, when two thirds of the latter dose was taken on several occasions by two observers under controlled conditions, absolutely no signs or symptoms appeared other than a slight cardiac slowing. Whether poisoning would have occurred in subject A. R. had he not taken atropine is unknown. The long interval before the appearance of poisoning must be reemphasized, because large oral doses are given every four to six hours to myasthenic patients.

It is easy to see how any delay or irregularity in absorption or destruction of the drug could cause cumulative action and poisoning in these patients. That such reports have not yet appeared is no guaranty of safety. There is not the least reason to believe at present that myasthenia gravis patients are more tolerant to the physostigmine group of drugs. To superimpose the alarming and distressing symptoms reported here on a myasthenia gravis patient or a postoperative patient with abdominal distention might produce tragic results.

It is a general rule of pharmacotherapy that, when alkaloids potent in small subcutaneous doses are not effective orally, except in very much larger doses, much must be learned about the fate of the drug in the gastro-intestinal tract before oral use can be recommended. To our knowledge, nothing is at present known about the fate of prostigmin. Since a number of variable factors, such as amount of chyme in the intestinal tract, gastric emptying time, destruction of the drug by enzymes, rate and site of absorption, and time of administration of drug in relation to meals, may be concerned, we feel that the present practice of giving orally thrice daily from ten to thirty times the effective subcutaneous dose is dangerous. An unfavorable combination of the various factors controlling the absorption, fate and excretion of the drug may result in poisoning.

If prostigmin is needed in myasthenia gravis, we suggest that for the present it be given parenterally, so

that dosage can be controlled. If the latter is impossible, it seems wisest to rely on other therapeutic measures until more is known concerning oral prostigmin. We also feel that any claims that prostigmin is less toxic for man than physostigmine and has a higher therapeutic index should be reserved until more clinical evidence is available.

## THE ALLANTOIN TREATMENT OF ULCERS

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Chronic, stubborn, nonhealing ulcers of the leg constitute one of the most annoying conditions that the profession is called on to treat. A superficial ulcer often develops into a deep one involving the subcutaneous tissues and even resulting in a periostitis of the underlying bone. The usual accepted treatment for this type of ulcer has included rest in bed, wet dressings, various ointments and lotions, skin grafts, excision of necrotic areas, adhesive strapping over ulcerated areas, and injection of varicose veins.

These traditional approaches to healing, however, have in many cases been unsatisfactory and have failed often to effect a cure. In view of the fact that there is not, as yet, a satisfactory specified method of treating these stubborn and nonhealing wounds, I am suggesting the use of allantoin.

Allantoin has been found to have the same effects on surgical wounds as maggots; namely, the removal of infected material and the stimulation of healing through the growth of healthy granulation tissue.<sup>1</sup>

Maggots, investigation has disclosed, secrete into diseased tissue a definite substance which cleanses the wound, promotes the growth of vascular granulations and puts the flesh in a healthy state.<sup>2</sup> Allantoin, characteristically, removes necrotic material and promotes the growth of granulation tissue and rapid healing. Since maggots and allantoin are found to produce the same results, it may be that allantoin is the important agent in the maggot excretion, although there may be other contributive components. Furthermore, allantoin, or the healing agent, is of such a nature that it can be obtained from sources other than maggot excretion. Specimens of maggot excretion, both sterile and non-sterile, are found to contain allantoin. It is found in the excreted end-products of purine metabolism in all arthropods, not only maggots. It is also widely distributed among plants. Macalister<sup>3</sup> found it conspicuously present in the roots of comfrey, a plant prized by European peasants for its curative properties.

Chemically, allantoin is the principal terminal product of purine metabolism in animals below man and the manlike apes, and it results from oxidation of uric acid through the action of the enzyme uricase. In its commercial form, allantoin is prepared by Merck & Co. It is a white, odorless, stable, bland crystalline powder, slightly soluble and nontoxic. To adapt it for use in wounds, it must be dissolved as follows: Two

A supply of allantoin of the U. S. Department of Agriculture, who also is available by Dr. William Robinson of Entomology and for reliable information, Nonhealing Wounds, 1 of Wide Biological Joint Surg. 12: 209 (April) 1935.  
2. Robinson, William, and Norwood, V. H.: The Role of Surgical Maggots in the Disinfection of Osteomyelitis and Other Infected Wounds. J. Bone & Joint Surg. 15: 409 (April) 1935.  
3. Macalister, C. J.: A New Cell Proliferant: Its Clinical Application in the Treatment of Ulcers, Brit. M. J. 1: 10, 1912.

organisms on the smear and no growth on culture material. Frei tests were positive in all cases.

Frei antigen was prepared from the pus aspirated from the inguinal glands of many of these patients. In every instance the antigen prepared gave positive skin reactions in known cases of lymphogranuloma inguinale and negative reactions in controls.

Eight of these patients gave histories of a transient sore on the penis from eight to twenty-one days following exposure.

Complete surgical extirpation of the diseased inguinal glands resulted in prompt and complete healing in eight cases. There has been no recurrence to date in any of the patients so treated, one of whom we have had under observation for a period of about two years. The dreaded elephantiasis of the genitalia following bilateral extirpation of the inguinal glands, reported by many writers, did not occur in any of these cases. A unilateral inguinal adenitis in one patient disappeared following a single aspiration of pus and prolonged treatment with intravenous injections of Frei antigen. This specific antigen therapy is being carried out in a series of patients under our care at present. Incision and drainage without extirpation of the diseased glandular tissues resulted in persistent fistulas in four cases. In two others, spontaneous regression of the inguinal buboes followed a course of intravenous antimony and potassium tartrate.

The transient nature of the primary lesion in many cases is well demonstrated in the following case:

A. T., a white woman, aged 22, an American, was brought to our attention as the last sexual partner of a Mexican being treated in the San Francisco Hospital for a bilateral inguinal adenitis due to lymphogranuloma inguinale. Their sexual relationship began March 12, 1936, and continued for several weeks until he became ill and was admitted to the hospital for treatment of the genital lesions.

Suspecting the venereal nature of her partner's illness, the patient underwent an examination by her private physician and was pronounced free from disease. On examination at the San Francisco Hospital May 4, the patient stated that she had been perfectly well until about the middle of April, when she noticed some slight pain in the right inguinal region when standing for long periods of time or when walking for long distances. This pain had been improving since that time. She also noticed "a burning sensation within the vagina" when walking. She stated that there was no vaginal discharge and no fever of which she was aware.

Physical examination revealed no adenopathy with the exception of a tender, freely movable gland about 1 cm. by 1 cm. in the right inguinal region and a smaller nontender gland in the left inguinal region, which also was movable. Just below and to the patient's right of the urethra was a small superficial ulceration from 0.5 to 1 cm. in diameter. The surface was covered with a gray exudate. At the lower margin of the ulcer was a small nipple of granulation tissue. The lesion was slightly tender to pressure. The margins were not indurated. The cervix was clean, virgin.

A smear from the lesion showed numerous micro-organisms, none, however, resembling gonococci or Ducrey's bacilli. Dark-field examination for spirochetes was negative. The Wassermann and Kahn reactions were negative. The Frei test was positive with three separate antigens. The chancroid reaction was negative.

May 6 the ulcer was cleaning and healing slowly. May 13 the patient was completely afebrile. The primary lesion was smaller and clean, but there was still some ulceration. The gland in the right inguinal region was smaller and no longer tender. May 20 the inguinal glands were smaller. The primary lesion had decreased in size so that now there was only a very small area of granulation tissue in the central portion of a depressed scar. May 27 there was a minute remainder of granulation tissue. The inguinal nodes were small and not tender. June 3 the primary lesion was healed. There was a small depressed

scar (0.5 cm. in diameter) at the site of the previous ulceration. Inguinal nodes were no longer tender. The patient was advised to return in one month for further examination. No local or general therapy was recommended.

The primary lesion in this patient was of such a minor nature that she certainly would not have submitted to a second examination had she not been requested to do so because of a positive Frei test. During the period of vaginal ulceration the patient was undoubtedly highly infectious. The inguinal adenitis as well as the vaginal ulceration disappeared completely without treatment. The patient would have been entirely unaware of having had the disease had she not had the second examination. The negative history of a primary lesion in many patients suffering with secondary manifestations of the disease may be explained on this basis.

#### CASES PRESENTING RECTAL MANIFESTATIONS

During the past four years we have collected at the San Francisco Hospital twenty-three cases presenting rectal manifestations of this disease. In all patients we have been able to prove the presence of lymphogranuloma inguinale by positive Frei tests and to rule out certain other etiologic factors, particularly by the use of biopsy material. Certainly not all benign strictures of the rectum can be attributed to lymphogranuloma inguinale. Many other etiologic agents have been suggested, the most prominent being syphilis, gonorrhea, tuberculosis and amebic dysentery. No doubt certain incidents of rectal stricture can be traced directly to one or the other of these diseases. However, the frequent finding of a positive Frei test in patients suffering with benign rectal stricture is strong evidence in favor of this disease being the real etiologic factor in the majority of cases.

In fifty-one patients treated for benign rectal stricture in the San Francisco Hospital from July 1, 1919, to July 1, 1934, the clinical evidence of lymphogranuloma inguinale together with the absence of other etiologic factors make it plausible to assume that at least thirty-two of these patients should come into the category of this disease. Had Frei antigen been available during that period, the majority of these patients would undoubtedly have shown a positive reaction. Many of the patients with benign stricture of the rectum whom we are now treating for lymphogranuloma inguinale were admitted to the San Francisco Hospital in the local pre-Frei era under the diagnosis of syphilitic or gonorrheal stricture of the rectum. These diagnoses, as we now know, were erroneous.

The clinical and pathologic features of this particular manifestation of lymphogranuloma inguinale will be considered by us in another article.

#### IMMUNOLOGIC DIFFERENTIAL DIAGNOSIS OF LYMPHOGRANULOMA INGUINALE AND CHANCROID

During the past three months we have performed skin tests with a chancroid antigen on all patients in the San Francisco Hospital who have given a history of venereal disease associated with an inguinal adenitis. We have also performed the test during this period on all Frei-positive patients.

The chancroid antigen was prepared from pus obtained from a suppurating inguinal gland in a patient seen in April 1936 and suspected of lymphogranuloma inguinale but in whom Frei tests with previously tested Frei antigens were consistently negative. The dmecos skin test for chancroid (antigen obtained by courtesy

position for four years, when she was married. Her economic status after marriage was inferior to her previous level, and she was forced to drudging household labor. Two years after marriage her first child was born. During the puerperium she became depressed and agitated and remained so for six months, when she recovered after a brief period of maniacal excitement for which she was hospitalized. A second pregnancy three years later was attended with the same symptoms. She remained well after this until January 1936.

At Christmas 1935 the patient and her husband attended a party at the home of a former schoolmate who was decidedly more affluent than the patient. During the party the patient's husband noticed that she was dull and listless and he urged her to drink and be more convivial. After each drink she became duller and finally she became unconscious. She was taken home, where she recovered consciousness but stated: "I feel strange like I did after the babies came." She went to her family physician feeling depressed and unable to concentrate. Thereafter she visited him at weekly intervals. She continued to be depressed and cried a great deal and thought herself responsible for her husband's lack of financial success and worried about the children. The physician decided to employ a preparation of hematoporphyrin hydrochloride<sup>3</sup> intramuscularly in doses of 1 ampule at weekly intervals. The first dose was given the second week in May. In the early part of June the patient complained of weakness of the legs. By the end of the third week in June the patient would not arise from bed and complained of some pain in the legs and right arm. At that time my examination showed that there was weakness and incoordination of both legs and the right arm. Deep sensation (sense of position and vibratory sense) was lost in both legs and impaired in the right arm. Patchy areas of hypesthesia for pain were also noted in these areas. No tendon reflexes were obtained in the lower extremities. There was no response to plantar stimulation. The patient still complained of painful paresthesias.

Administration of hematoporphyrin was stopped in the first week in July. By the middle of July all the neurologic signs noted had practically disappeared. The mental state was unchanged except that the patient was more agitated and self accusatory, so that the psychotic picture has acquired an involutional coloring. During the administration of the hematoporphyrin hydrochloride no hematoporphyrinuria was noted in this patient.

#### COMMENT

The symptoms and signs of peripheral multiple neuritis in this case occurred following administration of hematoporphyrin hydrochloride and disappeared when the drug was discontinued, so that I believe it is fair to indict the drug for the neuritic syndrome. Likewise no other cause was found that might be responsible for the neurologic signs.

Some further justification of this indictment may be adduced from the literature concerning hematoporphyrinuria and neuropsychiatric disturbances. The occurrence of these phenomena in conjunction with dysfunction of the nervous system (Landry's syndrome) was noted by Erbslöh<sup>4</sup> and since then similar reports have been made by Courville,<sup>5</sup> Lhermitte,<sup>6</sup> Abderhalden,<sup>7</sup> Beilin<sup>8</sup> and others. All these cases were fatal. Also psychotic disturbances have been described by Eichler,<sup>9</sup> Thiele<sup>10</sup> and Courville.<sup>5</sup> Muscle atrophy associated with disturbance caused by hematoporphyrinuria is reported by Sachs.<sup>11</sup>

Most of the cases of neuropsychiatric disturbance with hematoporphyrinuria have occurred after administration of drugs such as sulfonmethane, but some have shown no assigna-

ble cause for the presence in the urine of such a substance. Recoveries<sup>12</sup> have been noted from neuritis associated with hematoporphyrinuria. The pathologic pictures presented by these cases are largely degenerative lesions of the cortex cerebri and substantia grisea of the spinal cord. Some degenerative lesions of the peripheral nerves have been found. Other cases reveal no demonstrable lesions of the central or peripheral nervous system.

#### CONCLUSIONS

The case of peripheral multiple neuritis here presented was presumably due to the administration of hematoporphyrin hydrochloride for the treatment of a psychotic depression.

501 South Forty-Sixth Street.

#### A NEW DANGER: ASPIRATION OF CARBON DIOXIDE SNOW

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With the recent introduction of carbon dioxide snow, better known as "dry ice," for general commercial use and the ease with which it can be obtained by irresponsible persons there have come grave dangers of accidental misapplication. Following the occurrence of the case to be reported, inquiry among the children in the neighborhood revealed that one of their diversions is to obtain the "ice" at a candy store or from a traveling vender with a purchase of ice cream and to place a small piece in the mouth and blow off "steam." Occasional cases of small burns of the mouth have apparently not sufficed to put an end to this practice.

A review of the literature during the past ten years shows this to be the first case of its kind to be reported.

#### REPORT OF CASE

V. K., a boy, aged 7 years, was admitted to the laryngologic service of Mount Sinai Hospital Sept. 27, 1936, with a history of having "swallowed" a piece of "dry ice" the size of a grape twenty minutes before admission. Following this he "choked, got blue and fainted." His mother tried to remove the "ice" digitally but was unsuccessful. He regained consciousness and his mother brought him to the hospital at once.

On admission his color was good and breathing was easy. There were no inspiratory retractions but there was a moderately loud, low-pitched expiratory stridor, simulating the sound of a snore (such as is heard in patients with supraglottic edema, as described by Neffson and Wishik<sup>1</sup>). Swallowing was so painful that he spit constantly. Indirect laryngoscopy revealed more than moderate edema of the left arytenoid and aryepiglottic fold, preventing visualization of the left vocal cord. The right side of the larynx, the epiglottis and the pharynx looked normal. Breath sounds were well transmitted throughout the chest. The rest of the physical examination was essentially negative.

During the next hour and a half the stridor increased somewhat, supraclavicular retractions appeared, but breathing still remained quite easy. On reexamination by indirect laryngoscopy the epiglottis, aryepiglottic folds and arytenoids were found to be so extremely edematous that the glottis could not be seen. Because of the rapid progression of the laryngeal edema in so short a time, it was realized that a tracheotomy would be required. The larynx was sprayed with a cocaine (20 per cent)-epinephrine (1:1,000) solution preliminary to tracheotomy. He immediately became extremely dyspneic, with deep retractions and a loud, crowing, inspiratory stridor, slightly cyanotic, very restless and anxious looking. What had evidently occurred was a sudden indrawing of the edematous supraglottic tissues into the glottis, with consequent acute respiratory obstruction.

A bronchoscope was introduced at once and gave immediate complete relief. It was noted that the trachea was intensely congested and edematous. With the bronchoscope in place, an

12. Melkersson, E.: Un cas de porphyrie aiguë spontanée avec symptômes nerveux, et une brève revue de la question des porphyries. *Acta med. Scandinav.* 63: 153, 1926.  
From the laryngologic service of Dr. Rudolph Kramer, the Mount Sinai Hospital.  
1. Neffson, A. H., and Wishik, S. M.: Acute Infectious Croup: A General Study of Acute Obstructive Infections of the Larynx, Trachea and Bronchi, with an Analysis of 727 Cases. *J. Pediat.* 5: 433 (Oct.), 617 (Nov.), 776 (Dec.) 1934.

3. The trade name is "Photodyn."

4. Erbslöh, W.: Presence of Hematoporphyrinuria in Cases of Paralysis After Sulfonal. *Deutsche Ztschr. f. Nervenheilk.* 23: 197, 1903.

5. Courville, C. B., and Mason, V. R.: Acute Ascending Paralysis with Acute Idiopathic Hematoporphyrinuria. *Arch. Neurol. & Psychiat.* 25: 848 (April) 1931.

6. Courcoux, A.; Lhermitte, J., and Boulanger-Pilet, G.: La paralysie extenso-progressive hématorporphyrinurique. *Presse méd.* 36: 1609 (Dec. 11) 1929.

7. Abderhalden, A.: Ein Fall von Porphyrinurie. *Ztschr. f. physiol. Chem.* 106: 178, 1919.

8. Beilin, I. A.: Hämatorporphyrinurie und Landrysindrom. *Russk. Klin.* 10: 161 (Aug.) 1928.

9. Eichler, P.: Zur Kenntnis der akuten genuine Hämatorporphyrurie. *Ztschr. f. d. ges. Neurol. u. Psychiat.* 141: 363, 1932.

10. Thiele, R.: Ein Fall von akuter genuine Hämatorporphyrurie mit Polyneuritis und symptomatische Psychose. *Monatschr. f. Psychiat. u. Neurol.* 55: 337, 1924.

11. Sachs, P.: Ein Fall von akuter Porphyrurie mit hochgradiger Muskelatrophie. *Klin. Wchnschr.* 10: 1123 (June 13) 1931.

reason we believe that any venereal infection should be considered as a potential mixed infection and that the Frei test should be used in these cases just as frequently as the serologic examination for syphilis.

The multiplicity and extreme seriousness of the late manifestations, the inefficacy of all known methods of treatment and the relative frequency of lymphogranuloma inguinale emphasize the importance of its early recognition and prevention. The public health measures necessary in the prevention of this disease will become evident only through a more comprehensive knowledge of its occurrence and epidemiology. We hope that by placing reliable Frei antigen at the disposal of the medical profession at large and by stimulating their interest we may collect sufficient material to facilitate a more extensive study of the disease in this community.

#### CONCLUSIONS

1. Lymphogranuloma inguinale is not uncommon in northern California, as shown by a collection of forty-six proved cases and a general survey of 700 persons in San Francisco.

2. The transmission of the disease is not dependent on racial susceptibility.

3. The frequency of the disease in the white population of this community emphasizes its public health importance.

### THE THERAPEUTICS OF PROSTIGMIN

#### A WARNING CONCERNING ITS ORAL USE BASED ON A PERSONAL EXPERIENCE

LOUIS S. GOODMAN, M.D.

AND

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NEW HAVEN, CONN.

Prostigmin<sup>1</sup> is a new synthetic drug closely related chemically and pharmacologically to physostigmine (eserine). It belongs to the class of drugs known as parasympathomimetic agents. Other drugs in this general group are pilocarpine, and choline and its derivatives. The recent experience to be reported herein can best be appreciated after a brief review of the pharmacology and therapeutics of prostigmin.

#### PHARMACOLOGY AND THERAPEUTICS

Prostigmin and physostigmine have a unique manner of acting on the nervous system which has been elucidated only in recent years. Whereas pilocarpine acts by directly stimulating the "receptive substance" at the endings of parasympathetic nerves, physostigmine and its analogues have no such effect. It is now known that certain nerve endings release minute amounts of a chemical substance when they are stimulated, and that this chemical mediates the nerve impulse to the effector organs. For parasympathetic nerves this substance is acetylcholine. An enzyme in the tissues and blood constantly and rapidly destroys this acetylcholine, so that its effects are transient and localized. This enzyme, known as cholinesterase, splits acetylcholine to choline, which is extremely weak compared to its ester. Physostigmine inhibits this esterase and thus preserves or "fortifies" the acetylcholine liberated at nerve endings. Acetylcholine itself and its more stable congener, acetyl-beta-methylcholine (Mechoyl), have recently been intro-

duced into therapeutics to represent in themselves the chemical mediator of parasympathetic (and certain other) nerve impulses.

Prostigmin is said to be less active than physostigmine on the eye (less miosis and spasm of accommodation), and less depressing to the heart and blood pressure.<sup>2</sup> It retains the typical action on the intestine, namely, an increase in tone and peristalsis, and was introduced into therapeutics as an agent effective in the prevention and relief of abdominal distention due to paralytic ileus.<sup>3</sup> Physostigmine is used for this purpose but the occasional unpleasant cardiovascular effects sometimes prevent the use of doses sufficiently large to be effective on the bowel.

Very recently, prostigmin was found to be effective in the symptomatic therapy of myasthenia gravis. Ever since the West African natives were forced during "trials by ordeal" to chew the calabar or "ordeal" bean (source of physostigmine), it has been known that the drug could cause marked skeletal muscle twitchings as well as the typical symptoms of parasympathetic stimulation. It was also known that physostigmine was a physiologic antagonist to curare and that in some respect myasthenia gravis resembles mild curare poisoning. Walker<sup>4</sup> had experimented with physostigmine in these patients with some benefit and, when prostigmin became available, used it in her cases.<sup>5</sup> In barely two years, the drug has gained wide use in the symptomatic treatment of this disease.<sup>6</sup> The mechanism of its action still remains a mystery, although several important leads exist. Dale, Feldberg and their co-workers<sup>7</sup> have demonstrated that acetylcholine is also released at the spinal nerve terminals of skeletal muscle. Thus, somatic nerves to muscle are "cholinergic." The twitching so characteristic of physostigmine poisoning thereby became understandable, but in myasthenia gravis there is as yet no evidence to indicate any disturbance of the acetylcholine-esterase system. In fact, it was shown by Stedman<sup>8</sup> that the blood esterase values in this disease tend, if anything, to be lower than normal. More recent work by McGeorge<sup>9</sup> and by Hall and Lucas<sup>10</sup> on a large number of normal and pathologic serums including cases of myasthenia gravis indicates that esterase values remain remarkably constant in health and disease. Myasthenia patients were well within the normal range of esterase variation.

In myasthenia gravis, striking improvement is noted in some cases in from ten to thirty minutes after the

2. Aeschlimann, J. A., and Reinert, Marc: The Pharmacological Action of Some Analogues of Physostigmine, *J. Pharmacol. & Exper. Therap.* 43: 413-444 (Nov.) 1931.

3. Carmichael, E. A.; Fraser, F. R.; McKelvey, Daniel, and Wilkie, D. P. D.: The Therapeutic Action of Prostigmin, *Lancet* 1: 942-945 (May 5) 1934. Levis, W. R., and Axelmann, E. L.: Modern Method for Prevention of Postoperative Distention: A Report of Eighty-Eight Cases, *Am. J. Surg.* 32: 308-312 (May) 1936.

4. Walker, Mary B.: Treatment of Myasthenia Gravis with Physostigmine, *Lancet* 1: 1200-1201 (June 2) 1934.

5. Walker, Mary B.: Case Showing the Effect of Prostigmin on Myasthenia Gravis, *Proc. Roy. Soc. Med.* 28: 759-761, 1935.

6. Pritchard, E. A. B.: The Use of "Prostigmin" in the Treatment of Myasthenia Gravis, *Lancet* 1: 432-434 (Feb. 23) 1935. Laurent, L. P. E.: Clinical Observations on the Use of Prostigmin in the Treatment of Myasthenia Gravis, *Brit. M. J.* 1: 463-465 (March 9) 1935. Viets, H. R., and Schwab, R. S.: Prostigmin in the Diagnosis of Myasthenia Gravis, *New England J. Med.* 213: 1280-1283 (Dec. 26) 1935. Everts, W. H.: The Treatment of Myasthenia Gravis by the Oral Administration of Prostigmin, *Bull. Neurol. Instit. New York* 4: 523-530 (Dec.) 1935.

7. Dale, H. H.; Feldberg, W., and Vogt, M.: Release of Acetylcholine at Voluntary Motor Nerve Endings, *J. Physiol.* 86: 353-380 (May) 1936. Brown, G. L.; Dale, H. H., and Feldberg, W.: Reactions of the Normal Mammalian Muscle to Acetylcholine and to Esclerin, *J. Physiol.* 87: 394-424 (Sept.) 1936.

8. Stedman, Edgar: The Choline Esterase Content of Blood in Myasthenia Gravis, *J. Physiol.* 84: 56 P (July) 1935.

9. McGeorge, M.: Choline Esterase Activity in Disease, with Special Reference to Myasthenia Gravis, *Lancet* 1: 69-72 (Jan. 9) 1937.

10. Hall, G. E., and Lucas, C. C.: Choline-Esterase Activity of Normal and Pathological Human Sera, *J. Pharmacol. & Exper. Therap.* 59: 34-42 (Jan.) 1937.

From the Laboratories of Pharmacology and Toxicology and the Department of Internal Medicine, Yale University School of Medicine.

1. Dimethylcarbamate ester of *m*-oxyphenyl-trimethyl-ammonium benzoate.



preparation could be used to advantage in combating the convulsions under discussion.

In a previous article, we<sup>2</sup> reviewed 137 cases which had been reported in the literature and added seven more, while six others were omitted because of insufficient information. Woolmer and Taylor<sup>3</sup> have furnished a good description of a typical case: "The patient is a child or young adult with pyrexia, usually due to some acute septic condition. The theater is overheated. Atropine has been given and the dose may have been excessive. The patient is deeply anesthetized with ether, the pupils being dilated and inactive to light. The color is, as a rule, good, and oxygenated ether is sometimes being given. The eyelids start to twitch, then the face, and the convulsions become general. In the immediately fatal cases, after five to ten minutes of convulsions, the respiration ceases, the patient goes blue, and the heart stops; in other cases the convulsions stop but the patient dies later from cardiac failure; alternatively, recovery may follow the cessation of the convulsions."

The clinical picture may differ in some details from this description, but this is as typical as any other description would be, and after noting at least thirty-three various causes or significant factors which have been mentioned in the literature as probable etiologic factors, one feels that more than the average care should be exercised in the selection of an anesthetic for a patient who is young and who is suffering from marked toxicity, presumably of an infectious type, and that general anesthetics cannot be used with safety in all such cases. It might be well to resort to the use of local anesthesia and to employ a sufficient amount of barbiturates in preliminary medication to minimize convulsive efforts. Tribrom-ethanol no doubt could be used to advantage, and perhaps even intravenous anesthesia might be used. If general inhalation anesthesia is to be used, it should be used cautiously.

#### SUMMARY

We suggest that if all precautions have been followed, and if convulsions occur, an anticonvulsant should be used to combat them while such other treatment as may seem indicated in a given case also should be employed.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

### DOMESTIC PORTABLE DIATHERMY MACHINE NOT ACCEPTABLE

Manufacturer: Domestic Diathermy Company 1775 Broadway, New York.

The Domestic Portable Diathermy Machine is a small unit which is advertised and sold directly to the public by lay salesmen, who are provided with pamphlets and testimonials of lay users. The instruction for its use is given largely by the salesmen. When closed it resembles a portable typewriter case. The front lifts off, disclosing a panel on which there is one regulator on the right hand side numbered 1 to 5 and on the left hand side. Another regulator is marked "Hi" and "Lo." Below these controls in the center there is an ammeter. The current is applied by electrodes.

A copy of a pamphlet entitled "Diathermy Comes to Your Home," which has been referred to the Council, contains such statements as "Thousands of persons in every walk of life have learned to use the DOMESTIC PORTABLE DIATHERMY MACHINE . . ."; "To you, the sufferer—we offer a free test of this amazing diathermy unit, to determine whether your specific condition will respond to this method. This test may be conducted right in your own home—without any expense or obligation to you, whatsoever."

An advertisement for the Domestic Diathermy Machine which appeared in the Nov. 22, 1936, issue of the New York *Herald Tribune* contained the following statements: "In hospitals

and physicians' offices and in the home Diathermy's deeper inner penetrating heat ALONE has wrought an impressive achievement in soothing away the crippling anguish of Arthritis, Rheumatism, Sciatica, Neuritis, Lumbago, High Blood Pressure"; "For further details about the application of this amazing medical unit in the home or how to obtain the Diathermy Test, without the slightest obligation, write Dept. H. or 'phone," and "Domestic Diathermy Company operates with consent and supervision of the medical profession."

In the opinion of the Council on Physical Therapy, the Domestic Diathermy Company is practicing methods that are detrimental to rational therapeutics. The use of promotional sales methods by those unqualified to practice medicine constitutes an appeal to the public with arguments which are unscientific and may harmfully enhance a feeling of false security on the part of the public.

In view of the foregoing, the Council voted not to include the Domestic Diathermy Machine in its list of accepted devices.

### ALLERGEN-PROOF ENCASINGS ACCEPTABLE

Manufacturer: Allergen-Proof Encasings, Inc., 4046 Superior Avenue, Cleveland.

The Allergen-Proof Encasings are made for covering mattresses, pillows and box springs for the protection of those allergic patients who are sensitive to dust, feathers, cottonseed or kapok. Dust sensitive, in this instance, refers to the reaction of those individuals who come in contact with mattresses, feather pillows and other causes of dust in sleeping quarters.

These encasings may be obtained for various sized mattresses, pillows and box springs and are made of material that is in itself dust proof. The openings are provided with slide fasteners, thus making the joints practically dust tight. The material of which the encasings is made is a product of the du Pont Company, a rubber fabric composition treated by a new process which increases the resistance of rubber to oxidation. These products have been tried out in several institutions acceptable to the Council and reports received are summarized as follows:

1. The material is essentially dust-proof and is capable of effectively holding back the dust from mattresses and pillows.

2. In dust-sensitive patients there results definite improvement in consequence of eliminating this mattress and pillow dust.

3. The special material submitted is capable of withstanding rough treatment and scrubbing with hot water and soap to a greater degree than the usual rubberized cloth.

4. The material may deteriorate in a year's time and thus, in some instances, need replacement.

In view of the favorable reports received concerning the efficacy of the Allergen-Proof Encasings, the Council on Physical Therapy voted to include them in its list of accepted products.

### CONDUCTO-THERM NOT ACCEPTABLE

Manufacturer: Conducto-Therm Corporation, Los Angeles.

According to the firm, the Conducto-Therm is an electric blanket designed for administering fever therapy. The temperature of the body is raised and maintained by the application of conductive heat and the prevention of heat losses. The apparatus consists essentially of two parts: (1) a step-down transformer used to supply the heating element in the blanket with an electric current of low voltage, and (2) a heating element incorporated in the blanket itself, in which the patient is wrapped during the administration of treatment. The foundation of the heating element consists of a piece of 8 ounce duck 66 by 78 inches. On this duck, resistance wires running the length of the material are stagger-stitched in parallel. There is furnished a rubber sheet, 70 by 84 inches, which is used as a protective covering for the heating element. The intensity of the current may be controlled, thus providing various degrees of heat.

In a clinic acceptable to the Council, the Conducto-Therm was tried out under actual conditions. It was observed that a longer period of time is required for the establishment of tem-

2. Lundy, J. S.: Convulsions Associated with General Anesthesia, to be published.

3. Woolmer, R. F., and Taylor Stephen: Late Ether Convulsions: A Study Based on Four Cases, *Lancet* 1: 1005-1007 (May 2) 1936.

ing was forestalled by hanging the head over the edge of the bed. The entire body felt and remained cold despite the rapid application of many blankets and hot water bottles.

At 6 o'clock another severe syncopal "spell" occurred and lasted fully one minute, during which the patient was too breathless to talk, noted a great increase in the fluttering sensation in the abdomen and thorax, remained conscious only with great difficulty, and observed that the skeletal muscle switchings were now involving almost every voluntary muscle in the body. These tremors and clonic contractions were now plainly visible in the arms, neck and eyelids and could be felt in the throat. Some dysarthria was noted. Spasm of the accommodation was surmised from the fact that the objects in the next room could not be seen very clearly any longer but that near objects and the clock on the dresser, which was watched anxiously while awaiting the arrival of assistance, could still be seen.

At 6:05 a fourth severe "spell," marked by yet another sharp intensification of all the symptoms and signs mentioned, occurred and lasted fully two minutes. By now the patient was greatly exhausted from the muscular activity and the contemplation of possible consequences. Random compulsive movements accompanied the tremors and muscle contractions. The pulse remained regular at about 75 but seemed to be weaker. For the first time, slight intestinal colic occurred and some flatus was passed. Slight nausea was noted.

At 6:10 Dr. W. J. B. (co-author of this report) arrived and noted immediately the state of shock. The pulse was now 70 and very weak but regular. The pupils were small and measured about 2 mm. or less but still reacted to light, a characteristic of physostigmine. The onset of eyelid and lip twitchings prompted examination of the tongue, which showed marked fibrillary tremors on which were superimposed coarser contractions. Unfortunately no instrument was available to measure the blood pressure. The patient was ashen gray and very restless, and a cold sweat persisted on the face and hands.

At 6:15 atropine sulfate one-fiftieth grain (0.0013 Gm.) was given intramuscularly. A fifth, more severe and sudden, exacerbation of all symptoms and signs again occurred, and this time the marked tremor of the abdominal wall prompted examination of the abdomen. On inspection, the abdomen presented the miniature of a storm at sea. Marked and rapid peristaltic and pendular intestinal movements were producing bizarre pulsations and undulations. The superimposed twitching of the voluntary abdominal musculature which could so easily be felt by the patient could be seen only with difficulty, whereas the violent intestinal activity manifested itself in consciousness only as a sickening, ill defined tremulousness. It seemed very possible that each "spell" was initiated by a violent bout of intestinal overactivity, and yet no pain, griping or urgency to go to the stool was noted.

At 6:30 the pupils were still small. The abdomen was somewhat quieter. The voluntary muscles were contracting as markedly as ever and now involved the eyelids, tongue, lips and throat muscles even more than the extremities. The heart was quite normal except for an easily detectable apical systolic murmur, which had not been noted previously on many physical examinations. The cardiac rate was regular and about 70 to the minute, the low tension persisting. The restless movements continued. The case was being actively discussed by the patient throughout so that no part of the picture might be overlooked.

At 6:35 the oral temperature was taken and found normal. Pain was felt for the first time but only in the eye muscles. At 6:40 the abdomen still presented the activity described, and the hyperperistalsis was both audible with the stethoscope, and palpable. The first urgency to defecate was felt and the patient was helped to the bathroom and passed a small diarrhetic stool. The state of shock was less severe. Sweating ceased and the ashen pallor was less evident.

At 6:45 the pupils were by now slightly larger, and distant objects again appeared clear. The mouth began to feel somewhat dry.

At 6:55 the intestinal activity quieted rapidly but the voluntary muscles continued twitching. The patient was subjectively improved.

At 7 o'clock the hands and feet became warmer and drier and the patient felt well again. It was only at this time that the medical attendant felt it safe to leave. Despite the continuation of the muscular tremors, handwriting was not

impaired, and the clinical observations noted in this report were recorded at this time. During the ensuing hour all symptoms subsided rapidly.

At 8 o'clock the patient felt well enough to get out of bed. The skin color was greatly improved. Fatigue was marked. The tongue tremor was still noticeable but the twitchings of other muscles, though subjectively felt, could no longer be seen definitely. Some urgency of urination occurred and transient left sided sharp pain interpreted as ureteral in origin was experienced.

*Subsequent Course.*—Recovery was rapid. Dinner was eaten and retained. A very mild return of muscular tremors and intestinal symptoms occurred about 10 p. m. but soon yielded to oral atropine sulfate, one-fiftieth grain. Sleep proved impossible, owing to the slight but persistent feeling of generalized muscle tremulousness, until sodium amytal was taken.

For the following two days the patient noted marked muscle soreness, especially of the eyes, neck and throat muscles and abdominal wall. Slight fibrillary tremor of the tongue was still clearly seen twenty-four hours later. In addition, fatigue, restlessness and hyperperistalsis continued throughout the next day but did not interfere with the patient's usual routine. The patient's muscles felt as if he had performed violent and unaccustomed physical exercise. The systolic murmur no longer was evident.

#### COMMENT

There can be no doubt that the case here reported is one of severe poisoning due to prostigmin. All the classic signs of physostigmine intoxication were present. The order of appearance is of some interest and importance. The heart rate fell within thirty minutes after taking the drug and reached its lowest level in one and one-half hours. Thus, cardiac vagal endings appear to be more sensitive to the drug than other parasympathetic endings. It also indicates that no delay in drug absorption occurred. Salivation was not noted until one and one-half hours after taking the drug and only after the heart rate was maximally slowed. This held true for both subjects. Soon after the chorda tympani stimulation resulted in salivation, the intestinal discomfort was noted in subject A. R.

The long latent period (ninety minutes) between salivation and sudden onset of shock and intestinal and skeletal muscle activity in the case reported is important because it indicates that full action of the drug was not manifested for three hours after ingestion, despite definite evidence that absorption began early. The reason for the rapid onset within a few seconds of severe signs and symptoms is unexplained. Either the absorption rate was suddenly increased, which appears unlikely, or, after gradual absorption, the drug concentration finally reached the toxic level. Another possibility is that there was an undue accumulation of acetylcholine from the voluntary muscle activity of the brisk walk home and that the prostigmin, by preventing its destruction, allowed the acetylcholine to cause poisoning. This point is at present being investigated experimentally.

The shock picture resembled somewhat that seen in acetylcholine overdosage except that skeletal muscles were involved and there was no cutaneous vasodilatation. That such violent intestinal activity does not enter consciousness is of interest and it was some time before it became apparent that the several periodic exacerbations were initiated mainly by the intra-abdominal storm. It is conceivable that such marked overactivity of "cholinergic" nerves throughout the body produces sufficient acetylcholine (preserved by the esterase-inhibiting prostigmin) to circulate to other sites and set up a vicious circle, which persists for hours. Some evidence for this is seen in the fact that

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SATURDAY, MARCH 20, 1937

## THE TREATMENT OF PELLAGRA

Despite the observation of Goldberger that pellagra could be prevented by means of an adequate diet, and his subsequent recommendations for the treatment of pellagra, there has continued to be a high mortality rate in the severe cases of endemic pellagra in the South. This high mortality rate in the hospitals (from 31 to 69 per cent), irrespective of treatment, seemed to many physicians, particularly in the South, to be inconsistent with the statement that pellagra is a dietary deficiency disease. Early in 1934 McLester published the opinion that the knowledge as to the cause and treatment of endemic pellagra was inadequate and pointed out that a high mortality rate still existed in spite of the treatment recommended by Goldberger. In 1935 Spies, working in Lakeside Hospital, Cleveland, by a more careful method of dietary control was able to reduce the death rate in Lakeside Hospital from 54 per cent to 6 per cent. These patients for the most part were heavy consumers of alcohol and as a result neglected their diet.

The successful form of treatment used by Spies included administration of a high caloric diet, also high in protein, large amounts of yeast, adequate rest, good nursing care and, in certain cases, intravenous injections of large doses of a potent liver extract. Simultaneous administration of as much as a quart of whisky a day (to patients accustomed to that amount) did not interfere with the effectiveness of the treatment.

Since pellagra occurring in the northern part of the United States is usually associated with chronic alcoholism and that of the South is not, it became imperative to learn as fully as possible whether or not the pellagra of the North and that of the South were essentially the same disease and whether the therapeutic methods previously and effectively applied in the North could be successfully used in the South. Consequently an expedition from the Medical Service of Lakeside Hospital and from the Department of Medicine of the University of Cincinnati joined forces with McLester in the Hillman Hospital, a county institution at Birmingham,

Ala., in order to carry out the study. Some of the results of this study have been reported recently in the *Southern Medical Journal*<sup>1</sup> and in *THE JOURNAL*.<sup>2</sup> They show beyond reasonable doubt that so-called alcoholic pellagra and endemic pellagra have the same clinical symptoms and similar lesions, and that they respond to the same methods of therapy—indeed, that they are the same syndrome. Musser has recently stated: "It is absolutely astounding that statements are made in which it is said that pellagra is rapidly disappearing from the country. Pellagra, according to United States Public Health Service statistics for 1930, caused more deaths than all the diseases listed as communicable except pneumonia, tuberculosis and influenza."

These studies, showing that the patient with severe pellagra, whether addicted to alcohol or not, can nearly always be successfully relieved of his disease, point definitely to the fact that pellagra is a disease associated with malnutrition.

## EXERCISE IN DIABETES

Along with diet and insulin, exercise is an accepted part of the present-day treatment of diabetes.<sup>1</sup> Knowledge of the mechanism of muscular work suggests the explanation of the ability of exercise to augment the blood sugar-lowering effect of insulin. The utilization of muscle glycogen during exercise results in a hypoglycemia which is effectively counteracted by the rapid hydrolysis of liver glycogen. Thus there is an accelerated catabolism of carbohydrate during exercise, and a working patient will require less insulin for the same amount of carbohydrate catabolized than does a resting patient. In certain conditions, however, exercise may bring about a marked increase in the blood sugar of the diabetic patient. This is seen particularly when the diabetic condition is severe and if several hours has elapsed since insulin and food were given. This relationship between the initial level of blood sugar and the effect of exercise on the diabetic patient has been pointed out by several investigators and carefully considered by Richardson.<sup>2</sup> However, the practical bearing of these observations on the use of exercise in the treatment of diabetes mellitus has been frequently overlooked. Additional emphasis is now derived from a recent investigation reported from the New England Deaconess Hospital.<sup>3</sup>

Young diabetic patients in good physical condition were subjected to two or three types of exercise: running at a definite rate, working on a rowing machine

1. Spies, T. D.; Chinn, Austin, and McLester, J. B.: Treatment of Endemic Pellagra, *South. M. J.* 30: 18 (Jan.) 1937.

2. Spies, T. D.; Chinn, A. B., and McLester, J. B.: Severe Endemic Pellagra, *J. A. M. A.* 108: 853 (March 13) 1937.

1. Joslin, E. P.; Root, H. F.; White, Priscilla, and Marble, Alexander: *The Treatment of Diabetes Mellitus*, ed. 5, Philadelphia, Lea & Febiger, 1935, pp. 299-301.

2. Richardson, Russell: *J. Clin. Investigation* 12: 699 (July) 1914.

3. Marble, Alexander, and Smith, Rachel M.: Exercise in Diabetes Mellitus, *Arch. Int. Med.* 58: 577 (Oct.) 1936.

grams of allantoin is added to 500 cc. of sterile water that has been heated to near boiling point. This makes a solution of 0.4 per cent. Heating is continued without boiling, until the crystals dissolve. Precautions are threefold. Ascpis must be guarded vigilantly, since the solution cannot be autoclaved. Chilling must be prevented lest the allantoin recrystallize. Finally, excessive sunlight will decimate the strength of the solution.

The mode of application is through packings and dressings. The wound is cleaned thoroughly with hydrogen peroxide followed by ether and is then bathed with sterile water. To secure general granulation growth, the wound is covered first with gauze that has been soaked with allantoin, then with a wet pack of allantoin laid on top of the gauze, and finally with a dry dressing. For deep wounds the packing is soaked in allantoin and inserted right into the wound at its base. For the allantoin to be most effective the dressings should be renewed before they become dry, since this acts only when it is in contact with the wound. No other chemical should be used during this treatment.

Since, as stated, the action of allantoin lasts only as long as the solution is in contact with the wound, it can therefore be easily controlled. Its effect is entirely local and overgrowth of granulation tissue may be readily checked. The speed with which the necrotic base is converted into a granulating area is remarkable. After the first week the wound assumes the appearance of a healthy granulating ulcer, and day by day new islands of granulation tissue can be seen springing up. Pain, which often accompanies these wounds and is a disabling factor, ceases almost immediately with the application of allantoin.

#### REPORT OF CASES

There follow herewith descriptions of three cases and their responses to allantoin:

CASE 1.—A woman, aged 50, weighing 250 pounds (113 Kg.), with irrelevant past history, struck her leg against a chair ten years ago and suffered an abrasion of the skin. The wound never healed and eventuated into an ulcer about 3.75 cm. in size. Despite various forms of treatment the ulcer remained open. Examination on the first visit revealed a deep irregular ulcer. The base was necrotic, the edges were indurated and the tissues surrounding the wound were inflamed. A Wassermann test and urinalysis were negative. Allantoin was used as described and after three weeks' treatment the wound decreased to about 1.75 cm. in size. The base is now clean, with healthy granulation present. At this writing the wound is still open and the treatment is being continued. There is every reason to believe that under this treatment the wound will close.

CASE 2.—A woman, aged 80, whose past history was negative, developed an ulcer in the popliteal space, nine years ago, which never healed. She had been treated at various hospitals. Skin grafts were performed, to no avail. Her chief complaints were pain and inability to walk. She disregarded the nonhealing of the ulcer, as she had thought it incurable. When first seen, there was a large, foul-smelling, indurated, infected ulcer involving the entire popliteal space. After the first application of allantoin the patient was relieved from pain. Under continuous treatment with allantoin over a period of two months the ulcer has decreased to one-half its size, and it is filled with bright red granulating areas. The patient, throughout the treatment, has been up and about.

CASE 3.—A woman, aged 65, employed as a cleaner, developed an ulcer ten years ago, following a bruise. She had used lotions and ointments with no improvement. The leg presented the typical picture of elephantiasis with a large irregular ulcer encircling it at the junction of its middle and lower thirds. A foul-smelling discharge was present. The base was necrotic. The patient complained of sharp, severe, excruciating pain in the leg, inability to walk and a continuous foul discharge.

Under treatment with allantoin for six weeks the ulcer on the outer aspect of the leg has fully granulated, the foul odor has disappeared, the discharge has diminished, healthy granulations are present throughout the remainder of the ulcer, the patient is free from pain, and she walks with great ease. In this case the surrounding skin became reddened. An ointment dressing was placed on the skin and the irritation subsided.

#### CONCLUSIONS

1. Allantoin, found in excretions of maggots and common to plants, can be prepared commercially.
  2. It is stable and nontoxic.
  3. It induces healing by stimulating healthy granulations and removing necrotic material.
  4. Treatment is painless, simple and inexpensive.
  5. Patients are ambulatory under this treatment.
  6. It acts locally as long as allantoin is in contact with the wound.
  7. Overgrowth of granulation tissue can be checked by discontinuing applications.
  8. Allantoin seems to have the same curative effect on chronic ulcers as the introduction of maggots, and it is less troublesome for the physician to administer and less disturbing to the patient than the use of insects.
- 130 Henry Street.

### Clinical Notes, Suggestions and New Instruments

#### MULTIPLE NEURITIS FROM THERAPY WITH HEMATOPORPHYRIN HYDROCHLORIDE

MELVIN WILFRED THORNER, M.D., PHILADELPHIA

This report of a case of multiple neuritis is of interest because it represents a danger in the use of hematoporphyrin hydrochloride (photodyn) in the treatment of psychotic depressions.

Huhnerfeld<sup>1</sup> found that injections of hematoporphyrin in animals increased their total motor activity. As a result of this experiment he used this agent in the treatment of psychotic depressions, with eleven improvements in thirteen cases. Since this report others have appeared, and Angus<sup>2</sup> has summarized these reports collectively and found that, of 113 depressions, fifty-seven were much benefited by this therapy. No satisfactory explanation of the mechanism by which this agent operates has been deduced from these investigations, and its use rests largely on an empirical basis.

In the time intervening between Huhnerfeld's report and the present, hematoporphyrin hydrochloride has come to be used extensively in the hands both of the specialist and of the general practitioner. This therapeutic enthusiasm has been heightened by the apparent absence of untoward effects from this therapy. That these may become recognized with the accruing of more experience is indicated by this report.

#### REPORT OF A CASE

A white woman, aged 36, married, in January 1936 complained of inability to concentrate and of a feeling of depression. The father, who died of pneumonia at the age of 70, had been a moody person who from time to time entered on grandiose business ventures, all of which were unsuccessful. There is no history of psychosis in the immediate or collateral lines. The family history is otherwise irrelevant.

Intellectual development was normal and the patient was graduated from high school at the age of 17. At 18 she suffered a short period of depression, followed by an excited period from which she recovered in a few weeks. She became secretary to an important executive at 20 and continued in this

From the Department of Neurology-Psychiatry, Graduate School of Medicine, University of Pennsylvania.

1. Huhnerfeld, J.: *Neue Wege in der Behandlung der Melancholie*, Psychiatr.-Neurol. Wchnschr. 33: 170, 1931.

2. Angus, L. R.: *The Hematoporphyrin Treatment of Depressive Psychoses*, Am. J. Psychiat. 92: 877 (Jan.) 1936.

## Current Comment

### CANCER SOCIETY PROMOTES WOMEN'S FIELD ARMY

During the week of March 21 to March 27, women throughout the United States will have an opportunity to enlist in a new movement known as the Women's Field Army of the American Society for the Control of Cancer. The movement has received the endorsement of the Board of Trustees of the American Medical Association and is one to which physicians everywhere may lend their support. The object of the campaign is, of course, education of women regarding the nature of cancer, encouragement to periodic examination and enlistment of interest. Approximately 140,000 die each year in the United States from cancer. A considerable portion, perhaps even half, of these might have their lives prolonged if the condition came soon enough to the attention of a physician for suitable treatment. Since women suffer more from cancer than do men, and since the type of cancer that affects women, namely, cancer of the uterus and of the breast, is more certainly diagnosed in its early stages and more certainly treated than cancer as it affects men, this movement should have the definite effect of lowering the death rate from this disease. Women's clubs, the research workers throughout the nation, and many others are combining in this effort toward combating what is today the most feared of all disease. Yet the knowledge of it makes such fears unwarranted if intelligence is used in combating the disease. The Women's Field Army is a movement for extending education and, therefore, promoting intelligent action.

### TREATMENT OF STREPTOCOCCIC INFECTIONS WITH SULFANILAMIDE

Long and Bliss<sup>1</sup> have now supplemented their preliminary report in *THE JOURNAL*<sup>2</sup> on the use of sulfanilamide and its dye derivative, the disodium salt of 4'-sulfamidophenyl-2-azo-7-acetylamino-1-hydroxynaphthalene-3, 6-disulfonic acid (Prontosil) in the treatment of streptococcic infections by more extended publication in the *Archives of Surgery*. They were able to confirm in part the reports of European investigators regarding the efficacy of sulfanilamide<sup>3</sup> (para-aminobenzenesulfonamide) and its chemical derivatives in the treatment of beta-hemolytic streptococcic infections in mice. They report that mice thus treated have died of streptococcic infection as late as seventy-four days after the infection or sixty days after discontinuance of prontosil administration. The explanation for this occurrence is not clear; but since prontosil probably acts by inhibition of bacterial growth and therefore allows phagocytosis, discontinuance of the chemotherapy might allow any unkilld organisms to resume multiplication and invasion. These authors also report the results of treatment of seventy persons ill with infections due to beta-hemolytic streptococci. There

were only four deaths, and only one of these was considered to represent failure of the specific therapy. About forty-eight hours, they believe, is required before the maximum therapeutic effects can be obtained with sulfanilamide or its derivatives. The time of administration is therefore important. In severe infections in which the immediate prognosis is grave, either prontosil in 2.5 per cent solution or sulfanilamide in 0.8 per cent physiologic solution of sodium chloride parenterally is recommended. None of the toxic manifestations observed were severe. The question of late delayed toxic effects from the use of these compounds can be answered only when clinical experience with them becomes greater. It seems logical to believe, they state, that the prompt recognition of the nature of hemolytic streptococcic infection plus the adequate administration of the specific chemotherapeutic agents will greatly lessen mortality and duration of illness.

### COMPENSATION IN OCCUPATIONAL DISEASE

The problem of compensation for disease contracted by employees engaged in various types of occupations frequently arises. In the workmen's compensation act, according to a recent article,<sup>1</sup> an occupational disease is defined as "a disease peculiar to the occupation in which the employee was engaged and due to causes in excess of ordinary hazards of employment as such." Thus, the decision as to whether or not a disease is an occupational one and therefore one for which compensation may be claimed rests in particular cases on an interpretation of the phrases "peculiar to the occupation" and "in excess of ordinary hazards of employment." A recent court decision<sup>1</sup> by the Connecticut Supreme Court of Errors on a claim for compensation by an employee of a company engaged in the manufacture of women's dresses illustrates the importance of interpretation in this type of medicolegal case. The employee had contracted pulmonary tuberculosis because of conditions of employment and had been awarded compensation for disability by the commissioner. The trial court, however, sustained an appeal of the defendants and the plaintiff appealed, in turn, to the supreme court of errors. The ruling of the trial court was upheld by the higher court and compensation was denied on the ground that "to come within the definition, an occupational disease must be a disease which is a natural incident of a particular occupation, and must attach to that occupation a hazard which distinguishes it from the usual run of occupations and is in excess of that attending employment in general." The court ruled further that "it does not include a disease which results from the peculiar conditions surrounding the employment of the claimant in a kind of work which would not from its nature be more likely to cause it than would other kinds of employment carried on under the same conditions." In the present case "the plaintiff's disease resulted from the conditions of her particular employment in the factory of the defendants. Other trades carried on under those conditions would have been as likely to cause the disease as the manufacture of dresses."

1. Long, P. H., and Bliss, Eleanor A.: Para-Aminobenzenesulfonamide and Its Derivatives. *Arch. Surg.* 34: 351 (Feb.) 1937.

2. Long, P. H., and Bliss, Eleanor A.: Para-Aminobenzenesulfonamide and Its Derivatives. *J. A. M. A.* 108: 32 (Jan. 2) 1937.

3. Sulfanilamide is the nonproprietary term adopted by the Council on Pharmacy and Chemistry for para-aminobenzenesulfonamide. A report has not been issued yet by the Council on the acceptability of the preparation.

1. Court Decision on Public Health, *Pub. Health Rep.* 51: 1506 (Oct. 30) 1936.



unhurried tracheotomy was performed. The third and fourth tracheal rings were incised and a No. 4 tracheotomy tube was inserted as the bronchoscope was withdrawn. The child was returned to the ward in good condition and given continuous steam inhalations.

During the next four days a considerable amount of thick, membranous exudate was removed during suction of the trachea. Microscopically this was seen to be fibrinopurulent exudate. This membrane was found also on the epiglottis, aryepiglottic folds and arytenoids. The child swallowed well and painlessly the day after admission. Roentgenograms of the chest revealed normal lung fields.

The child had an uneventful convalescence. On the tenth day after tracheotomy the edema of the larynx and the membranous exudate had completely disappeared and the cannula was withdrawn. The wound edges were brought together with adhesive plaster. Three days later he was discharged with the wound completely closed, his voice strong and clear, and general health excellent.

#### COMMENT

Warnings should be issued to the public and to the venders as to the inherent dangers in the handling of "dry ice," and extreme care should be exercised to prevent children from getting hold of this "dry ice." The hazards of the practice of playfully "blowing off steam" should be stressed in the public school health class.

Fifth Avenue and One Hundredth Street.

#### COMMON ACNE AND INSULIN HYPOGLYCEMIA

JOSEPH WORTIS, M.D., NEW YORK

Research Fellow in Psychiatry at the Bellevue Psychiatric Hospital

A few months ago in the course of hypoglycemic insulin treatment of a psychotic boy according to Sakel's method,<sup>1</sup> I was impressed by the rapid disappearance of the patient's facial acne lesions soon after the treatment started. The youth, aged 17, according to his father had been troubled by occasional skin eruptions of moderate severity since puberty. His skin condition had, however, grown definitely worse about six months prior to his admission to the hospital, at about the time that the psychosis first developed, so that many of his complaints and delusions involved his skin condition, and much of his tenseness and restlessness found expression in the constant fingering of the lesions. The lesions themselves were distributed over the entire face—cheeks, chin and forehead—and were either small, superficial and pustular or more deeply seated and papular or nodular. His complexion was otherwise pasty and yellowish, and there were many acne scars and lacerations scattered between the lesions. The improvement began after the first day of treatment, after he had been given 10 units of insulin while fasting and allowed to remain hypoglycemic for four hours before being given lunch. On subsequent days the dose was increased by 5 or 10 units a day, and hypoglycemia was again sustained for several hours before the patient was allowed to eat. Within a few days practically all the fresh lesions had dried and disappeared, and only occasional new lesions took their place. The more deeply seated torpid nodules remained longer, and the scars remained longest of all. At the same time the patient's color was much improved, and his skin seemed smoother and fresher. This improvement was sustained throughout treatment, but it is noteworthy that (1) the improvement appeared long before shock doses were reached and (2) a relapse of the patient's skin condition occurred coincidentally with a relapse in the patient's mental state in the course of treatment. It is noteworthy too that the patient regained more than his 25 pounds (11.3 Kg.) of lost weight during the first two months of treatment.

In the second case, characterized mainly by seborrheic skin and deep nodular lesions, the improvement after insulin hypoglycemic treatment was equally marked. The patient was a schizophrenic youth with a less severe and more chronic acne.

In four additional cases that I have recently seen in the course of treatment by Dr. Manfred Sakel at Harlem Valley State Hospital at Wingdale, N. Y., there was an equally striking improvement after the first few days of treatment, with doses of insulin varying from 10 to 50 units and a hypoglycemic period of usually less than four hours' duration. In two of these cases—both in young women—the acne was of extreme severity and the improvement was abrupt and striking. These six cases comprise all patients with facial acne that were seen under treatment, so that in this small series, at least, all the cases were definitely benefited.

In the more marked hypoglycemic reactions the skin is probably benefited by the cutaneous hyperemia and profuse sweating that insulin coma provokes. The patient who is aroused from coma with a tube feeding has typically a flushed, moist skin and clear eyes. (One of my subjects said and looked as if he had had "a nice long workout on the golf course.") But in all the cases here reported, the improvement commenced with doses too small to provoke violent reactions or hypoglycemic coma. It is of some theoretical interest to note that acne lesions are rather common in young schizophrenic individuals. Schizophrenia is usually not associated with skin disorders and may occur in a person with a perfectly clear complexion, but it seemed significant that these six cases of acne of marked severity—at least three of them of extreme severity—were found in a group of less than thirty-five young schizophrenic patients.

It is possible that both schizophrenia and acne are associated with some common disturbance of carbohydrate metabolism, which is in turn benefited by protracted insulin hypoglycemia. It is also possible that the compensatory production of epinephrine which insulin hypoglycemia provokes may be another factor involved.

These observations are submitted to dermatologists for what they are worth. Hypoglycemic insulin shock treatment is not recommended as the treatment of choice for common acne. It is possible, however, that sustained hypoglycemia with small doses of insulin, under proper precautions, will prove serviceable.

60 Gramercy Park North.

#### GENERAL ANESTHESIA COMPLICATED BY CONVULSIONS

JOHN S. LUNDY, M.D., AND EDWARD B. TUOHY, M.D.  
ROCHESTER, MINN.

Convulsions occurring in a case in which a general anesthetic has been administered and while the patient is yet in a state of anesthesia is a situation that has occurred with a certain amount of frequency in recent years in this country. The condition was first reported in England in 1927, and most of the literature concerning it has appeared in British medical journals. However, attempts have been made to bring this problem to the attention of the medical profession of the United States. The problem is one that deserves more attention than it has received. The recent contribution of Tovell and Rosenow<sup>1</sup> would seem to point out possibilities that have not previously been suggested, and no doubt there may be other approaches that have not yet been made. In the meantime, however, it seems important to suggest to all those who directly or indirectly may be responsible for the administration of anesthetics that, when convulsions appear in the anesthetized patient, an anticonvulsant be given; for example, any one of the soluble barbiturates should be administered intravenously. The probabilities are that such treatment will control the convulsions until the patient has recovered from the general anesthesia. If the anesthesia has been a contributing cause of the convulsions, the convulsions should cease, and if the operation has removed a focus of infection, which may have contributed to the production of convulsions, it should be possible to control the convulsions as the illness subsides in the ensuing hours or even days. This has been possible in cases of tetanus, in which the administration of tribrom-ethanol by rectum has been resorted to with considerable satisfaction, and the probabilities are that this

Dr. Manfred Sakel and Dr. J. R. Ross gave the author permission to cite the cases observed at Harlem Valley State Hospital.  
From the Psychopathic Division of Bellevue Hospital and the Department of Psychiatry of New York University Medical College.  
1. Wortis, Joseph: On the Response of Schizophrenic Subjects to Hypoglycemic Insulin Shock, *J. Nerv. & Ment. Dis.* 84:497 (Nov.) 1936.

From the Section on Anesthesia, the Mayo Clinic.  
1. Rosenow, E. C., and Tovell, R. M.: Etiology of Muscular Spasms During General Anesthesia, *Am. J. Surg.*, to be published.

**Branch Society Meetings.**—Dr. Owen H. Wangenstein, Minneapolis, discussed "Studies in the Etiology of Acute Appendicitis" before the Aux Plaines Branch of the Chicago Medical Society, February 26.—The North Shore Branch was addressed March 2 by Drs. Walter C. Alvarez, Rochester, Minn., on "Helpful Hints in the Treatment of Gastro-Intestinal Diseases" and Benjamin Goldberg, on "Bronchiectasis."—At a meeting of the Englewood Branch, March 2, Dr. Arthur E. Hertzler, professor of surgery, University of Kansas School of Medicine, Kansas City, discussed "Indications for Surgical Treatment in Toxic and Nontoxic Goiter," and Dr. Leroy H. Sloan, "Medical Management of Toxic and Nontoxic Goiter."—Dr. Fred M. Smith, professor and head of the department of theory and practice of medicine, State University of Iowa College of Medicine, Iowa City, spoke on left ventricular failure at a meeting of the North Side Branch, March 4.—Dr. Edward D. Churchill, John Homans professor of surgery, Harvard University Medical School, Boston, discussed "Hyperparathyroidism" before the Evanston Branch, March 4, and Dr. Richard H. Young, "The Anemias—A Physiologic Approach."

## IOWA

**Cancer Data to Be Recorded.**—The Linn County Medical Society adopted a plan, February 11, to keep complete cancer records, including data on heredity, on all cancer patients treated by its members. Dr. Frederick W. Mulow, Cedar Rapids, was appointed official custodian of the county's records. He is also the physician-chairman of an experiment in lay and professional education in cancer, which is being promoted by the cancer committee of the Iowa State Medical Society in cooperation with the American Society for the Control of Cancer and its Women's Field Army.

**Society News.**—Dr. William Weston, Columbia, S. C., will discuss "Problems in American Nutrition" before the Linn County Medical Society, Cedar Rapids, April 8, and Dr. John J. Terrall will read a paper entitled "Medical Advertising."—At a joint meeting of the Pottawattamie County Medical Society and Council Bluffs City Dental Society, Council Bluffs, February 22, H. Berner, D.D.S., Council Bluffs, discussed pyorrhea, and Max Dunshee, D.D.S., Council Bluffs, Vincent's infection in the mouth.—Dr. Rosco G. Leland, Director, Bureau of Medical Economics, American Medical Association, Chicago, addressed a public meeting in Des Moines, March 9, sponsored by the educational committee of the Polk County Medical Society. He discussed "Confidence in Your Physician."

## KENTUCKY

**Centennial Celebration at University of Louisville.**—The University of Louisville School of Medicine will celebrate the one hundredth anniversary of its founding with a four day program March 31-April 3. Guest speakers announced in the program are:

- Dr. Mont R. Reid, Cincinnati, Aneurysms.
- Dr. Roy Wesley Scott, Cleveland, Latent Syphilis as a Cause of Heart Disease.
- Dr. William D. Haggard, Nashville, Tenn., Prevention and Cure of Goiter.
- Dr. Arthur T. McCormack, Louisville, state health officer, The Recent Flood in Kentucky from the Standpoint of Public Health.
- Chauncey D. Leake, Ph.D., San Francisco, Medical Frontier a Century Ago.
- Dr. Marion A. Blankenhorn, Cincinnati, Pellagra: A Comparison of Endemic Pellagra with So-Called Alcoholic Pseudopellagra.
- Dr. Willis D. Gatch, Indianapolis, Surgical Prognosis.
- Dr. Hugh J. Morgan, Nashville, Tenn., Problems in Experimental Syphilis.
- Dr. Albert Graeme Mitchell, Cincinnati, Endocrinology in Childhood.
- Dr. Lawrason Brown and Homer L. Sampson, B.S., Saranac Lake, N. Y., The Fate of the Good Chronic "T. B."
- Dr. Quitman U. Newell, St. Louis, Cancer of the Uterus.
- Dr. Ernest W. Goodpasture, Nashville, Pathogenesis of Infectious Disease.
- Dr. Alfred N. Richards, Philadelphia, Function of the Kidney.

Friday afternoon the guests will inspect the medical school, where the departments will have special exhibits. The library will illustrate the history of teaching at the university, the scientific work accomplished there and high lights of advances in various fields. Friday evening there will be an alumni banquet at which Dr. Irvin Abell, clinical professor of surgery, and Raymond A. Kent, Ph.D., president of the university, will speak. Saturday morning a new dispensary will be dedicated at the Louisville City Hospital, which is affiliated with the medical school. The celebration will end with a public meeting Saturday evening at the Louisville Memorial Auditorium, at which Dr. Simon Flexner, director emeritus of the Rockefeller Institute for Medical Research, New York, will speak on "A Half Century of American Medicine." Dr. Flexner is a native of Louisville and a graduate of the school of medicine, class of 1889. The original school of medicine founded in 1837 was known as the Louisville Institute of Medicine. The name was

changed in 1846 to University of Louisville Medical Department. In 1907 the Kentucky University Medical Department and in 1908 the Kentucky School of Medicine and the Louisville and Hospital Medical College merged with the school and in 1922 it received its present title. Dr. John Walker Moore has been dean since 1929.

## MARYLAND

**The DeLamar Lectures.**—Dr. Thorvald Madsen, director of the State Serum Institute, Copenhagen, Denmark, delivered the fifth DeLamar Lecture of the current series at the School of Hygiene and Public Health of Johns Hopkins University, Baltimore, February 23, on "Control of Syphilis in Denmark." Previous lectures in the series were:

- Dr. Frank G. Boudreau, formerly official in charge of liaison, health administration, Health Section of the League of Nations, and recently appointed medical director of the Milbank Fund, New York, November 10, The Future of International Cooperation in Hygiene.
- Dr. George C. Dunham, major, medical corps, U. S. Army, November 24, Progress of Public Health Work in the Philippine Islands.
- Dr. Richard E. Shope, department of animal and plant pathology, Rockefeller Institute for Medical Research, December 1, Recent Studies on the Etiology of Influenza.
- Dr. Edward S. Godfrey Jr., Albany, state health commissioner of New York, January 12, Epidemiology and Public Health Administration.

Speakers to come are Frank W. Notestein, Ph.D., of the School of Public and International Affairs of Princeton University, and Dr. Simeon Burt Wolbach, Shattuck professor of pathologic anatomy, Harvard University Medical School.

## MASSACHUSETTS

**Personal.**—Dr. Alphonso V. Bowker, Athol, observed his eightieth birthday, January 17.—Dr. Eoline B. Church Dubois, Springfield, has been appointed permanent medical inspector for the local school department.

**Society News.**—The first issue of the *Worcester Medical News*, official organ of the Worcester District Medical Society, recently appeared.—Dr. Warren F. Draper, U. S. Public Health Service, discussed "The Federal Program of Syphilis Control" before the Massachusetts Public Health Association in Boston, January 28.—At a meeting of the Harvard Medical Society in Boston, January 26, Dr. Louis Hamman, Baltimore, spoke on "Spontaneous Interstitial Emphysema of the Lungs."—Dr. Clarence A. Bonner, Danvers, addressed the Pentucket Association of Physicians, February 11, in Haverhill, on "Some of the Preventive Aspects of the Mental Health Problem."—Dr. Ernest M. Morris, Fall River, was elected president of the Massachusetts Public Health Association, January 28.—Dr. Morris Fishbein, Editor of THE JOURNAL, addressed the Boston University Medical Society, February 28, on "Medicine and the Changing Social Order."

## MICHIGAN

**Mass Meeting on Cancer.**—Dr. William A. O'Brien, associate professor of pathology and preventive medicine and public health, University of Minnesota Medical School, Minneapolis, will address a mass meeting of women, March 24, in the Statler Hotel, Detroit. His subject will be "Woman's Contribution to the Cancer Problem." This meeting is a part of the program of the Women's Field Army of the American Society for the Control of Cancer and is sponsored by the woman's auxiliary of the Wayne County Medical Society. According to *Detroit Medical News*, Governor Murphy has been requested to proclaim the week of March 21 "Fight Cancer Week" throughout the state and Mayor Frank Couzens has been asked to designate March 25 as "Fight Cancer Day" in Detroit.

## MINNESOTA

**Personal.**—Dr. Charles A. Williams, Pipestone, was recently appointed physician at the Pipestone Indian School.—Dr. Morris H. Nathanson, assistant professor of medicine, University of Minnesota Medical School, Minneapolis, has been appointed associate professor of medicine at the University of Southern California Medical School, Los Angeles.—Dr. Leo M. Maguire has been appointed chief medical officer in charge of the veterans' hospital at Fort Snelling.

**Course for Hospital Librarians.**—The division of library instruction of the University of Minnesota will offer a training course for hospital librarians, March 30-June 12, in response to a demand from workers in hospital libraries, the medical and nursing staffs of hospitals and the Minnesota Board of Control. Miss Perric Jones, librarian of the St. Paul Public Library, who has just retired from her position as institution librarian of the state board of control, will be in general charge of the course. Medical and library experts of the university and

perature elevation by means of the blanket than by other measures. Contrasted with the hot water baths (temperatures from 101 to 110 F.) the time required appears to be about three times as long. This lag in raising the temperature is regarded as undesirable when one wishes to elevate the temperature to a high level and maintain it for a long period of hours.

Patients undergoing treatment complained about the weight of the blanket. It caused them great inconvenience in their respiratory movements. Respiration became embarrassed anyway, as a result of the temperature elevation per se. The mechanical factor of a heavy blanket markedly increases the difficulty. The weight of the blanket also presents a special problem in the treatment of persons in whom acutely involved joints are especially sensitive to pressure.

The treatment of patients suffering from diseases of the skin by the electric blanket is bound to be most difficult. They complain of severe itching.

Profuse perspiration during the prolonged heating causes the blanket to become saturated. The rubber sheeting supplied appears to be ineffective. Because of the moisture the patient may then complain of feeling cold and uncomfortable even though the temperature of the blanket is considerably elevated.

Although the blanket may raise body temperature, the dangers inherent in the elevation of temperature to a high level and maintaining it precludes the use of electric blankets and other apparatus for raising body temperature as an office procedure. Because of the dangers involved, specialized training of the personnel administering the treatment becomes of major importance.

In view of the objections raised to the therapeutic application of this apparatus, the Council on Physical Therapy voted not to include the Condueto-Therm in its list of accepted apparatus.

#### HOME DIATHERMY MACHINE NOT ACCEPTABLE

Manufacturer: Home Diathermy Company, 1776 Broadway, New York.

The Home Diathermy Machine is a small unit which is advertised principally by radio (broadcasts are given in English, Italian and German) and is sold directly to the public by lay salesmen, provided with pamphlets and testimonials of lay users. The instruction for its use is given by the salesmen. The machine is portable and is estimated to weigh about 20 pounds. There are no visible meters, but there are two adjustable spark gaps on the control panels.

A copy of the advertising matter which has been referred to the Council contains such statements as "Health & Vigor are now yours through the use of a portable and simplified HOME DIATHERMY," and "You who suffer from Asthma can now find in Diathermy, the modern method of eliminating that heaviness in the chest, the susceptibility to colds, and that choking and gasping feeling." One reason given in support is "Diathermy and Modern Science is the logical answer to your problems! Years of scientific research have proven the fact that Life and Electricity are closely related. All motor activity in cell life is dependent upon energy or electrical heat. . . . DIATHERMY takes the first place in the electro-therapy art."

One part of the advertisement reads "Some of the many ailments where pain and agony is eliminated through the use of DIATHERMY. . . . Inflammatory and toxic states such as: Arthritis, rheumatism, neuritis, bursitis, lumbago, neuralgia, pneumonia, sciatica, bronchitis, asthma, high or low blood pressure."

Further on it is stated "Our representative will be pleased to call at your home, and give you a free demonstration of the Home Diathermy."

In the opinion of the Council on Physical Therapy, the Home Diathermy Company is practicing methods that are detrimental to rational therapeutics. The use of promotional radio advertising by those unqualified to practice medicine constitutes an appeal to the public with arguments which are unscientific and may harmfully enhance a feeling of false security on the part of the public.

In view of the foregoing, the Council voted not to include the Home Diathermy Machine in its list of accepted devices.

## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.  
PAUL NICHOLAS LEECH, Secretary.

#### MERCURIC BINIODIDE OIL SOLUTION IN AMPULES, H. W. & D., OMITTED FROM N. N. R.

This has been accepted for many years and is described in New and Nonofficial Remedies, 1936, under Red Mercuric Iodide-N. F. Its acceptance expired with the close of 1936. In its reply to the Council's request for material on which to base reacceptance, the firm of Hynson, Westcott & Dunning replied that it felt the product might well be omitted since, although still used to some extent, it is not in general demand. The product was formerly official but has been omitted from the U. S. P. XI and the Council believes that it would be a step backward to encourage its therapeutic use. The Council therefore voted to omit Mercuric Biniodide Oil Solution in Ampules, H. W. & D., from New and Nonofficial Remedies, together with the description of Red Mercuric Iodide-N. F.

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**PROTAMINE ZINC INSULIN** (See THE JOURNAL, Feb. 20, 1937, page 640).

**Protamine Zinc Insulin.**—Mulford.—A brand of protamine zinc insulin.

Manufactured by Sharp & Dohme, Inc., Philadelphia, under license from the governors of the University of Toronto.

**Protamine Zinc Insulin.**—Mulford, 10 cc.: Each cubic centimeter contains 40 units of insulin together with protamine and approximately 0.08 mg. of zinc.

**DIPHTHERIA TOXIN FOR THE SCHICK TEST** (See New and Nonofficial Remedies, 1936, p. 409).

The Gilliland Laboratories, Inc., Marietta, Pa.

**Diphtheria Schick Test Toxin, Diluted Ready for Administration.**—Gilliland.—Also marketed in packages containing sufficient material for 100 tests. As a means of control, the Schick Test Control representing diluted diphtheria toxin heated sufficiently to destroy the specific exotoxins is supplied in packages containing sufficient material for ten, twenty-five, fifty and 100 control tests.

**DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED)** (See New and Nonofficial Remedies, 1936, p. 393).

The Gilliland Laboratories, Inc., Marietta, Pa.

**Diphtheria Toxoid, Alum Precipitated (Refined).**—Also marketed in packages of one 0.5 cc. vial (one immunization); ten 0.5 cc. vials (ten immunizations); one 5 cc. vial (ten immunizations).

**CALCIUM GLUCONATE** (See New and Nonofficial Remedies, 1936, p. 146).

**Calcium Gluconate-Abbott.**—A brand of calcium gluconate-U. S. P.

Manufactured by the Abbott Laboratories, North Chicago, Illinois. No U. S. patent or trademark.

**Sterile Ampoule Calcium Gluconate, 10%-Abbott.** Each ampoule contains 10 cc. of a 10 per cent stabilized supersaturated solution of calcium gluconate-Abbott.

**SODIUM AMYTAL** (See New and Nonofficial Remedies, 1936, p. 114).

The following dosage form has been accepted:

*Suppositories Sodium Amytal, 3 grains.*

**Dr. Foshay Appointed Professor of Bacteriology.**—Dr. Lee Foshay, associate professor of experimental bacteriology at the University of Cincinnati College of Medicine, has been made professor of bacteriology and hygiene to succeed the late Dr. William B. Wherry. Dr. Foshay is a graduate of the University of Pennsylvania School of Medicine, 1920. He served an internship at the Pennsylvania Hospital, Philadelphia, and a residency at the Lakeside Hospitals, Cleveland, and later was a Crile research fellow at Western Reserve University. In 1926 he was appointed assistant professor of medicine at Cincinnati and later was assistant professor of medicine at the State University of Iowa College of Medicine for a year. He then returned to Cincinnati as research fellow at Christ Hospital Institute for Medical Research and in 1932 again joined the faculty of the University of Cincinnati.

## OKLAHOMA

**Special Meetings.**—The Muskogee Academy of Medicine presented its fifth annual two-day conference February 18-19. The guest speakers were Drs. Paul S. Carley of the U. S. Public Health Service, who lectured on syphilology; Harry Wilkins, Oklahoma City, surgery of the brain; Henry M. Winans, Dallas, Texas, internal medicine; Edwin C. Hamblen, Durham, N. C., obstetrics and gynecology; Lee Wallace Dean, St. Louis, otolaryngology, and Alfred I. Folsom, Dallas, urology. —Three members of the faculty of St. Louis University School of Medicine conducted an all day clinic in Okmulgee, February 1, under the auspices of the medical societies of Okmulgee, Okfuskee, Tulsa and Muskogee counties. The speakers were Drs. Edward Lee Dorsett, on obstetrics and gynecology; Marion A. Webb, otolaryngology, and William K. McIntyre, surgery.

## OREGON

**Graduate Course in Portland.**—The second annual graduate course in ophthalmology and otolaryngology sponsored by the University of Oregon Medical School and the Oregon Academy of Ophthalmology and Oto-Laryngology will be held in Portland during the week of April 5. Dr. Cecil S. O'Brien, professor of ophthalmology, State University of Iowa College of Medicine, Iowa City, will present the course in ophthalmology and Dr. William J. McNally, demonstrator in otolaryngology, McGill University Faculty of Medicine, Montreal, the course in otolaryngology. Further information can be obtained from Dr. Augustus B. Dykman, Medical-Dental Building, Portland.

## PENNSYLVANIA

**Society News.**—Drs. John A. Daugherty, Walter J. Connor, Lillian E. Shaw and Oscar Benjamin Millard, Harrisburg, presented a symposium on pneumonia at the meeting of the Dauphin County Medical Society, Harrisburg, March 2. —Dr. Thomas Klein, Philadelphia, addressed the Harrisburg Academy of Medicine, March 16, on "Bedsides Recognition of Cardiac Irregularities and Cardiac Decompensation." —Dr. William Wayne Babcock, Philadelphia, addressed the Northampton County Medical Society, Bethlehem, February 19, on "The Diagnosis and Management of Malignancy of the Intestinal Tract." —Dr. Hobart A. Reimann, Philadelphia, was the guest speaker at the meeting of the Cambria County Medical Society, Johnstown, February 11, on pneumonias. —Dr. Hugh M. Hart, New Wilmington, addressed the Lawrence County Medical Society, New Castle, February 4, on "Intermittent Hydrarthrititis." —Drs. Russell E. Sangston and Holbert J. Nixon addressed the Fayette County Medical Society, Uniontown, March 4, on "Treatment of Pneumonia in Children" and "Clinical Aspects of Influenza" respectively.

## Philadelphia

**Competition for the Alvarenga Prize.**—The College of Physicians of Philadelphia announces its annual competition for the Alvarenga Prize, amounting this year to \$200, for the best essay submitted on any branch of medicine. Essays must be original, unpublished contributions, typewritten in standard English or, if in another language, must be accompanied by a good translation in English. The original contribution must be appropriately correlated with the pertinent scientific literature. Essays must be sent without signature but must be plainly marked with a motto and accompanied by a sealed envelop bearing on the outside the motto of the paper and inside the name and address of the author. They must be received by the college before May 1. The successful essay will remain the possession of the college, but at any time following the award the author may at his discretion arrange for publication in an appropriate place. Other essays will be returned, if requested, as soon as the selection has been made.

**Second Annual Postgraduate Institute.**—Fifty-five Philadelphia physicians will take part in the second annual Postgraduate Institute to be presented by the Philadelphia County Medical Society, April 12-16, at the Bellevue-Stratford Hotel. The subject of this year's institute is "Diseases of the Chest and Upper Respiratory Tract." On the first day there will be a luncheon at which Dr. Francis Ashley Faught, president of the society, will preside and the speakers will be Mayor S. Davis Wilson, Dr. William C. Hunsicker, director of the city health department, and Dr. Donald Guthrie, Sayre, chairman of the committee on postgraduate teaching of the Medical Society of the State of Pennsylvania. At a dinner Wednesday evening the guests will be Mayor Wilson, Dr. Frederick J. Bishop, Scranton, president-elect of the Medical Society of the State of Pennsylvania, and Dr. John Shelton Horsley, Richmond, Va. At the regular meeting of the county society following the dinner Dr. Horsley will deliver the annual J. Chalmers Da Costa Oration on "Peritonitis" and the Strittmatter Award will be made. Dr. Rufus S. Reeves is chairman of the committee in charge of the institute.

## SOUTH CAROLINA

**Syphilis Control Program.**—At a meeting of representatives of the state board of health and the South Carolina Medical Association, called by Dr. James A. Hayne, state health officer, in Columbia, January 14, plans were adopted for a syphilis control program to be conducted with social security funds. It was proposed that a permanent central committee be appointed by the state medical association and local committees of physicians in each county. A statewide survey to determine the incidence of syphilis is to be made through various institutions and groups and private physicians. It was agreed that the state should furnish free certain specified drugs for treatment to both indigents and paying patients. Plans were also made for reporting of cases by physicians and for training of physicians. In a discussion of diagnostic clinics it was suggested that operations of such clinics be limited to the securing of blood for serologic testing and serum for dark field examinations of indigent cases or others referred by practicing physicians. Dr. Sedgwick Simons, Columbia, of the staff of the state board of health, has been placed in charge of the syphilis control program.

## UTAH

**Annual Registration Due April 1.**—All practitioners of medicine and surgery licensed to practice in Utah are required to register annually on or before April 1, with the Department of Registration, and to pay a fee of \$3. If a licentiate fails to reregister within from ninety days to six months after April 1, his license can be revoked, and, if revoked, it will be reinstated thereafter only on his paying the delinquent registration fees and an additional year's fee as a penalty.

## VERMONT

**Society News.**—Drs. Paul D. Clark, Charles K. Johnson and Herbert A. Durfee of the department of maternal and child welfare of the state board of health addressed the Northeastern Counties Medical Society at Lyndonville, February 25. Dr. Joseph S. Barr, Boston, addressed this society recently on "Orthopedic Conditions of the Knee." —Dr. Richard B. Cattell, Boston, spoke on "Lesions of the Colon and Rectum" before the Rutland County Medical Society, January 20. —Dr. Soma Weiss, Boston, addressed the Osler Society of the University of Vermont College of Medicine, Burlington, February 26, on "The Significance of the Relationship Between the Sympathetic Nervous System and the Cardiovascular System in Man." Dr. Henry L. Bockus, Philadelphia, spoke, February 15, on "Regional Ileitis, Ileocolitis and Chronic Granulomas of the Intestinal Tract." —Dr. Herbert M. Elder, Montreal, Que., addressed the Franklin County Medical Society in January on "Injection Treatment of Varicose Veins." —Dr. Howard M. Clute, Boston, was the speaker at the winter meeting of the Chittenden County Medical Society on "Clinical Diagnosis of Jaundice."

## VIRGINIA

**McGuire Lectures and Graduate Clinics.**—The annual Stuart McGuire Lectures and the graduate clinics of the Medical College of Virginia, Richmond, will be held March 24-25. Dr. Joseph Earle Moore, Baltimore, will deliver the lectures in the evenings, on "Diagnosis of Syphilis by the General Practitioner" and "Management of the Wassermann-Fast Patient." The clinics will be given during the days by the college faculty and the following guests: Drs. Dudley C. Smith, Charlottesville, Otis L. Anderson of the U. S. Public Health Service and Lonsdale J. Roper of the state health department.

and stair climbing. The blood sugar was determined on samples of blood collected before each exercise period and at frequent intervals during the period, which was from one to two hours in length. The results uniformly indicate that, in the fasting patient with severe or moderately severe diabetes who has not received insulin for several hours, the immediate effect of exercise may be an elevation of the blood sugar level. Blood sugar values of 480 mg. per hundred cubic centimeters could be raised to 560 mg. in individuals not receiving insulin seven hours prior to running at a moderate rate for five minutes. This observation was typical for five diabetic patients studied under similar conditions. The results are probably related to the inability of contracting muscle of the completely diabetic organism to utilize dextrose to obtain extra energy. Whatever the explanation of these observations may be, their practical application to the treatment of diabetes is evident. They emphasize again the value of adequate control of the diabetic condition. Since the introduction of insulin, the diabetic patient has been able to lead a fairly normal life with an average amount of activity. If the diabetic condition is imperfectly controlled and if the body has not been supplied with adequate insulin, however, exercise, instead of being beneficial, may actually increase the hyperglycemia and the glycosuria. For exercise to exert its maximum benefit, sufficient insulin should be available in the body at the time of exercise.

The results of these studies should be taken into consideration when one is prescribing exercise in the treatment of the diabetic condition. From a practical point of view the logical sequence for the diabetic patient, after arising in the morning, would seem to be insulin, exercise and breakfast rather than exercise, insulin and breakfast. The exercise should be mild enough so that undue fatigue is not produced. It seems needless to point out the further advantage of two, three or more additional periods of exercise during the day.

#### RATING COMMUNITY MILK SUPPLIES

The United States Public Health Service has recently published the seventh annual rating of the compliance of market milk supplies in urban communities with the Standard Milk Ordinance and Code.<sup>1</sup> The ordinance and code were published by the service as a guide and stimulus for the improvement of milk supplies through local ordinances modeled after the standard ordinance. The ratings are made annually by state milk sanitation authorities, in accordance with the Public Health Service rating method, based on grade A pasteurized milk and grade A raw milk requirements of the Public Health Service milk ordinance and code. In order to qualify, a community must have ratings of 90 or better for both raw and pasteurized milk, unless only raw

or only pasteurized milk is sold, in which case the rating for that class of milk must be over 90. Ratings must be made at least every two years; state milk sanitation standards will be checked from time to time by surprise ratings made by the United States Public Health Service. On the basis of these surprise check-ups, ratings may be discounted where state authorities are rating more than 5 per cent too high. It is urged in the report that communities bring their milk ordinances up to date at least every five years.

The importance of milk sanitation has been dramatized in the flood experiences of recent weeks, but danger from unsafe milk may be present in communities not stricken by disaster. Epidemics traced to raw milk are reported every year. One of the latest, in Owego, N. Y., in December 1936, involved 500 cases of scarlet fever traced to raw milk from one cow. As a result, the town has passed an ordinance requiring the pasteurization of all milk sold there.<sup>2</sup> In connection with ratings of market milk, while raw milk is rated, repeated warnings are given that no milk should be used in the home unless pasteurized. Home pasteurization is advised where only raw milk is purchasable; the technic advised is to heat the milk in an aluminum vessel on a hot flame to 155 F., with constant stirrings, and then to set the vessel in cold water and stir continuously until cool.<sup>3</sup>

The published ratings are significant. In communities in which all market milk is pasteurized, only four communities in two states have achieved a rating of 90 or more. Among communities in which some but not all market milk is pasteurized, eighty-one in nineteen states have achieved a rating of 90 or more both for raw milk and for pasteurized milk. Significant of what may be accomplished in a brief period is the change from a pasteurized milk rating of 59 per cent in Chicago in the spring of 1935 to a pasteurized milk rating of 97 per cent in January 1937. Communities in which only raw milk is sold and which rate 90 or above number only fifty in nine states. While the service emphasizes that the ratings published are only those which are available and not over 2 years old, and that it is not intended to convey the idea that no other communities are eligible for rating, the indications are sufficient to point the need for more attention to quality of milk, and especially to pasteurization requirements. Even certified milk, the safest of raw milks, is still safer when pasteurized, as its producers have recognized.<sup>3</sup> The milk industry has always been keenly interested in improving the quality of milk, as have health officials. Advice to drink more milk is futile, if not harmful, unless the milk available is clean and pasteurized and therefore free from dangerous possibilities of transmitting infectious disease.

1. Report on Market Milk Supplies of Urban Communities, Pub. Health Rep. 52: 130 (Jan. 29) 1937.

2. Scarlet Fever Outbreak Traced to the Use of Raw Milk, Pub. Health Rep. 52: 113 (Jan. 22) 1937.

3. Pasteurization of Certified Milk, editorial, J. A. M. A. 105: 601 (Aug. 24) 1935.



## CANADA

**Dr. Boyd Appointed Professor at Toronto.**—Dr. William Boyd, professor of pathology, University of Manitoba Faculty of Medicine, Winnipeg, has been appointed professor of pathology at the University of Toronto Faculty of Medicine, to succeed the late Dr. Oskar Klotz. Dr. Boyd was graduated from the University of Edinburgh, Scotland, in 1911 and has been at the University of Manitoba since 1915. He has been pathologist to the Winnipeg General Hospital since 1918. In 1934 he was president of the American Association of Pathologists and Bacteriologists. During the World War he served with the British Army Medical Corps. He is 51 years old.

**Cameron Prize Awarded to Dr. Collip.**—The Cameron Prize of the University of Edinburgh, Scotland, has been awarded for 1937 to Dr. James B. Collip, professor and head of the department of biochemistry, McGill University Faculty of Medicine, Montreal. The prize is given annually to "a person who, in the course of the five years immediately preceding, has made any highly important and valuable addition to practical therapeutics." According to the *Lancet*, Dr. Collip received the award in recognition of his many contributions to endocrine therapy and in particular of his work on the parathyroid gland. Dr. Collip, who is 44 years old, is a native of Ontario. He received the degree of doctor of philosophy at the University of Toronto in 1916 and doctor of medicine at the University of Alberta in 1926. He was professor of biochemistry at Alberta for several years and went to McGill in 1928. The prize is about \$1,000.

## FOREIGN

**Congress on Therapeutics.**—The first International Congress of the Therapeutic Union will be held in Bern, Switzerland, May 19-22. Among speakers listed on the preliminary program are Drs. August Rollier, Leysin, Switzerland; Wolfgang Heubner, Berlin; Hyman I. Goldstein, Camden, N. J.; Theodor Rudolf Naegeli, Bonn, and James A. Gunn, Oxford. Those who wish to present papers are asked to communicate with the general secretary, Dr. Toni Gordonoff, Monbijoustrasse 97, Bern.

## Government Services

## Vacancies in Medical Corps of Navy

An examination for commissions and internships in the Medical Corps of the U. S. Navy will be held beginning May 10 in all naval hospitals and at the Naval Medical School, Washington, D. C. There are about fifty vacancies. Candidates for admission must be between the ages of 21 and 32 at the time of appointment, graduates of or senior medical students in class A medical schools. For further information write the Surgeon General, U. S. Navy, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

## Changes in Public Health Service

Passed Asst. Surg. William H. Meyer, relieved at Honolulu, and directed to proceed to marine hospital, Stapleton, N. Y.

Dr. Harold R. Sandstead, appointed and commissioned as assistant surgeon in the regular corps, marine hospital, Cleveland.

Dr. James F. Lane, appointed and commissioned as assistant surgeon in the regular corps, marine hospital, Stapleton.

Dr. Joseph B. Pomerance, appointed and commissioned as assistant surgeon in the reserve corps for active duty, marine hospital, Cleveland.

Dr. Laurence John Hakala, appointed and commissioned as assistant surgeon in reserve corps, U. S. Public Health Service Dispensary, Washington, D. C.

Dr. Samuel Milton Dupertuis, appointed and commissioned as passed assistant surgeon in regular corps, marine hospital, Stapleton.

Dr. Alfred J. Aselmeyer, promoted and commissioned as surgeon in regular corps.

Dr. Thomas A. Hathcock Jr., commissioned as assistant surgeon in the reserve corps for active duty at the U. S. Marine Hospital, Baltimore.

## Annual Report on the Health of the U. S. Army

Automobile accidents again led the list of causes of death in the U. S. Army, according to the report of the surgeon general for the calendar year 1935. Sixty-six fatalities were recorded as compared with sixty in 1934. To this cause eighty deaths were ascribed in 1933, seventy-three in 1932 and ninety-two in 1931. Of the total, twenty-six deaths were attributed to collisions; in twelve cases the cause was "struck by vehicle"; in eleven "car overturned," and eight "crashed into objects off

road." There were 1,317 admissions from automobile injuries with a rate of 9 per thousand, as against 1,418 with a rate of 11 per thousand in 1934. Suicides and airplane accidents occupied second and third places in the list of causes of death with totals of fifty-five and forty-three respectively. These compared with respective totals of fifty-two and fifty-six in 1934.

The first disease to appear on the list, disease of the coronary arteries and angina pectoris, stands fourth in the list of causes of death, with forty fatalities. Tuberculosis is fifth with thirty-two deaths, and pneumonia is sixth with thirty-one. In 1934 pneumonia was first disease on the list, occupying fourth position among causes of death with thirty-four deaths.

The leading causes of admission in 1935 were athletic exercises (4,046), bronchitis (3,745) and gonorrhea (3,172). In 1934 bronchitis occupied first place and athletic exercises second. Influenza rose from ninth place with 1,874 cases to fourth place with 2,837 cases.

There were 547 deaths among army personnel in 1935, giving a rate of 3.8 per thousand, compared with 4 in 1934; 298 died from disease and 249 from external causes as compared with 275 and 268 respectively in 1934. There were 1,387,945 days lost in the hospital during the year by the military personnel as compared with 1,363,591 days for the previous year. Exclusive of the military personnel, which includes Veterans' Administration, Soldiers' Home, National Guard Officers' Reserve Corps, Reserve Officers' Training Corps, Citizens' Military Training Camps, Civilian Conservation Corps, and other civilians receiving treatment, there were 1,831,659 days in the hospital. The outpatients for the year numbered 1,439,749, with 2,566,719 treatments. There were 534,410 physical examinations and 483,860 vaccinations. The daily average of patients in the hospital was 8,820.8.

By legislative action the average daily strength of the army was increased during the year to 142,568, as compared with 134,716 in 1934. There were 66,086 vacancies during 1935 as compared with an earlier total of 60,741; of these 36,342 or 55 per cent were filled by original enlistments. The average officer strength for the year was 11,660, including 842 warrant officers. During the year seventy-eight officers, sixteen nurses and 1,999 enlisted men were separated from the service on account of disability as compared with 130 officers, eight nurses and 2,165 enlisted men for the previous year. The discharge rate for the whole army was 14.6 per thousand for 1935 as compared with 17 for 1934, which was the highest since 1929. Of the 1,999 enlisted men discharged during the year 1,363, or 68.13 per cent, were for conditions not in line of duty. Of the latter number, 77.24 per cent existed prior to enlistment. Dementia praecox was the leading cause of discharge in 1935; there were 213 cases. This cause was supplanted by tuberculosis in 1934, the first time in more than ten years that it did not occupy first place. The classification "constitutional psychopathic state" held second place in this group with 142 cases, advancing from sixth place in 1934. Tuberculosis, with 138 cases, occupied third place.

During the year there were 1,533,095 days lost from duty for all causes, compared with 1,483,120 in 1934. Days lost from diseases amounted to 1,234,432 and injuries 298,663. The total army had a noneffective rate of 29.5, compared with 30.2 for 1934. The average time lost from duty per patient was 16.6, slightly lower than that for the previous year, 18.2. Gonorrhea was responsible for 158,884 days lost; athletic exercises were second with 59,798 and tuberculosis third with 56,114. To tuberculosis was attributed the greatest amount of time lost per case (146.1 days). Dementia paralytica was second (146.0) and dementia praecox (91.5) third. Cancer was fourth (81.5) in this classification, as compared with its position of third from the lowest in 1934.

There were 5,010 admissions for venereal diseases with 233,775 days lost, compared with 4,632 admissions and 206,784 days lost for 1934, giving a slightly higher admission rate (35.1) in 1935 as compared with 34.4 in 1934. Alcoholism achieved the lowest admission rate for this condition in the past decade, 4.5. The highest (9) was recorded in 1931. Only four cases of typhoid were reported in the army, all in the Philippine Islands, three being in white soldiers. The fourth, in a Filipino, was fatal. There were fourteen admissions for drug addiction during the year as compared with eighteen in 1934.

## CORRECTION

**Betanaphthol Ointment.**—In the prescription entitled "Betanaphthol Ointment" in *THE JOURNAL* February 13, page 555, the quantity of betanaphthol should have been 1.50 Gm. instead of 0.15 Gm.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

**Personal.**—Dr. Thomas C. Watson, Benton, has been appointed medical director of the Tenth District, comprising Saline, Hot Springs and Grant counties.—Dr. Harvey D. Wood, Fayetteville, was the guest of honor at a dinner, January 8, celebrating his ninetieth birthday; he was presented with a chest containing ninety silver dollars.—Dr. Asa C. Watson, England, has been appointed superintendent of the Benton division of the State Hospital, Little Rock.

### CALIFORNIA

**Lane Lectures.**—Dr. Eugene F. Du Bois, professor of medicine, Cornell University Medical College, New York, will deliver the twenty-sixth course of Lane Lectures at Stanford University School of Medicine, San Francisco, April 5-9. His subject will be "Mechanism of Heat Loss and Temperature Regulation."

**First Hobby Show.**—Forty-two members participated in the first hobby show of the Los Angeles County Medical Association the week of January 11. Firearms were exhibited by Drs. Howard Andrews, James R. Dean and Cyril B. Courville. The display included two concertos for piano and orchestra and a rhapsody for two pianos, composed by Dr. Lloyd Mills; excerpts from "Mass in E Flat," a composition by Dr. Lowell S. Goin, and two compositions entitled "Cavaliers" and "Prayer," by Dr. George P. Laton. Stamp collections were displayed by Drs. Stephen G. Seech, Herbert O. Barnes, Charles L. Lowman and John W. Nevius, who specialized in tuberculosis stamps. Wood work was shown by Drs. Philip S. Doane, Jonas C. Kopelowitz, Henry G. T. Bieler and Robert A. Campbell, while Dr. Hans von Briesen exhibited whittling and lithographs. There were oil paintings by Drs. Paul K. Sellev, Saul S. Robinson, Robert H. Kennicott, Marcia A. Patrick, Everett R. Lambertson and Louis K. Guggenheim; photographs by Drs. Abraham Marians, Harold Lincoln Thompson, George Dock and Frank E. McCann. Other exhibitors included:

Dr. Salvatore R. Monaco, pottery.  
Dr. Katherine M. Close, a seascape in tempera.  
Dr. Randall Hutchinson, bead work.  
Dr. Arthur Bowen, hand tooled leather.  
Dr. Joseph C. Savage, heads in charcoal.  
Dr. Paul Z. Hebert, pictorial art in glass.  
Dr. Sven R. Lokrantz, relief art.  
Dr. Franz H. Brandt, penciled landscapes.  
Dr. Cora E. Smith King, a collection of pressed plant life of the west.  
Dr. Harold Dewey Barnard, mounted animals.  
Dr. Norval W. Haddow, "Climatology."  
Dr. Harold F. Whalman, motion pictures in color.  
Dr. Clinton D. Hubbard, sea shells from the seven seas.  
Dr. Raymond L. Schulz, surgical instruments made by himself.  
Dr. Orrie E. Ghrist, stereopticon pictures.  
Dr. Edward L. Sudlow, books.  
Dr. Frank B. Young, comparative pathologic and physiologic osseous conditions.

In view of the success of the first hobby show, the association plans to hold three such shows next year. One week will be limited to pictorial artists, one to those interested in handicraft, and one to collectors, according to present plans.

### COLORADO

**Lectures in Obstetrics and Pediatrics.**—The division of maternal and child health of the state department of health opened a series of graduate lectures for physicians in the northern and northeastern portions of the state, March 1, under the auspices of the Colorado State Medical Society. Financed by social security funds, the courses will be offered in Sterling, Fort Morgan, Greeley, Fort Collins and Boulder and continue to April 2. Five sessions in each specialty will be held in each town. Lecturers are:

Dr. Leroy A. Calkins, professor of obstetrics and gynecology, University of Kansas School of Medicine, Kansas City.  
Dr. Cuthbert Powell, associate professor of obstetrics and gynecology, University of Colorado School of Medicine, Denver.  
Dr. Everett D. Plass, professor of obstetrics and gynecology, State University of Iowa College of Medicine, Iowa City.  
Dr. Hugh L. Dwyer, associate professor of pediatrics, University of Kansas School of Medicine.  
Dr. Wilford W. Barber, instructor in pediatrics, University of Colorado School of Medicine.  
Dr. William W. Swanson, associate professor of pediatrics, Division of Biological Sciences, University of Chicago.

### CONNECTICUT

**Personal.**—Edward S. Robinson, Ph.D., professor of psychology at Yale University since 1927 and since 1935 director of general graduate studies, died February 27, aged 43, in New Haven Hospital of skull injuries suffered when he was struck by a bicyclist. Dr. Robinson received the degree of doctor of philosophy from the University of Chicago in 1920. He was cooperating editor of the *American Journal of Psychology* and had contributed extensively to the literature of his field.—Benedict Marcus Holden, Hartford, died suddenly in New York, February 19, aged 63. In 1924 Mr. Holden served as foreman of an extraordinary grand jury which investigated the notorious diploma mill frauds, resulting in the exodus from the state of about 200 "quacks."

### DISTRICT OF COLUMBIA

**Personal.**—Dr. Thomas Parran, surgeon general, U. S. Public Health Service, received the honorary degree of doctor of pharmacy from the Philadelphia College of Pharmacy and Science at its "Founders' Day" ceremony, February 23.—Dr. Lewis Harvie Taylor has been elected superintendent of Sibley Memorial Hospital, succeeding the late Charles S. Cole.

**Society News.**—The Washington chapter of the Pan American Medical Association was addressed in Rockville, Md., January 10, by Drs. August S. Boyd, minister of Panama, on "Recollections of Medical Practice in the Tropics," and B. B. Vincent Lyon, Philadelphia, "Gallbladder Disease: Diagnosis, Management and Prevention." Dr. Isidro Castillo, professor of surgery, National University of Buenos Aires Faculty of Medical Sciences, also spoke.—Dr. James G. Townsend, director of health in the Office of Indian Affairs, has been elected president of the Tuberculosis Association of the District of Columbia, succeeding Dr. William C. White.

### FLORIDA

**Hospital News.**—A consulting staff has been appointed for the Florida State Hospital at Chattahoochee. Members include Drs. Henry Mason Smith, Tampa; Ralph N. Greene, Coral Gables; William H. Spiers, Orlando, and Whitman C. McConnell, St. Petersburg, all of whom are former members of the hospital staff.

**Society News.**—At a meeting of the Pasco-Hernando-Citrus County Medical Society in Brooksville, January 15, Drs. James L. Estes and Harold O. Brown, Tampa, among others, spoke on diagnosis and treatment of renal calculi.—Dr. Louis B. Mount, St. Petersburg, addressed the Pinellas County Medical Society, February 5, on "Pruritus Without Skin Eruption."

**Personal.**—Dr. Alfred T. Eide, Lake Placid, was elected a member of the house of representatives of the state legislature at the November election.—Dr. Leonidas M. Anderson, Lake City, formerly president of the Florida Medical Association, was recently guest of honor at a dinner given by the Anderson County Medical Society to celebrate his seventy-fifth birthday. Dr. Anderson completed fifty years in the practice of medicine in 1936 (*THE JOURNAL*, May 16, 1936, p. 1739).—Dr. Frank L. Quillman, formerly of Winter Garden, has been appointed health officer of Orange County with offices in Orlando.

### ILLINOIS

**Society News.**—The Sangamon County Medical Society will be addressed in Springfield, March 25, by Drs. Morris Edward Davis, Chicago, on "Mechanism of Normal Labor" and "Medical Complications of Pregnancy," and Joseph Greengard, Chicago, "Syphilis" and "Tuberculosis."—Dr. Dean D. Lewis, Baltimore, will address the Springfield Medical Club, Springfield, March 23, on "Surgical Significance of Ductless Gland Lesions."—Dr. Albert Graeme Mitchell, Cincinnati, addressed the Peoria City Medical Society, March 16, on "Endocrinology in Childhood."—Dr. Carlo S. Scuderi, Chicago, discussed "Radiographic Interpretations of Bone Tumors" before the Stephenson County Medical Society, Freeport, February 18.

### Chicago

**Annual Hobby Show.**—The Chicago Medical Society is accepting entries for its second annual hobby show, April 7-8. A feature this year will be a special room where physicians may project motion picture films.

**Dr. Loeb Will Give Arno B. Luckhardt Lecture.**—Dr. Leo Loeb, professor emeritus of pathology, Washington University School of Medicine, St. Louis, will present the fourth Arno B. Luckhardt Lecture, March 30, at Billings Hospital, under the auspices of the Delta chapter of Phi Beta Pi. His subject will be "The Biological Basis of Individuality."

children to some private educational establishment instead of to a state school. This could be overcome by making state schools obligatory for all.

In the debate it was pointed out that the policy of marriage bounties in Italy and Germany had not been successful in preventing the decline of population. If the birth rate was to be increased, people must be convinced that the maintenance of the race was desirable. There must be better maternity services, proper nutrition and jobs for children when they became adults. So long as the danger of war persisted, mothers would not be prepared to bear children. A tax on bachelors was suggested and it was stated that there were nearly 200 bachelors in the House, which gave rise to cries of "Shame." A member stated that birth control had not yet reached its limit. At one clinic of which he knew the number of patients who came for advice on how to have a child was equal to those who came for advice as to how to avoid having one. He advocated either not allowing women to take employment or providing state nurseries.

For the government Mr. Hudson, parliamentary secretary to the Ministry of Health, stated that they had been studying the matter for some time and would accept the motion. Although before 1933 our birth rate fell, since that year, for the first time in our history, it had remained stationary, and in the last few years there was a slight increase. It had been suggested that contraceptive measures were the cause of the decline, but there was a great difference between the means and the cause. Lack of houses was suggested as a cause, and as far as rural houses were concerned that was probably true. We had still to decide whether there was an economic urge to reduce families and whether it could be altered. It was useless to discuss what was the optimal population unless steps could be taken to affect population one way or another. At present there existed a large excess of persons in the prime of life. Our adult population was the result of years when the annual number of births was about 900,000. The number of children today was the result of years when the births were between 400,000 and 500,000. Perhaps the estimates of future population being made today by certain statisticians were as wide of the mark as those made a hundred years ago. The government would intensify the inquiry at present proceeding. The motion was agreed to.

The minister's reply is not convincing. He overlooks the fact that the science of statistics is in a much more advanced state today than it was 100 years ago. In particular, Kuczynski's unit, "the net reproduction rate" (THE JOURNAL, Nov. 14, 1936, p. 1646) has only recently been introduced. It indicates accurately the trend of population. In 1933 the net reproduction in England and Wales was 0.734, or less than three fourths of that required to maintain the population. The "slight increase" to which the minister referred, even if maintained, would have little effect on the downward trend. All schemes for encouraging reproduction are open to the objection that they must increase taxation, which is one of the causes of the decline. The tremendous burden of the cost of the social services is a great deterrent to reproduction in taxpayers.

#### Alcohol and Automobile Accidents

At a meeting of the Society for the Study of Inebriety, Dr. H. M. Vernon pointed out that although road accidents have in the last two years diminished a little, fatalities still averages eighteen a day and injuries more than 600. Speed seems to be the most important factor in accidents. The Ministry of Transport attributed a fourth of the accidents to excessive speed, but many other causes in some degree involved this. It had been shown in Rhode Island that, when the average speed was reduced from thirty-seven to thirty-one miles an hour, fatalities were reduced 27 per cent. Dr. Vernon emphasized the importance of the effect of alcohol on the speed factor. In 1935

the committee of the British Medical Association on the "Relation of Alcohol to Road Accidents" stated that such moderate quantities of alcohol as 3 ounces of whisky diminish attention and control and reduce the rapidity and accuracy of coordination of movements of the eyes, hands and legs. These effects are more likely to lead to an accident, the greater the speed. The distance within which a car can be pulled up when a pedestrian or other obstruction is seen varies as the square of the speed. The reaction time is increased from 0.1 to 0.4 second by alcohol, and in addition drivers unconsciously accelerate their speed. Tests made on twenty subjects by means of a motor driving apparatus showed that 2½ ounces of whisky increased the rate of driving 6 per cent and driving errors 13 per cent. The experiment showed the importance of all cars carrying a speedometer.

American data suggest that though alcohol is directly mentioned in only 7 to 10 per cent of fatal road accidents, a third or a fourth are attributable to the action of alcohol on the drivers. A new method of investigation is now being tried—determination of the alcohol content of the blood or urine. It has been shown that from 40 to 63 per cent of persons having one part per thousand of alcohol in their blood are under its influence. The conclusion is that the only safe course for the automobile driver is total abstinence, which should be practiced several hours before driving as well as during it, owing to the slowness with which alcohol disappears from the blood.

#### PARIS

(From Our Regular Correspondent)

Feb. 20, 1937.

#### A Proposed Law to Prevent Venereal Diseases

Nov. 5, 1936, a bill was introduced in the senate aiming to control the rapidly increasing number of cases of syphilis and gonorrhea. The bill is sponsored by the Ministry of Public Health and must pass both the senate and the chamber of deputies before becoming a law. Some of the leading clauses of the proposed law, as it was published in the Dec. 15, 1936, *Siccle médical*, will be cited:

#### PROPHYLAXIS OF VENEREAL DISEASES

SECTION 1.—*Privileges and Obligations of Physicians.*—Article 1. Every physician having occasion to treat an individual who either has a venereal disease of recent origin or is likely to have a recurrence of a former or uncured attack is obliged to give the patient a warning regarding the contagious character of the illness and impart information as to the essential features of the present law.

Article 2. If the attending physician ascertains that the infected individual, as the result of neglect of treatment or of the patient's mode of life, exposes one or several others to the disease, he is authorized to notify the public health authorities.

Article 3.—Article 378 of the Penal Code regarding professional secrecy is therefore modified so that physicians whom the present law authorizes or obligates to reveal professional secrets will not be subject to punishment, as would occur in ordinary nonvenereal cases.

SECTION 2.—*Infractions of the Law and Penalties.*—Article 4. Every individual suffering from a venereal disease who knowingly or intentionally communicates the ailment to another person shall be subject to a prison term varying from two to five years, a fine of from 1,000 to 5,000 francs and a loss of civil rights for fifteen years (including the prison term).

Article 5. Every individual suffering from a venereal disease who, without harmful intent, but as the result of imprudence, communicates such disease to another person, shall be subject to the punishment included in section 320 of the Penal Code.

of the hospitals of the state will lecture on their specialties. A six weeks practice period in approved hospitals will be a required part of the course. Additional information may be obtained from the registrar, University of Minnesota, Minneapolis.

### MISSISSIPPI

**Dr. Moore Professor of Pathology.**—Dr. Robert M. Moore, assistant professor of pathology, University of Missouri School of Medicine, Columbia, has been appointed professor of pathology and director of clinical laboratory diagnosis in the University of Mississippi School of Medicine, University, effective September 1, it is reported.

**University Faculty Presents Society's Program.**—Members of the faculty of Vanderbilt University School of Medicine, Nashville, Tenn., presented the program at the quarterly meeting of the Central Medical Society in the Robert E. Lee Hotel, Jackson, March 2. B. E. Mitchell, dean, Millsaps College, Jackson, gave the invocation and the speakers included:

Dr. Hugh J. Morgan, Diagnosis and Treatment of Early and Late Manifestations of Syphilis.  
Dr. Barney Brooks, Surgery of the Stomach.  
Dr. Lucius E. Burch, Diagnosis and Treatment of Common Gynecological and Obstetrical Diseases.  
Dr. Horton R. Casparis, Allergy in Children and Nutritional Problems in Children.  
Dr. Waller S. Leathers, Significant Public Health Trends in Mississippi.  
Drs. Ernest W. Goodpasture and Hugh J. Morgan conducted a clinical pathologic conference on nephritis. Drs. Felix J. Underwood, state health officer, and Lawrence W. Long, president of the society, both of Jackson, were among other speakers.

### NEBRASKA

**Personal.**—Dr. Frank W. Plehn, Scottsbluff, has been chosen as the town's "Best Citizen of 1936." He is 71 years old.—Dr. Edmund G. Zimmerer, Lincoln, has been appointed assistant epidemiologist in the state department of health to head a division of venereal disease, it is reported.—Dr. Emmett McMahon, Omaha, has been appointed medical director of the Douglas County Hospital, Omaha, succeeding Dr. James W. Martin, it is reported.

### NEVADA

**Hospital News.**—A government hospital for veterans is to be erected in Reno on a site donated by the city.—A new wing is under construction at the Washoe General Hospital, Reno. It will be occupied by the maternity service, including delivery room, nursery and private rooms.

### NEW YORK

**Society Condemns Motion Picture.**—The Medical Society of the County of Erie adopted a resolution at its February meeting condemning a motion picture entitled "A Doctor's Diary" as a "malicious attack on the medical profession." The resolution states that "the author's conception of the code of ethics is absurd, and attempts to portray the staff of a private metropolitan hospital as an avaricious crew of vultures who are defiled by a temperamental nurse, and an heroic intern who is shot by the aggrieved mother of a child prodigy during a suit for malpractice."

**Society News.**—Henry F. Vaughan, Dr.P.H., Detroit, addressed the Medical Society of the County of Nassau, Mineola, February 23, on "The Place of the Practicing Physician in the Health Program."—Dr. Frederick S. Wetherell, Syracuse, addressed the Cayuga County Medical Society, Auburn, January 21, on "The Relation of the Sympathetic Nervous System to Problems Arising in General Practice."—Dr. Leo E. Gibson, Syracuse, spoke on "Infections of the Kidney and Treatment," January 15, before the Cortland County Medical Society, Cortland.—Dr. William Cook Spain, New York, addressed the Suffolk County Medical Society, at its quarterly meeting January 27 in Patchogue, on "Asthma in Children."—Drs. Edwin A. Locke, Williamstown, Mass., and George M. MacKenzie, Cooperstown, addressed the Medical Society of the County of Albany, February 24, on "General and Symptomatic Treatment of Pneumonia" and "Specific Therapy of Pneumococcal Lobar Pneumonia" respectively.—Dr. Howard P. Doub, Detroit, addressed the Central New York X-Ray Society, February 6, in Syracuse, on "Radiologic Conditions of the Spine."

### New York City

**Dr. Carrel Receives Newman Award.**—Dr. Alexis Carrel of the Rockefeller Institute for Medical Research, received the eighth Cardinal Newman Award of the Newman Foundation at a ceremony at the University of Illinois, Urbana, February 21.

The award is conferred annually on a person "who has made an outstanding contribution to the enrichment of human life in the fields of statesmanship, education, art, science and humanitarianism."

**Dinner to Dr. Saul Adler.**—Dr. Saul Adler, professor of parasitology at the Hebrew University in Jerusalem, was the guest of honor at a dinner given by the American Jewish Physicians' Committee at the Hotel Waldorf-Astoria, February 1. Among the speakers were Drs. Nathan O. Ratnoff, president, and Israel S. Wechsler, secretary, of the committee, and Dr. Emanuel Libman. Dr. Adler gave addresses at Mount Sinai Hospital, February 8, on "The Leishmaniasis and Their Transmission" and, February 15, on "The Human Blood Spirochetes."

**Society News.**—Dr. Felix R. Nager, Zurich, Switzerland, addressed the section of otolaryngology of the New York Academy of Medicine, February 17, on "Disease of the Labyrinthine Capsule."—Dr. Vally Menkin, Boston, among others, addressed the New York Pathological Society, February 25, on "Recent Studies on Inflammation."—Dr. Gilbert J. Thomas, Minneapolis, addressed the New York Society of the American Urological Association, March 3, on "Factors Favoring Non-progression of Certain Tuberculous Lesions of the Genito-Urinary Tract."—Drs. Francis F. Schwentker, Baltimore, and Charles F. McKhann, Boston, addressed the Medical Society of the County of Kings, February 16, on "Certain Aspects of Serum Therapy in Meningococcus Meningitis" and "Tissue Protein and Blood Coagulation" respectively.—At a meeting of the Brooklyn Thoracic Society, February 19, the speakers were Drs. Nagla Mary Laf Loofy, on "The Sedimentation Rate in Clinical Pulmonary Tuberculosis" and Richard H. Overholt, Boston, "Selective Thoracoplasty and Lung Immobilization for Pulmonary Tuberculosis."

### NORTH CAROLINA

**Special Society Meetings.**—Dr. Julian W. Ashby, Raleigh, was elected president of the North Carolina Neuro-Psychiatric Association at its third annual meeting at Wake Forest, January 29.—The North Carolina Society for Mental Hygiene was recently organized at a meeting in Raleigh, with Ernest R. Groves, B.D., professor of sociology, University of North Carolina, Chapel Hill, as president, and Harry W. Crane, Ph.D., Durham, secretary. Dr. Beverley R. Tucker, Richmond, Va., gave the principal address at the meeting.—At the annual meeting of the North Carolina Academy of Surgery in Greensboro, February 2, the guest speakers were Drs. Gilson C. Engel and Chevalier L. Jackson, Philadelphia, on "The Value of Operation in Peptic Ulcer" and "The Bronchoscope as a Diagnostic Agent in Tumors of the Chest" respectively. Dr. Frank K. Boland, Atlanta, presented to the academy a gavel made of wood from the estate of Dr. Crawford W. Long.

### NORTH DAKOTA

**Honor Dean for Years of Service.**—Dr. Harley E. French, dean of the University of North Dakota School of Medicine, Grand Forks, was guest of honor at a dinner given by students and alumni of the school February 5, celebrating his twenty-fifth anniversary in the deanship. Dr. French is 63 years old, a native of Indiana and a graduate of Northwestern University Medical School, Chicago. He was professor of anatomy and physiology at the University of South Dakota School of Medicine from 1907 to 1911. Since 1911 he has been dean and professor of anatomy at North Dakota, except one year which he spent on leave of absence as assistant professor of anatomy at the University of Pennsylvania School of Medicine, Philadelphia (1925-1926). He was secretary of the state board of health, 1921-1923, and president of the North Dakota State Medical Association, 1921-1922.

### OHIO

**Hanna Lectures.**—Dr. Siegfried J. Thannhauser, associate professor of medicine, Tufts College Medical School, Boston, formerly professor of medicine at the University of Freiburg, Germany, delivered the fortieth Hanna Lecture under the joint auspices of the Cleveland section of the Society for Experimental Biology and Medicine and the experimental medicine section of the Academy of Medicine of Cleveland, February 12. His subject was "Cholesterol: Its Physiological and Clinical Implications." Dr. Leonard Colebrook, honorary director of research laboratories at Queen Charlotte's Hospital, London, delivered the forty-first lecture, March 9, on "The Control of Hemolytic Streptococcal Infection with Particular Reference to Puerperal Fever."

In the discussion, Moulounguet stated that the fever often observed in endometriomas leads one to suspect a genital tuberculosis. The rise of temperature is continuous but is more marked during menstruation. He endorsed the view of the authors that useless dissection of pelvic metastases is to be avoided. One should be guarded as to the prognosis, because recurrence is common. The poor results following operation in his cases have led him to consider irradiation (castration dose) as the preferable treatment.

Mondor believes that internal hemorrhage, i. e., into the free peritoneal cavity, when not related to pregnancy, is frequently due to ovarian endometriomas. He also preferred irradiation.

#### Associated Vaccinations

Prof. G. Ramon of the Pasteur Institute reviews the question of associated vaccinations in the September 1936 *Revue d'immunologie*. He has found experimentally that one is able to obtain a multivalent immunization. The addition to the antigens of nonspecific substances greatly increases their activity in the organism. If, for example, the tetanus antitoxin is mixed with the typhoid paratyphoid A and B vaccine, one observes the appearance of tetanus antitoxins and typhoid agglutinins in larger amounts than if these two vaccinations were given separately. The results are the same with diphtheria and with staphylococcus antitoxin alone or associated. These experimental observations have been confirmed clinically. It is evident that there are many advantages in immunizing an individual against several diseases without more effort than is required to immunize against a single one.

In the same issue of this journal appears an article by Saquépée, Pilod and Jude, who report the results of the use of associated vaccines (antidiphtheria, antitetanic and antityphoparatyphoid) in 418 cases. It was found that 99.58 per cent were immunized against diphtheria eight days after the last injection. Ten per cent of these persons became receptive again about ten months later and were given a second injection.

#### BERLIN

(From Our Regular Correspondent)

Feb. 16, 1937.

#### The Investigation of Goiter and Cretinism in Bavaria

This investigation was initiated ten years ago by the German Institute of Psychiatric Research of Munich. As Dr. Lang of the institute staff reports, the districts studied were primarily those in which there was a high incidence of goiter and cretinism. Statistical and genealogical data were first collected, records being made of some 1,700 mentally deficient persons and their family trees established. It was revealed as an incontestable fact that within the districts surveyed feeble-mindedness unaccompanied by external signs of cretinism was more prevalent than cretinism itself (the term "cretinism" is here taken to include both the cretin and the cretinoid types). Feeble-mindedness without external signs of cretinism was found to be extremely common among the siblings of cretin and cretinoid subjects. Conversely, cretinism was encountered with far more relative frequency among the siblings of feeble-minded persons who presented no somatic anomalies than among the population of the districts investigated as a whole. Full cretins exhibiting no mental deficiency were seen on rare occasions. The persons studied represented the whole gamut of transitional types, from the classic cretin through the severe and mild cretinoid to the feeble-minded person without physical defects. It follows that the forms of feeble-mindedness encountered in a zone of goiter and cretinism must be in great measure influenced by the noxa which gives rise to these diseases. Specific predispositions conducing to cretinism may be considered nonexistent, the more so since among the parents whose offspring are cretins or feeble-minded the incidence of intermarriage was found to

be no greater than among the population as a whole. After studying the regional distribution of the endemic disorders mentioned, Dr. Lang traced a progressive increase in incidence from the southern and western section of the region toward the northern and eastern sections. This fact, together with consideration of such geological phenomena as weathering of soil, led to the setting up of a so-called soil decomposition theory of endemic goiter, cretinism and feeble-mindedness. This theory is based almost entirely on the physical factors underlying the production of a soil in which the noxa of goiter is present. Systematic computations have revealed a clear interrelation between the radioactivity of a soil and of the ground-air and the severity of endemic goiter. It was furthermore disclosed that besides the quantitative difference in the content of ground-air emanations there is also a qualitative difference; in severely affected goiter zones a greater quantity of radon is found, in goiter-free regions more thoron is found. These facts were elicited from investigation of various districts in the Alpine and other mountainous regions of Germany. The high values of the radioactive elements in the atmosphere of many sections of the northerly calcareous Alps, values that seemed virtually inexplicable from the geological point of view, were explained as due to the strikingly high percentage of radioactive minerals encountered in those areas.

Since it seemed improbable that radioactivity of water, in contrast to that of air, could play any part in the origin of endemic goiter, few determinations with regard to the radioactivity of water were attempted. Examinations of soil specimens spoke against the theory of iodine deficiency. In various districts the respective populations of which were unequally affected with goiter, experimentation with white rats was undertaken. These animals received an abundantly varied regimen especially rich in iodine and vitamins; all the food products were imported from completely goiter-free areas. The water and the hygienic surroundings conformed to these conditions. The rats accordingly received nothing indigenous to the place of experiment except the air they breathed, nor had they any direct contact with the ground. Nevertheless, in from three to five months goiter made its appearance among the animals and especially among those which were being kept within an exceptionally well defined goiter zone.

For the past two years the following type of experiment has been carried on at a place located within a well known goiter zone. Rats are shut up in a cage and receive a supply of air from which the local emanation has been removed. According to the theory underlying these as yet unfinished tests, the animals should remain free from goiter.

Should proofs be forthcoming that the natural radioactivity of air and soil are the decisive etiologic factors in endemic goiter and its accompanying phenomena, any basic attack on this type of noxa will, of course, be a task of more than ordinary difficulty. Still there remains the hypothetical possibility that the amount of emanation escaping from the ground may be diminished by mixing with the soil in question large quantities of organic matter. Preliminary experimentation along this line is in progress.

#### Cerebral Abscesses and Their Treatment

The Parisian surgeon Clovis Vincent recently discussed cerebral abscesses and their treatment before the Berlin Medical Society. He described a new surgical treatment of intraparenchymatous abscess of the cerebral hemisphere. His point of departure was the practical observation that, if life is imperiled by a brain abscess, the edema that forms in the neighborhood of the abscess is more largely responsible than the general infection. This edema may lead to an increased pressure on the brain and to the compression of vitally important centers. Consequently, the next consideration after localization of the abscess focus is how this compression may be



## WISCONSIN

**State Board of Health Elects.**—Dr. John J. Seelman, Milwaukee, was chosen president-elect of the state board of health at a recent meeting; Dr. Joseph Dean, Madison, became president and Dr. Mina B. Glasier, Bloomington, vice president.

**Personal.**—Dr. Harry V. Gibson, Fairchild, has been appointed health officer of a new unit organized in Eau Claire County, one of three demonstration units set up with state and federal funds.—Dr. John P. Koehler, Milwaukee health commissioner, recently celebrated the twentieth anniversary of his entrance into public health work in Milwaukee. He joined the staff in 1917 as school physician and became deputy health commissioner in 1918, but resigned in 1920 to do other work. In 1925 he was made health commissioner.—Dr. Edward R. Krumbiegel, Milwaukee, has been appointed head of the division of contagious diseases in the Milwaukee Health Department, succeeding the late Dr. Robert E. Hickey.

## WYOMING

**Annual Registration Due April 1.**—All practitioners of medicine and surgery licensed to practice in Wyoming are required by law to register on or before April 1 with the secretary of the board of medical examiners and to pay a fee of \$2.50. If a licensee fails to pay the fee within three months after April 1, his license can be annulled, and if annulled it will be reinstated only on his paying the stated fee, plus \$5 as a penalty.

## GENERAL

**Negro Health Week.**—The twenty-third annual observance of National Negro Health Week will be held April 4-11. "The Health Agency and Its Relation to the Community" is the topic for 1937.

**Another Fraudulent Salesman.**—Physicians are warned to beware of a man who gives the name H. G. Gabel of Aurora, Ill. He claims to be the owner of the "Illinois Products and Chemical Co." and sells bottles to physicians. According to information received by the American Medical Association, this man delivers the first order and collects for it, but collects for the second and does not deliver.

**Sectional Meeting on Physical Therapy.**—The American Congress of Physical Therapy will hold a sectional meeting at Newark, N. J., April 2, in cooperation with the New York and Pennsylvania Physical Therapy societies, the Essex County Medical Society and the Academy of Medicine of Northern New Jersey. The speakers will include Drs. Richard Kovacs, New York, on "Development and Uses of Present Methods of Electrotherapy"; Albert A. Martucci, Philadelphia, "Treatment of Painful Bursae About the Shoulder"; Grant E. Ward, Baltimore, "Present Status of Electrosurgery," and Charles F. McCarty, Brooklyn, "Economics of Physical Medicine."

**American Association of Anatomists.**—The fifty-third session of the American Association of Anatomists will be held at the University of Toronto, March 25-27. Headquarters will be at the Royal York Hotel. On the program of 150 papers a few of the speakers are:

Dr. C. U. Ariens Kappers, University of Amsterdam, Holland, The Hypothalamic Autonomic Centers.  
Dr. Herbert S. Gasser, Rockefeller Institute for Medical Research, New York, Physiology of the Neuron (introduction to a symposium).  
Dr. Robert R. Bensley, Chicago, Distribution of Lipids in Protoplasm and Their Relation to Its Constitution.  
Dr. Wingate Todd, Cleveland, Criteria of Age Changes in the Growing Body.  
Dr. Ian MacLaren Thompson, Winnipeg, Manit., Experimental Human Anatomy, Exemplified by Cutaneous Innervation.  
Richard E. Scammon, Ph.D., Minneapolis, The Quantitative Method in Anatomical Research.  
Dr. Jacob Parsons Schaeffer, Philadelphia, The Problems of Variation.  
Dr. George L. Streeter, Baltimore, Carnegie Institution of Washington, A Genetic Factor in Development of Bone.  
Edgar Allen, Ph.D., Dr. George M. Smith and William U. Gardner, Ph.D., New Haven, Conn., Growth of Ovaries and Genital Tract in Response to Hormones as Studied by the Colchicine Technique.  
Robert Gaunt, New York, and Warren O. Nelson, Detroit, The Adrenal-Pituitary Relationship in Lactation.

Dr. Frederick T. Lewis, Boston, president of the association, will deliver his official address at a dinner Friday evening at the Royal York, on "The Fundamentals of Cell Shape."

**Women's Field Army for Cancer Control.**—The American Society for the Control of Cancer announces that the recently organized Women's Field Army will conduct an intensive campaign for members during the week of March 21-27. Organization is already under way in thirty-eight states under the direction of Mrs. Grace Morrison Poole, dean of Stoneleigh College, Rye Beach, N. H., a former president of the General Federation of Women's Clubs, and Mrs. Marjorie B. Illig, Onset, Mass., chairman of the National Health Division of the federation of women's clubs. Members will pay \$1 each, which will be placed in a fund to be distributed by the central

office of the society, as follows: 70 per cent to the state executive committee to be spent locally, 20 per cent to the central office in New York for expenses involved in the field, and 10 per cent to a contingent fund. The "army" will be organized with the following units: state executive committee composed of the cancer committee of the state medical society and the state commander; state advisory board composed of the executive committee and influential persons it selects; a state commander; vice commanders; state women's division composed of the commanders and representatives of women's organizations; captains, lieutenants and local units. Through meetings, radio, newspapers and magazines, exhibits and distribution of literature an educational campaign will be launched.

**International Fever Therapy Conference in New York.**—The First International Conference on Fever Therapy will be held at the Waldorf-Astoria, New York, March 29-31. Dr. Willard C. Rappleye, dean of Columbia University College of Physicians and Surgeons, will welcome the conference; Prof. Pierre Abrami, professor of clinical medicine, University of Paris, will respond, and a message will be presented from Prof. Julius Wagner-Jauregg, Vienna, who is honorary chairman of the conference. Among foreign speakers on the program will be:

Dr. Charles Richet Jr., Paris, Posology of Therapeutic Fever.  
Dr. Charles Gernez, Lille, France, Physiology of Fever.  
Prof. Constantin Levaditi, Paris, Experimental Pathology.  
Dr. Henri Claude, Paris, Psychiatry.  
Dr. Albert Bessenans, Ghent, Belgium, Experimental Pathology (in a program on syphilis).  
Dr. Americo Valerio, Rio de Janeiro, Fever Therapy in Chronic Infectious Gonorrhea.

American physicians who will present papers include:

Dr. Stafford L. Warren, Rochester, N. Y., Chloride Balance in Artificial Fever Therapy.  
Drs. Franklin G. Ebaugh, Clarke H. Barnacle and Jack R. Ewalt, Denver, Psychiatric Aspects of Artificial Fever Therapy.  
Dr. Frank W. Hartman, Detroit, Pathologic Changes Produced by Artificial Fever Therapy in Animals and Man.  
Dr. Clarence A. Neymann and Mr. S. L. Osborne, Chicago, Electropexia in Rheumatic Endocarditis, Chorea and Certain Other Childhood Conditions.  
Drs. Abram E. Bennett and Paul T. Cash, Omaha, Relief of Neuritic Pain by Artificial Fever Therapy Obtained in Forty Cases.  
Drs. Leland E. Hinsie and Joseph R. Blalock, New York, Serology in General Paralysis of the Insane Following Treatment.  
Drs. Walter M. Simpson and Herbert Worley Kendall, Dayton, Ohio, Treatment of Syphilis with Artificial Fever Combined with Chemotherapy.  
Dr. William Bierman, New York, Treatment of Gonorrhea in Women by Means of Combined Systemic and Additive Local Heat.  
Drs. Truman G. Schnabel and Ferdinand Fetter, Philadelphia, Fever Therapy in Gonococcal Arthritis.

The first day's meeting will be at the College of Physicians and Surgeons of Columbia University and the remaining days at the Waldorf-Astoria, where exhibits and displays of apparatus will be on view.

**Meetings in Chicago.**—The American Association of Pathologists and Bacteriologists, the American Association of Immunologists, the American Association for Cancer Research and the American and Canadian section of the International Association of Medical Museums will hold their annual meetings March 24-26 at Northwestern University Medical School, Chicago. At the session of the pathologists and bacteriologists March 25-26, the speakers will include:

Dr. Carl V. Weller, Ann Arbor, Mich., The Intrinsic Factor in the Genesis of Tumors.  
Dr. Simeon Burt Wolbach, Boston, The Immediate Response to Carcinogenic Chemicals.  
Dr. Francis Peyton Rous, New York, Relation of Filtrable Agents to Tumor Formation.  
Dr. Leo Loeb, St. Louis, Sex Hormones and Their Relation to Tumors.  
Dr. Thomas Francis Jr., New York, Action of Immune Serum on the Influenza Virus in Vitro.  
Dr. Elexious T. Bell, Minneapolis, Tubular Disease of the Kidneys.

The association of immunologists will meet jointly with the pathologists and bacteriologists Thursday morning March 25. Other speakers on its program, which begins March 24, will be:

Dr. Harry S. Eagle, Baltimore, Rapid Detoxication of Diphtheria Toxin by Diazo Compounds and by Formaldehyde.  
Dr. Edward C. Rosenow, Rochester, Minn., Studies on the Etiology of the Current Epidemic of Influenza.  
Dr. Sanford B. Hooker, Boston, The Nature of Antibody (presidential address).

The association for cancer research will meet March 24. Twenty-eight papers will be read, including the following:

Clarence C. Little, Sc.D., Bar Harbor, Me., Genetics of Tumors and of Other Structural Abnormalities in the C57 Black Strain of Mice.  
Miss Maud Slye, Chicago, The Genetics of Cancer.  
Dr. Shields Warren and Lloyd C. Fogg, Ph.D., Boston, Cytoplasmic Changes Induced by Radiation of Various Wavelengths.

At the session of the association of medical museums, March 24, a feature will be a symposium on "The Use of Gross Specimens in the Teaching of Pathology," presented by Drs. James S. McCartney, Minneapolis; William C. von Glahn, New York; Howard T. Karsner, Cleveland, and Edward B. Krumbhaar, Philadelphia.

ing to age here shows considerable correspondence. The commitment to an asylum comes for the women patients only about six months later than for the men. This phenomenon is all the more striking because the establishment of the previous venereal infection, which underlies this type of insanity, presents considerably greater variation as between men and women.

## MOSCOW

(From Our Regular Correspondent)

Feb. 2, 1937.

### The Second All-Union Conference of Psychiatrists

The second All-Union Conference of Neuropathologists and Psychiatrists was held in the Moscow Polytechnical Museum Dec. 25-29, 1936. About 250 delegates and more than a thousand guests were present. The principal topics were (1) organization of neuropsychiatric aid, (2) clinical symptoms and treatment of skull injuries, (3) brain tumors and (4) treatment of schizophrenia.

Prof. N. N. Burdenko, in his report on the second problem, noted that most injuries of the skull and brain get well quicker and with less complications without surgical intervention. Prof. L. E. Omorokov of Kazan stated that 16 per cent of all brain injuries result in epilepsy. He cured a number of epileptic patients by introducing air into the ventricles of the brain where it was missing. After this treatment, epileptic fits became much more rare.

The third paper was read by Professor Nikitin of Leningrad. A lively discussion was held on the question of surgical intervention. Professor Burdenko contended that not all brain tumors must be operated on. The operation must be done only when the patient is reasonably sure of being returned to work in a normal condition.

The fourth and fifth days of the conference were devoted to the diagnosis and treatment of schizophrenia. This question was discussed by Prof. V. A. Giliarovsky of Moscow, V. P. Osipov of Leningrad, V. A. Vnukov of Moscow, M. I. Sereysky of Moscow and many others. Professor Ostankov of Moscow noted that schizophrenia is far from being as common as it is now diagnosed. This diagnosis has been made too easily by neurologists and psychiatrists without enough justification. Many physicians now diagnose as "reactive status" many conditions that formerly were in the same range as schizophrenia. This means that the disease is not as frequent as many experienced physicians think.

The sleeping treatment of schizophrenia, introduced by the late I. P. Pavlov, was discussed by Prof. A. S. Ivanov-Smolensky of Leningrad. If cortical nerve cells are strongly stimulated for a prolonged period they go into a state of inhibition. Pavlov concluded that in cases of stupor there exists a diffusely spread stimulation in the central nervous system. This inhibition preserves nerve cells from destruction. Thus the sleep method was elaborated. It consists in putting the patient to sleep for from five to twelve and a half days by narcosis.

Most specialists, among them Professor Kornfeld of Moscow, formerly of Berlin, who described mild cases of this psychopathic condition nine years ago, stated that the sleep treatment is most promising. Others proposed insulin treatment and infection of the patient with malaria.

The conference was closed after this prolonged discussion. G. N. Kaminsky, the commissar of health, stated in his address that a number of new modern hospitals and other institutions for psychiatric patients will be built in the near future. There is a great deal of improvement to be made, and the demands of this conference for temporary improvements will be met immediately. The conference elected a committee after deciding to set up a permanent organization of neuropathologists and psychiatrists. M. B. Krol was chosen chairman.

## Artificial Abortion

The People's Commissariat of Health published a list of medical indications for the operation of artificial abortion. These include fifteen severe diseases. However, permission must be granted for performing the operation. The pregnant woman must be examined by a commission of three physicians, working under the auspices of health departments. If they cannot arrive at a conclusion about the pregnant woman's disease, she must be sent for detailed examination to a suitable medical institution. There is a special tax for abortion calculated from the cost of the operation and maintenance of the patient. In case a woman enters a hospital with symptoms of an illegal abortion, the doctor is required to register the fact and give detailed information to the prosecuting magistrate.

## Some Facts About Health Improvement

Research work on mother and child protection is concentrated in seventeen special institutes, with a central one in Moscow. As supplementary places there are special sanatoriums, maternity institutions, homes for orphans or abandoned children up to 1 year of age and children's homes for those over 1 year. These numerous establishments have helped to decrease the mortality rate.

The improvement in health conditions of adults is illustrated by some facts about the Red Army, presented in the accompanying table.

*Compare Measurements of Soldiers in  
Tsarist and Red Armies*

	Average Weight	Average Height	Chest Circumference
Tsarist army	128-140 lbs.	5 ft. 3.9 inches-5 ft. 4.20 inches	32.4-34.10 inches
Red army....	143.5-151 lbs.	5 ft. 5.5 inches-5 ft. 6.25 inches	34.5-39.55 inches

In the first six months of 1936 there were 200 cases of small-pox, compared with 72,000 registered cases in 1913. Malaria was reduced by from 30 to 35 per cent during the first half of 1936, compared with the same period of 1935. Cases of spotted fever were reduced to a tenth of what they were in 1933.

## Soviet Medical News in Brief

In the Union of Socialist Soviet Republics there are 42,000 women physicians, comprising about half of all the doctors in the country. Only 2,000 of them were educated prior to the revolution. More than 11,000 women work in various research institutes, a figure equal to 29 per cent of the total number of workers in these institutes.

According to the government decree of June 27, 1936, there were recorded up to Nov. 1, 1936, about 129,000 mothers having seven children and more who must receive state aid. In Moscow Province 8,396 mothers have seven children, 3,125 have eight, 944 have nine, 295 have ten and seventy-three have eleven.

## The Fight Against Colds

The Medical Council and the People's Commissariat of Health called a meeting, Nov. 14-16, 1936, to consider measures for combating the common cold.

Dr. A. A. Smorodintzev from the Leningrad Pasteur Institute made a report on the rôle of the filtrable viruses in colds. He succeeded in obtaining from patients a filtrable virus, which produced in pigs, on inoculation of the respiratory tract, a disease similar to colds. There is observed a great increase in pneumococci and Pfeiffer bacilli in the pharynx in the first days of the disease.

November 15, Prof. D. M. Rossijsky spoke about the prevention and treatment of colds. Vaccines for this purpose give poor results, probably because the etiology of colds is unknown. The meeting passed a resolution recommending routine prophylaxis.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb. 20, 1937.

#### National Advisory Councils

It is proposed to appoint two national advisory councils, one for England and Wales, the other for Scotland, whose duty it will be to survey the field of physical training and to advise on the needs of development and how they can best be met. They will suggest means of publicity and propaganda. Each national advisory council will be composed of about thirty men and women selected for their knowledge of the work of local authorities and of national voluntary bodies. A grants committee, consisting of three members, will receive and examine applications for grants.

#### LOCAL COMMITTEES

It is proposed to promote the establishment of local committees consisting of representatives of the local educational authorities, voluntary bodies and others who have special knowledge and experience. On the local committees will largely depend the creation of an active public interest and the encouragement of assistance from voluntary and other sources.

#### THE NATIONAL TRAINING COLLEGE

The National Training College, to be established, will be for the training of leaders to organize recreational physical training, but it should ultimately influence the conduct of physical education of all kinds throughout the country. It is contemplated that the college should investigate some of the problems connected with the physiology of physical training. While the training of teachers for the schools will not be one of its main functions, it will be used to help to make good any deficiency in the supply of teachers trained in the use of gymnastic apparatus. Although women are not excluded from the college, its main function will be to train men, as there are already specialist colleges of physical training for women.

#### Rejection of Bill Concerning Professional Secrets

In England no such right of professional secrecy as exists in France is recognized by the law. In the House of Commons Sir Ernest Graham-Little (dermatologist and representative of London University) moved the second reading of the medical practitioners' communications (privilege) bill. He said that the protection asked for had been rendered necessary by what had occurred in the last twenty years. In 1916 the Royal Commission on Venereal Diseases demonstrated that special measures were necessary to combat these diseases. The government took up the recommendations and made a series of regulations. The commission stressed the importance of secrecy in the arrangements made to combat venereal diseases and the necessity of the patient being assured of secrecy. At the hospital with which Sir Ernest was connected there was a special officer who kept a secret register of the patients treated. The case had occurred of a pathologist who was cited at an assize court and refused to produce documents or give evidence. The judge ruled that physicians were normally under the duty of keeping inviolate the knowledge which they might acquire in treating patients and indeed might become liable to civil action if without lawful excuse they broke that confidence, but in a court of law a physician had no privilege similar to that of a lawyer. The whole gamut of medical practice was now becoming invaded by the state and therefore it was not only venereal diseases that were concerned. The whole trend of public health administration was to get early and efficient treatment. In no case was this more important than in the prevention of maternal mortality. The highest incidence was among young unmarried mothers. If they had no confidence in professional secrecy

they would say nothing about their condition and the system of antepartum treatment would be impaired. The only alternative for the physician who refused to give evidence in court was to base his refusal on medical privilege and submit to imprisonment. That course was recommended to him by the great body of professional opinion in the country.

For the government Solicitor General O'Connor opposed the bill. He said that there were a few cases in which greater injustice might be done by requiring the truth than by permitting it to be withheld, such as matters between man and wife, the evidence of judges and jurymen as to what had taken place when they were acting judicially, state secrets, and matters in which decency forbade disclosure. The only other case at all analogous to the one put forward for the bill was that of communications between a client and his lawyer. But here it was the privilege of the client and not of the lawyer to withhold information. The bill contained no definition of privilege. Was it of the physician or the patient? He was inclined to think that it was of the physician. If anything like the bill was passed there would be some remarkable consequences. Supposing a person found dying of assault told a physician who had done it, the bill gave the physician a privilege against disclosure. Supposing a physician was called to a case of criminal abortion and learned who induced it, the bill would prevent him from doing his duty as a citizen and telling the police. In divorce cases many wives obtained relief from an intolerable burden because they had been able to find the physician who had been treating their husband. There was hardly any branch of the law, civil or criminal, in which the bill, if passed, would not impede the administration of justice. The motion for rejection was agreed to.

#### Inquiry Into the Decline of Population

Though statisticians have shown for some years that the decline of our population is imminent, only recently has the fact received much public attention. It has at least become a subject of debate in the House of Commons. Mr. Cartland moved a resolution that the tendency to decline may constitute a danger to the British Empire and to the economic well being of the nation and requesting the government to institute an inquiry. He said that experts agreed that our population was bound to fall within twenty years. The birth rate had been falling steadily since 1875. It was true that there had been at the same time an increase of population, but that was due almost entirely to a remarkable fall in the death rate. Within three years we should be faced with the fact that the number of births for the first time would no longer exceed the deaths. In the next eight years there would be half a million fewer juveniles available for employment. Under the housing scheme 1,000,000 new houses per annum were being provided. With the present decline of population the housing need in twenty years would drop to 4,500. The empire had reached the edge of an abyss.

Mr. Sandys, who seconded, said that the present English birth rate was such as to lose one fourth of the population in a generation. The main reason for the decline was the spreading knowledge and practice of birth control. From the point of view of defense, a great empire whose population was declining and also, on the average, growing older, was peculiarly vulnerable to attack. The most serious problem was the standard of living. A period would be reached when a decreasing number of workers would have to support an increasing number of old people. There were two remedies. Birth control could be made illegal, but in the opinion of most people that would be a retrograde step. The other course was to alter the social and economic conditions so as to make people want to have larger families. (This gave rise to cheers from the labor party.) Among the reasons why people did not wish to have many children was the cost of education. Those who could not afford it felt that their social status required them to send their

## Deaths

**William Alanson White**, an Associate Fellow of the American Medical Association, medical superintendent of St. Elizabeths Hospital since 1903, and since 1904 professor of psychiatry at the George Washington University School of Medicine, Washington, D. C., died March 7, of pneumonia and influenza, aged 67, in his apartment at the hospital.

Dr. White was born in Brooklyn, Jan. 24, 1870. He was educated in the public schools of Brooklyn and at Cornell University; received a medical degree from Long Island College Hospital, Brooklyn, in 1891; was ambulance surgeon and house surgeon, Alms and Work House, Blackwell's Island, N. Y., house physician and surgeon, Long Island College Hospital, Brooklyn, assistant physician at the Binghamton (N. Y.) State Hospital in 1892 and resigned as first assistant physician in 1903 to become superintendent of St. Elizabeths, then known as the Government Hospital for the Insane. He was formerly a professor of nervous and mental diseases at Georgetown University School of Medicine and clinical professor of neurology at George Washington, and was first lecturer on military psychiatry at the army and navy medical schools.

Dr. White was a fellow of the American College of Physicians, a member of the Association for Research in Nervous and Mental Disease and the American Neurological Association, a member and past president of the American Psychoanalytic Association, the American Psychiatric Association and the American Psychopathological Association, and past president of the Society of Mental Hygiene of the District of Columbia. Dr. White was also a member of the administrative board of the Institute of Child Guidance of the Commonwealth Fund, New York, the executive committee of the National Committee for Mental Hygiene, the Federal Board of Hospitalization, the Washington Academy of Sciences and the American Medico-Psychological Association. In 1930 he was president of the first International Congress on Mental Hygiene and in 1932 was president of the governing board of the International Committee for Mental Hygiene.

Dr. White was the author of numerous works on neurology and psychiatry, among which were "Outlines of Psychiatry," "Mental Mechanisms," "Mechanisms of Character Formation" and "Principles of Mental Hygiene"; co-author with Dr. Smith E. Jelliffe of "Diseases of the Nervous System"; co-author with Dr. Morris Fishbein of "Why Men Fail"; editor and translator with Dr. Jelliffe of "The Psychic Treatment of Nervous Disorders" in 1905, editor with Dr. Jelliffe of a series of monographs on nervous and mental diseases and of two volumes of "Modern Treatment of Nervous and Mental Diseases" and editor of the *Psychoanalytic Review*. He was awarded honorary degrees by Georgetown University in 1925, Washington University, St. Louis, in 1932, Boston University in 1936 and George Washington University in 1937. In 1929 he gave the Kober Lecture at Georgetown University and in 1935 the Salmon Lectures of the New York Academy of Medicine.

As a pioneer in the field of psychology and psychiatry, a brilliant teacher, an inspiration to young men and the builder of a great institution along humanitarian lines, Dr. White will long be remembered.

**Frederick Julius Gaenslen** Member of the Council on Physical Therapy of the American Medical Association from 1931 to 1936, died, March 11, at his home in Milwaukee, aged 59. Dr. Gaenslen was born in Milwaukee, Dec. 7, 1877. He received the bachelor of science degree from the University of Wisconsin in 1899 and the medical degree from Johns Hopkins University School of Medicine, Baltimore, in 1903. After his internship at the German Hospital, now known as the Lenox Hill Hospital, New York, from 1903 to 1906, he engaged in general practice in Milwaukee from 1906 to 1912, when he began specializing in orthopedic surgery. Later he became director of the department of orthopedic surgery and associate professor at the Marquette University School of Medicine, Milwaukee; since 1925 he had been professor of orthopedic surgery at the University of Wisconsin Medical School, Madison. During the five and one-half years as a member of the Council on Physical Therapy, he served as vice chairman, chairman of the Committee on Orthopedic Appliances, on Scientific Exhibit, and also as a member of the Committee on Advertising, the Editorial Committee and the Committee on Education. He was an orthopedic surgeon to the Columbia and Milwaukee hospitals and consulting orthopedic surgeon to the Milwaukee Children's Hospital. Dr. Gaenslen was chairman of the Section on Orthopedic Surgery of the American Medical Association, 1924-1925, a member and

past president of the American Orthopedic Association and the State Medical Society of Wisconsin, a member of the American Academy of Orthopedic Surgeons and the Clinical Orthopedic Society, and a fellow of the American College of Surgeons. In his chosen specialty he was widely known for his geniality, his scientific contributions and as an inspirer of young men to high ideals and scientific advancement. He gave freely of his time and his efforts to many public and scientific causes.

**Augustus Warren Crane** Kalamazoo, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; fellow of the American College of Physicians; member and in 1916 president of the American Roentgen Ray Society, member of the Radiological Society of North America and the American College of Radiology; honorary member of the London Roentgen Ray Society; past president of the Kalamazoo Academy of Medicine and the Michigan Association of Radiologists; formerly member of the National Research Council; awarded a gold medal in 1921 by the Radiological Society of North America; acting editor of the *American Journal of Roentgenology*, 1917-1918, and later a member of the editorial board; both the University of Michigan and Kalamazoo College conferred honorary degrees on him; chairman of the Kalamazoo county section of the Michigan State Committee of Medical Preparedness and a member of the Michigan Medical Advisory Board during the World War; aged 68; died suddenly, February 20, of coronary thrombosis.

**Frank Yuba Gilbert** Portland, Maine; Medical School of Maine, Portland, 1901; member of the House of Delegates of the American Medical Association, 1914, 1917, 1919, 1927 and 1930; member of the American Academy of Ophthalmology and Oto-Laryngology and the New England Ophthalmological Society; president of the Maine Medical Association in 1928; served during the World War; attending specialist in diseases of the ear, nose and throat at the U. S. Marine Hospital; on the staff of the Maine Eye and Ear Infirmary and a member of the examining board of the U. S. Veterans' Bureau; founder and editor of the *Maine Medical Journal*, 1910-1930; aged 58; died, January 18, in Augusta of heart disease.

**Eugene Kibbey Green**, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1903; fellow of the American College of Surgeons; member of the Minnesota State Medical Association; president of the Hennepin County Medical Society in 1918; clinical assistant at the University of Minnesota Medical School, 1905-1909, and an assistant in surgery, 1911-1916; on the staff of the Hill Crest Surgical Hospital and the Asbury Hospital; aged 66; died, January 22, in Pasadena, Calif., of coronary occlusion.

**Samuel Kirkpatrick** Selma, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; past president of the Medical Association of the State of Alabama and the Dallas County Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; aged 71; on the staffs of the Southern Railroad, the Burwell Infirmary and the Vaughan Memorial Hospital, where he died, January 6, of heart disease.

**William Brooks La Force**, Pasadena, Calif.; Chicago Medical College, 1891; fellow of the American College of Surgeons; formerly professor of pathology and gynecology at the Keokuk (Ia.) Medical College and professor at the Tsing Hua College, Peiping, China; formerly on the staff of the Ottumwa (Ia.) Hospital; aged 69; died, Dec. 2, 1936, of injuries received in a fall during a storm, while aboard the liner *President Lincoln*, en route home from Yokohama.

**Orval Meleher Dickerson**, Cairo, Ill.; Jefferson Medical College of Philadelphia, 1910; member of the Illinois State Medical Society; past president of the Alexander County Medical Society; on the staff of St. Mary's Hospital; at one time county coroner; formerly district health officer of Alexander, Pulaski and Union counties; aged 55; died suddenly, January 18, of angina pectoris.

**George Bache Emory** Morristown, N. J.; Columbia University College of Physicians and Surgeons, New York, 1905; served during the World War; on the staff of the Morristown Memorial Hospital; formerly on the staff of the Newark Memorial and St. Michael's hospitals, Newark; aged 57; died, January 14, of subacute bacterial endocarditis and *Streptococcus viridans* infection.

**Warren Daniel Miller** Hagerstown, Md.; College of Physicians and Surgeons, Baltimore, 1907; past president of the Washington County Medical Society; on the staff of the Washington County Hospital; aged 56; died, January 16, in the Union Memorial Hospital, Baltimore, of carcinoma of the transverse colon, perforation of the colon and peritonitis.

Article 6. If, as the result of adequate information, the public health authorities consider an individual as probably having a venereal disease, such a person can be required to produce a medical certificate stating that he or she has an active venereal disease or one that is subject to relapse. This notice by the authorities must be kept secret. The certificate can be given only by a physician selected by the patient from an approved list. Other certificates in the same case can be demanded by the authorities at regular intervals. Those of whom such certificates are demanded, must keep the public health (local) officers informed as to their former and present addresses.

Article 7. A jail sentence of from fifteen to ninety days and a fine of from 1,000 to 5,000 francs will be inflicted for any of the following offenses:

(a) Every woman who nurses a child, not her own, if she knows that she has a venereal disease.

(b) Every individual who permits a syphilitic infant, of which he or she is the guardian, to be nursed by any person not its mother, unless a physician has been notified as to the necessary precautions to be taken.

(c) Every individual who knowingly allows a syphilitic infant to be nursed without informing the wetnurse of the existence of the syphilis in the infant.

Article 8. A jail sentence of three months and/or a fine of from 1,000 to 5,000 francs:

(a) For a wetnurse who nurses an infant other than her own, without having received a medical certificate, dating from a period immediately prior to the wetnursing, to the effect that the infant to be nursed is not syphilitic.

(b) For every person who confides an infant to a wetnurse without asking for a medical certificate as in the preceding paragraph.

(c) For every person, except in an emergency, who allows a wetnurse to nurse an infant who is in the charge of said individual, without being sure that a medical certificate has been issued as in the first paragraph of this article.

Section 3.—*Examinations and Obligatory Treatment.*—[Note by correspondent: The surveillance of prostitutes is to be taken out of the hands of the morals police and placed in those of the public health authorities. This is hailed as constituting a decided step in advance. There have been many complaints regarding collusion between the "morals" police and keepers of houses of prostitution as well as those engaged in the white slave traffic.]

Article 9. If a tribunal (justice court) has been notified of the fact by the public health authorities that a given prostitute has a venereal disease, the court can order the accused to submit to clinical, bacteriologic and serologic examination, but such person cannot be detained for more than twelve hours.

Article 10. Any person who, as the result of the aforesaid examination, is found to be afflicted with a venereal disease either in an active stage or subject to recurrences, will be obliged to submit to appropriate treatment. The latter must be carried out either in a dispensary or by a physician who is on a list approved by the public health authorities.

Articles 11 and 12. A person, notified of the existence of a venereal disease, who does not agree to be treated as outlined in article 10, will be conducted to a public or private institution in order to be given the necessary care.

Article 13. If, while under treatment, the individual leaves the institution without being authorized to do so, a penalty of from six days to three months of prison will be inflicted.

#### Endometriomas of the Ovary

At the Dec. 2, 1936, meeting of the Académie de chirurgie, two cases of ovarian endometrioma were reported by Brocq and Palmer. They stated that reports of about 100 cases had been published in foreign and only four in French journals.

Endometriomas of the ovary are usually recognized at laparotomy, either no preoperative diagnosis having been made or the tumor having been found during operations for other lesions. In the first of the two cases that formed the basis of the communication, the patient was 24 years of age and her complaints were dysmenorrhea and pain on defecation. On bimanual examination a hard, smooth nodule the size of an almond could be felt in the rectovaginal septum. A preoperative diagnosis of endometrioma was based on the history of pain beginning just before menstruation accompanied by severe pain in the rectum during defecation. At operation, the left ovary containing two large cysts and an endometrioma located beneath the mucous membrane of the posterior vaginal fornix were removed. The second patient was 58 years of age and the history was that of an acute appendicitis which had not been operated on. Six weeks later, when first seen by the authors, a diagnosis of torsion of the pedicle of a right ovarian cyst was made. This was confirmed at operation. Microscopic study of the removed ovary revealed the existence of a benign proliferation of tubules of the endometrial type. Sixty per cent of endometriomas are found in the ovary, quite often in both ovaries and associated with a tumor of the same type, situated in the culdesac of Douglas, as in Brocq and Palmer's first case. Endometriomas are characterized by their tendency to form fairly large hemorrhagic cysts as well as by the rupture, often recurrent, of cysts with tarlike contents accompanied by symptoms like those of a pelvic peritonitis, followed by adhesions. Like endometriomas elsewhere, those of the ovary are found during the period of its maximum activity. In taking the previous history of such patients, one notes the frequency of abortions, genital infections and operations for fibroids or retroversion. In some cases the tumors are latent and are found accidentally during operations for other conditions. In others, however, the symptoms are so marked that a tentative or even positive preoperative diagnosis can be made. Hemorrhages into the cysts occur during menstruation and, in proportion to the increase in tension within the cyst, there is an increase in pain. If the cyst ruptures, the symptoms of a pelvic peritonitis often follow such an incident. After cessation of the menstrual period, the contents of the cyst are absorbed; but all the symptoms recur with increasing intensity at each successive menstruation.

The clinical diagnosis can be made from: 1. A dysmenorrhea appearing late during the menstrual period; this is the most typical symptom of an endometrioma but is not specific for an endometrioma of the ovary. 2. Attacks of pelvic peritonitis during or immediately after menstruation as indicative of the rupture of the ovarian cysts with "tarry" contents. 3. Frequent menorrhagias, when not due to uterine myomas. 4. Primary or secondary sterility, which is almost constantly observed. 5. The physical signs are those of adnexal disease but suspicion should be aroused if the pain increases toward the end of menstruation. Hence it is advisable to make another bimanual examination as soon as possible after the menstrual period. 6. If there is no adnexal mass to be felt, the presence of a small, slightly nodular, firm nodule in the culdesac of Douglas is of frequent occurrence in endometrioma of the ovary. If during a laparotomy one suspects the existence of an ovarian endometrioma, a biopsy is indicated. If a frozen section reveals the presence of the specific microscopic elements of an endometrioma, viz., cylindric epithelium like that of the endometrium, a typical cytogenous chorion and numerous macrophages, it is advisable to remove both ovaries to avoid spread to adjacent portions of the pelvis. If there is danger of injury to the bladder, ureter or intestine during removal of secondary growths, it is better judgment to abandon the attempt to remove all the tumors and to resort to postoperative irradiation to prevent recurrences.



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### SENSITIVITY TO BUTESIN PICRATE

To the Editor:—I have recently recovered from a severe dermatitis of my face which I believe due to butesin picrate, which I had been using on a patient at the time. Will you kindly inform me as to the frequency of this particular sensitivity and whether this dermatitis occurs in any particular form? Is there any method of desensitization for this and its relative compounds or must contact be carefully avoided? Please omit name.

M.D., New Jersey.

ANSWER.—Butesin picrate ointment is frequently applied to denuded areas of skin; it is especially used to cover burns, including sunburn. It is a chemical combination containing 63 per cent butesin (dinormalbutyl-*p*-aminobenzoate trinitrophenol) and 37 per cent trinitrophenol (picric acid). It was placed on the market about 1926 and in 1929 Pusey and Rattner (*Arch. Dermat. & Syph.* 19:917 [June] 1929) reported the first case of dermatitis from butesin picrate and stated that they knew of two other susceptible individuals. Their patient applied the ointment to skin burned by a mustard plaster and immediately the dermatitis was intensified. An acute weeping vesiculobullous eruption was present for several days and cleared when the ointment was stopped and 0.5 per cent aluminum acetate solution was applied, followed by a cold cream containing zinc oxide. The dermatitis reappeared one week later when the patient put on the dress worn the first time the butesin picrate ointment had been used. On removal of the dress and similar treatment as before, the dermatitis cleared up quickly. Patch tests with butesin picrate were refused by the patient.

In 1930 Jackson (*Arch. Dermat. & Syph.* 21:40 [Jan.] 1930) reported five cases of dermatitis, two due to butesin picrate ointment and three to trinitrophenol solution. In one of the patients sensitive to trinitrophenol, a nurse who handled this in the operating room and who was cured by removal from contact with the acid, a patch test with trinitrophenol was followed quickly by a severe local and generalized erythematous and vesicular eruption, which did not heal for several days. One of the patients had a severe and prompt eruption, also erythematous and vesicular, following the use of butesin picrate ointment for itching hemorrhoids; a secondary eruption followed in two or three days.

Kelly (*Kentucky M. J.* 30:516 [Sept.] 1932) reported four more cases due to butesin picrate ointment, two applied by the author and two self applied. In one patient, a woman of 26, the ointment was used for a burn of the fingers and reapplied daily for three days. An acute weeping vesiculobullous dermatitis resulted, with marked itching and burning. After the skin had healed, a patch or contact test was applied to a clear area of the skin and ten hours later an erythematous vesicular eruption 3 inches wide developed; the next day the lesion was one huge bulla. Kelly points out that butesin picrate ointment may be very treacherous and advises preliminary patch testing when the ointment is to be applied extensively. He also states that there are many cases of dermatitis from an alcoholic solution of trinitrophenol used in preparing the operative field; watery solutions are not so irritating.

Also Fox (*Arch. Dermat. & Syph.* 26:44 [July] 1932) told of a laborer whose abrasions of the leg were treated by butesin picrate ointment. That night there was considerable burning and itching, and during the next few days the skin of a large part of the body became inflamed and scaly and the patient was hospitalized. Later a patch test with the ointment was followed by a severe local erythema and vesiculation, which lasted several days.

Sulzberger and Wise (*Arch. Dermat. & Syph.* 28:461 [Oct.] 1933) discussed the subject fully and reported four additional cases of dermatitis due to butesin picrate. These were similar to those already quoted with the exception that in the first patient the ointment was applied to a burn on the arm each day for one week; the dermatitis began one week after the ointment had been stopped and was associated with marked edema of both arms; the site of the burn was not involved. Ten days later a severe pruritus developed all over the body, and healing was not complete for two months after the ointment was stopped. Patch tests were strongly positive for butesin picrate ointment and also for 1 per cent butesin solution in alcohol.

Tests were negative for trinitrophenol, 1 per cent solution benzoic acid and 1 per cent solution salicylic acid; there was a mild positive reaction to 1 per cent ethyl aminobenzoate solution. In their second case, dermatitis began ten days after the use of the ointment had been stopped; again the site of the burn was spared. Patch tests were positive for both the butesin picrate ointment and 1 per cent alcoholic solution and also for trinitrophenol. In the third case dermatitis developed ten days after the first application of butesin picrate ointment. Patch tests were again strongly positive for all three and were followed by a severe generalized dermatitis, which lasted ten days. In the fourth case a severe generalized dermatitis followed application of butesin picrate ointment for pruritus vulvae; patch tests were strongly positive for the ointment and the skin did not heal for three weeks.

Sulzberger and Wise point out that in eczematous drug eruptions the epidermis is probably the seat of sensitivity, the reaction is a dermatitis eczematosa, and contact or patch tests are of great aid. They believe that the title "dermatitis eczematosa due to drugs" is correct, as it does not imply a certain manner of contact and thus includes all eczematous drug eruptions, whether the drug reaches the skin from without or from within. They also state that butesin leads to a follicular eruption with marked edema and pruritus and little erythema; the rash persists several weeks. Trinitrophenol, they state, causes a diffuse and often severe erythema with vesiculation that desquamates and heals quickly. They believe that their cases showed not only a dermatitis venenata, resulting from external contact, but also a dermatitis medicamentosa due to absorption and hematogeneous distribution, thus explaining the secondary widespread pruritus and dermatitis.

Josef Jadassohn (*Zur Kenntnis der medicamentosen Dermatosen*, Vienna, Wilhelm Braumüller, 1896) was the first to employ patch tests, and Bruno Bloch (*Arch. Dermat. & Syph.* 19:175 [Feb.] 1929) has shown that all drugs that lead to an eczematous and vesiculating type of eruption can usually be discovered by patch or contact tests.

These cases illustrate the fact that dermatitis from butesin picrate ointment is not infrequent, that an alcoholic extract of trinitrophenol may also cause a dermatitis in susceptible individuals, and that patch or contact tests should be done cautiously because generalized reactions may follow. A few hours' exposure at most is sufficient. That dermatitis from butesin picrate is infrequent is indicated by statistics from the Inland Steel Company showing that a dermatitis develops in only about one in 6,000 cases.

The treatment consists of prompt removal of the ointment; it may be advisable to wash out the area with olive oil or liquid petrolatum. Any soothing application may follow. Attempts at desensitization have not been reported; avoidance is usually quite simple. In susceptible individuals, many substitutes are available.

### BLOOD COAGULATION TESTS BEFORE TONSILLECTOMY

To the Editor:—Please give a brief general discussion of clinical methods of reducing bleeding and clotting times as applied to the individual who is not suffering from any detectable disease. Is it advisable to do routine bleeding and clotting tests preceding tonsillectomy? When either of these times is found to be prolonged, what steps should be taken? Is any preparation given orally after the operation of value in stopping post-tonsillectomy bleeding? Is calcium by mouth helpful? Is cyanthyn by mouth effective? Have any of the commercial injection products been proved effective? Please omit name. M.D., New York.

ANSWER.—A discussion of prolonged bleeding and clotting time in what appear to be otherwise normal persons would not be complete unless the method of determining the bleeding or coagulating time is taken into consideration.

By bleeding time is meant the time necessary for a small cut to stop bleeding. The mechanism involved in this cessation of bleeding includes among a number of factors those pertaining to capillary permeability, substances in the tissue juices and the blood platelets. The size of the incision, squeezing the site, and so on affect the amount and character of the tissue juices and hence interfere with the reliability of the test.

By coagulation time is meant the time required for blood withdrawn by one method or another to coagulate in vitro. The ordinary capillary tube or watch crystal or glass slide methods are not reliable because of the variable factors due to evaporation, to squeezing the cut region to obtain an adequate amount of blood (thereby adding additional tissue juices), and to the difficulty of getting absolutely clean glassware. The best manner of determining coagulation time is by some method such as Howell's, wherein an amount of blood is withdrawn by needle and syringe from a vein and allowed to stand in a test tube until a clot is formed. The time required depends on the

relieved. Vincent has already carried out a procedure to relieve pressure in twelve cases. The astonishing thing about the therapeutic course of these cases was that as soon as the compression was relieved the menacing general symptoms (cachexia, anorexia, vertigo and headache) completely disappeared and a distinct period of convalescence began. So extensive was the subjective improvement that the patients felt themselves cured. No indication of a cerebral process could be detected from a neurologic-objective standpoint in some of the cases, despite the fact that the abscess was still present.

To relieve the pressure it was not necessary to open the dura but merely to effect a more extensive fenestration of the *sineiput*. Puncture of the abscess was performed only in those cases in which the abscess itself by its great extent gave rise to the phenomena of compression. As soon as the formation of a regular abscess membrane had taken place (generally within three to four weeks) the abscess in toto was extirpated at a second intervention. By this method the danger of a meningitis produced by the purulent discharge from the opened abscess is avoided. In the majority of cases the cranium can then be closed without drainage; the wounds heal nearly always by first intention. Only one of the twelve cases ended fatally, whereas it was possible to bring all the others to recovery.

After commenting on Vincent's report, Albrecht added that on the basis of experiments at the neurologic clinic of Berlin University a precise localization of a cerebral process was almost unexceptionally to be undertaken. Albrecht cautioned against the dangers of encephalography and pointed out the significance of alterations in the cerebrospinal fluid, such as the increased number of cells, the increased protein content and the alterations in the curve in the colloidal gold test.

Sauerbruch laid strong emphasis on the fact that an acute cerebral abscess may exhibit all the signs of a typical inflammation in other organs. In abscess cases an expeditious drainage of the pus is indicated, particularly if phlegmon and meningitis are manifested. Hence Vincent's procedure, while not to be depreciated, ought unqualifiedly to be confined to those chronic cases in which the suppurative foci tend to encapsulate.

#### Data on the Misuse of Soporifics

Since about 1925 an increase in the misuse of soporific drugs has been noted and latterly some interesting data in this connection have been made public.

Pohlisch and Panse have collected extensive illustrative statistical material with regard to the situation in Berlin, where single cases of poisoning from the use of soporifics increased fourfold between 1925 and 1932. Observed cases of chronic misuse of these drugs increased eightfold during the same period. By 1932 the misuse of soporifics had already become as prevalent among women as addiction to morphine and considerably more prevalent than alcoholism. There were an increasing number of reports of deliriums and hallucinations following chronic abuse of sleep-producing drugs; especially common were cases of phanodorn psychoses. One case of status epilepticus was reported which terminated fatally during a phanodorn delirium. The trend seems to have continued through 1934. On the basis of these data it was concluded that the number of soporifics is too great and that fewer of them ought to be prescribed.

Certain data are available also from the district covered by the psychopathic hospital at Bonn. Schubert reports that the number of habitual addictions to soporifics has steadily increased since 1929. Their percental proportion of the average total of 1,100 patients at the Bonn institution amounted in the years from 1925 to 1929 to zero, but up to 1935 it had risen steadily to 1.1 per cent and had therewith already exceeded the percentage of morphine addicts, which was 0.7. From Jan. 1, 1929, to Nov. 1, 1936, thirty-seven cases of chronic misuse of sleeping drugs were recorded. These were distributed accord-

ing to the drug misused as follows: phanodorn, thirteen cases; phenobarbital, five cases; barbital, three cases; bromural, two cases; one case each involving respectively allonal, noctal, chloral hydrate and optalidon, and finally ten cases in which more than one medicament was misused. Psychotic manifestations, after addiction of long duration, took place in ten of the thirty-seven cases and in each of these ten cases the symptoms assumed an aspect of delirium. There were five such cases among the thirteen phanodorn addicts alone. One of the latter died during a psychotic state from subacute yellow atrophy of the liver. It is worth noting that in four cases manifestations of phanodorn delirium were preceded by epileptic attacks.

#### Interval Between Onset of Symptoms and the Beginning of Treatment in Mental Disease

Medical statistics supply as a rule only summary data and do not permit the course of a disease adequately to be considered in its chronological aspect. The sick insurance groups have an economic interest in such information, especially as it bears on the length of time spent in hospital and incapacity for work. Accordingly they have established bases for estimating these things. Data on the duration of a disorder prior to the initiation of regular therapy are of importance. Despite the difficulties incident to such an undertaking, Dr. Pohlen of the German national health bureau has attempted an evaluation of the periods of time that elapse between the manifestation of the initial symptom of mental disorders and the beginning of asylum care. He has worked out a method for the determination of this average interval. Because of the individual character of mental cases, the clinical beginning of the disorder must, for purposes of statistical evaluation, be considered to date from the day on which the first symptoms were plainly manifested. Hence, what Pohlen has essayed is not a true delimitation of the course of mental disease but only an estimate of its duration as manifested externally; namely, from the onset of symptoms to the beginning of institutional therapy. His conclusions may be summarized as follows:

In idiocy and imbecility, the initial symptoms are generally in evidence at a relatively early age. The condition of more than 50 per cent of male and nearly 50 per cent of female idiots and imbeciles is diagnosed before the end of the fifteenth year of life. Feeble-mindedness is usually determined somewhat later (2.4 years on the average) among women than among men. Likewise the time at which the first institutional treatment is initiated is about one year later for women than for men. The average interval between the onset of symptoms and the initial treatment at an institution is 12.5 years for men, 11.2 years for women. It is worthy of note that among women over the age of 60 no first symptoms are manifested nor is any first institutional care introduced. The great preponderance of idiots and imbeciles are persons in the younger age groups.

In cases of insanity on a constitutional basis, the sexual variation between the corresponding time interval is slight enough, only 3.9 years for men and only 3.2 years for women. In manic depressive insanity the intervals are 3.1 years for men, 2.6 years for women.

In paranoia (paranoic reactions and paranoic development) the mean interval is comparatively small: 3.2 years for men, 6.5 years for women.

Dementia praecox is a strongly marked disease of younger persons between the ages of 15 and 35. The average interval is here relatively brief: 3.5 years for men, 3.7 years for women.

In epileptic insanity the average interval amounts to 8.8 years for men, 13.6 years for women. It is to be remarked that the first symptoms of this disease are observed in women earlier by an average of 6.5 years than in men.

In insanity based on syphilis, the average interval for men is only 1.1 years, for women 2 years. The distribution accord-

continuance of urinary shreds, however, the irrigations are stopped usually after the first four or six weeks. The patient presents himself with urine in his bladder, passes a small quantity in one glass, has his prostate massaged, and passes the rest of his urine. If microscopic study of the prostatic secretion does not show a steady decrease in the number of pus cells per high power field, the patient is searched for tooth or tonsillar infections to make sure that the residual prostatitis is not of focal infective origin. The proofs of cure are those generally employed for any type of infection.

#### COPPER POISONING IN INDUSTRY

*To the Editor:*—Certain patients (who are under my care) with the complaints of burning and soreness of the eyes and irritation of the throat are exposed to dust particles in the air composed primarily of cuprous oxide. This dust results from the use of cuprode in greenhouses to prevent fungous diseases of plants. I would appreciate any information you can give relative to the irritation factor or danger in using cuprous oxide.

M.D., Illinois.

**ANSWER.**—This reply deals with cuprous oxide in general and not with any particular trade brand. Although the copper ion is toxic, systemic copper poisoning in industry is either nonexistent or occurs with rarity. Several occurrences of so-called copper poisoning later have proved to be attributable to arsenic, lead or other toxic metals associated with the copper. This applies to some dermatoses attributed to copper which with greater likelihood may have been produced by arsenic. On the other hand, some skin disorders properly have been traced to copper as the source. Green discoloration of the skin and hair frequently arises among copper workers in various trades. So far as is known, this condition constitutes no proof of damage from copper. Various copper salts and other compounds, including cuprous oxide, have been associated with mild dermatosis as the cause. In the case of cuprous oxide it appears that exposure to this substance in very minute particle size leads to greater irritation than from the same salt in larger particle ranges. Conjunctivitis has been observed. Also, inhalation of cuprous oxide in fine powder is known to induce low grade respiratory tract inflammation. These conditions have appeared among workers treating the hulls of ships with copper salts for the purpose of repelling parasites that otherwise might attach themselves to the ships. In greenhouse work, common practice makes use of several fungicides and insecticides. In addition, various plants found in some greenhouses may give rise to the symptoms mentioned in this query through allergic action. If these other possibilities can be eliminated, it becomes reasonable to regard the cuprous oxide as the source of the inflammation described. Even so, the condition produced is not of a serious nature, so far as is known, and speedily clears up on the cessation of exposure.

#### PATHOLOGY OF EIGHTH NERVE DEAFNESS IN CONGENITAL SYPHILIS

*To the Editor:*—What is the pathology of eighth nerve deafness in congenital syphilis? In the literature and in books on this subject, the following factors have been cited: a localized meningitis, disease of the labyrinth itself, periostitis and osteitis of the bony labyrinth. Please omit name.

M.D., California.

**ANSWER.**—A pregnant woman suffering from active (secondary) syphilis may deliver prematurely, or if she goes to term the child may be stillborn. If the child is born alive its chances for survival are much impaired. In each of these instances severe active secondary syphilis in the fetus or infant is common.

The temporal bones of such children have been studied by a number of investigators. The pathology appears to be part of a generalized syphilitic meningitis and involves the membranes about the eighth nerve. They are furthermore involved as they dip inward with the perineurium to divide the nerve into bundles as far even as the endoneurium (Mackenzie).

The spirochete in addition to its presence elsewhere has been found between the nerve fibers, in the periosteal dural sheaths as far as the porous acusticus internus, and also in the acoustic ganglion.

The syphilitic infiltration may also involve the labyrinth. Such children, if they survive and are deaf, will present signs of inner ear or auditory nerve type. The static labyrinth is, as a rule, involved in these cases also and is not excitable.

There is another form of congenital syphilitic involvement of the inner ear wherein the evidences of syphilis are absent at birth but become manifest from five to twenty years later. The parents, or the mother at least, at the time of birth suffered from a later form of syphilis than in the first type of case.

Along with the deafness, these children manifest other signs of hereditary syphilis; i. e., one or more of the stigmas of Hutchinson.

Pathologic studies in this group of cases have been infrequent. Mayer reports two cases and states that only three others have been thoroughly studied. He classifies changes presented as (1) osteomyelitis gummosa, (2) periostitis gummosa and (3) syphilitic periostitis productiva (nongummatous).

Among the special sites of involvement are the cochlea, in which military gummas may be seen in the endosteum of the scalae and the ligamentum spirale.

The semicircular canals may be the site of a productive periostitis; subperiosteal gummas are seen in the internal meatus, and the auditory nerve may become atrophied as the result of round cell infiltration.

The bony capsule of the labyrinth may be the site of a diffuse osteomyelitic process leading to defects and erosions of the capsule.

Following are references:

- Mayer, Otto: Pathologic Changes in the Ear Organ from Lues Congenita Tarda, *Ztschr. f. Hals-, Nasen- u. Ohrenh.* 37:2 (Oct.) 1934.  
Mackenzie, Alice V.: Deafness of Luetic Origin, with Report of Cases, 75th Anniversary Volume of the Woman's Medical College of Pennsylvania, 1926.  
Mackenzie, G. W.: The Differentiation of Neurolabyrinthitis Syphilitica and Labyrinthitis Syphilitica Tarda, *Ann. Otol., Rhin. & Laryng.* 32:847 (Sept.) 1923.  
Gruenberg: Ueber Spirocheten: Befunde im Felsenbein eines luetischen Fetus, *Ztschr. f. Ohrenh.* 73:223, 1911.

#### CARDIOVASCULAR INJURY AFTER ELECTRIC SHOCK

*To the Editor:*—A man, aged 56, was rendered unconscious eighteen months ago with an electric charge having a voltage of about 750, coming from a radio amplifier. He was unconscious about fifteen minutes, apparently recovered, and then went into symptoms of collapse, difficult breathing and cold perspiration. A condition developed which the family physician called "threatened pneumonia." This lasted ten days. Burns of both hands took three months to heal. Pains in the chest have never left him; they are worse on deep breathing. The arms tire easily; he cannot hold a cup of tea early in the morning. X-ray examination of the chest and abdomen is negative; a cardiograph is negative; the reflexes are normal or slightly overactive; the patient's sexual life is normal; the Wassermann reaction of the blood and spinal fluid is negative. The patient was exceptionally active and athletic and healthy previous to the accident. At present there is marked clubbing of the fingers; the condition of the suspended hand is nearly cyanotic, with blanching of the elevated one. The pulse with the patient resting is 80. After twice squatting and twice touching his toes, the patient has marked labored breathing but the pulse is elevated to only 84. The hands are always clammy. The blood pressure is 160 systolic, 90 diastolic. The temperature is 98. There are marked "habit spasms" of the muscles of the face. Could the electric current have caused capillary changes to account for the clubbing of the fingers, or could there have been damage to the autonomic nerve fibers of this part of the body which might cause the circulatory disturbances noted? At present the condition seems permanent and is disabling. Can you suggest treatment? What other information can you give me regarding results of electric shock of this type. Please omit name.

M.D., Canada.

**ANSWER.**—Cardiovascular damage following electric injuries in some measure depends on the path traversed by the electric current, particularly if the brain is included. High blood pressure is more likely to follow electrical accidents involving injury to the vasomotor centers in the brain. Ventricular fibrillations in nonfatal accidents more commonly arise when the brain was not included in the route of the current. In the vicinity of local electrical burns, direct damage to the blood vessel walls may account for circulatory disturbances during and after the healing process. In the present instance, it is inferred from reference to burns on both hands that the course of the current did not include the head. Nonfatal accidents in which ventricular fibrillation reflects the injury to the heart are more often associated with low tension current as in this case. However, both high and low tensions may lead to fibrillation. The alternating current is much more dangerous than the direct. It is believed that, in as many as 90 per cent of fatal accidents, cardiac fibrillation takes place whether or not this is recognized. The nature of the persistent damage in the heart may best be determined by electrocardiographic examination. In animal experiments, fibrillation following electric shocks has been successfully treated through the administration of potassium chloride. Little use of this drug has been made in connection with human cases. In part this is due to the lack of availability at the time of direful electrical accidents; in part, however, it is due to the recognition that potassium chloride in itself is a dangerous agent.

The clubbed fingers mentioned in the query are commonly associated with a variety of cardiac lesions unrelated to damage from electricity, but conceivably they might be associated with chronic cardiac damage inaugurated by electrical injury.

lactic measures of a hygienic character, including cotton masks for the medical staff and patients with light forms of infection, and physical therapy and ultraviolet irradiation to raise the protective forces. Methenamine and quinine in small doses possibly are effective as a prophylactic. For the treatment of colds the meeting recommended rest in bed, symptomatic therapy, methenamine, salicylates and quinine preparations in various combinations.

### BUENOS AIRES

(From Our Regular Correspondent)

Feb. 13, 1937.

#### Politics in Scientific Matters

Dr. C. Robertson Lavalle has treated, for a long time, tuberculosis of the bones by means of implantation of a graft, which is taken from the tibia or the fibula. He used to make a perforation at the spot corresponding to the main tuberculous focus, followed by implantation of the bone splint in the area left by the perforation. According to Robertson Lavalle, the implanted bone splint stimulates the local circulation, which induces healing of the tuberculous lesion. Robertson Lavalle applied the method also with the same technic to pulmonary tuberculosis. He has modified his technic and with a trocar perforates ocular, peritoneal, laryngeal, lupus, pulmonary and bone tuberculosis with the aim of opening the main tuberculous focus. Dr. Lavalle is at present professor of surgical pathology in the Faculty of Medicine of the University of Buenos Aires and an elective member of the board of directors of the faculty. The board is an administrative body. Nevertheless he asked Dean Arce, who belongs to the same political party in the university, to request from the government the creation of a surgical clinic for application of his method. Dean Arce appointed a committee made up of Drs. R. Argañaraz, R. Donovan, E. Castaño, J. A. Saralegin, A. B. Zambrini, L. Facio and C. Fonso Gandolfo to study the method and give an opinion as to its value. The members of the committee reported that the method is harmless and of a simple technic and also that it gives satisfactory results. The faculty asked the executive branch of the government for the creation of a clinic of surgery under direction of Dr. Lavalle. A deputy presented the same project to the house of representatives. The majority of physicians are of the opinion that scientific matters should be solved through discussion in scientific centers rather than through political influences.

#### The Construction of a New Medical School

Dean Arce of the Faculty of Medicine of the University of Buenos Aires, and a deputy, presented a project to the house of representatives for construction of a new clinical hospital and a new building of the Faculty of Medicine on three of the four blocks which belong to the university. The project was neither approved nor rejected in the house but left for a further study. Dr. Arce asked then the approval of his project by the executive branch of the government, which approved it. The buildings of the clinical hospital and of the Faculty of Medicine will be demolished. One of the lots will be made into a public garden and the other will be for the construction of a building for the National Library. Dr. Arce's idea of demolishing the faculty before constructing the new building met with general opposition. A board of ten architects was appointed and they were asked to present plans within thirty days for construction of the buildings. According to general opinion, the time given to the architects for the preparation of the plans is short; they need more time to present acceptable plans, and the opportunity to share in the plans should be given to all and not just a few of the architects in Buenos Aires. Of the preliminary architectural plans for the building of the Faculty of Medicine, the one that obtained the prize

called for a nineteen story building, whereas after that the height of the building was limited to 40 meters. The School of Odontology, on the other hand, will be a nineteen story building and will have more than twenty lecture rooms. By the projects presented to the government the expense of constructing the building of the Faculty of Medicine and the polyclinics will be 100,000,000 pesos (\$27,000,000). Many editorial articles have been published in the press against the project. The house of representatives, in approving the bill, allowed a total amount of 25,000,000 pesos (\$7,000,000) and asked for new plans which should be presented before July of the present year. The plans ordered by the faculty will deal with 4,000 students in the Faculty of Medicine and 3,000 students in the School of Odontology.

#### A New Curriculum—Teachers Reduced

The new plan for medical studies was recently approved by the Faculty of Medicine. The entire course will cover seven years. The basic cycle includes histology and anatomy in the first year, physiology in the second and parasitology in the third. The preclinic cycle includes semeiology, pathologic anatomy and microbiology in the fourth year and pathology, surgery, toxicology, pharmacology and therapeutics in the fifth year. The clinic cycle includes clinical work in medicine, surgery, pediatrics, puericulture, obstetrics and nutritional diseases, as well as orthopedics, otorhinolaryngology, ophthalmology, dermatosyphilography, neurology, urology, gynecology, roentgenology, physical therapy and legal medicine. The faculty complains of lack of funds. For this reason the number of teachers was cut down 43 per cent. Nevertheless new chairs have been created. There were two teachers of obstetrics and two of semeiology. There are now four for each of the subjects. There are also a chair for teaching of nutritional diseases and four assistant professors of surgical semeiology. Two new chairs for teaching neurosurgery and the history of medicine are going to be established in the near future. The school of odontology recently established six chairs and will have in the near future two more chairs for teaching metallurgy and surgery of the mouth.

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## Marriages

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CHARLES DANE, South Orange, N. J., to Miss Madeline Louise Noyes of Arlington, Mass., Dec. 21, 1936.

ANTHONY RUPPERSBERG JR., Columbus, Ohio, to Miss Adele Isabel Gustites of Philadelphia, Nov. 26, 1936.

JOHN STEPHEN CLEMANS, Gloversville, N. Y., to Miss Alice Ryder Durham of Norfolk, Va., Dec. 5, 1936.

ALBERT McCANDLESS, Sylvan Lake, Mich., to Mrs. Emma Mae Chapman of Manatee, Fla., Dec. 2, 1936.

CORNELIUS S. FRANCKLE, St. Petersburg, Fla., to Miss Ruth Travers of Millville, N. J., Dec. 26, 1936.

WILLIAM H. FLYTHE, Norwood, Ohio, to Miss Doris Elizabeth Fenner of Plymouth, Dec. 25, 1936.

LEE EDWARD FARR, New York, to Miss Anne Minerva Ritter of Beverly Hills, Calif., Dec. 28, 1936.

CLARENCE PAUL CAMERON, Fayetteville, N. C., to Miss Vivian Lebo of Elkton, Md., Dec. 24, 1936.

EDWARD PARKER DENNIS to Miss Mildred Torrance, both of Erie, Pa., February 21.

MATHEW R. FURMAN to Miss Juliet Blume, both of New York, Dec. 24, 1936.

MILTON H. MILLER to Miss Regina Goldman, both of New York, Dec. 6, 1936.

JAMES J. COLLINS to Miss Alice Connor, both of Galena, Ill., January 4.

LOUIE T. CARL to Miss Dora Bishop, both of Memphis, Tenn., Dec. 19, 1936.

## LATENT GONORRHEAL INFECTION

*To the Editor:*—A married woman, aged 33, of excellent habits, was infected with gonorrhea by her husband at 21 years of age. She had a stormy time, lasting eight weeks. The adnexa were affected early, accompanied by a profuse discharge, high temperature and pulse, and extreme lower abdominal pain, particularly on the left side. Following the abdominal acquiescence she was treated for a time and pronounced apparently cured. In the intervening twelve years she had two or three mild flareups, consisting of lower abdominal pain of short duration. During each of these attacks she was examined by a competent gynecologist and pronounced free from any palpable abdominal masses. The past attack dates back five years. During these years she has never conceived; she suffers severe sick headaches either before, during or after her menstrual periods, which are regular, of the twenty-eight day cycle, lasting six days, with little, if any, abdominal pain. About July 7, 1936, she noticed a slight vaginal discharge. As this was five days before her menstrual period, I attributed the discharge to it. July 12, the first day of menstruation, she waded into the ocean and was struck by a wave just high enough to wet her as high as the lower part of the abdomen. The following day she developed pain in the lower part of the abdomen. Whether there was a vaginal discharge she could not tell, menstruation having been fully established by this time. I first saw her July 20, at which time the pain and tenderness were extreme, aggravated by walking or riding in trolley cars. The vaginal discharge was profuse. There were no chills or fever. Bimanual examination was out of the question on account of the pain. However, a cervical smear was obtained very gently and proved positive for gonorrhea. So was a urethral smear. Granted that this condition is not the result of a recent infection acquired extramaritally, and I have good reason to believe it is not, would you kindly render an opinion as to the probable cause. Could a flareup of the twelve year old infection manifest itself at such a late date in just such fashion as described, with no apparent exciting cause? Could her husband have reinfecting her, having himself been a carrier? And could she have been reinfecting by the same man, by the same species of gonococci, granting, of course, that he himself has not been recently infected? Please omit name and address.

M.D., Pennsylvania.

*ANSWER.*—In histories such as described, it is found most commonly that the husband has a recent infection, and when the patient has had a previous infection there may be little or no urethral discharge and the centrifuged sediment of the urine, as well as the prostatic secretion, should be examined for gonococci. It is not stated whether the husband has had such an examination.

There are instances in which it is reasonably certain that the infection is not acquired extramaritally, but it is possible in extremely rare instances that there might be an accidental infection through an intermediate exudate even though it is not generally accepted as a source of infection in the female after puberty.

As regards the duration of the carrier state, it is becoming increasingly evident that such conditions persist longer than is generally supposed but seldom longer than two years in an individual who has remained continent, although there have been instances reported of exacerbation of active clinical infection after twenty to thirty years. In the instance cited, assuming that neither husband nor wife has had an extramarital exposure, it would seem likely that both parties have had a subclinical infection during a greater part of the twelve year period, each infecting the other at intervals frequent enough to prevent cure in both parties. Therefore, unless the husband has recently become spontaneously cured, there should still exist a subclinical or latent infection, and it is advisable that he have a careful examination, including smears, cultures and the complement fixation test.

## EFFECTS OF DISSIMILAR METALS IN TOOTH FILLINGS

*To the Editor:*—A source of endless inquiry by patients concerns effects of dissimilar metals in teeth. To me it seems mostly nonsense. Please give the public and me a chance to meet this kind of stuff authentically. Please omit name.

M.D., Louisiana.

*ANSWER.*—It has long been suspected that dissimilar metals in the mouth in the presence of an electrolyte such as saliva result in the generation of small electric currents, which probably constitute a source of irritation to the oral mucous membranes. Recent observations, both clinical and experimental, tend to confirm this view. It has been noted that localized patches of leukoplakia have formed exactly opposite two teeth containing fillings of dissimilar metals. Actual changes in electrical potential has also been observed in such patients by fine measurements. Clinical and experimental evidence, therefore, combine to cast suspicion on the presence of dissimilar metals in the mouth in relation to oral cancer. If further studies prove this to be correct, it will be established that this is only one more form of irritation. Much more research will

be required to confirm these observations and to determine the precise rôle of this factor in the genesis of precancerous and cancerous lesions of the mouth.

## CHRONIC INDURATED SWELLING OF LIP

*To the Editor:*—A woman, aged 45, has a hard indurated swelling of the upper lip and the nose. She has had it since girlhood and it seems to be getting worse as she grows older. Often the swelling extends into the cheeks. She has a low-grade fever whenever the swelling is present. It comes and goes, lasting from two to three weeks at a time. She had all her upper teeth extracted and there has been no relief. I feel that the condition is due to some disturbance of the lymphatics. What causes the condition and what can I do about it? I have suggested rest and hot or cold application of epsom salt. In the past it has been diagnosed as erysipelas, but I do not think it is. Please omit name.

M.D., California.

*ANSWER.*—The symptoms might be due to a number of conditions. Among these might be considered chronic infection of some of the sinuses of the nose, particularly the ethmoid sinus, which could be determined only by a competent specialist. Roentgenograms are usually quite satisfactory in ruling out infection of the other sinuses except the sphenoid.

It is quite possible that it is recurring erysipelas, in which case one should be able to obtain a streptococcus from cultures of the nose or skin around it. Since this is associated with a lymphangitis, it would be a very probable cause. Immunization through the use of the toxin has proved of value but should be done by one expert in the preparation and dosage of the toxin. Stock preparations might be tried if a streptococcus should be found to be the cause.

Because of the associated fever and course of the attacks, it is not likely that it is due to an angioneurotic edema. However a vasomotor disturbance from infection, external irritant or ingested foods that produce an allergic reaction should be considered. The use of epinephrine, the nitrites and some calcium preparation might be tried. A complete blood count during an attack would help in determining an infectious origin.

## LIPOID METABOLISM—XANTHOMATOSIS

*To the Editor:*—A white man, aged 51, with no knowledge of any constitutional disease and no gout, born in Pennsylvania of German-English ancestry, has been a bank clerk since leaving school, living a sedentary life with little inclination to get much active exercise. He has always enjoyed large quantities of rich food. Alcohol, tobacco, tea and coffee have been used in limited quantity. Twenty years ago he had a tumor back of the right eye and within the lower part of the skull. It was treated surgically and left a discharging sinus for many years. This tumor was benign and believed to have been the result of a cerebral blood clot. During the past fifteen years he has had attacks of painful joints of the feet and elbow, repeatedly diagnosed as rheumatism. He is married and has a healthy daughter and son. Formerly he was rather corpulent, weighing from 205 to 221 pounds (93 to 100 Kg.) but during the past six months he has lost weight down to 185 pounds (84 Kg.). The blood counts are normal, the blood sugar is normal and the uric acid of the blood ranges from 5 to 7 mg. per hundred cubic centimeters. The blood pressure is 210 systolic, 155 diastolic. The left side of the heart is hypertrophied. The patient has arteriosclerosis, a high grade albuminuria, a dry parched mouth and throat, attacks of gastric distress, and tumors over the metatarsal joints, tendon sheath, right index finger and left elbow. The tumor of the left elbow joint was removed and found to contain cholesterol instead of the expected sodium urate. Roentgenograms of the feet, hands and elbow show areas of rarefaction believed to be sodium urate infiltrations. The pathologist further reported that the elbow tumor is an instance of xanthoma nodosum multiplex. The patient suffers greatly from insomnia, attacks of abdominal distress and dyspnea. Treatment has consisted of rest, fluids, salines, a low purine diet, and morphine when required for gastric and abdominal distress. Could there be both a faulty metabolism of fats and nucleoproteins? Is it possible that this condition has resulted from a lack of an internal secretion similar to the insulin of the pancreas in diabetes?

ARTHUR R. RIKLI, M.D., Naperville, Ill.

*ANSWER.*—The finding of a high blood uric acid is indeed suggestive of gout. However, the observation that the tumor removed from the left elbow consisted of cholesterol instead of the expected sodium urate should direct attention to the possibility of one of the diseases of lipid metabolism. Aside from the age of the patient and the length of his medical history, the description is not inconsistent with one of the unclassified essential xanthomatoses similar to Hand-Schüller-Christian's disease. In these conditions there is a widespread deposition of lipid (usually cholesterol esters) containing cells within the bone marrow and widely distributed all over the skeletal system. The skin and the internal organs may be involved to a varying degree. The deposition of the lipid is followed by a granulomatous reaction. It is interesting to speculate whether the tumor removed from the eye and skull



**Wilmer Weir McGrath** • Savannah, Ill.; Central Medical College of St. Joseph, Mo.; 1896; formerly mayor; past president of the Carroll County Medical Society; on the staff of the Savannah City Hospital; aged 67; was found dead, January 9, of injuries and exposure due to a fall on an icy road while going for assistance after his car stalled.

**Louis David Green** • San Francisco; Denver and Gross College of Medicine, 1909; member of the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; aged 54; part owner of Green's Eye Hospital, where he died, January 14.

**Arthur Winfield Nunnery**, Chickasha, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1916; member of the Oklahoma State Medical Association; past president of the Grady County Medical Society; county health officer; on the staff of the General Hospital; aged 47; died, January 11, of coronary occlusion.

**William N. Johnson**, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1883; served during the World War; aged 78; for many years on the staff of the Germantown Hospital and Dispensary, where he died, January 22, of cerebral thrombosis and bronchopneumonia.

**Thomas Charles O'Connor Jr.** • Lodi, Calif.; University of California Medical School, San Francisco, 1927; past president of the San Joaquin County Medical Society; formerly superintendent of the Bret Harte Sanatorium, Murphy; aged 43; died, January 13, of a self-inflicted bullet wound.

**Charles Elder Lindsay**, Chicago; University of Illinois College of Medicine, Chicago, 1914; served during the World War; on the staff of the Illinois Central Hospital; aged 49; died, January 22, of influenza, bronchopneumonia, cerebral hemorrhage and mitral stenosis.

**Thomas G. Burke**, Roanoke, Va.; Medical Department of the University of Alabama, Mobile, 1902; member of the Medical Society of Virginia; aged 59; died suddenly, Dec. 25, 1936, in Richmond.

**Joseph G. Leiter**, Brooklyn; Bellevue Hospital Medical College, New York, 1888; member of the Medical Society of the State of New York; on the staff of St. Mary's Hospital; aged 72; died, January 16, of arteriosclerosis and coronary artery thrombosis.

**Albert Knight Dunlap** • Sacramento, Calif.; Jefferson Medical College of Philadelphia, 1916; formerly superintendent of the Sacramento County Hospital; aged 47; died, January 19, in the Sutter Hospital, of chronic valvular disease of the heart.

**James Edward McIntyre** • Tremont, Ill. (licensed in Illinois in 1891); formerly bank president, mayor, president of the high school board and county physician; aged 75; died, January 14, in the Methodist Hospital, Peoria, of lobar pneumonia.

**Albert Chester Keener**, Altona, Ill.; Northwestern University Medical School, Chicago, 1910; past president of the Knox County Medical Society; aged 63; died, January 10, in St. Mary's Hospital, Galesburg, of injuries received in a fall.

**John E. O'Neill**, Henryton, Md.; University of Maryland School of Medicine, Baltimore, 1910; medical director and superintendent of the Maryland Tuberculosis Sanatorium; aged 62; died, Dec. 31, 1936, of uremia and coronary thrombosis.

**Charles Pomeroy Opdyke**, Verona, N. J.; New York Homeopathic Medical College and Hospital, 1889; member of the Medical Society of New Jersey; aged 74; died, January 21, of cerebral thrombosis and arteriosclerosis.

**Robert Taylor Canon** • Lufkin, Texas; Jefferson Medical College of Philadelphia, 1893; health officer of Lufkin; on the staff of the Angelina County Hospital; aged 69; died, January 2, of coronary occlusion.

**Percy E. Kylo** • Hanover, N. M.; University of Louisville (Ky.) Medical Department, 1911; served during the World War; aged 48; died, January 12, in the Grant County Hospital, Silver City, of pneumonia.

**John James Millmann**, Florissant, Mo.; Beaumont Hospital Medical College, St. Louis, 1900; aged 64; died, January 10, in St. Mary's Hospital, St. Louis, of heart disease, arteriosclerosis and hypertension.

**David W. Jones**, Baltimore; Baltimore University School of Medicine, 1886; member of the Medical and Chirurgical Faculty of Maryland; aged 74; died, January 17, in St. Joseph's Hospital, of myocarditis.

**A. Ralph Johnstone**, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1887; aged 71; died, January 24, of uremia and malignancy of the bladder.

**Marguerite Gillham Squire**, Carrollton, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1894; county physician; aged 71; died, January 7, of cerebral thrombosis, hypertension and myocarditis.

**Virgil Owen Moore**, Toledo, Ohio; Starling Medical College, Columbus, 1898; aged 67; on the associate staff of the Robinwood Hospital, where he died, January 12, of lung abscess.

**Harry L. Hinckley**, Barnard, Kan. (licensed in Kansas in 1901); past president and secretary of the Lincoln County Medical Society; formerly mayor; aged 77; died, Dec. 23, 1936.

**Frederick L. Darrow**, Brooklyn; University of Maryland School of Medicine, Baltimore, 1910; served during the World War; aged 59; died, January 12, of a cerebral hemorrhage.

**Robert Hardie**, Chicago; Rush Medical College, Chicago, 1901; aged 59; on the staff of the Hospital of St. Anthony de Padua, where he died, January 23, of coronary occlusion.

**John King Farrar** • Audenried, Pa.; Jefferson Medical College of Philadelphia, 1891; aged 69; died, January 19, in Hazleton (Pa.) State Hospital, of bronchopneumonia.

**George Dwight Johnson**, Roanoke, Va.; Maryland Medical College, Baltimore, 1913; aged 48; died, Dec. 23, 1936, of acute cardiac dilatation and chronic mitral insufficiency.

**Minor Harold Day** • Donora, Pa.; Northwestern University Medical School, Chicago, 1902; aged 60; died, January 21, in the McKeesport (Pa.) Hospital, of pneumonia.

**Frances Allen de Ford**, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1887; aged 81; died, January 9, in the Jewish Hospital, of pneumonia.

**William Frank Roper** • Philadelphia; Medico-Chirurgical College of Philadelphia, 1906; aged 53; died, January 12, in the Frankford Hospital, of agranulocytic angina.

**James B. Dudley**, Utica, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1888; formerly a bank president; aged 76; died, Dec. 22, 1936.

**James Larkin Craig**, Webb City, Mo.; Rush Medical College, Chicago, 1914; aged 53; died, January 4, in Peculiar, en route to Kansas City, of brain abscess.

**Joseph Calvin Henderson**, Waelder, Texas; Kentucky School of Medicine, Louisville, 1894; aged 82; died, Dec. 22, 1936, in the Holmes Hospital, Gonzales.

**Anna M. F. Starring**, Pasadena, Calif.; Michigan College of Medicine and Surgery, Detroit, 1896; formerly a practitioner in Detroit; aged 75; died, Dec. 26, 1936.

**William Richard Moore**, Cairo, Ga.; University of Georgia Medical Department, Augusta, 1898; aged 70; died, January 8, in a hospital at Waycross, of influenza.

**Wilbur Lee Davis**, Denver; Gross Medical College, Denver, 1901; county jail physician; aged 63; died, January 2, in St. Anthony's Hospital, of influenza.

**Albert R. Knapp**, Garden City, Kan.; Curtis Physio-Medical Institute, Marion, 1886; aged 85; died, January 2, of a cerebral hemorrhage.

**Thomas B. Bradley** • Philadelphia; Hahnemann Medical College of Philadelphia, 1889; aged 67; died, January 5, of carcinoma of the liver.

**John H. Holke**, St. Louis; Missouri Medical College, St. Louis, 1884; also a dentist; aged 75; died, Dec. 24, 1936, in St. John's Hospital.

**Ezra H. Melott**, Ogden, Iowa (licensed in Iowa in 1886); aged 87; died, Dec. 13, 1936, of cerebral hemorrhage and arteriosclerosis.

**James A. Harvie**, Midland, Ont., Canada; Victoria University Medical Department, Coburg, 1886; aged 74; died, Dec. 20, 1936.

**Archibald McMurchy**, North Bay, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1883; aged 85; died, Dec. 22, 1936.

**Ada Russell Baxter**, Philadelphia; Chicago College of Medicine and Surgery, 1912; aged 73; died, January 16, of myocarditis.

**George Goebel**, Philadelphia; Jefferson Medical College of Philadelphia, 1886; aged 77; died, January 14, of bronchopneumonia.

**Roy Verner Hauver**, Middletown, Md.; Baltimore Medical College, 1904; aged 62; died, January 18, of coronary thrombosis.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: Phoenix, April 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science*. Little Rock, May 3. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular)*. Little Rock, June 17-18. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic)*. Little Rock, May 11. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Reciprocity*. San Francisco, May 9. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Endorsement*. Hartford, March 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science*. Washington, June 28-29 (probable dates). *Medical*. Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

IDAHO: Boise, April 6. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, April 6-8. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: *Basic Science*. Des Moines, April 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MARYLAND: *Medical (Regular)*. Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic)*. Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science*. Minneapolis, April 6-7. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical*. Minneapolis, April 20-22. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEVADA: Carson City, May 3-4. Sec., Dr. John E. Worden, Box 630, Carson City.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Medical*. Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science*. Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

RHODE ISLAND: Providence, April 1-2. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Rapid City, July 20-21. Dir., Division of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

VERMONT: Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science*. Madison, April 3. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical*. Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

#### NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, March 13, page 912.

### Alabama Reciprocity and Endorsement Report

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports 26 physicians licensed by reciprocity and one physician licensed by endorsement from June 26 through Dec. 18, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of Medicine.....	(1935, 2)		Georgia
University of Georgia Medical Department.....	(1926)		Georgia
University of Georgia School of Medicine.....	(1934)		Georgia
University of Kansas School of Medicine.....	(1935)		Kansas

University of Louisville School of Medicine.....	(1930)	Mississippi
(1931), (1933) Kentucky		
Louisiana State University Medical Center....	(1934), (1936)	Louisiana
Tulane Univ. of Louisiana School of Medicine.....	(1931), (1935)	Louisiana
University of Minnesota Medical School.....	(1931)	Illinois
St. Louis University School of Medicine.....	(1935)	Missouri
Washington University School of Medicine.....	(1935)	Missouri
Creighton University School of Medicine.....	(1933)	Nebraska
Jefferson Medical College of Philadelphia.....	(1927), (1929)	Penna.
University of Pennsylvania School of Medicine.....	(1934)	Penna.
University of Tennessee College of Medicine..	(1933), (1934)	Tennessee
(1935) Mississippi		
Vanderbilt University School of Medicine....	(1932), (1933)	Tennessee
University of Virginia Department of Medicine....	(1934)	Virginia
Université de Paris Faculté de Médecine.....	(1932)	Texas

School	LICENSED BY ENDORSEMENT.	Year Endorsement of Grad.
Cornell University Medical College.....	(1935)	N. B. M. Ex.

### Florida November Examination

Dr. William M. Rowlett, secretary, State Board of Medical Examiners, State of Florida, reports the examination held in Jacksonville, Nov. 16-17, 1936. Eighty-eight candidates were examined, 60 of whom passed and 28 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists.....	(1936)		77.2
Yale University School of Medicine.....	(1926) 79.5, (1932)		77.7
Emory University School of Medicine.....	(1926)		78.7
(1932) 79.1, (1933) 79.3, (1934) 84.8, (1935) 75, (1936) 75.7			
University of Georgia School of Medicine.....	(1932)		75.8
(1933) 75.7, 79.2, (1935) 81.5, (1936) 76.4			
Hering Medical College, Chicago.....	(1913)		76.3
Loyola University School of Medicine.....	(1932)		79.5
Northwestern University Medical School.....	(1936)		82.2, 86.1*
Rush Medical College.....	(1934)		79
(1936) 77.6, * 84.3*			
University of Illinois College of Medicine.....	(1934)		81.6
Louisiana State University Medical Center.....	(1936)		84.6
Tulane University of Louisiana School of Medicine....	(1928)		87
(1929) 75.2, (1932) 83.8, (1936) 85.7			
University of Maryland School of Medicine.....	(1914)		83.6
University of Maryland School of Medicine and College of Physicians and Surgeons, (1921) 75, (1932) 88.3, (1935)			79.2
Harvard University Medical School.....	(1933) 84.2, (1935)		80
Fordham University School of Medicine.....	(1913)		77.6
New York Homeopathic Medical Col. and Flower Hosp., (1933)			77.3
New York University, University and Bellevue Hospital Medical College.....	(1931) 79.5, (1934)		81.1
Syracuse University College of Medicine.....	(1927)		75.2
University of Buffalo School of Medicine.....	(1931)		79.2
Duke University School of Medicine.....	(1934) 84.2, (1935)		82.3
Ohio State University College of Medicine.....	(1936)		75
University of Cincinnati College of Medicine.....	(1924)		78.4
Western Reserve University School of Medicine.....	(1932)		84.4
(1933) 76.7			
Jefferson Medical College of Philadelphia.....	(1935)		88.2
University of Pittsburgh School of Medicine.....	(1930)		75.5
(1935) 78.1			
Woman's Medical College of Pennsylvania.....	(1935)		75.8
Meharry Medical College.....	(1935)		77.6
University of Tennessee College of Medicine.....	(1922)		75
(1935) 76.5, (1936) 85.8			
Vanderbilt University School of Medicine..	(1923) 78.3, (1936)		76.6
Baylor University College of Medicine.....	(1936)		79.5
Medical College of Virginia.....	(1931)		79.5
University of Virginia.....	(1935)		85.2
University of Toronto.....	(1926)		76.3
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow..	(1933)		79.9

School	FAILED	Year Grad.	Per Cent
Georgetown University School of Medicine.....	(1935)		70.9
Atlanta Medical College.....	(1915)		52
Emory University School of Medicine.....	(1934)		65.7
University of Georgia Medical Department.....	(1912)		68.1
University of Georgia School of Medicine.....	(1934)		72.6
(1935) 62.5, (1936) 66.2			
Chicago College of Medicine and Surgery.....	(1910)		70.1
Jenner Medical College, Chicago.....	(1910)		59.7
University of Illinois College of Medicine.....	(1913)		64.8
(1928) 68.6			
Louisville and Hospital Medical College.....	(1908)		61.3
University of Louisville School of Medicine.....	(1930)		69.7
Tulane University of Louisiana School of Medicine....	(1934)		68
(1935) 61.3			
Johns Hopkins University School of Medicine.....	(1912)		70.8
University of Michigan Homeopathic Medical School....	(1912)		72.6
Washington University School of Medicine.....	(1901)		68.7
Long Island College Hospital.....	(1928)		72
University of Buffalo School of Medicine.....	(1905)		63.4
Western Reserve University School of Medicine.....	(1915)		68.4
University of Pittsburgh School of Medicine.....	(1929)		72.3
University of Tennessee Col. of Medicine.....	(1914) 71.4, (1932)		73.7
University of Virginia Department of Medicine.....	(1915)		68.2
Queen's University Faculty of Medicine.....	(1924)		69.2
University of Toronto Faculty of Medicine.....	(1920)		70.1
Universidad de la Habana Facultad de Medicina y Farmacia.....	(1907)		62.1†

\* This applicant has completed the medical course and will receive the M.D. degree on completion of internship.  
† Verification of graduation in process.

amount of blood withdrawn and the size of the test tube used. Some methods take from eight to ten minutes, others as long as twenty minutes.

Such determinations, it is clear, do not lend themselves to routine use. The other methods are not completely reliable and hence no standard can be set up. In the last analysis the best safeguard for the surgeon is a careful inquiry into the patient's history, especially as regards the tendency to bleed and an examination to determine his fitness to undergo the operation in question. If the history or the physical examination or carefully conducted bleeding and clotting time determinations bring up any doubts as to the advisability of operation (in this case tonsillectomy), it would be better to postpone the operation as it is seldom one is urgently required, and to proceed further in an attempt to make an accurate diagnosis.

The surgeon's best safeguard against bleeding following tonsillectomy in properly selected cases is to seize and ligate suspicious bleeding areas. He is not to rely on medication given by mouth, hypodermically or intravenously.

The use of calcium by mouth in the customary dosages in individuals apparently normal is probably of little use. There is no reason to believe that the blood clotting mechanism in these people is altered because of a lack of calcium.

Ceanothyn is the name applied to a liquid extractive prepared from the bark of the root of *Ceanothus americanus* (Jersey tea). In 1926 the Council on Pharmacy and Chemistry found Ceanothyn unacceptable for inclusion in New and Non-official Remedies because (1) the composition was uncertain, (2) no tests were furnished to control its identity and uniformity, and (3) no satisfactory evidence for its therapeutic value had been submitted. In 1930 the Council issued a second report on Ceanothyn which concluded that, in consideration of the unestablished and therefore unwarranted therapeutic claims for Ceanothyn, and in further consideration of the inconclusive character of the available evidence for the drug's value as a coagulant, the Council confirmed its decision holding the product unacceptable for New and Nonofficial Remedies.

#### PRECORDIAL PAIN WITH FLUCTUATING BLOOD PRESSURE

*To the Editor:*—A man, aged 42, has been complaining of frequent periodic attacks of pain in the chest, more often in the left chest over the precordia than in the right, over a period of four years. These attacks were always accompanied by severe headaches, usually frontal and over the right side of the cranium, and a sense of suffocation in the upper part of the thorax, with a fluctuating blood pressure. Taking his blood pressure during such an attack—six or seven times within an hour—would give variations in reading from 160/100 to 120/80. During periods of freedom from attacks, the blood pressure reading is always normal. Physical examination is otherwise completely negative in every detail. Repeated Wassermann, urine, various blood tests, electrocardiogram, and basal metabolism tests were all negative. His teeth, tonsils and appendix have all been removed. Of his past history, he had pneumonia at the age of 7 and gonococcal urethritis at the age of 22. He is a World War veteran. He is well built, well nourished and to all outward appearances a picture of health. What could cause so marked a fluctuation in blood pressure in so short a period of time? Please omit name.

M.D., Massachusetts.

*ANSWER:*—Pain or fear induced by the precordial pain is an amply sufficient factor to account for the fluctuations in arterial tension as described. Of the two, fear is probably the more potent influence. The effects of emotions on the arterial tension in vasolabile individuals has been repeatedly described (Stieglitz, E. J.: *Am. J. M. Sc.* 179:775 [June] 1930) and a rise of from 40 to 50 mm. of mercury within a few seconds after emotional excitement is not unusual. Coughing, straining or lifting likewise causes transient violent upward fluctuations.

The fact that the patient suffers from recurrent hemicranic headaches along with these attacks of thoracic distress brings the probability of atypical migraine to mind. It is characteristic of the migraine physique (*Am. J. M. Sc.* 189:359 [March] 1935) that the vasomotor apparatus is unusually unstable and that physical manifestations are conspicuously absent. Other evidences of the migraine physique are very fine straight hair, abnormally large pupils (which react normally to light and in accommodation, however), a thin, transparent, finely textured skin and a tendency to cold moist extremities. Migraine in its atypical forms is so readily forgotten that these patients are often unjustifiably delegated to that large and hopeless group called "neuroses." Migraine involving the heart has been described (Thomas, W. A., and Post, W. E.: *Paroxysmal Tachycardia in Migraine*, *THE JOURNAL*, Feb. 21, 1935, p. 569) as being closely associated with paroxysmal tachycardia. This association is quite common. Abdominal equivalents of migraine (Blitzstein, N. L., and Brams, W. A.: *Migraine with Abdominal Equivalent*, *THE JOURNAL*, March 6, 1926, p. 675, are frequent.

The intrinsic stability or instability of the vasomotor mechanism can be studied by means of the now well known and most significant cold pressure test of Hines and Brown (*Ann. Int. Med.* 7:289 [Aug.] 1933). This should be carried out with the patient. From the query one gains the impression that these attacks are not anginoid, but if the patient suspects that they may be evidence of dread "heart disease" it will take a deal of convincing to alter his way of thinking and diminish the fear engendered by these attacks.

#### PELOUZE TREATMENT FOR GONORRHEA

*To the Editor:*—In a recent issue of *THE JOURNAL*, mention is made of the Pelouze treatment for gonorrhea. Will you please briefly state an outline for this treatment, as I am unable to find it in any textbook that I have.

M.D., Nebraska.

*ANSWER:*—The treatment in question puts forth no claims of newness but is in reality an arrangement of well tried methods with their traumatizing possibilities deleted. It is based on several facts that should be uppermost in the minds of those who treat gonorrhea: The patient cures himself by his own tissue reactions and not solely because some type of treatment kills a few gonococci. Treatment to the infected tissue stimulates these curative processes. Alcohol, sexual excitement and often prolonged physical exertion put these responses in abeyance and prevent cure as long as they are indulged in. Thus the most important consideration of all is the gaining and holding of patient cooperation. Without it no treatment is efficient.

In his book (*Gonorrhea in the Male and Female*, Philadelphia, W. B. Saunders Company) Pelouze discusses all these things at length, as well as many other basic factors at play in gonococcal infections. Briefly stated, the treatment is as follows: For anterior urethritis, the earlier local treatment is instituted the more often is posterior urethral infection prevented. He has the patient empty his bladder in two glasses and records the appearance of both glasses. The anterior urethra is then gently irrigated with 1:8,000 potassium permanganate solution. After this, not more than 6 cc. of 5 per cent solution of mild protein silver is placed in the anterior urethra by means of an Asepto syringe and held there by a penis clamp for five or ten minutes. After this is allowed to drain, a piece of absorbent cotton measuring 2 by 6 inches is held over the glans by two no. 10 rubber bands, which the patient is instructed to leave off of the penis after the second urination so as not to interfere with drainage.

This treatment is carried out daily until there is no urethral discharge between treatments and the first glass of voided urine contains only shreds (usually two weeks). The intervals between treatments then are spaced at forty-eight hours and later seventy-two hours, depending on whether or not a discharge appears before the time is up. The patient does nothing but behave himself and appear for treatment. He eats and drinks what he pleases so long as there is no alcohol in it. The utmost care is taken to prevent any of the treatment solutions from passing into the posterior urethra. From 75 to 85 per cent of the cooperative patients seen before the fifth day fail to have a posterior extension of disease. Of those who do not, 90 per cent are well by the end of six weeks and 10 per cent take from one to three weeks longer.

For posterior urethritis, in acute posterior urethral infection oral sedatives are given and all local treatment, except hot hip baths, is stopped until about a week after the patient has regained his bladder comfort. Then low pressure (not more than 3 feet) hydrostatic irrigations of 1:8,000 potassium permanganate are given into the bladder (no catheters or other urethral instruments are ever passed until it is safe to assume the gonococcus no longer is present). The bladder is only partially filled, the patient voids and this is repeated several times, some of the solution being left in the bladder at the end of the treatment. Treatments of this type are carried out two or three times a week.

When there has been no obvious urethral discharge for several weeks, the second glass of urine is crystalline and the first contains but a few shreds, the very gentlest type of prostatic stroking is tried. If this causes a marked recurrence of urethral discharge, it is not tried again for two weeks. If, as is usually the case, it caused but the slightest urethral discharge next day or none at all, the treatments are continued twice a week. The bladder is irrigated, some fluid is left in, the prostate is stroked and the patient voids some of the solution. Gradually the pressure on the prostate is increased at future treatments but never to the point of acute pain.

From this point on the twice a week treatments are continued until the prostatic secretion is free from pus. To avoid the

**Mansions in the Cascades.** By Anne Shannon Monroe and Elizabeth Lambert Wood (in collaboration). Cloth. Price, \$2.50. Pp. 325. New York: Macmillan Company, 1936.

To the lover of the great open spaces, the seeker after adventure with a spice of danger, this book will come as a clean wind off a glacier, calling him to come and live under the sky, where the mountains hem him round in solemn majesty. The story is not a new one; a man, who happens to be a doctor—though anybody else would have done for the purposes of the story except in one situation—breaks under the stress of adversity and seeks solitude as wild creatures mortally wounded crawl away to die. His wife, against his will, goes along. They have camped in the mountains before but have never wintered there. Now they do, and that is the story. How health returns and with it tranquillity of mind is developed logically and plausibly; the reader is not asked to believe any miracles. How the wilderness brings them as well some comfort for the loss of their children makes a charming additional interest. The reader feels that these authors have either lived some of this story themselves or been exceedingly close to it; certainly they give clear evidence of having known intimately and loved the country that is the locale of the story. The book, though it deals with a physician who heals himself with the aid of nature, has no special significance for doctors, but it is fine reading for anybody.

**A Practical Medical Dictionary of Words Used in Medicine with Their Derivation and Pronunciation Including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance and Other Special Terms; Anatomical Tables of the Titles in General Use, the Terms Sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations Official in the U. S. and British Pharmacopoeias or Contained in the National Formulary, and Comprehensive Lists of Synonyms.** By Thomas Lathrop Stedman, A.M., M.D. Thirteenth edition, with the New British Anatomical Nomenclature. Fabrikoid. Price, with thumb index, \$7.50; without index, \$7. Pp. 1,291, with illustrations. Baltimore: William Wood & Company, 1936.

This volume, first offered to the public in 1911, is now in its twenty-fifth year. Its success is obvious. The new edition takes account of changes in the Pharmacopoeia as to definition and spelling and attempts also to lead medical users into a gradual reformation in spelling. The editor indicates in his preface the difficulties that he himself is having with anatomic terms. This dictionary, unlike others, begins with a section devoted to medical etymology, which is planned to show users the manner of origin of most of the terms used in medical science. The dictionary is nicely illustrated with excellent plates. It is supplemented by numerous tables, giving a great deal of concentrated information, and is altogether one of the most useful medical dictionaries that are published.

**Practical Physiological Chemistry for Medical Students.** By G. M. Wishart, D. P. Cuthbertson and J. W. Chambers. Paper. Price, 3s. 6d. Pp. 127. Glasgow: John Smith & Son, Limited, 1936.

This is a conservative laboratory manual, including simple experiments in physical chemistry, quantitative tests of the elements in the body, and simple experiments on proteins, fats and carbohydrates, lipids, foods, digestion, blood and urine. The book is modernized to the extent that the chemical balance is not used but, on the other hand, no use is made of a colorimeter, although an attempt is made to perform quantitative colorimetric comparisons in a test tube. This limits the use of quantitative micromethods to sugar, hemoglobin and urea on blood. Some quantitative work is done on the urine. Although the book contains few errors, some statements might mislead a student. Thus the xanthoproteic reaction is mentioned in connection with phenylalanine, whereas this reaction is so slow on phenylalanine that it is usually considered negative. The only quantitative determination of protein is the Sørensen titration for amino nitrogen in milk. The number of cubic centimeters of tenth normal sodium hydroxide is multiplied by 0.17 to give the grams of protein. In the examination of gastric contents, the acidity is determined. The titration with tenth normal sodium hydroxide, Töpfer's reagent being used, to a salmon pink is recorded as the free hydrochloric acid. Then phenolphthalein is added, and the titration to phenolphthalein is called the total acidity and is attributed to the free hydrochloric acid, acid salts, and acid in combination with protein. Then a total chloride is determined by Volhard's method for urine, which involves the removal of protein. It is probable that such removal would remove the acid in combination with the protein, and since this was shown long ago by Prout

to be hydrochloric acid, this would cause an error in the chloride determination. Apparently no use is made of the total chloride determination. Since the book is printed only on one side of the paper, space is provided for the writing in of the micromethods on blood that are necessary in hospitals.

**A Textbook of Surgery.** By John Homans, M.D., Clinical Professor of Surgery, Harvard Medical School. Compiled from Lectures and Other Writings of Members of The Surgical Department of The Harvard Medical School. With a special bibliographical index and with 530 illustrations by Willard C. Shepard. Fourth edition. Cloth. Price, \$8. Pp. 1,267. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1936.

The success of this volume is represented by four editions in five successive years. The present edition includes new chapters on amputation and plastic surgery, particularly with a view to meeting the demands of examining boards. The old type having become worn, the new volume is completely revised and reset. The author admits frankly that little additional new material has been added.

**Le métabolisme de l'azote. Physiologie des substances protéiques. 1. Aliments, digestion, absorption, enzymes digestifs.** Par Emile F. Terroine, professeur à l'Université de Strasbourg. Les problèmes biologiques. Collection de monographies publiées sous le patronage du Comité technique des sciences naturelles des Presses Universitaires de France. XX. Paper. Price, 80 francs. Pp. 384. Paris. Les Presses Universitaires de France, 1936.

In this volume a well known authority on the subject presents an exhaustive account of what happens to the protein foodstuffs from the time they are ingested to the absorption of their end products into the blood stream. The book is divided into four main parts: 1. Protein foodstuffs and their digestion. 2. The nature of the absorbed products. 3. The sequence of events in digestion and absorption. 4. The digestive enzymes: their respective rôles, and the conditions influencing their activity. As in his previous works on other aspects of protein metabolism, the author presents his material in a precise and systematic manner. The subject matter is divided into short sections and paragraphs, each of which bears a subheading indicating its content. The text is liberally illustrated by tabular data, and the extensive bibliography is international in character. Its encyclopedic detail renders this volume more suitable as a reference work than as a textbook for medical students or physicians. But it should be a valuable addition to the library of any one who is particularly concerned with the physiology of the gastro-intestinal tract.

**Modern Treatment and Formulary.** By Edward A. Mullen, P.D., M.D., F.A.C.S., Assistant Professor Pharmacology and Physiology, Philadelphia College of Pharmacy and Science. Foreword by Horatio C. Wood Jr., Professor of Therapeutics in University of Pennsylvania, Graduate School of Medicine. Fabrikoid. Price, \$5. Pp. 707. Philadelphia: F. A. Davis Company, 1936.

This is a physician's office desk reference book that is full of practical information on questions of treatment. Indeed, it aims to be so all inclusive as to include a summary on differential diagnosis, and on the treatment of surgical emergencies and of poisoning. There is also included the physician's "interpreter" in five languages intended to help the physician to formulate questions in French, German, Italian and Spanish that may yield affirmative or negative answers of diagnostic importance. It is in many ways an excellent book and as criticism there needs be—such is expected in any review—one might say that some of the prescriptions suffer from a redundancy of ingredients and some from a lack of attention to elegance and palatability.

**Preparation for Marriage.** By Ernest R. Groves. Cloth. Price, \$1.50. Pp. 124. New York: Greenberg, 1936.

The author makes a plea for open discussion of problems of a real nature before marriage and their solution at that period rather than after marriage. Common sense attitudes toward the question of health, heredity, finances, housing and children are expressed. The common sense attitude written in cold print gives the appearance of old platitudes and is as readily ignored as all platitudes in the midst of the emotional stresses attendant with falling in love. Rarely is one of the author's strictures followed by the people most concerned, and certainly the person in love will not stop to read this book. Being without insight into the real needs of adequate handling of the sex problems which the curious child attempts to solve early in life, the book is of limited use.

Kouwenhoven observes that heavy currents cause heart stoppage while low current densities in the body cause fibrillation of the heart, and that such fibrillation seldom disappears automatically. However, running through this persistent situation there is likely to be a neurotic component which possibly should be duly evaluated.

The nature of cardiovascular injuries following electric shock is worthy of a much more extended discussion than space here permits. Reference is therefore made to the following publications:

Langworthy, O. R., and Kouwenhoven, W. R.: Importance of the Points of Contact in Electric Injuries, *J. Indust. Hyg.* 13: 145 (May) 1931.

Langworthy, O. R., and Kouwenhoven, W. R.: Injuries Produced in the Organism by the Discharge from an Impulse Generator, *J. Indust. Hyg.* 13: 326 (Nov.) 1931.

Jellinek, Stefan: The Pathology of Electric Current Burns, *Wien. klin. Wchschr.* 34: 239 (May 19) 1921.

Urquhart, R. W.: Experimental Electric Shock, *J. Indust. Hyg.* 9: 140 (April) 1927.

Haberlandt, L.: Heart Fibrillation and Electric Current, *Wien. klin. Wchschr.* 39: 774 (July 1) 1926.

These articles in some instances discuss the emergency treatment of electrically produced cardiac lesions. However, after an interval of eighteen months much of such treatment is not applicable. For general treatment, reference is made to a recent publication by George R. Herrmann (Synopsis of Diseases of the Heart and Arteries, St. Louis, C. V. Mosby Company, 1936).

#### GYNECOMASTIA

To the Editor:—What is the approved treatment of gynecomastia? A boy of 18 is normal physically except for symmetrical enlargement of both breasts. There is considerable increase in the fatty tissue and a very prominent areola and nipple, which become erect on the least stimulation. The genitals are fully developed and the distribution of pubic hair is normal. The previous history is negative except that the patient's mother says the breasts were large several months after birth. The unusual growth began, or was first noticed, eight months ago. What tests would you suggest to confirm the diagnosis and what treatment would be advisable?

W. M. ELLIOTT, M.D., Forest City, N. C.

To the Editor:—May 28, 1936, a youth aged 21 years, of normal height and weight, presented himself at my office complaining of painful and cumbersome breasts. He noticed particularly in the last year that slight trauma of either breast, more particularly the right breast, caused marked pain. This condition has been present for three or four years but the breasts have been larger in the last year. There has never been any secretion of any kind from them nor has there been any acute localized inflammation leading to mass or pus formation in either of them. The patient appears normal, healthy and vigorous, is 5 feet 10½ inches (178 cm.) tall and weighs 170 pounds (77 Kg.). The blood pressure, Wassermann reaction, hemoglobin and differential count are all within normal limits. Fluoroscopic examination, urinalysis and basal metabolic tests give negative results. There is a soft fuzz on the lip and the chin, requiring one shave a week, and the skin texture of the face is smooth. The breasts are the size and shape of the breasts of a girl 16 years of age. The pubic hair is of triangular distribution. The testicles are small and the genitalia within normal limits. The patient states that he has normal sexual impulse and relations. Any information that you may offer as to diagnosis and treatment will be greatly appreciated; also any comment as to danger of malignancy in this type of breast tissue and also prognosis concerning the ultimate outcome. Please omit name.

M.D., New York.

ANSWER.—These descriptions cover the typical picture of gynecomastia. In the diagnosis of enlargements of the male breast one must consider (1) true tumors (fibromas, fibrosarcomas, very rarely carcinomas), (2) gynecomastia, which is true hypertrophy of the glandular tissue, and (3) the so-called spurious gynecomastia, which is an increase in the fatty and fibrous tissues. The description of the breasts in the second case as being "of the size and shape of the breasts of a girl 16 years of age" corresponds to the typical appearance in true gynecomastia of the puberty type. Gynecomastia has been observed in relation to atrophy and tumors of the testicles, especially tumors of the chorionepitheliomatous group, and furthermore to tumors of the adrenal body and of the hypophysis. In recent years also a relationship to hepatic cirrhosis has been reported in several instances. All these conditions are extremely rare, and in most instances the cases belong to the group of essential gynecomastia which occurs during puberty and is mostly found in otherwise normal young men. It may be due to some endocrine disturbance of a more complicated nature. Certainly the hypofunction of the testicle alone is not responsible. In most instances the testicular function is normal.

As to the treatment, the results of etiologic treatment are not yet available. It may be that the application of the active preparations of the male hormone, which have been on the market only for a short time, may be of some value, although this is questionable. Most cases do not require treatment,

since the condition is harmless. The danger of malignant degeneration is extremely slight, although there are some rare instances on record which later on became carcinomatous. Some of these conditions, however, may have been tumorous conditions from the beginning and not true gynecomastia.

Recently Menville has recommended a trial with roentgen irradiation in active gynecomastia, although he has found it ineffective in the chronic forms (*Arch. Surg.* 26:1054 [June] 1933). When the patient insists on removal, plastic surgery may be used with good results.

#### DIGITALIS AND VACCINES IN RHEUMATIC FEVER

To the Editor:—A white man, aged 30, single, weighing 180 pounds (82 Kg.), height 5 feet 10 inches (178 cm.), had one attack of acute rheumatic fever about six years ago. For the past three weeks he has been confined to bed with an acute exacerbation of rheumatic fever with typical symptoms. The temperature ranges from 100.2 to 103.4 F. There are drenching sweats. He has a loud blowing systolic murmur at the apex, transmitted to the axilla. Recently he developed pleurisy in the left side and now he has developed a pericarditis. The pulse ranges from 72 to 90. When I first saw him three weeks ago he started off with acute catarrhal jaundice. That cleared up and as it did so he had migrating pains in both knees, the shoulders, the fingers and the sternum. Treatment has been: (1) rest in bed; (2) 15 grains (1 Gm.) of enteric coated sodium salicylate and 30 Gm. of sodium bicarbonate by mouth every two hours; (3) cascara 5 grains (0.3 Gm.) at night for the bowels; (4) codeine sulfate one-fourth grain (0.016 Gm.) by the peroral method for the pain as often as necessary; (5) phenobarbital one-fourth grain as often as necessary for restlessness; (6) 1 cc. hypodermically of Sherman 35 vaccine for the last ten days. As yet I have not used digitalis because most of the time his pulse has remained around 78. Recently I strapped the left chest for pleurisy. Kindly advise whether I should use digitalis or not because of the previous history and the heart murmur. Also, advise whether I should discontinue the Sherman 35 vaccine or not. Is it of any value? His teeth are apparently sound but I should like him to get them roentgenographed later. His tonsils are definitely diseased, and I have told him they should come out after he is over this sickness. Would you recommend having the tonsils removed now? The patient lives out in the country and has no desire to be moved now to a hospital. He states that he prefers to diet at home. Please omit name.

M.D., New Jersey.

ANSWER.—Digitalis is not indicated. The only reason for using digitalis would be to control an auricular fibrillation, which is not present. Digitalis could not influence either the murmur or the rheumatic fever. It is doubtful whether the sodium salicylate has any value except as an analgesic. The bowels are best controlled without medication as far as possible. The daily use of cascara will probably result in an overstimulated colon and a constipation of a spastic type. Vaccines probably have no therapeutic value in any condition, and certainly none has been shown in rheumatic fever. The only therapeutic measures of known value are absolute rest in bed, and time. He should not be allowed up until the pulse and temperature have been normal for at least two weeks and until the sedimentation rate has returned to normal.

If the tonsils are definitely diseased after recovery, they had best be removed.

The possibility that the jaundice was due to absorption of some hemorrhagic infiltration of the lungs must be considered, or that it was in some other way concerned with the primary condition.

#### THE PASTE METHOD FOR SCRATCH TESTS

To the Editor:—1. Is the paste method, containing multiple substances, a dependable one for scratch testing? The paste consists of the dry substances mixed in 50 per cent glycerin. 2. Is the paste method, containing single allergens, a dependable and accurate one for skin testing by the scratch method? Please omit name.

M.D., Ohio.

ANSWER.—1. While the paste method is reliable for testing cases with a high degree of sensitivity by means of scratch tests, the allergens embodied in the paste are in general less active than in powder form or in solution. Lower degrees of skin hypersensitivity may therefore be missed when the paste is used. When the paste contains multiple substances, each single allergen is of course present in proportional dilution and is therefore weaker in effect than when single allergen pastes are used.

2. For this reason, the single allergen paste is usually superior to the one with multiple substances. In general, when the scratch method is employed for testing, it is more dependable and accurate to use either the dry powders or the glycerin extracts of allergens. An important consideration is that the physician get to know whatever allergens are being employed so as to recognize those small wheals and erythema which are not due to specific hypersensitivity but to the irritant effects of certain allergenic substances.



of the patient twenty years ago could have been of this nature. If records exist they might furnish helpful information. However, instead of the skull being the chief seat of the disease, as in the Hand-Schüller-Christian syndrome, the lesions are more frequent in the diaphyses of the long bones. The fibrous healing stage that occurs in the lipid granulomas provokes an osteoplastic reaction, with new formation of bony substance. It may be these lesions which account for the rheumatoid symptoms of the patient and give the x-ray appearance which has been ascribed to sodium urate infiltrations. It is possible, of course, that cholesterol metabolism is governed by some endocrine secretion, as suggested, but we are unaware of any evidence that such is the case. The treatment of these conditions is largely symptomatic.

If this case should turn out to be an essential xanthomatosis, the occurrence of an increased blood uric acid content may depend on an extensive involvement of the liver by the lipid granulomatosis. Other evidences of liver dysfunction might be confirmatory in this regard.

#### PULMONARY EMBOLISM

*To the Editor:*—August 14 I was called to see a man, aged 34, apparently suffering from a pulmonary embolism. About a week before he had had some varicose veins in the left calf injected in four places with sodium morrhuate. Although he was suffering some discomfort, he kept up and active. When first seen he was suffering excruciating pain over the heart and upper part of the chest was dyspneic. The following day he exhibited some moist râles in the base of the left lung, which cleared in twenty-four hours and were replaced by râles in the upper part of the left chest. On the third day he developed a definite pleuritic rub in the left axilla, with pain which cleared in forty-eight hours. Since then the chest signs have all cleared. He has not been roentgenographed, owing to difficulty in negotiating narrow stairs. Should he now be treated as for an ordinary thrombophlebitis and confined to bed from four to six weeks? All tenderness of the veins in the leg has gone. How long would any x-ray signs show from a small pulmonary embolism? Please omit name.

M.D., New York.

*ANSWER:*—The diagnosis of pulmonary embolism is well founded on the basis of the submitted data. Such a patient must be kept in bed for about ten days after the pulse and temperature have returned to normal. A more accurate index is the sedimentation rate, which can be determined several times and which should be normal before the patient is allowed to get up. Small pulmonary emboli need not give any x-ray changes. Large, triangular infarcts are absorbed slowly; if the infarct occurred at the base of the lung, the diaphragmatic pleura may become involved and result in an uneven contour of the dome of the diaphragm, which may persist for years.

#### SCLEROSING SUBSTANCES IN HYDROCELE

*To the Editor:*—What sclerosing injections, if any, are now favored in the treatment of hydrocele of the type in which more caustic ones were used years ago?

W. K. KEITH, M.D., Creston, Iowa.

*ANSWER:*—A hydrocele, unless it simply masks a tuberculous or gonorrheal epididymitis, a syphilitic orchitis or a tumor of the testicle, may be injected with substances that denude the endothelial lining of the sac, produce a fibrinous exudate and result in obliteration. Sodium morrhuate in 10 per cent solution has been used recently for such obliterating injections, which may have to be repeated several times at weekly intervals. If care is exercised not to inject any sac that communicates with the peritoneal cavity, the procedure is harmless and can be carried out on ambulatory patients. In well trained surgical hands, the operative treatment of hydrocele is equally harmless. No comparable data exist with regard to end results, but the hydroceles with thickened sacs respond less favorably to the injection treatments. The so-called bottle-neck operation offers excellent results.

#### CHRONIC STREPTOCOCCIC INFECTION OF LEG

*To the Editor:*—A white man, aged 23, stuck a blunt, wooden object into the calf of his leg three years ago. The wound was very slow in healing. From his history I believe it was an infected wound. Now he comes to me two or three times a year with a reddened area on the calf of his leg and a definite lymphangitis. The temperature ranges from 102 to 103. Can you give me any suggestion of how I can eliminate this chronic streptococcic infection? E. W. BECKES, M.D., Vincennes, Ind.

*ANSWER:*—With a definite history of having been struck by a wooden object over the site of the inflamed area, it is quite probable that a portion was broken off and is still in the tissues. A roentgenogram should be taken of the entire leg. This will rule out osteomyelitis. It may also show a wooden splinter if there is a little lead paint on it; otherwise the

roentgenogram may be completely negative or show a slight tissue thickening around a chronic pyogenic abscess of the soft parts.

If the inflammation is limited to the skin, it may be a recurring erysipelas, in which event immunization may be attempted from a toxin obtained from cultures from the leg or from stock streptococci.

Precautions should be used against irritation or from external infection and the general system should be built up by means of an improved diet and change of habits or medication as indicated.

#### TREATMENT OF TUBERCULOUS CERVICAL GLANDS

*To the Editor:*—What is the latest treatment of cervical tuberculous glands? Is there any accepted new procedure over mere excision or drainage?

DAVID KRAMER, M.D., Silver City, N. M.

*ANSWER:*—The elimination of the source of the infection should always be the first consideration. There is no new or specific treatment. Systemic treatment should be given to build up general resistance by attention to rest, habits, food and medication as indicated. Ultraviolet ray exposure is of value particularly when it is impossible to obtain adequate sunshine, although it has little local specific reaction. If the glands are broken down with sinuses, roentgen treatment is of value. If the glands are hyperplastic and discrete in type, surgical excision is indicated if they do not subside after a reasonable period of medical treatment.

#### DRYNESS OF MOUTH IN CARCINOMA

*To the Editor:*—A woman who has an inoperable carcinoma of the breast with metastasis to the liver complains bitterly of dryness of the mouth and tongue. The oral mucous membranes are excessively dry, but there is no general dehydration and the fluid intake is adequate. All kinds of local measures, such as the use of various mouth washes, the chewing of gum and paraffin, and the sucking of sour lozenges, have been tried. No relief has been obtained. Have you any further suggestions? Please omit name.

M.D., Ohio.

*ANSWER:*—A trial may be given with the peroral application of pilocarpine in 1 per cent solution, from 3 or 5 to 8 drops daily. Sometimes salivation is increased in this way. The individual sensitivity to pilocarpine varies widely, and therefore a trial must be made to determine the adequate dose in the particular case.

#### OPTOMETRIC COLOR CHOICES

*To the Editor:*—The optometrists in the state of Arkansas are advocating changing of the roadside markers, the chalk in schools and the pavement stripes to orange-yellow. Fearing that this is a scheme to gain newspaper publicity and propaganda, before condemning it I would appreciate hearing from you as to your opinion of the value to visual acuity, the lack of eyestrain, and so on, provided these changes are made. It would seem that they are trying to get up enough publicity about this and the contact lens in order to bring their society more into the limelight as benefactors to mankind. I would appreciate it if you would let me hear from you at your earliest convenience, and if you print this letter please omit name. Thank you.

M.D., Arkansas.

*ANSWER:*—It does not make one particle of difference from the standpoint of visual acuity or eyestrain whether white or orange-yellow is used for the purposes described. The endeavor to change the color is what Barnum would call a "come on" and is of infinitely more value for optometric publicity than for public eye benefit.

#### DIPHTHEROID ORGANISMS IN EAR INFECTION

*To the Editor:*—I have a patient with an ear infection of pure Bacillus pseudodiphthericus with sympathetic nasal phenomena aggravated at the menstrual period. It has been slow to yield to either mercurial antiseptic or salicylic acid in alcohol. Will you kindly advise further procedure? Please omit name.

M.D., California.

*ANSWER:*—Diphtheroid organisms in a discharge from the middle ear usually are the result of secondary infection in chronic otitis media. The correspondent does not state whether this is an acute or a chronic otitis media. If it is the latter with a central perforation, "dry" treatment is usually effective, consisting of drying out the canal and middle ear with cotton applicators followed by boric acid powder blown in, and repeated every few days until the discharge ceases. If there is a marginal type of perforation with cholesteatoma, the epithelial debris must be washed out with an attic cannula by means of warm 70 per cent alcohol unless the cholesteatoma cavity should be too extensive to be rendered dry and inactive by this treatment, in which case a radical mastoid operation may be indicated.

## Book Notices

**Comparative Anatomy.** By Herbert V. Neal, Professor of Zoology, Tufts College, and Herbert W. Rand, Associate Professor of Zoology, Harvard University. Cloth. Price, \$4.75. Pp. 739, with 540 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

An alternative title to this book might well be *The Evolution of Man and Other Animals*. The introduction constitutes one of the best brief statements of the theory of evolution that has appeared. It includes a consideration of "creative synthesis" as the foundation of "emergent evolution." Matter in passing from one plane of organization to another passes also from one set of properties to another, from "nonliving" to "living" to "conscious living" to "ethical living." This statement does not include the causes of evolution, and no attempt is made to convey the impression that evolutionary change and progress can be adequately explained at present. The scope of the book includes not only comparative anatomy of adult forms but also the ontogeny and phylogeny of animals; it includes not only gross anatomy but also minute anatomy and the evolution of the tissues. The method of treatment is not by classes of animals, as in so many books on the subject, but by systems and organs—integumentary system, skeletal system, and so on. Successive chapters deal with the integumentary system, teeth, the skeletal system, the muscular system, the digestive system, the respiratory system, the vascular system, the urogenital system, the endocrine organs, the nervous system, and the sense organs. In each chapter the evolutionary history is followed, and the book is a picture of evolution at work. The anatomy of various animals furnishes simply the illustrative parts of the picture. Inevitably this plan leads to a last chapter on the ancestry of the vertebrates. Figure 1 is a tentative family tree of the animal kingdom; figure 540, the last in the book, is a duplicate of it. Figure 26 is a tentative family tree of the primates. The ancestral line is not definitely and finally drawn—maybe it never will be. It appears that the separation of phyla occurred further back than has usually been assumed. It is suggested that the vertebrate line split off below the flatworms and below the coelenterates. The annelid worms are close to our ancestral line. It is suggested that future students of phylogenesis will turn more to comparative embryology than they have done in the past. The book is a valuable and welcome addition to the literature on this subject. It presents the hypotheses or propositions advanced by the best minds thinking in the field and illustrates them by examples. The presentation is clear and the idea is "not buried under a blizzard of facts." Students will find it a source of knowledge and of understanding. In the light thrown by this book on the facts of comparative anatomy, they glow with significance and interest.

**The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects.** Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D. Volume 1: Abdominal Path to Appendicitis. Cloth. Price, \$12. Pp. 742, with 96 illustrations. London: Butterworth & Co., Ltd., 1936.

Hardly is one new system of medicine completed before another comes upon the scene. The British publishers now offer a system of medicine, indexed alphabetically, with a view to covering every branch of medical practice. Each of the subjects is handled by a British writer of repute in the field concerned, and each chapter when completed is passed under the supervision of the general editor and his associates. It is planned to publish a supplement each year in order to keep this system up to date. The prospectus issued with the first volume may be had directly from the publishers and indicates the subjects discussed and the number of authors included.

The volume is especially interesting as a beautiful production typographically. The first volume contains ninety-six pictures. The type is easily readable, beautifully spaced and sufficiently varied to indicate the importance of various subdivisions. Moreover, there is marginal indexing, which aids ready reference.

The American reader will of course have some difficulty because of the references to the British pharmacopeia rather than the American.

The authors are not averse to expressing themselves frequently concerning their experience with various methods of treatment. For example, this statement under the use of

manganese and vaccines in acne: "Injections of manganese and of vaccines appear to be of very little value in acne. The same may be said of purgation by salts and the swallowing of yeast or preparations of tin." It is interesting to observe that the section on actinomycosis provides but few references to the extensive American contributions made on this topic. The section on actinotherapy is more optimistic than the scientific observations made in this country seem to warrant. The editors have undoubtedly concerned themselves greatly with the condensation of the material, so that altogether the information here available is concentrated so as to be free from diffuse and unnecessary diction.

Each of the volumes is separately indexed, and an exhaustive analytical index is to be published in a separate volume when the entire series is completed.

**Roentgen Interpretation: A Manual for Students and Practitioners.** By George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital, and Howard E. Ruggles, M.D., Roentgenologist to the University of California Hospital. Fifth edition. Cloth. Price, \$5. Pp. 356, with 243 illustrations. Philadelphia: Lea & Febiger, 1936.

The fact that this manual could attain its fifth edition gives sufficient evidence of its value. It is a standard work of American x-ray literature. Written for students and practitioners, the volume is nevertheless of interest for the specialist too, because it is founded on the basis of the authors' wide experience and is not merely compiled from the bibliography. Hence the book gives the vivid impression of a personal, clinical study and not that of a laboratory guide. The language is short and clear. The illustrations, except for a few reprinted from former editions, are excellent. The short remarks about the clinical values of roentgenologic examinations, whether positive or negative, are valuable. The chapter concerning the spine is particularly good. A few remarks may be too subjective for a student's manual. One cannot agree that "triangular areas of filmy density are the earliest evidence" of a tuberculous involvement of the lungs. The opinion that scalloped contours of any involvements of the bones are characteristic of tuberculosis will not be shared by all roentgenologists. But such insignificant objections could be refuted by the authors if they would increase the extent of their manual to a complete textbook, and that is what we recommend for the next edition, in view of the impressive clinical knowledge of the authors.

**Radiothérapie gynécologique: Curie et roentgenthérapie.** Par R. Mathy-Cornat, radiologiste des hôpitaux. Pp. 60. Price, 60 francs. Pp. 369, with 81 illustrations. Paris: Masson & Cie, 1936.

This book, written by the radiologist of the Centre anticancéreux in Bordeaux, offers in a brief form to those who read French a convenient and comprehensive source of information regarding the present indications, accomplishments and limitations in the application of radiation therapy in the different diseases of the female genital organs and the breast. A brief chapter on the physics and biology of gynecologic radiotherapy, with a consideration of the clinically important facts, is followed by a discussion of the radiation treatment of benign lesions of the female genital organs, including functional disturbances, indications and methods of radiation sterilization, and inflammatory conditions of the female genital organs. The largest part deals with the treatment of malignant tumors and a final chapter with radiation treatment of cancer of the breast. The book is completely brought down to date. In some places it might even appear too modern, as it discusses methods that have not yet quite proved their value. In its general tenor the book is based on the leading ideas of the French school. The best parts are those founded on the author's own experience and the experience of the Paris school. The choice of the discussion of other methods and results seems somewhat arbitrary. Besides the value of this book as a brief textbook giving a critical and objective survey of the entire field, its chief value consists particularly in the excellent discussion of radiation therapy of uterine cancer. With these parts one can agree in every detail. The comprehensive and convenient compilation of the scattered material concerning the results of radiation therapy in cancer of the cervix in fair comparison to the surgical results might help to advance the knowledge of the true facts regarding the accomplishments of radiotherapy in uterine cancer, which are often not yet well enough known and appreciated. An extensive bibliography is appended.